Labor Market Assimilation of Recent Immigrants in Spain

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Abstract

This paper provides a preliminary analysis of the employment and occupational assimilation of recent immigrant waves to the Spanish labor market as their residencies lengthen. Using Spanish data from the 2001 Population Census and the 2002 Earnings Structure Survey, we find evidence of immigrant employment and occupational assimilation significantly varying by gender, origin and educational attainment.

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1. Introduction

Migration remains nowadays one of the most important topics of interest in Population Economics. Academic research regarding migration has concentrated on the following issues: (a) the effect of immigrant on natives, (b) migration policy, (c) the determinants of migration, and (d) assimilation of migrants. The study herein is focused on the last of these four topics. In this regard, and since the seminal work of Chiswick (1978), a great deal of attention has been dedicated to assessing the labor market performance of immigrants relative to that of natives as they integrate to their host country. This is undoubtedly an important issue from both a social and economic point of view for every country with a non-negligible immigration rate. In the case of Spain, where immigration has been increasing at an impressive pace during the past decade, a better understanding of how immigrants assimilate as their residence lengthens becomes crucial.

Preliminary findings by Chiswick (1978) for the United States found that while immigrants earned significantly less than natives upon their arrival, they caught up with natives in terms of earnings as they integrated in the host country. Chiswick (1978) used cross-sectional studies and compared the earnings of immigrants relative to natives of different cohorts. However, these findings were later questioned by Borjas (1985, 1995) on the basis that cross-section studies assumed that the quality of immigrants across cohorts did not change; an assumption that Borjas (1985) refuted. Borjas showed that the quality of immigrants in the U.S. had declined over the decades and, as a result, assimilation was not taking place as rapidly as Chiswick (1978) suggested. Additional studies examining the assimilation of immigrants to countries other than the United States

include Longva and Raaum (2001) for Norway, Hartog and Winkelmann (2002) for the Netherlands, Bevelander and Nielsen (2000) for Sweden, Constant and Massey (2003) for Germany, Wheatly Price (1999) and more recently Clark and Lindley (2005) for the U.K., among others. As of today, there is no empirical study on the labor market assimilation of immigrants in Spain.

This paper attempts to fill up this gap by focusing on two aspects of the labor market assimilation of immigrants. First, we examine immigrants' employment assimilation as captured by changes in the employment probability differential between similar immigrants and natives as immigrants' stay in Spain lengthens. This issue has been treated, among others, by Bevelander and Nielsen (2000) in Sweden and Wheatley Price (1999) and Clark and Lindley (2005) in the U.K. Secondly, we look at the assimilation occupation-wise of employed immigrants. We rank occupations on the basis of their average earnings according to the 2002 Spanish Earnings Structure Survey. Subsequently, we analyze immigrants' occupational assimilation as their residencies in Spain lengthen relative to similarly skilled natives. The analysis is carried out separately by gender so as to uncover differences in the economic adaptation of male and female immigrants. In addition, we differentiate immigrants according to their place of origin. In Spain, ninety percent of immigrants originate from Europe (from a EU15 country member or not), Africa and Latin America.

The paper is organized as follows. The next section describes the recent trends in immigration in the Spanish case and provides a general characterization of recent immigrants. Section 3 discusses the methodology and section 4 describes the data used for the analysis. Section 5 presents the results and section 6 concludes the study.

2.   Immigration in Spain

2.1.   Recent Immigration Trends

Spain has been traditionally a country of emigrants. During the 1850-1953 period, approximately 3.5 million Spaniards left for the Americas from regions such as Galicia, Asturias and the Canary Islands. Argentina, Uruguay, Brazil and Cuba were some of the most popular destinations of these emigrants. Spanish migrants also went to Africa from areas such as Murcia and the Balear Islands, although to a lesser extent. However, Spain witnessed some significant changes in its migration patterns during the 20th century. First, about 74 percent of Spanish emigrants chose Northern Europe as their destination between mid 1950s and mid 1970s. Second, from the mid 1970s onwards, Spain became the host country of foreign laborers from Northern Africa and Latin-America. Out migration diminished during the international economic crisis of the early seventies, whereas immigration grew at a steady pace. The transition from an immigrant-sending to an immigrant-receiving country was the byproduct of a larger shift in regional migration patterns. By the late 1980s and early 1990s, Mediterranean countries, such as Spain, Portugal and Italy, became immigrant-receiving nations due to a variety of factors, such as: (1) their geographical proximity to immigrant-sending regions, e.g. Africa; (2) the barriers to immigration in traditionally immigrant-receiving nations during the 1950s, 1960s, and part of the 1970s, as it was the case in Germany, Switzerland and France; and (3) the improved economies of Mediterranean countries.

The largest immigration flow has taken place from the mid nineties onwards. Immigrants from Europe, Africa and Latin America account for approximately 92 percent of all recent immigrants. Figure 1 shows the changing composition of the immigrant

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stock from 1995 to 2004.[1] Although Europeans used to account for half of all immigrants in 1995, the stock of immigrants from Latin American and Africa has increased at a faster rate after the year 2000, catching up with the stock of European immigrants by the year 2004.

These recent and growing immigrant flows pose some questions regarding their assimilation to the Spanish labor market. A better understanding of these two aspects of immigrants' economic integration is, indeed, crucial in the development of social policies facilitating the integration of these newcomers to the Spanish society. However, we first discuss some of the key features of Spanish immigration law during the period covered by our analysis, i.e., 1997-2001.

2.2. Key Features of Spanish Immigration Law

The first piece of legislation regulating immigrant rights in Spain was passed on July 1985 when immigration flows were still small relative to those of EU nations like Germany, France or Belgium. That law regulated relatively restrictive entry criteria for immigrants, such as short lasting residence and work permits. Additionally, despite paying social security taxes when employed, the law did not recognize immigrants the right to enjoy any social benefits. In an attempt to update the legislation, a new law, Law 8/2000, was approved by Congress in the year 2000. The new law addressed the regulation of new entry and work permit criteria similar to those in place in other EU country members. However, extraordinary immigrant regularizations or amnesties granted by the government have emerged as the most common via of getting work permits during the past two decades following the regularizations of 1986, 1991, 1996,

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[1] Figure 1 refers to the stock of immigrants with residence permits in each of the plotted years.

and the year 2000. In fact, a total of 400,000 immigrants regularized their statuses

between 2000 and 2002. In order to become legal aliens, immigrants had to provide

proof of one of the following: (1) residence since June 1, 1999, (2) having held a work

permit anytime during the three year period preceding February 1, 2000, (3) being denied

asylum before February 2000, (4) having applied for any type of residence permit before

March 30, 2000, or (5) family ties to legal residents or to individuals in any of the

previous circumstances.

How may have the year 2000 amnesty factored in our data? It is hard to predict

given the lack of individual level information on who benefited from these amnesties and

at which point in time. Given the broadly defined group of undocumented immigrants

that could have adhered to these two amnesties, we would expect that the vast majority of

these undocumented immigrants with at least 1 year of residence in Spain in our sample

may have benefited from the 2000 generalized amnesty. Yet, not all immigrants in our

sample are undocumented. In fact, as we discuss in the data section, undocumented

immigrants are likely to be underrepresented in the Census. Therefore, although the

estimated employment and occupation-wise assimilation rates of recently arrived

immigrants could be biased upwards, it is difficult to gauge the extent to which this may

be a problem in our case as this would require knowledge of the fraction of immigrants

who are undocumented and the percentage of them who benefited from the year 2000

amnesty. Furthermore, the aforementioned bias would most likely affect the estimated

assimilation rate of immigrants during the first year following migration but not

necessarily the year-to-year differences in assimilation rates thereafter.

3.   Methodology

The purpose of this study is to examine the assimilation process of recent immigrant waves to the Spanish labor market. We focus on two crucial aspects of labor market assimilation as is the case with employment and occupational attainment of immigrants relative to natives as their residence lengthens. With this intent, we confine our analysis to working-age individuals. Once searching, immigrant i will work if the offered market wage, w_i, exceeds the reservation wage, w_i^r. We can thus define the following index function:

(1) $I_i = w_i - w_i^r = X_i \beta + \varepsilon_i$

where if $I_i > 0$, the individual will choose to work and s/he will remain unemployed otherwise. Consequently, the employment likelihood is given by:

(2) $P_i = \Pr(I_i > 0) = \Pr(\varepsilon_i > -X_i \beta)$ where: $\varepsilon_i \sim N(0,1)$,

where X_i is a vector of socioeconomic characteristics affecting labor market earnings, such as: age –a proxy for labor market experience, marital status and relationship to the household head, educational attainment, and region of residence.

Our main interest rests on the estimated employment probability of immigrants relative to native-born individuals, which can be assessed by including an immigrant dummy in the vector X_i. Additionally, we are interested in learning about immigrant's assimilation occupation-wise relative to natives as their residence lengthens. Immigrants accumulate country specific human capital –including language skills for those originating from non-Spanish speaking countries– as the number of years elapsed since migration increases. Therefore, the vector X_i also incorporates information on

immigrants' years of residence in Spain to capture the expected positive correlation between years since migration and the employment likelihood of immigrants.

However, as pointed out by Borjas (1985), a single cross-section estimation of equation (2) will not help us assess the employment assimilation of immigrants unless it is assumed that the *quality* of immigrant cohorts has remained unchanged. This is not an unrealistic assumption in the Spanish case given the recent nature of Spanish immigration. Up to the mid 1970s, Spain had experienced more out-migration than immigration. In fact, the vast majority of immigrant flows have occurred during the late 1990s and early in the 21st century, resulting in a relatively short period of time for the quality of immigrant cohorts to have substantially differed. Nevertheless, we restrict our analysis to working age immigrants with no more than five years of residence in Spain as of 2001. This amounts to considering immigrants arriving in 1997 or later; an immigrant stock that accounts for approximately 60 percent of all immigrants.[2] As such, we avoid including immigrants who may have been affected by the 1996 amnesty and lessen any deterministic biases created by return migration.[3] Finally, we check that immigrants in the various cohorts are similar in terms of their *quality* as captured by some basic demographic characteristics. According to the figures in Table 1, our various cohorts of immigrants do not differ much in terms of age and educational attainment –both proxies of their *quality*. Yet, differences in educational attainment increase as we add more cohorts; hence, we avoid including additional immigrant cohorts.

