Analysis of wage differences between native and immigrant workers in Spain

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Abstract

This paper analyses the nature of wage differences between native and immigrant workers in Spain. By estimating separated wage equations for the subsamples of both native and non-native workers and applying the Oaxaca-Blinder method, we observe that the relative unexplained (or discriminatory) component of the wage difference has a decreasing behaviour along the most part of the wage distribution, even becoming negative at the end. So, in this paper we detect the existence of a remarkable wage difference against the group of immigrants with the lowest wages which is not explained by the differences in the productive features of both native and non-native workers.

Keywords: Immigration - Wage differences - Quantile regression

JEL Classification: J31, J61, J71

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1. Introduction

During the last decade of the 20th century, worldwide economy witnessed a significant increase of immigration flows and their unavoidable socio-economic consequences for the receiving countries. The growth of this migratory trend has been triggered by the process of globalization of the economies which in turn has contributed to bring down mobility and information barriers among countries. Besides, as it happens in the European Union, the law has allowed free movements of work force within the single market framework. Finally, following Dolado (2002), there are other factors affecting the receiving countries (labour market malfunctions, population getting older) and the ones causing immigration (political instability, barriers to international commerce) which have positive influence on deciding to emigrate.

Regardless immigration determinants, the increase of non-native labour force in developed countries has generated a growing concern over its effects on labour markets.[1] Particularly, its probable influence on unemployment rates and on native workers wages, and the future of welfare systems are the two greatest concerns of these countries' population and they also highly determine their immigration and labour policies.[2]

In the Spanish case, its high economic growth rates since the mid 90's have come hand in hand with a significant increase in immigration influx which is placed in relative terms above the average for European countries, especially for the period 2001-2005.[3] The main sources of immigration have come from the European Union in itself (due to the free movement of labour), Africa (our geographical situation makes us be a natural frontier) and South America (with which we have very close cultural and economic ties).

The effects of this new immigrant trend on the Spanish economy and society might have been conditioned by the Government's late reaction. The lack of a clearly

[1] See Borjas (1995, 2001, 2003), Card (2001) and Brochmann and Hammar (1999).
[2] See Altonji and Card (1991), Angrist and Kugler (2003) and Carrasco *et al*. (2006).
[3] The population was increased in that period by a yearly average rate of 1.5 per cent (which had not been observed previously). Immigration contributed to this growth rate with 1.2 percentage points (see, Oficina Económica del Presidente-La Moncloa, 2006).

defined policy on immigrant affairs has allowed the continuity of important clusters of illegal non-native workers in some productive sectors. In most cases, these workers are hired for wages below the minimum ensured by law and the collective bargaining. No doubt, this must have effects on the legal labour market.[4] During the last years, this problem has been dealt with more rigorously. Labour legislation on non-native labour force has been reinforced and exceptional regularization processes have been established (for example, the one implemented in year 2000 or more recently the normalization process of 2005) meant to reduce the illegal labour market dimension to the minimum.

The difficulties encountered by non-native workers to regularize their labour status in Spain, prompt a relevant question: Do the immigrants, including the regular ones already settled, have job positions under the same working conditions than those of the Spanish workers? More precisely, Do they have the same wages than the native-born workers or is there any type of discrimination against the immigrants in the Spanish labour market? This paper is aimed at answering this question with the information provided by the 'Wage Structure Survey' (*Encuesta de Estructura Salarial*) carried out by the *Instituto Nacional de Estadística-INE* (the Spanish Statistical Institute) in 2002.[5] For this, it has been applied a methodology traditionally used in the analysis of wage discrimination by gender, particularly, the quantile regression method that allows analysing discrimination along the wage distribution.

This paper is structured as follows. Section 2 presents a description of immigration basic characteristics in Spain. Section 3 includes the proposed econometric model. Section 4 states the estimations' results. Finally, in section 5 we present the main conclusions of this article.

2. The immigration in Spain

[4] See Carrasco *et al.* (2006).