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[2] Adding those immigrants who arrived during the first half of the nineties would only increase the fraction of overall immigrants by 12 percentage points.

[3] It is worth noting that the direction of the biases caused by return migration is not always obvious. On the one hand, it is possible that migrants who experience hardships upon arrival to the host country are the ones returning home. Alternatively, it may be the case that these migrants are the ones encountering a greater difficulty to return to their distant countries. As such, they are the ones to stay longer relative to more successful migrant who may choose to go back to their countries after successfully working and saving enough money in the host country.

Using the simple described above, we estimate equation (2) by gender to address their differential employment patterns as evidenced by post-estimation likelihood-ratio tests. Subsequently, we use the coefficient estimates from equation (2) to derive the predicted employment probabilities for a representative immigrant and native, $\hat{P}_I$ and $\hat{P}_N$ respectively, evaluated at the average individual characteristics ($\overline{X}$) of immigrants and natives, respectively. We also report the predicted employment probabilities for immigrants if they had the same characteristics as natives. In this manner, we are able to more accurately report differences in the employment likelihood of natives relative to immigrants net of any differences in their observed skills or qualifications. The following term gives an estimate of immigrants' assimilation to natives in terms of their employment likelihood, $\hat{P}$, as their residencies lengthen:

(3) $\hat{P}_{I,5yrs} - \hat{P}_{I,0yrs} = \left(\hat{P}_N - \hat{P}_{I,0yrs} \right) - \left(\hat{P}_N - \hat{P}_{I,5yrs} \right).$

Yet, the figures from equation (3) do not enable us to assess the quality of the job found as reflected, for instance, by its occupational rank. There is no easy way to rank occupations since many job attributes are difficult to compare. While cognizant of this limitation, we assume that it is possible to rank occupations based on their remuneration. This assumption allows us to work with a variety of occupations and a simple framework according to which, once employed, the probability that immigrant i's occupation has rank $k=j$ is given by the probability that the score –estimated as a linear function of the migrant's personal characteristics and returns at various occupational ranks– plus the random error is within the range of cutoff points estimated for that specific rank j as follows:

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(4) $\Pr\left(rank\ of\ occupation_i = j\right) = \Pr\left(k_{j-1} < X_{1i}\alpha_1 + ... + X_{Ki}\alpha_K + v_i \leq k_j\right)$

where $k=1,...j,...K$ is the number of possible ranks in the model. Since the Population

Census lacks information on workers' earnings, we use data from the 2002 Spanish

Earnings Structure Survey to devise an occupational ranking.[4] In particular, we assign

the lowest rank order ($k=1$) to the occupation with the lowest average hourly wage and

assign the highest rank order ($k=K$) to the occupation with the largest average hourly

wage. Assuming that the vector v_i in equation (4) is assumed to be logistically

distributed according to an ordered logit, we can estimate equation (4) as an ordered logit.

The vector X_i contains a dummy for foreign-born as well as information on years of

Spanish residency. Therefore, we are able to explore how immigrants assimilate to

natives in terms of their occupational attainment as well as immigrants' occupational

mobility. Given the revealed employment differences between immigrants and natives

by gender and immigrant origin, this analysis is also carried out separately by gender and

by immigrant origin. To facilitate the interpretation of the results, we report the odds

ratios computed as:

$odds\left(rank\ of\ occupation_i = j\right) = P\left(rank\ of\ occupation_i > j\right)/P\left(rank\ of\ occupation_i \leq j\right)$

Odds ratios are the ratios of the odds in two groups of interest. If the odds ratio is, for

example, 0.75, it means that the outcome is 25 percent less likely among immigrants

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[4] While the Census contains individual level data on the occupation held by each worker, it lacks information on their wages. The latter would have to be imputed from the Spanish Earnings Structure Survey after averaging out wages for workers within each occupational category. Because using the imputed aggregate wage information would introduce considerable measurement bias into our dependent variable, we instead devise an occupational ranking used to assign each individual in the Census a number according to their occupation. This ranking becomes our dependent variable and is intended to be indicative of how each individual's occupation is ranked using average earnings instead of the earnings of that particular individual.

relative to natives. In contrast, an odds ratio of 1.33 means that the outcome is 33 percent more likely among immigrants than natives.

4. Data and Some Descriptive Statistics

4.1. The Data

We use data from the 2001 Population Census. The Census has the advantage of, in principle, interviewing all immigrants independent of their legal status. Nonetheless, we are aware that an important fraction of unauthorized immigrants may not fill in the questionnaire and, as such, this group is likely to be under-represented in the Census. The 2001 Population Census was fielded by the Spanish Institute of Statistics during the last term of 2001. Around 13 million households and 40 million individuals were interviewed. The Census gathers information on personal and demographic characteristics (such as age, education, marital status, relationship to the household head, or province) and job characteristics (such as work status, occupation, and industry). Additionally, the Census collects information on the country of origin and on the number of years elapsed since entry.

However, the Census is succinct with respect to the list of variables for which data are compiled. For instance, it lacks information on where respondents completed their schooling; as such, we are left to assume that, for our group of recent migrants, this is likely to have taken place in their countries of origin. Additionally, the Census does not contain any data on language skills, on the type of employment (i.e. full-time vs. part-time) or on the nationality of respondents' parents and grandparents. As such, for the purposes of this study, immigrants are defined as individuals reporting a foreign nationality.

Our sample consists of working age individuals on account of our interest in assessing immigrant assimilation to alike natives in terms of employment and occupational attainment. Moreover, in order to ensure the comparability of immigrants' performance in terms of cohort *quality*, we focus on recent immigrants with up to five years of residence in Spain, who accounted for almost 60 percent of the immigrant stock in 2001.

Finally, given the lack of information on labor earnings in the Population Census, we extract average hourly wage data for each of the occupations in the 2002 Earnings Structure Survey –known by its acronym of EES-02. The EES-02 contains individual information on 169,520 full-time workers (117,161 men and 52,359 women) from 21,621 establishments. The EES-02 survey includes a random sample of establishments in the manufacturing, construction and service industries. In addition to establishment level information, the survey collects individual level data on gross hourly wages and occupations held by workers at the two-digit ISCO-88 level. As such, we are able to construct average hourly wages for each of those occupations and use that information to devise an occupational ranking as explained in the methodology section.

4.2. Native and Recent Immigrant Profiles

Table 2 displays some key features of the population object of study. On average, immigrants in our sample are 33 years old or about 5 years younger than their native counterparts. The incidence of household head status is about the same for native and most immigrant women. The exception is women from EU15 countries, forty percent of who are household heads relative to an average 21 to 27 percent in the case of other immigrants or natives, respectively. In the case of men, forty-nine of native men are

household heads relative to only 40 percent of immigrant men. Yet, as with EU15 women, this percentage reaches 66 percent when referred to men from EU15 countries.

Residence-wise, our sample of recent immigrants has been an average of 2 years in Spain. EU15 and African immigrants display the longest residencies (in the order of 2.1 to 2.2 years), whereas non-EU15 and Latino immigrants display the shorter residencies. Additionally, immigrant men display an educational attainment similar to that of their native counterparts. Only women seem to differ, with native women being, on average, more educated than their immigrant equivalents. Yet, we uncover significant educational differences across the various immigrant groups. For instance, more than 50 percent of African immigrants have no more than a primary education relative to approximately 25 to 30 percent of natives and most other immigrant groups. In contrast, twenty-seven percent of EU15 male immigrants have a university degree relative to 15 percent of male natives. The remaining immigrant groups display a significantly lower incidence of college education than comparable natives.

Lastly, immigrant and native men display similar employment rates, despite immigrant unemployment rates being approximately 6 percentage points higher, on average, than those of their native counterparts. In contrast, despite having similar unemployment rates, native women's employment rates are about 7 percentage points lower than those of their immigrant counterparts. By immigrant origin, immigrant men and women from the EU15 countries display significantly smaller employment rates than natives, yet their unemployment rates are rather similar. Something similar is observed for African women. These findings suggest that these immigrant groups may simply be

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less likely to join the workforce and, perhaps, more likely to pursuit other interests, such as studying or staying at home.

5.   Immigrant Labor Market Assimilation

5.1.   Immigrant Employment Assimilation

Tables 3a and 3b display the maximum likelihood estimates of equation (2) for men and women, respectively. The analysis is carried out separately by gender on account of the statistically significant differences between the male and female estimates from equation (2).[5] Additionally, we first carry out the analysis considering all immigrants together (column 1 in Tables 3a and 3b). Subsequently, we allow for different effects among the immigrant groups being considered (i.e. Europeans from the EU15 countries, Europeans from non-EU15 countries, Africans and Latinos) to learn about their specific employment assimilation as their time in Spain lengthens (columns 2 through 5 in Tables 3a and 3b).[6] In all instances, the comparison group is natives. Because we include dummy variables indicative of whether the migrant has been 1, 2, 3, 4 or 5 years in the country, the immigrant dummy simply reveals the differential employment likelihood of an immigrant (relative to a similar native) who has been in the country less than 1 year. If we want to learn about differences in the employment likelihood of immigrants who have been in Spain for 1 year, we would add the estimated coefficients for the immigrant dummy and for the dummy capturing the return to 1 year of Spanish residence.

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[5] The likelihood-ratio test that compares the male and female estimates for equation (2) is given by:
LR Chi-square (65) = 101058.45 with a corresponding Prob > Chi-square = 0.0000.
[6] Results from the likelihood ratio tests suggest that a joint regression is preferable to separate regressions using data from all natives and immigrants from a specific origin.

A couple of findings are worth discussing. First, immigrant men and women are significantly less likely to be employed than similar natives. On average, recent male and female immigrants (i.e. with less than one year of residence) endure a 15 percentage point and a 4 percentage point lower likelihood of employment than comparable natives, respectively. The magnitude of these employment gaps not only differs according to gender, but also depending on immigrants' origin. Specifically, immigrant men from the EU15 countries endure the largest employment gap with respect to similar natives, i.e. in the order of 32 percentage points. In contrast, African immigrants are only 8 percentage points less likely to be employed than comparable natives. Among women, recent immigrants from the EU15 countries continue to display the largest employment gap with respect to similar natives (in the order of 26 percentage points), whereas recently arrived Latino women are statistically (if not economically as the marginal effect is practically zero) more likely to be employed than alike natives. As we shall discuss in what follows, EU15 immigrants may either come to the country for other purposes, e.g. studying among in the case of immigrants from EU15 countries, or may hold higher reservation wages as a by-product of their household non-labor incomes or unobserved skill levels. In contrast, African men and Latino women may have lower reservation wages than other immigrant men and women and, as a result, may display a smaller employment gap with respect to similar natives. In those instances, further information regarding the type of employment held by those employed may serve as better indicators of immigrant assimilation than simple differences in their employment likelihood.

A second finding from the figures in Tables 3a and 3b refers to the assimilation rate of immigrants to natives as the number of years since migration lengthens. In this

regard, Tables 4a to Table 4c summarize some key findings. Specifically, according to the figures in Table 4a, the employability gap between native men and their immigrant counterparts narrows from 12 percentage points when immigrants first arrive to the country to about 2 percentage points five years later. Yet, the largest employment gap reduction occurs within the first year of residence, when the gap effectively disappears. As noted earlier in the paper, this fast assimilation rate observed during the first year after migration could be biased upwards due to the 2000 amnesty to which most undocumented immigrants with at least 1 year of residence in 2001 may have adhered to –even if the fraction of undocumented immigrants who benefited from the 2000 amnesty is just a small percentage of all immigrants in our sample. We also look at the year-to-year assimilation rate thereafter. In order to better do so, and because part of the employment gap between natives and immigrants may be explained by differences in their qualifications, we calculate the "counterfactual" predicted employment gap, i.e., assuming that immigrant men have the same observable characteristics of native men. This gap is reported in the last column of Table 4a. Not surprisingly, the predicted employment gap between natives and immigrants is then reduced to 9 percentage points from the 12 percentage point gap when their characteristics differ. In fact, immigrants, as a whole, are 2 percentage points more likely to be employed than similar natives one year after migration.

In addition to differences in their qualifications, immigrant assimilation in terms of employment also varies according to immigrants' origin. According to the last column of Table 4a, African men are actually more likely to be at work than alike native men since their arrival to the country once we compare similarly skilled individuals. Latino

men and their non-EU15 counterparts adjust rather quickly, with their employment disadvantage vanishing one year after migration –an effect that could be partially driven by the 2000 amnesty. Only immigrants from the EU15 countries continue to display a rather large employment gap with respect to similarly skilled natives five years after migration. To the extent that these immigrants are relatively well-educated (as displayed by the figures in Table 2) and probably enjoy the higher degree of skill transferability to the extent that they are in another EU country, these differences are suggestive of differences in their willingness-to-work with respect to other immigrant groups.

Table 4b informs on the employment assimilation of immigrant women, for whom assimilation appears to take place at a faster pace than for men. To start with, as a whole, immigrant women display the same employment likelihood than their native counterparts upon arrival. This similarity disappears over time as immigrant women become up to 7 percentage points more likely to be at work than their native equivalents five years after migration. As with men, once we account for differences in their skills or qualifications, native women are more likely to be employed than women from the EU15 countries. Yet, this initial discrepancy (of up to 20 percentage points) vanishes five years after migration. Native women are also 4 percentage points more likely to be employed than similarly skilled African women (i.e. last column of Table 4b); however, unlike EU15 women, African women continue to display a similar gap five years after arrival to the country. Finally, it is worth noting the widening of the employment differences between Latino women and women from non-EU15 countries with respect to native women. Specifically, Latino women and female immigrants from non-EU15 countries become up

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to 18 and 11 percentage points more likely to be employed than similarly skilled native women within the period of five years.

Finally, Table 4c displays the employment assimilation that takes place for each immigrant group over the course of five years. During that time period, immigrant men and women improve their employment likelihood by an average of 10 and 7 percentage points, respectively. As noted in the discussion of Table 4a, Latino men and immigrant men from countries outside the EU15 block assimilate at faster rates than the average immigrant, whereas immigrant men from other EU15 countries do so at a slower pace. Lastly, African men already display higher employment likelihoods than similar natives upon arrival, but they further accentuate their employment differences with respect to natives over time. Likewise, Latino women and their immigrant counterparts from the non-EU15 countries continue to widen their employment advantage with respect to native women at a relatively fast pace with time since migration. Yet, it is immigrant women from EU15 countries who assimilate at the fastest pace to natives by closing their employment gap by 15 percentage points. In contrast, African women endure the slowest adjustment rate to natives employment-wise.

What may be causing these differences in the employment rates displayed by the various immigrant groups? Given the limited information contained in the Census, we can only hypothesize as for why these differences exist based on the characteristics of each immigrant group. For instance, immigrants from EU15 countries may have higher household incomes and skill levels, both of which would raise their reservation wages and lower their employment likelihood with respect to natives as well as other immigrant groups. In contrast, African immigration may be fueled by economic need. If this is the

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case, African immigrants may be more likely to be at work than similarly skilled natives. Yet, their advancement may be slower than the one exhibited by other immigrant groups owing to differences in skill transferability (on account of greater disparities between the Spanish and the African educational systems) or to discrimination. Finally, the faster employment assimilation of Latino immigrants with respect to the assimilation pace of immigrants from the non-EU15 countries could be explained by unobserved differences in language skills between the two groups –after all, Latinos often originate from Spanish speaking countries.

5.2.   Immigrant Assimilation in Terms of Occupational Attainment and Mobility

5.2.1. Some Descriptive Evidence by Gender and Educational Attainment

The results from Tables 2 through 4 indicate that immigrants are, indeed, less likely than similarly skilled native-born individuals to be employed. However, assimilation does seem to occur, with the likelihood to find a job increasing with the time spent in Spain. However, in some instances, as is the case with immigrants from the EU15 countries, lower employment likelihoods may not be indicative of poor assimilation if immigrants are choosing to take high quality jobs.

In order to make some inferences about the quality of the jobs held by immigrants in our sample, we have first ranked all occupational categories displayed in the 2002 Census in terms of their aggregate average hourly wage. Due to the lack of information on labor earnings in the Census, we use average hourly wages for each of the occupational categories of interest from the 2002 Spanish Survey on the Structure of Earnings. Given their small number of observations, some occupations are bundled together to ensure that all categories have, at the minimum, two percent of the overall

number of immigrants in the Census sample.[7] Altogether, our ranking of occupations takes values ranging from 1 to 22 in the case of men and from 1 to 17 in the case of women, with the worst paid occupation taking the value of 1.

Table 5 presents the mean occupational rank for natives and immigrants in our sample. In the latter case, we distinguish according to immigrants' origin and length of residence in Spain. Native men occupy higher ranked jobs than immigrants as a whole, even when compared to immigrants with five years of residence. Yet, origin-wise, EU15 male immigrants work, on average, in higher ranked occupations than their native counterparts and, perhaps as a byproduct of their higher rank, they do not experience as much upward occupational mobility as other immigrant groups. In contrast, African men not only perform worse than native men occupation-wise but, furthermore, experience the least upward mobility. As their male counterparts, native women hold, for the most part, higher ranked occupations than most immigrant women –the exception being EU15 women. In contrast, African women work at lower ranked occupations than native women and endure a practical lack of upward occupational mobility.

Further descriptive evidence on native and immigrant occupational attainment is provided in Figure 2 through Figure 9. These figures display the occupational distribution of natives, recent immigrants (with zero or one year of residence) and less recent immigrants (with four or five years of residence). The ranking of occupations is measured in the X-axis. Figures 2 through 5 display the occupational distribution of all men and of men with varying educational attainment (primary, secondary, and university). Figures 6 through 9 do the same for working women. Distinguishing men's and women's occupational attainment according to their educational background is of

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[7] Bundling is always done with the next higher ranked occupational category.

interest as we should expect assimilation rates to be inversely related to educational

attainment. Overall, Figures 2 through 9 convey the following key facts:

- Gender-wise: Native men display a higher occupational attainment than

immigrant men (see Figure 2). Nonetheless, the fact that non-recent immigrants are

better-off occupation-wise than their recent counterparts suggests the existence of some

upward occupational mobility as immigrants' residencies lengthen. Similar patterns are

observed for women in Figure 6, with the exception that, relative to men, working

women are significantly segregated into lower paid occupations.

- Education-wise: Assimilation seems to take place at a slower pace for less

educated immigrant men than for their more educated male counterparts (compare

Figures 3 and 5). Likewise, Figures 8 and 9 seem to reveal the existence of greater

upward occupational mobility among more highly educated women.

5.2.2. Regression Based Findings on Immigrant Occupational Assimilation

The descriptive evidence hints at the lower occupational attainment on the part of

immigrants relative to natives; yet, there seems to exist some evidence of occupational

mobility on the part of immigrants, particularly highly educated migrants. In light of the

previously found gender differences in employment patterns, we estimate equation (4)

separately for men and women. Additionally, we estimate our model separately by

respondents' educational attainment.[8] The model is first jointly estimated for natives and

all immigrants together. Subsequently, with the intent of gauging the potential impact

that time spent in Spain may have on immigrants' occupational assimilation according to

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[8] We examine the appropriateness of a joint estimation versus separate estimations by natives and
immigrants' educational levels. The likelihood ratio test gives the following statistic: Chi-square (160) =
247319.28 with Prob > Chi-square = 0.0000. Therefore, we proceed to estimate the model separately by
educational attainment.

their origin, we re-estimate the model allowing for different effects for each group of immigrants. The comparison group continues to be natives. The estimation is carried out via an ordered logit. We report the estimated odds ratios for the dummies capturing years elapsed since migration to assess the degree of occupational assimilation as immigrants' residencies lengthen. Table 6a displays the estimated odds ratios for men's (top panel) and women's (bottom panel) occupational assimilation. Subsequently, Table 6b and Table 6c explore differences in the occupational assimilation rates of men and women with varying educational attainment.[9] As with the analysis of immigrant employment assimilation, because the analysis includes dummy variables indicative of whether the migrant has been 1, 2, 3, 4 or 5 years in the country, the immigrant dummy simply reveals the odds of holding a higher ranked occupation (versus a lower ranked occupation) of an immigrant (relative to a similar native) who has been in the country less than 1 year. If we want to learn about how these odds change for an immigrant who has been in Spain for 1 year, we need to multiply the estimated odds for the immigrant dummy and the dummy capturing the return to 1 year of Spanish residence as we shall illustrate in what follows.