[5] There are no studies analyzing this subject. There are papers that estimate the effects of immigration on employment rates, as for example Carrasco *et al.* (2006). On the other hand, Dolado *et al.* (1997) analyzed the effects of the regularization of immigrant workers on the wages and employment of native workers. In a more general scope, Ortega Masagué (2005) presents a more detailed description of the labour situation of the immigrants in Spain. Finally, Banco de España (2006) analysed immigration's effect on productivity.

Spain is one of the EU countries where the immigration flows have grown more dramatically during the last decade. In Figure 1, according to the 'Residential Variations Statistics' (*Estadística de Variaciones Residenciales*) from INE, we see that the number of immigrants has shifted from 57,195 in 1998 to 682,711 in 2005, which means an increase of 1,093.65% in less than one decade.[6]

FIGURE 1 ABOUT HERE

Taking their place of birth (Figure 2), 35.2% of the immigrants come from America, followed by those coming from non-communitarian European countries (22.8%), Africa (17.8%), the European Union (17.2%) and Asia (6.9%).

FIGURE 2 ABOUT HERE

The immigration trend in Spain has been so important that it has had significant effects on the country's demographic growth and on the labour market variables. Then, Figure 3 clearly shows that Spain is the European country where immigration was more intense in 2005 (it was responsible for a demographic growth of 1.51% in that year). On the other hand, Table 1 shows the percentage growth of the non-native working population over the total number of workers for the period 1998-2006, according to the 'Labour Force Survey' (*Encuesta de Población Activa-INE*). We observe that non-natives represented 1.6% of the total workers in 1998 and 12.5% in 2006. Besides, this growth is especially significant in the case of South American born immigrants, whose relative importance changed from being 0.3% of the total workers in 1998 to 5.9% in 2006.

FIGURE 3 ABOUT HERE

TABLE 1 ABOUT HERE

[6] EUROSTAT shows for Spain a growth percentage of 742.8% for the period 1998-2004 (there is no information for year 2005), which is much higher than the one observed for countries such as UK (55.8%) or Germany (where the number of immigrants went down by 2.7% in such period).

Such a quick and intense assimilation of immigrant workers is likely to have caused discrimination in the labour market. It must be taken into account that this process could not have been absolutely controlled by the labour authorities and trade unions. In order to see to what an extend the wage differential between native and non-native workers might contain a discriminatory component, in the following section we describe a method for the estimation of such component inspired on the techniques normally applied to the analysis of gender discrimination.

3. Methods for the estimation of the discriminatory wage differential

In order to estimate wage determinants and the difference derived from the nationality, researchers used to follow Mincer's traditional approach (1974).[7] This approach consists on estimating a single wage equation including a dummy variable that shows whether the worker is native or non-native. In a first approach, the coefficient estimated for the worker nationality variable will make it possible to assess the effect of being native or non-native on the wages, given the individual productive features.

The main problem of this method consists on implementing the same coefficient structure in the equation for native and non-native workers. This problem becomes particularly serious when we expect different effects for certain variables (for example, the returns of education and labour experience are likely to be lower in the case of non-native workers). On the other hand, the joined estimation for both groups implies that the wage distribution has the same variance regardless worker's nationality. Finally, one more criticism may come from the interpretation of the outcomes. In particular, this type of joined estimations does not allow either to analyse the composition of wage differentials between both groups of workers or to asses how relevant the components are.

In order to solve these methodological problems, the sample used will be divided into two parts, one for native workers and the other for the non-native. Then, the wage equation estimation for each subsample will be made. Afterwards, we use the Oaxaca-Blinder method (Oaxaca, 1973a and 1973b; Blinder, 1973) to divide the wage

[7] See also Ashenfelter and Rees (1973) and Becker (1975).

difference between native and non-native workers into two parts. One of them will be due to economic reasons as it will be caused by the presence of different productive characteristics in both the native and the non-native workers; whereas the other one could not be explained by economic reasons and will be due to the presence of wage discrimination.

Traditionally, the Oaxaca-Blinder decomposition has been carried out from the wage estimations on the sample's mean. Method's problem resides on the fact that the estimated coefficients measure the effect of every independent variable on the average value of the wage distribution. This means that discrimination magnitude is computed at this point of the wage distribution, assuming that this magnitude remains constant along the whole wage distribution. So that, we ignore every possible variation in the size of the existing discrimination depending on individual's wage.