A)   Occupational Assimilation by Gender

According to the odds ratios in Table 6a, male and female immigrants display a lower occupational attainment than their native counterparts. Specifically, relative to natives, the odds of holding a higher ranked occupation (versus a lower ranked occupation) are 71 percent lower (i.e. (0.293-1)=-0.707) for male immigrants and 82 percent lower (i.e. (0.179-1)=-0.82) for female immigrants. Yet, the figures for all

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[9] Due to the small sample sizes, we are unable to carry out the regression analysis for male and female immigrants with a university degree.

immigrants in column 1 also provide evidence of upward occupational mobility as immigrants' Spanish residencies lengthen. In particular, male and female immigrants with five years of residence improve their occupational attainment relative to natives as evidenced by the fact that they only endure a 57 percent (i.e. [(0.293*1.471)-1]=-0.569) and 61 percent (i.e. [(0.179*2.196)-1]=-0.607) lower likelihood of holding a higher ranked occupation, respectively.

B) **Occupational Assimilation by Immigrant Origin**

Are there significant differences in the occupational attainment and mobility of immigrants by origin? Columns 2 through 5 in Table 6a address this question. A few findings are worth emphasizing. First, there are significant differences in the occupational attainment of immigrant men and women relative to similarly skilled natives with the exception of EU15 immigrants. Indeed, immigrant men and women from any of the countries in the EU15 block enjoy alike occupational achievements to those of similarly skilled natives. This similarity between the two groups may be, in part, due to greater skill transferability across European countries as evidenced by some long established educational exchange programs, e.g. ERASMUS. A second finding worth noting is the overall lack of occupational assimilation among African men and women. In particular, African women endure the lowest occupational attainment of all other immigrant groups upon arrival. As noted earlier in the paper, the slow labor market assimilation of African immigrants could be due to a variety of factors ranging from skill transferability difficulties to discrimination. Finally, it is worth emphasizing the occupational assimilation of other immigrant groups, such as European immigrants from outside the EU15 block and, specifically, Latino immigrants. Both of these immigrant

groups display evidence of upward occupational mobility as their residencies lengthen and they acquire Spanish specific skills.

C) **Occupational Assimilation by Educational Attainment**

As noted earlier, immigrant occupational assimilation may vary according to their human capital. We display the estimated odd ratios for men's (top panel) and women's (bottom panel) occupational assimilation when they have primary and secondary schooling in Tables 6b and 6c, respectively. Immigrants endowed with a lower educational attainment may take a longer time to assimilate to their native counterparts occupation-wise than more educated migrants. This appears to be the case when we compare the occupational assimilation of immigrants with primary (Table 6b) to that of immigrants with a secondary education (Table 6c). Specifically, male immigrants with a primary education are still 68 percent less likely than similar natives to hold a higher ranked occupation (versus a higher ranked occupation) five years after migration (i.e. $[(0.281*1.135)-1]=-0.681$). In contrast, their counterparts with a secondary education are just 51 percent less likely than similar natives (i.e. $[(0.277*1.754)-1]=-0.514$) to hold a higher ranked occupation after five years of residence in Spain. A similar result is observed when we compare the performance of male immigrants from non-EU15 countries or that of Latinos with a primary and a secondary education, respectively.

Yet, occupational assimilation seems to occur at a slower pace for more educated female immigrants relative to their less education counterparts. Specifically, female immigrants with a primary education are 54 percent (i.e. $[(0.316*1.46)-1]=-0.539$) less likely than alike natives to hold a higher ranked occupation five years after migration. As such, they enjoy a higher occupational assimilation to similar natives than their female

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migrant counterparts with a secondary education who, five years after migration, still endure a 67 percent (i.e. [(0.148*2.210)-1]=-0.673) lower likelihood of holding a higher ranked occupation than alike natives. Differences in the occupational assimilation of male and female immigrants by educational attainment could be, in part, due to existing gender differences in the schooling received back home and in the occupations immigrants hold in Spain.

5.2.3. Occupational Assimilation or Immigrant Selection via Return Migration?

Before concluding our discussion on the occupational assimilation of immigrants relative to similarly skilled natives, it is worth discussing the potential role played by return migration. Given the cross-sectional nature of the data, it is possible that the upward occupational mobility associated to longer residencies in the host country is the by-product of a positive immigrant selection taking place via return migration (Dustmann, 1999, 2000). Yet, the potential role of return migration in biasing our assimilation estimates is uncertain for a couple of reasons. First, as of today, there is an ongoing debate in the literature as to the sign of the immigrant selection possibly taking place via return migration. On the one hand, it is often argued that successful immigrants are the ones choosing to stay in the host country (e.g. Borjas 1989). Yet, in some instances, successful immigrants return to their home countries upon achieving a savings goal, as in the case with 'target savers' who migrate in order to make enough money to build a home in their home country or to retire (e.g. Berninghaus and Seifert-Vogt 1993). To the extent that both cases of immigrant selectivity may be taking place, various studies have been unable to conclude whether return migration results in a positively or negatively selected sample of host country stayers (Constant and Massey 2003, Hunt

2004). Nonetheless, since immigrants appear to be performing quite well after their arrival, they are unlikely to return to their home countries unless they are 'target savers'. Therefore, we would be, most likely, underestimating immigrant assimilation rates. Furthermore, our focus on relatively recent migrants with up to five years of residence diminishes the role of return migration. Consequently, it is unclear the role played by return migration in the assimilation estimates of recent immigrants in Spain.

6.   Summary and Conclusions

This paper provides a preliminary analysis of the assimilation of recent immigrant waves to the Spanish labor market in terms of their employment likelihood, occupational attainment and occupational upward mobility as their residencies lengthen. We rely on data from the 2001 Population Census and on wage information from the 2002 Earnings Structure Survey. Several conclusions can be withdrawn from the analysis. First, immigrant men and women appear significantly less likely to be employed than similarly skilled natives. The employment gap varies by gender (from 15 percent for men to 4 percent for women) as well as by immigrants' origin. In particular, immigrant men from non-EU15 countries endure the largest employment gap with respect to similar natives, i.e. in the order of 32 percentage points. In contrast, African immigrants are only 8 percentage points less likely to be employed than comparable natives. Among women, recent immigrants from the EU15 countries are 26 percentage points less likely to be employed than similar natives, whereas recently arrived Latino women are statistically more likely to be at work than alike natives. Differences in the employment assimilation of various immigrant groups can be due to a variety of factors. Specifically, immigrants from the EU15 countries may be more likely than other immigrant groups to come to

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Spain for purposes other than work, such as studying. Alternatively, some EU15 immigrants may have higher reservation wages if they originate from richer countries or if they enjoy a greater degree of skill transferability on account of similarities between the educational systems in the EU than other immigrant groups. In contrast, Africans may primarily migrate to look for employment. They may also have lower reservation wages owing to greater earnings differentials between Spain and their home countries or enjoy a lesser degree of skill transferability than their EU15 counterparts. At any rate, we find that immigrants' employment likelihood varies by immigrant origin, with the employment gap closing at a faster rate for Latino men and EU15 women, perhaps due to their Spanish proficiency and higher skill transferability, respectively.

Second, the occupational attainment of EU15 immigrants seems on par with the one achieved by similarly skilled natives. However, there exists evidence of an occupational attainment gap between other non-EU15, African, and Latino immigrants and their native counterparts. The data also seem to support the notion of upward occupational mobility and assimilation on the part of non-EU15 and Latino immigrants as their Spanish residencies lengthen. However, we find no clear pattern of occupational assimilation in the case of African immigrants, which could be linked to skill transferability reasons, language proficiency, and/or labor market discrimination. We also examine differences in the occupational assimilation patterns of immigrants depending on their educational attainment. Not surprisingly, we find that low educated male immigrants with lesser human capital experience a slower occupational assimilation process than their counterparts with a secondary education. However, this pattern is only observed in the case of male immigrants, suggesting the existence of gender differences

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in the educational and occupational attainment of immigrants and natives possibly driving the different role played by education in explaining male and female immigrant assimilation.

From a policy perspective, the analysis reveals the need to play close attention to immigrant groups displaying greater assimilation difficulties, as is the case with Africans, in order to prevent marginalization and subsequent social tensions (e.g. recent immigrant riots in France). The offering of training programs that allow these immigrants to more easily transfer their human capital and acquire Spanish specific skills possibly sought by employers could prove useful in facilitating their adaptation.

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Table 1
Immigrant Quality by Years since Entry: Means and 95% Confident Intervals (in parentheses)

| | **Years Since Entry** | | | | | |
	0	**1**	**2**	**3**	**4**	**5**
Age	32.2	32.3	32.8	33.9	34.1	35.6
	(31.9 32.4)	(32.0 32.5)	(32.6 33.0)	(33.6 34.2)	(33.6 34.5)	(35.1 36.1
Education (%)						
Less that Primary	0.10	0.10	0.13	0.14	0.15	0.14
	(.090 .104)	(.097 .11)	(.122 .137)	(.134 .155)	(.135 .161)	(.123 .151)
Primary	0.18	0.19	0.20	0.19	0.19	0.20
	(.17 .19)	(.181 .197)	(.193 .211)	(.184 .207)	(.174 .203)	(.183 .216)
Secondary	0.58	0.58	0.54	0.52	0.51	0.51
	(.57 .592)	(.565 .585)	(.527 .549)	(.501 .531)	(.491 .528)	(.489 .531)
University	0.14	0.13	0.13	0.14	0.15	0.15
	(.128 .142)	(.124 .138)	(.121 .136)	(.132 .152)	(.138 .165)	(.137 .167)
N	8854	9087	7626	4654	2773	2249

Table 2
Descriptive Statistics of the Sample: Means and Standard Deviations (underneath)

	Natives		Immigrants		EU15		Non-EU15		Africa		Latinos	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Age	37.9	38.4	32.7	33.1	41.2	41.2	32.7	32.6	29.9	30.2	31.8	32.0
	13.3	13.4	10.2	10.6	13.1	13.5	9.6	10.1	7.93	9.29	9.16	9.4
Head of Household	0.49	0.26	0.40	0.27	0.66	0.40	0.39	0.27	0.36	0.21	0.34	0.27
	0.50	0.43	0.49	0.44	0.47	0.49	0.49	0.44	0.47	0.41	0.47	0.44
Married	0.53	0.57	0.46	0.48	0.50	0.53	0.55	0.56	0.37	0.60	0.47	0.43
	0.50	0.49	0.50	0.49	0.50	0.50	0.50	0.50	0.48	0.49	0.50	0.49
Years since Entry	37.96	38.44	1.70	1.74	2.09	2.17	1.50	1.53	2.05	2.16	1.37	1.56
	13.29	13.36	1.45	1.51	1.64	1.67	1.31	1.36	1.49	1.56	1.30	1.45
Education												
Less than Primary	0.07	0.045	0.14	0.10	0.03	0.03	0.09	0.07	0.33	0.35	0.06	0.06
	0.26	0.206	0.34	0.30	0.17	0.16	0.28	0.25	0.47	0.48	0.24	0.24
Primary	0.20	0.140	0.20	0.18	0.11	0.11	0.19	0.17	0.29	0.25	0.19	0.18
	0.40	0.347	0.40	0.38	0.31	0.31	0.39	0.38	0.45	0.43	0.39	0.38
Secondary	0.58	0.559	0.53	0.58	0.59	0.63	0.61	0.59	0.33	0.35	0.61	0.62
	0.49	0.497	0.50	0.49	0.49	0.48	0.49	0.49	0.47	0.47	0.48	0.48
University	0.15	0.256	0.14	0.14	0.27	0.23	0.11	0.17	0.06	0.05	0.14	0.14
	0.35	0.437	0.33	0.35	0.44	0.42	0.31	0.37	0.22	0.22	0.34	0.35
Work Status												
Employed	0.72	0.45	0.71	0.52	0.57	0.35	0.75	0.56	0.74	0.36	0.74	0.59
	0.44	0.50	0.45	0.50	0.49	0.47	0.43	0.49	0.44	0.48	0.44	0.49
Unemployed	0.09	0.11	0.15	0.13	0.11	0.10	0.16	0.14	0.17	0.13	0.16	0.13
	0.28	0.30	0.36	0.33	0.31	0.29	0.36	0.35	0.37	0.33	0.37	0.33
OLF	0.19	0.44	0.14	0.35	0.32	0.55	0.09	0.30	0.09	0.51	0.10	0.27
	0.38	0.50	0.34	0.47	0.47	0.49	0.29	0.46	0.29	0.50	0.30	0.45
N	657670	655367	18468	16775	2575	2242	2636	2299	4850	2138	7625	9583

Table 3a
Probit of the Likelihood of Being Employed of Immigrant Men Relative to Natives
Coefficients, (S.E), [Marginal Effects]

Years Since Entry	All Immigrants	EU15	Non-EU15	Africa	Latinos
Immigrant	-0.447***	-0.857***	-0.467***	-0.246***	-0.425***
	(0.021)	(0.06)	(0.058)	(0.050)	(0.03)
	[-0.153]	[-0.315]	[-0.162]	[-0.080]	[-0.146]
Immigrant 1 Year	0.281***	0.195***	0.275***	0.171***	0.332***
	(0.03)	(0.08)	(0.080)	(0.070)	(0.04)
	[0.075]	[0.054]	[0.074]	[0.048]	[0.087]
Immigrant 2 Years	0.388***	0.215***	0.311***	0.324***	0.472***
	(0.03)	(0.083)	(0.087)	(0.067)	(0.05)
	[0.099]	[0.059]	[0.082]	[0.085]	[0.116]
Immigrant 3 Years	0.403***	0.190***	0.588***	0.395***	0.489***
	(0.04)	(0.086)	(0.113)	(0.076)	(0.07)
	[0.102]	[0.053]	[0.136]	[0.100]	[0.119]
Immigrant 4 Years	0.334***	0.315***	0.300***	0.399***	0.335***
	(0.05)	(0.101)	(0.147)	(0.09)	(0.08)
	[0.088]	[0.083]	[0.080]	[0.107]	[0.088]
Immigrant 5 Years	0.214***	0.202***	0.577***	0.226***	0.322***
	(0.05)	(0.100)	(0.161)	(0.09)	(0.10)
	[0.059]	[0.056]	[0.134]	[0.062]	[0.085]
No. of Observations			676138		
Wald Chi2 (64)	135138.37		135215.06		
Prob > Chi2	0.0000		0.0000		

Notes: The regressions include controls for age, age^2, household head status, marital status, educational attainment, province of residence, and a constant term. An immigrant with less than 1 year of residence in Spain is used as the category of reference. *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better.

Table 3b
Probit of the Likelihood of Being Employed of Immigrant Women Relative to Natives
Coefficients, (S.E), [Marginal Effects]

Years Since Entry	All Immigrants	EU15	Non-EU15	Africa	Latinos
Immigrant	-0.110***	-0.763***	0.003	-0.344***	0.002
	(0.02)	(0.07)	(0.057)	(0.07)	(0.03)
	[-0.043]	[-0.259]	[0.000]	[-0.129]	[0.000]
Immigrant 1 Year	0.260***	0.187**	0.141**	0.298***	0.274***
	(0.03)	(0.10)	(0.08)	(0.10)	(0.04)
	[0.103]	[0.074]	[0.055]	[0.118]	[0.109]
Immigrant 2 Years	0.232***	0.282**	0.188***	0.222*	0.285***
	(0.032)	(0.11)	(0.08)	(0.09)	(0.04)
	[0.092]	[0.112]	[0.074]	[0.088]	[0.113]
Immigrant 3 Years	0.145***	0.126	0.138	0.237***	0.222***
	(0.04)	(0.10)	(0.105)	(0.09)	(0.05)
	[0.057]	[0.050]	[0.055]	[0.094]	[0.088]
Immigrant 4 Years	0.009***	0.279**	0.133	0.144	0.008
	(0.04)	(0.11)	(0.13)	(0.11)	(0.06)
	[0.003]	[0.111]	[0.053]	[0.057]	[0.003]
Immigrant 5 Years	0.064***	0.490***	0.167	-0.129	0.166***
	(0.05)	(0.11)	(0.16)	(0.12)	(0.07)
	[0.025]	[0.060]	[0.066]	[-0.050]	[0.066]
No. of Observations			672142		
Wald Chi2	137716.7		173564.78		
Prob > Chi2	0.0000		0.0000		

Notes: The regressions include controls for age and age^2, household head status, marital status, educational attainment, province of residence, and a constant term. An immigrant with less than 1 year of residence in Spain is used as the category of reference. *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better.

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Table 4a
Differences in the Predicted Employment Probabilities of Immigrants Relative to Natives
By Region of Origin and By Years since Entry - MEN

Comparison Groups	Predicted Probability (1)	Predicted Probability (2)	Diff. Native-Immigrant (1)	Diff. Native-Immigrant (2)
Natives	0.725	0.725	-	
Immigrants 0 years	0.605	0.633	0.119***	0.09***
Immigrants 1 year	0.726	0.748	-0.0009	-0.023***
Immigrants 2 years	0.758	0.758	-0.033***	-0.033***
Immigrants 3 years	0.758	0.772	-0.032***	-0.047***
Immigrants 4 years	0.749	0.760	-0.024***	-0.035***
Immigrants 5 years	0.704	0.706	0.02***	0.019***
EU15 Immig. 0 years	0.501	0.458	0.224***	0.267***
EU15 Immig. 1 year	0.578	0.552	0.147***	0.173***
EU15 Immig. 2 years	0.583	0.566	0.141***	0.159***
EU15 Immig. 3 years	0.583	0.564	0.142***	0.161***
EU15 Immig. 4 years	0.632	0.610	0.093***	0.115***
EU15 Immig. 5 years	0.566	0.533	0.158***	0.192***
Non EU15 Immig. 0 years	0.622	0.662	0.102***	0.063***
Non EU15 Immig. 1 year	0.757	0.774	-0.031***	-0.049***
Non EU15 Immig. 2 years	0.776	0.791	-0.051***	-0.066***
Non EU15 Immig. 3 years	0.837	0.846	-0.117***	-0.121***
Non EU15 Immig. 4 years	0.773	0.775	-0.047***	-0.05***
Non EU15 Immig. 5 years	0.761	0.756	-0.036***	-0.031***
African Immig. 0 years	0.632	0.740	0.093***	-0.015***
African Immig. 1 year	0.696	0.770	0.028***	-0.045***
African Immig. 2 years	0.754	0.827	-0.028***	-0.102***
African Immig. 3 years	0.777	0.849	-0.052***	-0.124***
African Immig. 4 years	0.785	0.845	-0.059***	-0.12***
African Immig. 5 years	0.757	0.833	-0.031***	-0.108***
Latino Immig. 0 years	0.614	0.624	0.110***	0.101***
Latino Immig. 1 year	0.757	0.770	-0.032***	-0.045***
Latino Immig. 2 years	0.804	0.813	-0.078***	-0.088***
Latino Immig. 3 years	0.802	0.808	-0.077***	-0.083***
Latino Immig. 4 years	0.785	0.788	-0.059***	-0.063***
Latino Immig. 5 years	0.771	0.768	-0.045***	-0.043***

Notes: *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better. The predicted employment probability (1) refers to the predicted employment probability of a representative individual of each group. The predicted employment probability (2) is computed in all cases for a representative individual of the sample, only being different in their origin and (for immigrants) years since residence.