One probable solution to this problem consists on estimating quantile regression for every subsample and then making a discrimination analysis at different stages of the wage distribution.

Following the methodology proposed by Koenker and Bassett (1978) and Buchinsky (1998) we define $Q_q(\log W_i | X_i)$ as the θ^{th}-order quantile of the conditional distribution of wages, given X_i (which is a vector of the variables representing human capital and any other productive features of the worker as well as job and firm features). This expression can be written as:

$$Q_q(\log W_i | X_i) = b_q X_i + Q_q(e_{qi} | X_i) \qquad (1)$$

Despite that error distribution is unknown, we assume that $Q_q(e_{qi} | X_i) = 0$, so $Q_q(\log W_i | X_i) = b_q X_i$. In this case, the coefficients obtained in the wage equation measure the contribution of the independent variable to the quantile of order q of the conditional distribution of wages, and so allowing to asses the impact of each characteristic at different points of the wage distribution.

Once the coefficients have been estimated, we will proceed to make the wage decomposition using the methodology proposed in the estimation on the mean. However, this application can not be made directly, because whereas the wage decomposition on the mean generates an exact result, this does not occur in the different quantiles.

In the case of the estimations on the mean, the characteristics of OLS estimators ensure that $E(e_i \mid X_i) = 0$. Being $logW^n_i$ the logarithm of the native worker's wage and $logW^{im}_i$ the one for immigrant workers, the Oaxaca-Blinder decomposition on the mean based on the native worker's wage structure (the one existing when no discrimination is present) will be as follows:

$$E(\log W^n) - E(\log W^{im}) = \left[E(X^n) - E(X^{im})\right]b^n + \left[b^n - b^{im}\right]E(X^{im}) \qquad (2)$$

where the first component of the second part of the equality stands for the share of the wage gap due to differences in the productive characteristics and the second component measures the existence of discrimination.

However, as Machado and Mata (2005) point out, in the quantile regression the wage decomposition does not allow us to obtain the previous outcome. So, the wage equation estimation subject to the (log) wage being equal to its unconditional quantile of order q (that is $\log W_i = \log w_{qi}$), yields:

$$\log w_q = E(X \mid \log W = \log w_q)b_q + E(e_q \mid \log W = \log w_q) \qquad (3)$$

That is, the quantile of order q of the (log) wage distribution is equal to its q conditional quantile assessed in the vector of the average features of the individuals in that quantile, plus the average value of the error term for that group of individuals.[8] In this case, the error term will be in the wage decomposition as follows:

[8] See, De la Rica *et al*. (2006), p. 15.

$$\underbrace{\left[E(X^{n} \mid \log W = \log w_q) - E(X^{im} \mid \log W = \log w_q)\right] b_q^{n}}_{A} + \underbrace{\left[b_q^{n} - b_q^{im}\right] E(X^{im} \mid \log W = \log w_q)}_{B} + \underbrace{E(e_q^{n} \mid \log W = \log w_q) - E(e_q^{im} \mid \log W = \log w_q)}_{C} \quad (4)$$

where *A* is the part of the wage differential that can be attributed to the productive features of both native and non-native workers (for example, a different educational level) and *B* is the part related to the difference in the rate of return (coefficient) of every feature depending on the origin. If the labour market pays better native productive features, then this part will identify the existence of a discrimination against immigrants. Finally, the *C* component of the equation (4) corresponds to the part of the wage difference that can not be explained by the quantile regression.