Table 4b
Differences in the Predicted Employment Probabilities of Immigrants Relative to Natives
By Region of Origin and By Years since Entry - WOMEN

Comparison Groups	Predicted Probability (1)	Predicted Probability (2)	Diff. Native-Immigrant (1)	Diff. Native-Immigrant (2)
Natives	0.447	0.447	-	
Immigrants 0 years	0.448	0.453	-0.001	-0.006
Immigrants 1 year	0.562	0.570	-0.115***	-0.10***
Immigrants 2 years	0.562	0.569	-0.115***	-0.122***
Immigrants 3 years	0.541	0.544	-0.093***	-0.097***
Immigrants 4 years	0.496	0.498	-0.048***	-0.051***
Immigrants 5 years	0.515	0.513	-0.068***	-0.066***
EU15 Immig. 0 years	0.273	0.244	0.173***	0.203***
EU15 Immig. 1 year	0.336	0.306	0.111***	0.141***
EU15 Immig. 2 years	0.372	0.369	0.074***	0.078***
EU15 Immig. 3 years	0.342	0.322	0.105***	0.125***
EU15 Immig. 4 years	0.395	0.357	0.051***	0.090***
EU15 Immig. 5 years	0.426	0.443	0.020***	0.004
Non EU15 Immig. 0 years	0.483	0.496	-0.035***	-0.049***
Non EU15 Immig. 1 year	0.574	0.573	-0.126***	-0.126***
Non EU15 Immig. 2 years	0.613	0.607	-0.165***	-0.160***
Non EU15 Immig. 3 years	0.573	0.571	-0.126***	-0.124***
Non EU15 Immig. 4 years	0.596	0.565	-0.122***	-0.118***
Non EU15 Immig. 5 years	0.557	0.556	-0.109***	-0.109***
African Immig. 0 years	0.296	0.405	0.150***	0.042***
African Immig. 1 year	0.400	0.486	0.046***	-0.039***
African Immig. 2 years	0.380	0.498	0.066***	-0.051***
African Immig. 3 years	0.402	0.539	0.045***	-0.092***
African Immig. 4 years	0.355	0.478	0.091***	-0.031***
African Immig. 5 years	0.311	0.411	0.135***	0.036***
Latino Immig. 0 years	0.497	0.496	-0.050***	-0.049
Latino Immig. 1 year	0.614	0.617	-0.166***	-0.170***
Latino Immig. 2 years	0.639	0.650	-0.192***	-0.203***
Latino Immig. 3 years	0.640	0.635	-0.193***	-0.188***
Latino Immig. 4 years	0.570	0.570	-0.123***	-0.123***
Latino Immig. 5 years	0.633	0.630	-0.185***	-0.183***

Notes: *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better. The predicted employment probability (1) refers to the predicted employment probability of a representative individual of each group. The predicted employment probability (2) is computed in all cases for a representative individual of the sample, only being different in their origin and (for immigrants) years since residence.

Table 4c
Employment Assimilation by Immigrant Origin after 5 years of stay in Host Country

Immigrant Groups	Men	Women
All Immigrants	0.099	0.067
EU15 Immigrants	0.065	0.153
Non-EU15 Immigrants	0.139	0.074
African Immigrants	0.125	0.015
Latino Immigrants	0.157	0.136

Notes: Assimilation is measured as: $\hat{P}_{I,5yrs} - \hat{P}_{I,0yrs} = \left(\hat{P}_N - \hat{P}_{I,0yrs} \right) - \left(\hat{P}_N - \hat{P}_{I,5yrs} \right)$

Table 5
Average Occupational Rank by Immigrant Origin and Years of Residence

Groups	Men (Rank varies from 1 to 22)			Women (Rank varies from 1 to 17)		
	Mean	S.D.	N	Mean	S.D.	N
Natives	12.9	5.95	472,817	8.9	5.1	292568
Immigrants 0 years	8.5	5.9	2783	4.4	4.6	1927
Immigrants 1 year	8.4	5.7	3510	4.4	4.6	2446
Immigrants 2 years	8.8	5.8	3215	4.7	4.8	1944
Immigrants 3 years	9.1	5.9	1882	5.3	4.9	1194
Immigrants 4 years	9.4	6.4	1044	5.6	5.2	695
Immigrants 5 years	9.8	6.4	764	6.2	5.4	604
EU15 Immig. 0 years	14.0	6.7	294	9.5	5.2	130
EU15 Immig. 1 year	13.8	6.7	261	9.5	5.2	135
EU15 Immig. 2 years	14.2	6.4	299	9.3	5.4	158
EU15 Immig. 3 years	13.5	6.5	257	9.8	5.2	128
EU15 Immig. 4 years	13.9	6.4	181	10.1	5.4	109
EU15 Immig. 5 years	13.8	6.6	161	10.5	5.1	121
Non EU15 Immig. 0 years	7.4	5.2	423	4.0	4.1	305
Non EU15 Immig. 1 year	7.5	4.9	624	4.5	4.5	369
Non EU15 Immig. 2 years	8.8	5.3	479	4.6	4.6	327
Non EU15 Immig. 3 years	8.9	5.6	262	4.8	4.7	156
Non EU15 Immig. 4 years	9.5	5.7	111	5.7	5.1	80
Non EU15 Immig. 5 years	9.7	6.7	65	5.7	4.9	51
African Immig. 0 years	6.6	5.3	571	4.7	3.7	121
African Immig. 1 year	6.6	5.1	681	4.5	4.1	144
African Immig. 2 years	7.2	5.2	970	4.5	4.1	191
African Immig. 3 years	6.8	4.8	663	4.3	3.8	165
African Immig. 4 years	6.6	5.3	396	3.7	3.7	88
African Immig. 5 years	7.3	5.2	300	4.5	4.1	63
Latino Immig. 0 years	8.4	5.5	1403	3.9	4.4	1340
Latino Immig. 1 year	8.6	5.5	1849	4.0	4.3	1750
Latino Immig. 2 years	8.7	5.5	1310	4.3	4.6	1201
Latino Immig. 3 years	9.4	5.8	567	4.8	4.8	676
Latino Immig. 4 years	10.2	6.2	297	4.7	4.7	384
Latino Immig. 5 years	10.6	6.0	184	5.4	5.1	339

Table 6a
Ordered Logit Estimates - Odd Ratios
Dependent Variable: Occupational Ranking
All Educational Levels

Comparison Group (Control Group: Natives)	PANEL A: MEN (22 occupational categories) (N=486374)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.293***	1.266	0.236***	0.244***	0.275***
	(0.010)	(0.136)	(0.021)	(0.015)	(0.013)
Immigrants 1 year	0.952	0.760	0.838	1.034	0.997
	(0.047)	(0.131)	(0.097)	(0.097)	(0.065)
Immigrants 2 years	1.111***	0.863	1.22**	1.221***	0.988
	(0.056)	(0.132)	(0.150)	(0.107)	(0.072)
Immigrants 3 years	1.261***	0.735	0.307**	1.078	1.407***
	(0.073)	(0.119)	(0.196)	(0.101)	(0.131)
Immigrants 4 years	1.273***	0.907	1.579***	0.968	1.244**
	(0.093)	(0.168)	(0.300)	(0.108)	(0.165)
Immigrants 5 years	1.471***	0.830	1.697***	1.191	1.520***
	(0.119)	(0.165)	(0.487)	(0.151)	(0.216)

Comparison Group (Control Group: Natives)	PANEL B: WOMEN (17 occupational categories) (N=301895)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.179***	1.103	0.165***	0.414***	0.140***
	(0.009)	(0.134)	(0.018)	(0.055)	(0.009)
Immigrants 1 year	1.000	0.948	1.105	0.893	0.994
	(0.072)	(0.192)	(0.182)	(0.198)	(0.085)
Immigrants 2 years	1.192***	0.977	0.972	1.060	1.129**
	(0.091)	(0.189)	(0.176)	(0.209)	(0.105)
Immigrants 3 years	1.640***	0.992	1.441**	1.135	1.453***
	(0.138)	(0.199)	(0.295)	(0.217)	(0.163)
Immigrants 4 years	1.691***	1.236	2.046***	0.654**	1.368***
	(0.171)	(0.282)	(0.562)	(0.171)	(0.181)
Immigrants 5 years	2.196***	1.440**	2.207***	1.135	1.721***
	(0.232)	(0.329)	(0.742)	(0.314)	(0.240)

Notes: *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better. The values for the dependent variable range from 1 to 22 in the case of men and from 1 to 17 in the case of women. The smallest (highest) value is taken by that occupation or group of occupations with the lowest (higher) average gross hourly earnings as of 2002 (Source: Earnings Structure Survey, EES-02). Estimations also include age, education, indicator for marital status and region dummies (52 province dummies). Standard errors are computed using White's variance estimator.

Table 6b
Ordered Logit Estimates – Odd Ratios
Dependent Variable: Occupational Ranking
Primary Educational Attainment

Comparison Group (Control Group: Natives)	PANEL A: MEN (22 occupational categories) (N=122091)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.281***	0.889	0.331***	0.222***	0.339***
	(0.016)	(0.232)	(0.047)	(0.016)	(0.031)
Immigrants 1 year	1.142**	0.645	1.005	1.166**	1.069
	(0.086)	(0.271)	(0.193)	(0.122)	(0.129)
Immigrants 2 years	1.202***	1.301	1.025	1.332***	0.998
	(0.094)	(0.526)	(0.228)	(0.134)	(0.132)
Immigrants 3 years	1.271***	1.699	1.207	1.153	1.538***
	(0.111)	(0.753)	(0.292)	(0.125)	(0.260)
Immigrants 4 years	1.058	1.158	0.939	1.012	1.199
	(0.113)	(0.484)	(0.276)	(0.126)	(0.323)
Immigrants 5 years	1.135***	1.233	0.663	1.111	1.220
	(0.145)	(0.611)	(0.309)	(0.172)	(0.300)

Comparison Group (Control Group: Natives)	PANEL B: WOMEN (17 occupational categories) (N=52575)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.316***	0.815	0.241***	0.696***	0.280***
	(0.028)	(0.289)	(0.042)	(0.116)	(0.029)
Immigrants 1 year	1.051	0.686	1.794***	0.822	0.945
	(0.122)	(10.341)	(0.484)	(0.200)	(0.135)
Immigrants 2 years	1.169	0.452	1.495	0.823	0.972
	(0.139)	(0.705)	(0.429)	(0.190)	(0.146)
Immigrants 3 years	1.533***	0.875	1.850***	0.918	1.403
	(0.201)	(0.499)	(0.557)	(0.201)	(0.278)
Immigrants 4 years	1.194	1.604	2.201***	0.465***	0.997
	(0.191)	(0.837)	(0.870)	(0.129)	(0.239)
Immigrants 5 years	1.460***	2.356	2.134***	1.193	1.146
	(0.248)	(1.635)	(0.702)	(0.341)	(0.292)

Notes: *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better. The values for the dependent variable range from 1 to 22 in the case of men and from 1 to 17 in the case of women. The smallest (highest) value is taken by that occupation or group of occupations with the lowest (higher) average gross hourly earnings as of 2002 (Source: Earnings Structure Survey, EES-02). Estimations also include age, education, indicator for marital status and region dummies (52 province dummies). Standard errors are computed using White's variance estimator.

Table 6c
Ordered Logit Estimates – Odd Ratios
Dependent Variable: Occupational Ranking
Secondary Educational Attainment

Comparison Group (Control Group: Natives)	PANEL A: MEN (22 occupational categories) (N=283657)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.277***	1.327**	0.193***	0.262***	0.249***
	(0.013)	(0.208)	(0.022)	(0.031)	(0.015)
Immigrants 1 year	0.914	0.703	0.950	0.821	1.022
	(0.060)	(0.176)	(0.138)	(0.157)	(0.082)
Immigrants 2 years	1.153***	0.737	1.586***	1.103	1.096
	(0.079)	(0.164)	(0.246)	(0.182)	(0.097)
Immigrants 3 years	0.330***	0.599***	1.555***	1.033	1.441***
	(0.105)	(0.137)	(0.289)	(0.174)	(0.168)
Immigrants 4 years	1.463***	0.846	2.199***	0.836	1.439***
	(0.155)	(0.224)	(0.540)	(0.189)	(0.246)
Immigrants 5 years	1.754***	0.918	2.689***	1.341	1.571***
	(0.202)	(0.278)	(0.915)	(0.294)	(0.300)

Comparison Group (Control Group: Natives)	PANEL B : WOMEN (17 occupational categories) (N=166173)				
	All Immigrants	EU15	Non-EU15	Africa	Latino
Immigrant	0.148***	1.120	0.172***	0.280***	0.117***
	(0.009)	(0.190)	(0.022)	(0.051)	(0.008)
Immigrants 1 year	1.028	1.185	0.999	0.957	1.054
	(0.087)	(0.351)	(0.186)	(0.336)	(0.103)
Immigrants 2 years	1.031	0.866	0.791	0.887	1.042
	(0.094)	(0.245)	(0.165)	(0.296)	(0.113)
Immigrants 3 years	1.360***	1.180	1.034	0.771	1.302***
	(0.142)	(0.353)	(0.261)	(0.227)	(0.168)
Immigrants 4 years	1.697***	1.181	1.256	0.951	1.577***
	(0.217)	(0.408)	(0.457)	(0.433)	(0.240)
Immigrants 5 years	2.210***	1.814**	1.695	0.934	1.620***
	(0.319)	(0.580)	(0.964)	(0.385)	(0.279)

Notes: *** Signifies statistically different from zero at the 1% level or better, **at the 5% level or better and *at the 10% level or better. The values for the dependent variable range from 1 to 22 in the case of men and from 1 to 17 in the case of women. The smallest (highest) value is taken by that occupation or group of occupations with the lowest (higher) average gross hourly earnings as of 2002 (Source: Earnings Structure Survey, EES-02). Estimations also include age, education, indicator for marital status and region dummies (52 province dummies). Standard errors are computed using White's variance estimator.

Figure 1
Evolution of Foreign Residents in Spain by Place of Origin, 1995-2004
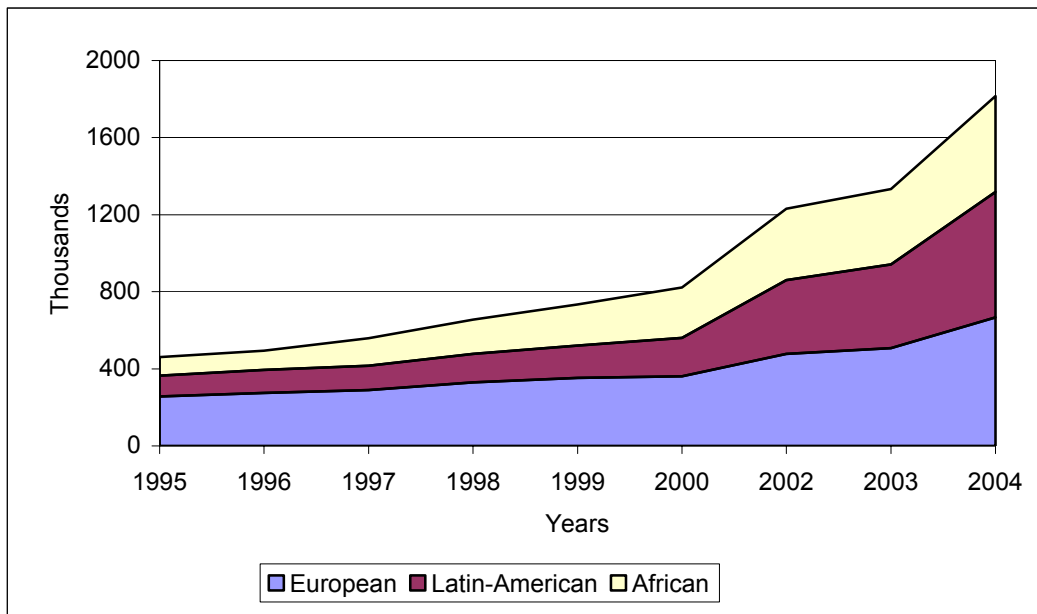
Figure 2
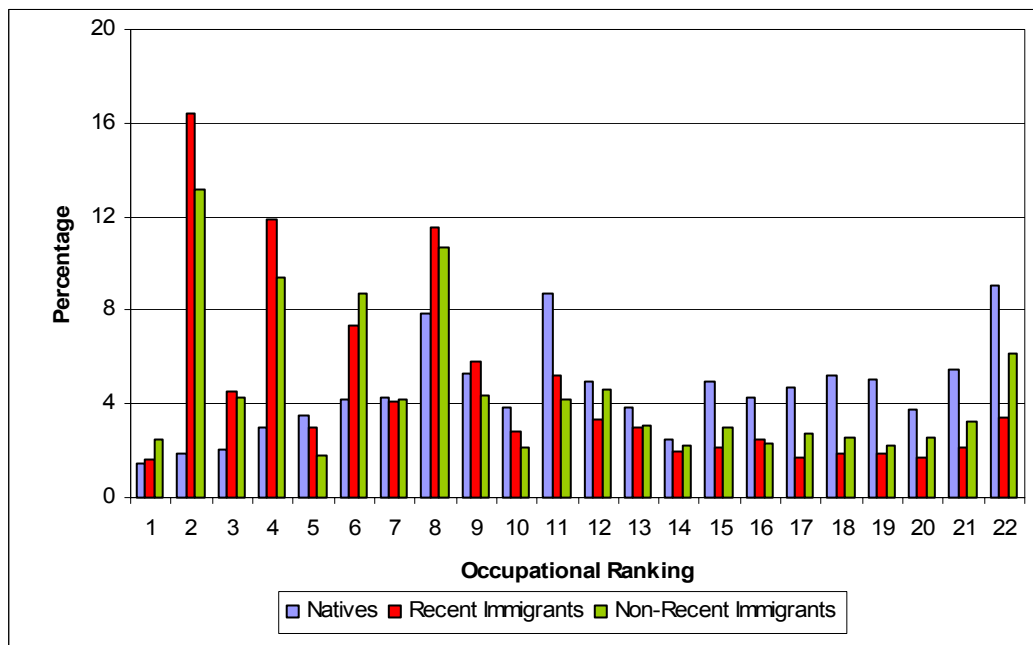**Occupational Distribution All Educational levels - MEN**

Figure 3
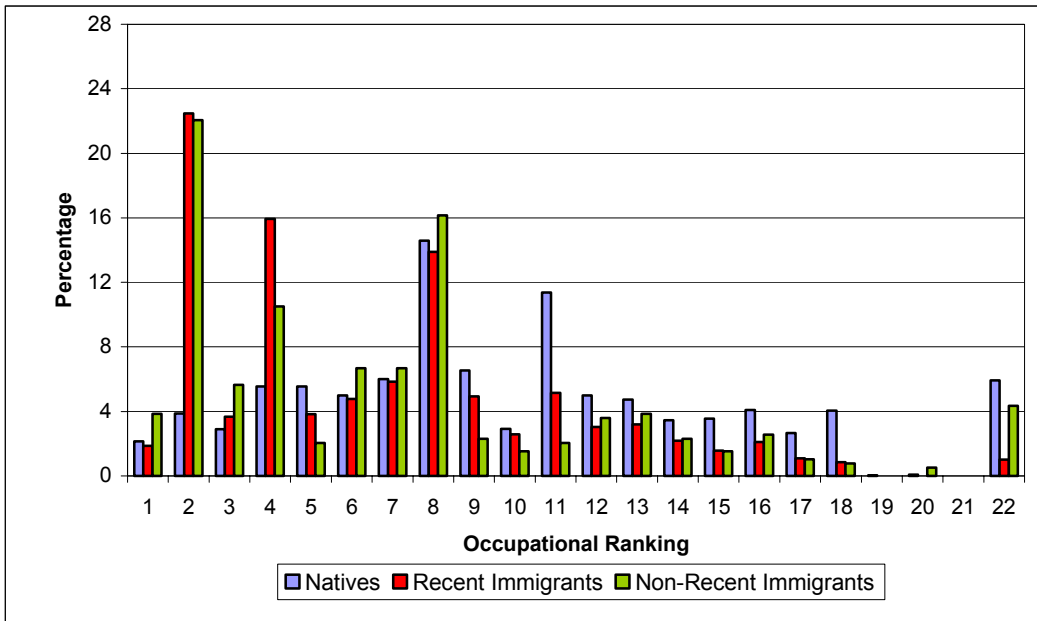**Occupational Distribution – Primary Education or less - MEN**