For a correct calculation of wage decomposition, there are different estimation methods aimed at eliminating or minimizing the error term (the *C* component of the equation 4). So, García *et al*. (2001) consider the wage difference at a given conditional quantile evaluated at the unconditional mean of the feature vector. However, Gardeazabal and Ugidos (2005) point out that this method's problem is that it weights the contribution of any variable to the wage gap at the same point (the unconditional mean), regardless which quantile is considered. Gardeazabal and Ugidos (2005) propose an exact decomposition for the difference between unconditional quantiles based on evaluating the conditional quantiles at a point such that we get the unconditional ones. However, Dolado and Llorens (2004) think that this method is burdensome when many variables are considered, as in our case. For these reasons, in this paper we will follow the *bootstrap* method proposed by Albrecht *et al*. (2003)[9]. This method consists on the following steps:

-First, using the native and non-native workers' sample, we estimate the coefficients' vectors b_q^{n} and b_q^{im} in each percentile.

-Second, out from the non-native workers sample, a subsample is built up with 100 draws at random with replacement. These are ordered upwards by their wages, so that we have one observation for every percentile.

[9] Some applications of this method for the Spanish labour market are to be found in Dolado and Llorens (2004) and De la Rica *et al*. (2006).

-Third, the previous step must be repeated 100 times, then calculating an average features vector for every percentile:

$$E(X_q^{im}) = \frac{1}{100}\sum_{j=1}^{100} X_{qj}^{im},\ for\ q = \{1,2,3,...,100\} \quad (5)$$

-Forth, the latter two steps are repeated for the native workers subsample.

-Finally, with the obtained coefficient and average features vectors for each quantile, we proceed to estimate each part of the expression (4).

This method allows us to compute the magnitude of the discriminatory component of the wage differential ($[b_q^n - b_q^{im}]E(X_q^{im})$). However, as Gardeazábal and Ugidos (2005) point out, this magnitude is not scale free. In order to avoid this drawback, they propose a relative measure of discrimination which is defined as follows:

$$R = \frac{B}{A+B} * 100 \quad (6)$$

where B is the discriminatory component of (4) and A is the share of the wage difference due to the specific productive characteristics of natives and non-natives. This measure computes discrimination as a percentage over the total wage differential. Later on, we use this indicator in order to assess the discrimination size against immigrants in Spain.

4. Estimations of the discriminatory wage differential between natives' and non-natives' wages

4.1. Data

The main problem of the studies on the immigration effects in the Spanish case is the lack of high-quality databases. A great part of the immigration is not regular and no information about it is available. As far as the legal immigration is concerned, there is good individual information on wages and productive characteristics of both native

and non-native workers in the 'Wage Structure Survey' (WSS) carried out by the INE in 2002.[10] The aim of this survey is to know the wage structure in our country. This survey enquires workers at their working places and provides us with individual information on wages and workers' productive characteristics as well as firm's own features. All the enquired individuals (native and non-native) are wage-earners and have been registered into the National Health Service (then, being regular workers). For this reason, the WSS fits the target of this research: the analysis of the wage differential according to the worker's nationality without influence of any discriminatory element due to the irregular labour position of some immigrants.

It must be pointed out that only 3% of the workers enquired in the WSS are non-native (in particular, 4,205 of a total of 142,652 enquired). This figure is lower that the one stated in the Spanish 'Labour Force Survey' for the same year (5.7% of the total workers), although, it is a logical difference due to the scope of the WSS. Specifically, this survey is directed only to companies with 10 or more workers (the immigrant group is likely to be highly represented in companies with less than 10 workers). Moreover, the scope of this survey does not include either the farming or the household services (where the immigrant population is also highly represented).[11] As far as their origin, most of non-native workers come from South America (33%), followed by the Africans (27%), workers from the European Union (22%) and from other European countries (13%). Then, Asian workers (4%), the ones from North America (1%) and from Oceania (not reaching 1%) have a secondary place.

Tables A1 and A2a, A2b and A2c of the Appendix show the definitions of every variable included in the estimations and the descriptive statistics of the joined sample and of several subsamples (native and non-native workers, and native and non-native workers by gender). As it can be observed, the mean (log) wage for native workers is 24% higher than that of non-natives. However, by comparing the wages in each percentile, we see that this differential is not constant along the distribution. This can be seen in Figures A1 and A2 of the Appendix. The wage gap takes greater values in the first percentiles, reaching the highest value in the 13th percentile (67%). Then, the

[10] The WSS was also carried out in 1995, although the nationality variable was not available at that time. For further information on this dataset characteristics, please see INE web site at: www.ine.es.