Figure 4
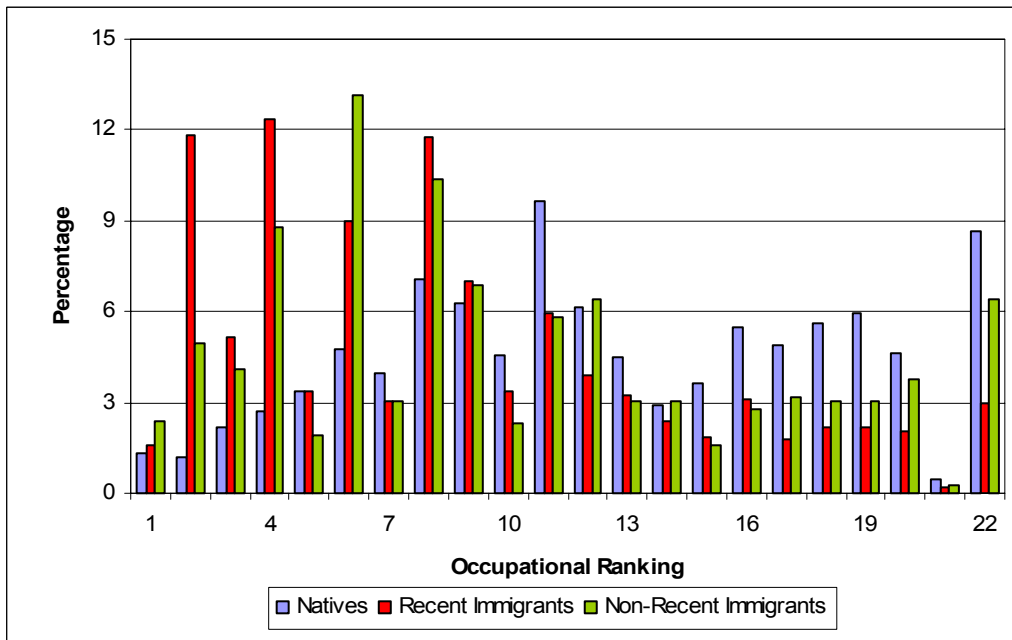**Occupational Distribution – Secondary Education - MEN**
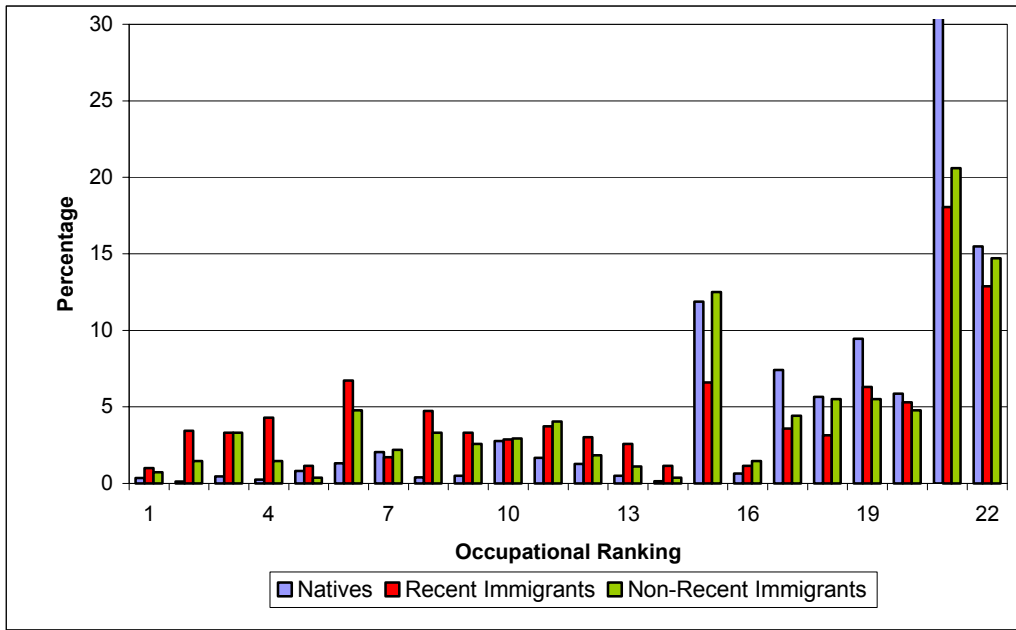
Figure 5
Occupational Distribution – University Education - MEN

Figure 6
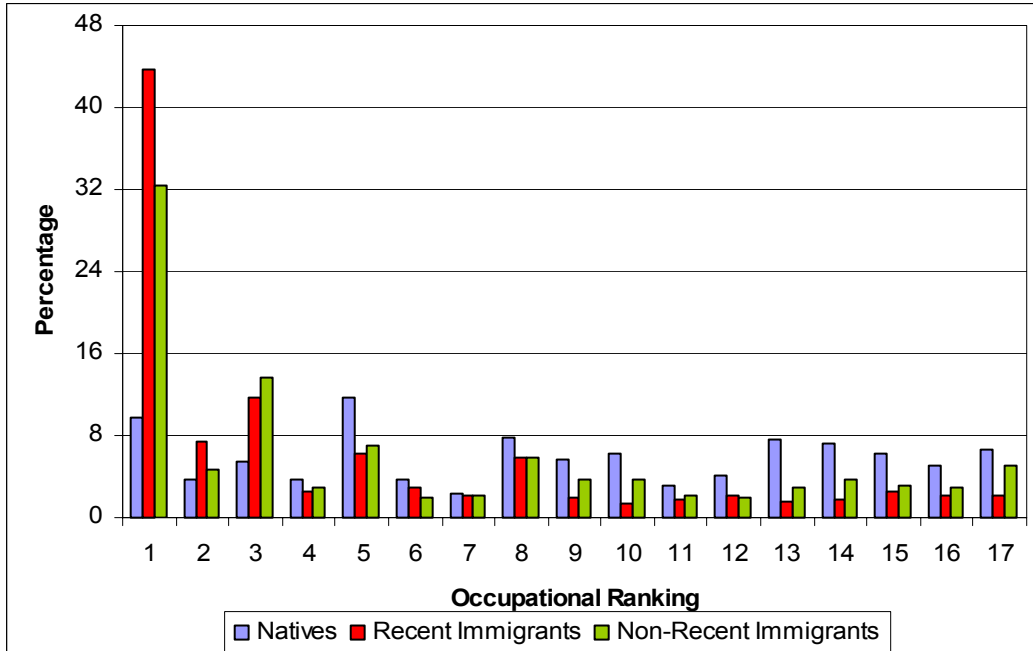**Occupational Distribution – All Educational Levels -WOMEN**

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Figure 7
Occupational Distribution – Primary Education or less -WOMEN

Figure 8
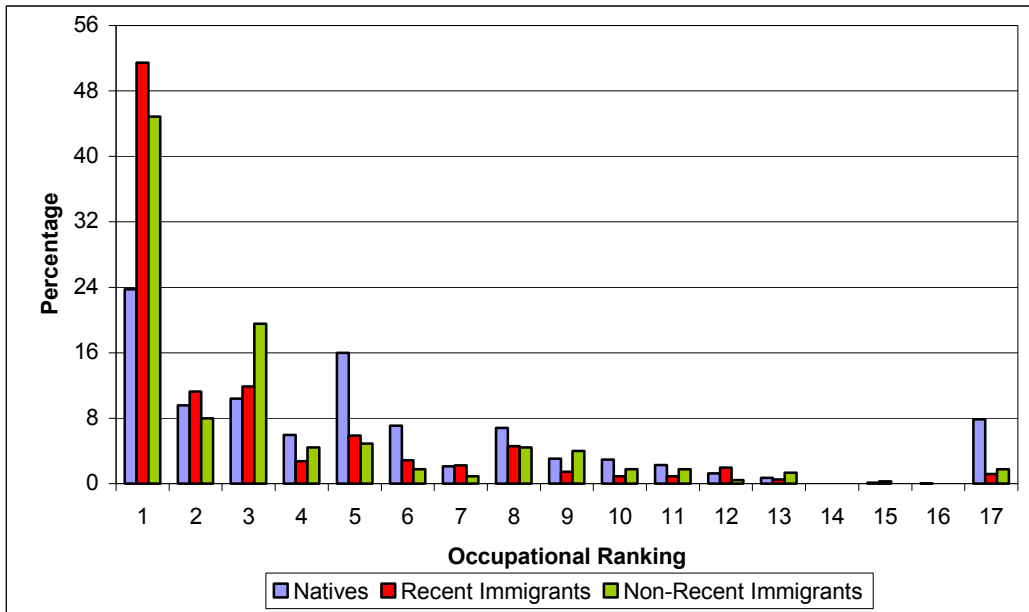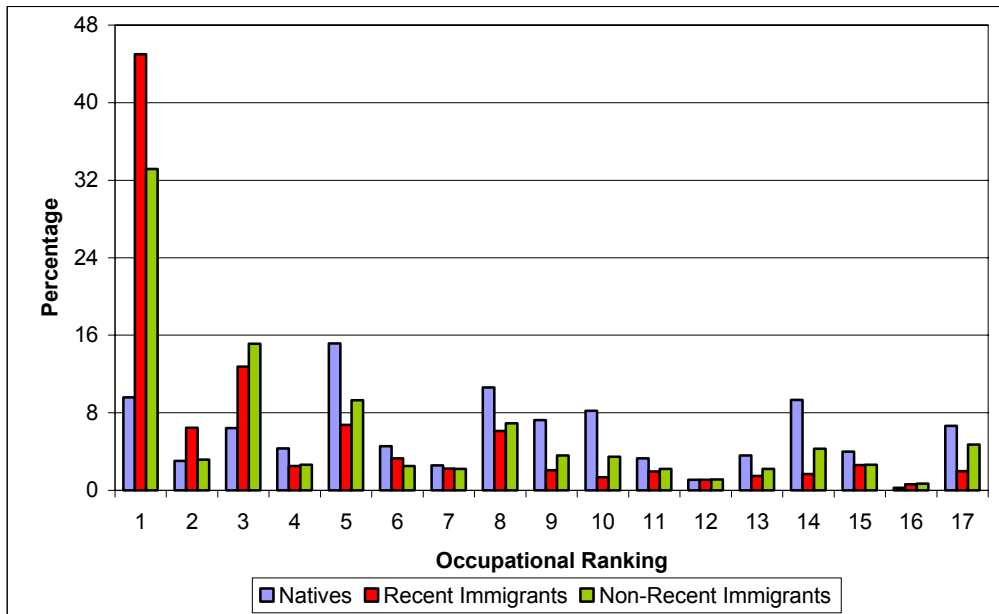**Occupational Distribution – Secondary Education   -WOMEN**

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Figure 9
Occupational Distribution – University Education   -WOMEN