[11] Besides, the great concentration of immigrants in certain regions (especially Madrid and Catalonia) may make the WSS sample underestimate the real amount of immigrants living in Spain.

differential goes down until the 45th percentile, and goes lightly up again until the 79th just to go down afterwards (even reaching negative values in the last two percentiles).

Table A2a includes some remarkable results when comparing native and non-native population characteristics. First, the percentage of males is higher among non-natives (73% against 67%), the latter group being younger (34.2 average age against 37.7). Moreover, the non-natives have a lower level of education than the natives. In particular, the percentage of non-native workers with only primary education or less is 73%, whereas it is 57% among the Spanish. It can also be stressed the high concentration of immigrants in low-skill and blue-collar occupations (for instance, 27% of immigrants are found in elementary occupations, against only 12% in the case of Spanish workers). Also, there is a significant difference in the stability of their jobs (just 47% of the non-natives have a permanent contract, against 76% of the Spanish). Finally, it is remarkable the high amount of non-native workers hired in the building industry (17% against 8% in the case of the Spanish) and hotel industry (14% against 5%). As far as the geographical distribution of immigrant employment is concerned, we see that just in two regions, Madrid and Catalonia, 43% of the non-native workers are located.

4.2. Estimations of the discriminatory wage differential

According to the methodology described in Section 3, we will present the results obtained from the estimations carried out for both the native and non-native workers. These equations appear in Tables 2a and 2b, where the dependent variable is the logarithm of gross hourly wages.[12] Wage equation estimations on the mean and for every percentile have been made, although only the results of five of them will be shown (10th, 25th, 50th, 75th and 90th).

TABLES 2a AND 2b ABOUT HERE

Generally speaking, it can be observed that all the variables included in the estimations are significant and have the expected sign. In relation to human capital

[12] The reference categories in the estimations of Tables 2a and 2b are: *Primary education, Elementary occupations, Firm size 10-19, International product market,* and *National-Sector collective agreement.* Estimations include a set of variables for *Region* and *Activity Sectors* that are not included in the tables, but they might be provided if requested.

variables, both the seniority and the potential experience have an inverted U-shape relation with the hourly wages.[13] Wages also go up together with the level of education, and they are higher for men than for women. As far as job and firm features are concerned, wages are higher for workers with permanent contracts and, in general, for full-time workers. Wages are also higher for 'white-collar high-skill' occupations than for 'blue-collar low-skill' jobs. Wages also go up as the firm size grows. In relation to the source of capital, wages are higher in the public companies than in the private ones, although it is only true for the Spanish subsample. On the other hand, the smaller the markets supplied by the company are, the lower the wages become (wages are lower when the company sells in national markets rather than in international ones, and they are even lower in the case of local markets). Finally, in relation to the scope of the collective agreement, wages tend to increase as the collective bargaining scope is shortened. Then, we find the highest wages in companies with a collective agreement of their own. If the collective agreement applied to the firm has a regional-sector scope, then wages are reduced; becoming lower if the collective agreement has a national-sector scope.

Wage equations are quite similar for both subsamples. However, there are some differences, for example, the higher returns of technical and university education, of 'white-collar high-skill' occupations (managers, professionals and associate professionals) and of seniority (years of experience at firm) in the case of foreign workers. As for the greater effect of high education and high labour positions on the non-native wages, the result indicates that comparing with the reference category, (*Primary education* and *Elementary occupations* in both cases) highly educated immigrants have taken a greater jump in the earnings range than highly educated natives. That is, education is a real way to improve the labour position for immigrant workers. As far as the seniority is concerned, maybe at the beginning, the non-native workers wages are lower than natives'. But, as the supervisors get better information about the non-native workers productivity and behaviour, their wages grow faster than natives'.[14]

[13] The *Age* has not been included in the final estimations as it is highly related to the *Experience*, and so, only this second variable has been stated.
[14] However, the coefficients show that both native and non-native workers reach the highest wage at the same time (16.5 years of seniority in the case of natives and 17 in the case of non-native workers).

The coefficients estimated in the wage equations allow calculating the decomposition of the wage differential using the method referred to in Section 3. Table 3 states the results of such decomposition, for both the sample mean and for each of the selected percentiles. Moreover, Figure 4 shows, by percentiles, the evolution of the discriminatory component of the wage differential between the native and non-native workers and Figure 5 states the proportion of the discriminatory component over the total wage differential following the method used by Gardeazábal and Ugidos (2005).

TABLE 3 ABOUT HERE

FIGURE 4 ABOUT HERE

FIGURE 5 ABOUT HERE

When reading the results, we must take into account that a positive sign (negative) of the component standing for the discriminatory differential, $\left[b_q^n - b_q^{ex}\right]E(X_q^{ex})$, means that non-native workers characteristics are less paid for (better) than if they were to be paid for as native workers.

The first column of Table 3 shows the wage decomposition on the sample mean. We see that there is a discriminatory wage component of 0.11 logarithmic points against non-natives, for a wage differential of 0.41 logarithmic points (that is, the discrimination represents 26% of the total wage differential among native and non-native workers). However, the amount of this discriminatory component varies along the distribution, going up from the beginning up to the 31st percentile and then going down continuously (see Figure 4). If we use the relative measure of discrimination proposed by Gardeazábal and Ugidos (2005), we observe that at the beginning of the distribution the discrimination decreases fast, then it remains stable (between the 20th and the 40th percentile) and from then onwards the discrimination tends to decrease continuously (Figure 5). In other words, it is harder to discriminate the non-native workers when the individuals have more human capital, better labour positions and so they are more productive.

In Figure 4, we detect that from the 86th percentile, the discriminatory component of the wage differential takes a negative sign, and so in the last stage of the wage distribution, there is a positive discrimination in favour of the non-native workers. This means that the rate of return of productive features (such as education, experience…) for those non-native workers located in the highest part of the wage distribution is greater than the one for the natives with the same characteristics. Maybe, this segment of non-native workers with very high wages has certain productive features which were not properly measured by the survey variables (very specific and infrequent qualifications in our country). This could explain the observed phenomenon.[15]

It seems interesting to investigate if the previous conclusions obtained for native and immigrant workers of both genders can be maintained when considering independently the men and women subsamples. The wage equation estimations carried out for the different subsamples (Spanish males, non-native males, Spanish females and non-native females) are shown in Tables A3a, A3b, A4a and A4b in the Appendix. No significant differences are observed between these estimations' results and the ones obtained in Tables 2a and 2b. In relation to the decomposition of the observed wage differences between Spanish and non-natives for each gender (Tables A5a and A5b), when analysing the wage decomposition over the sample mean, it is remarkable the fact that the wage difference observed between Spanish and non-native workers is greater for men than for women (0.47 logarithmic points against 0.33) which in relative terms represents a difference of 25% and 20% respectively.[16] Out of the total observed difference, the discriminatory component by nationality is 0.12 points in the case of men and 0.09 in the women case. On the other hand, the relative indicator of discrimination between Spanish and non-natives shows a different behaviour for the different genders along the wage distribution. For the estimations on the mean, the relative discrimination rate is 26.9% in the case of women and 25.7% in the case of men. This discrimination rate is higher for women in percentiles 10th and 50th and lower in percentiles 25th, 75th and 90th (in the latter case, the values are negative for both men and women). So, discrimination by nationality is relatively greater in case of women

[15] We must pinpoint that in the sample, immigrant workers present higher wages just for the percentiles 98th and 99th (see, Figure A1).

[16] This difference presents for each gender a behaviour along the wage distribution similar to the one observed for the whole sample (this is represented in Figure A2 of the Appendix).

than in case of men for the segment of the lowest wages; while higher for men than for women for the segment of the highest wages.[17]

Finally, Figures A5a, A5b, A6a and A6b show the contribution of the several groups of variables to the wage difference explained by the productive characteristics and to the discriminatory difference. Due to space limitations, we only present the decomposition for the percentiles 25^{th} and 75^{th} of the men and women subsamples. In the figures, we see that the different remunerations of the human capital are the factor that contributes the most to the explanation of the discrimination for both genders, especially at the beginning of the wage distribution. Besides, it is also observed that the weight of the human capital variables is greater in the case of men than women.

5. Conclusions

There has been a considerable growth of the immigrant people in Spain in the recent years. It has changed from being 1.6% of the total of working population in 1998 to 12.5% in 2006 (Labour Force Survey-INE). The labour market has found it quite hard to assimilate such an intense growth of the immigrant working people. In this sense, we may ask ourselves if the non-native workers have the same labour conditions as those for the native workers. In particular, this paper is meant to find out if there is any type of wage discrimination against the immigrant people.

To answer this question we use the information provided by the *Wage Structure Survey* carried out in 2002. A rough analysis of the data shows that the group of non-native workers has an average wage lower than the native workers. These also have lower educational levels, less stable jobs and are concentrated in certain sectors and regions (there is a high amount of non-natives working in the building and hotel industry and living in Madrid and Catalonia).

It is likely that a great part of the differential observed in the average wages of native and non-native workers had an economic origin, due to the presence of

[17] Finally, Figures A3a, A3b, A4a and A4b show the discriminatory component evolution by percentiles for every subsample. The shapes of these figures are similar to the ones found in the general case (Figures 4 and 5).

differences in the human capital and in the type of jobs for each of them. In order to know which part of the differential can be explained by economic factors and which can be interpreted as discrimination (only explained by the nationality), it is necessary to carry out an analysis based on the individual data and using econometric techniques. Regarding this subject, we use the Oaxaca-Blinder method in the framework of quantile regressions. Quantile regression is preferred to the regression on the mean because the latter does not take into account the possible variations in the discrimination degree that may exist depending on the worker's income. That is, it is assumed that the discrimination remains constant along the whole wage distribution. On the other hand, the quantile regression allows finding out how the discrimination varies along such distribution.

As for the outcomes, we observe that the total wage differential between natives and non-natives diminishes along the wage distribution. In particular, in the 10^{th} percentile the wage differential among the native and non-native workers is 0.61 logarithmic points and this differential decreases progressively up to 0.33 in the 90^{th} percentile.

If we calculate the discriminatory component in relative terms as a percentage over the total wage differential, we observe that discrimination decreases fast at the beginning of the distribution. Then, it remains stable, and from the 40^{th} percentile onwards, discrimination is continuously decreasing. Summing up, the greater the wage, the lesser the relative wage differential caused by discrimination, so to say, the discrimination is more intense in the group of non-native workers with the lowest wages. This discriminatory component represents 58% of the estimated differential in the 10^{th} percentile, 40% in the 25^{th} percentile, 29% in the 50^{th} percentile, 10% in the 75^{th} percentile and -59% in the 90^{th} percentile.

If the relative discriminatory component of the wage difference between native and non-native for both genders is calculated, we observe a different behaviour for men and women along the wage distribution. In particular, the discrimination against immigrants is more intense for women than for men for the lowest wage segment. On the other hand, it is greater for men than for women for the highest wage segment.

The dataset used in this paper just includes information of legalized workers, that is, those registered in the National Health Service. As a significant part of the employment for immigrants is no legal, the real situation of the whole collective of non-native workers is likely to be even worse, though there is not data available to investigate this irregular employment. These results might be regarded as a clear warning for the Spanish labour affair authorities and suggest the need to draft ambitious labour integrating policies that make it possible to face the problem of wage discrimination. It is not easy to build these policies. Doing away with wage differences between natives and immigrants firstly requires adopting educational policies meant to raise the immigrant educational levels to the national average, as wage differences is partly caused by the low educational level, either general or professional, of the immigrant. However, usually the reserve wage of the immigrant is very low, which leads him to accept low-paid jobs and to refuse training programs that do not include an economic support for their living. This requires establishing a mechanism of specific benefits and compensations for immigrants.

On the other hand, to guarantee that with the same educational level, the immigrants get the same earnings as the natives, requires basically increasing the controls over collective bargaining correct application and the non-fraudulent use of hiring. Both the Administration and the Unions should multiply the controls over legality in those firms and occupations where the immigrants are more present. In that sense, the 'Immigrant Integration Plan 2007-2010' (Plan Estratégico de Ciudadanía e Integración) recently passed on, tries to give an answer to the problem of discrimination by nationality in Spain. Likely, some of the measures included in this Plan will be useful to improve the immigrant labour situation.

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Appendix. Variable definitions, descriptive statistics and estimations of wage equations by nationality and gender

TABLE A1 ABOUT HERE

TABLES A2a, A2b AND A2c ABOUT HERE

TABLES A3a AND A3b ABOUT HERE

TABLES A4a AND A4b ABOUT HERE

TABLES A5a AND A5b ABOUT HERE

FIGURE A1 ABOUT HERE

FIGURE A2 ABOUT HERE

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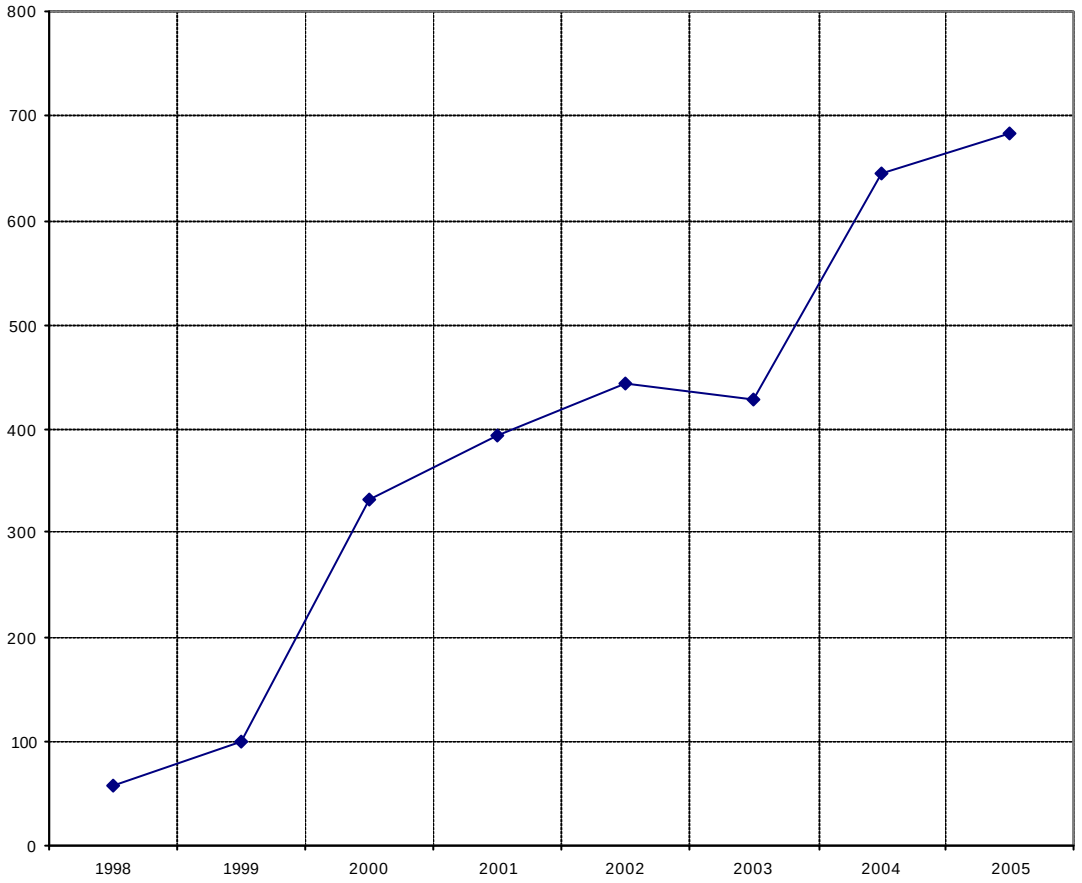
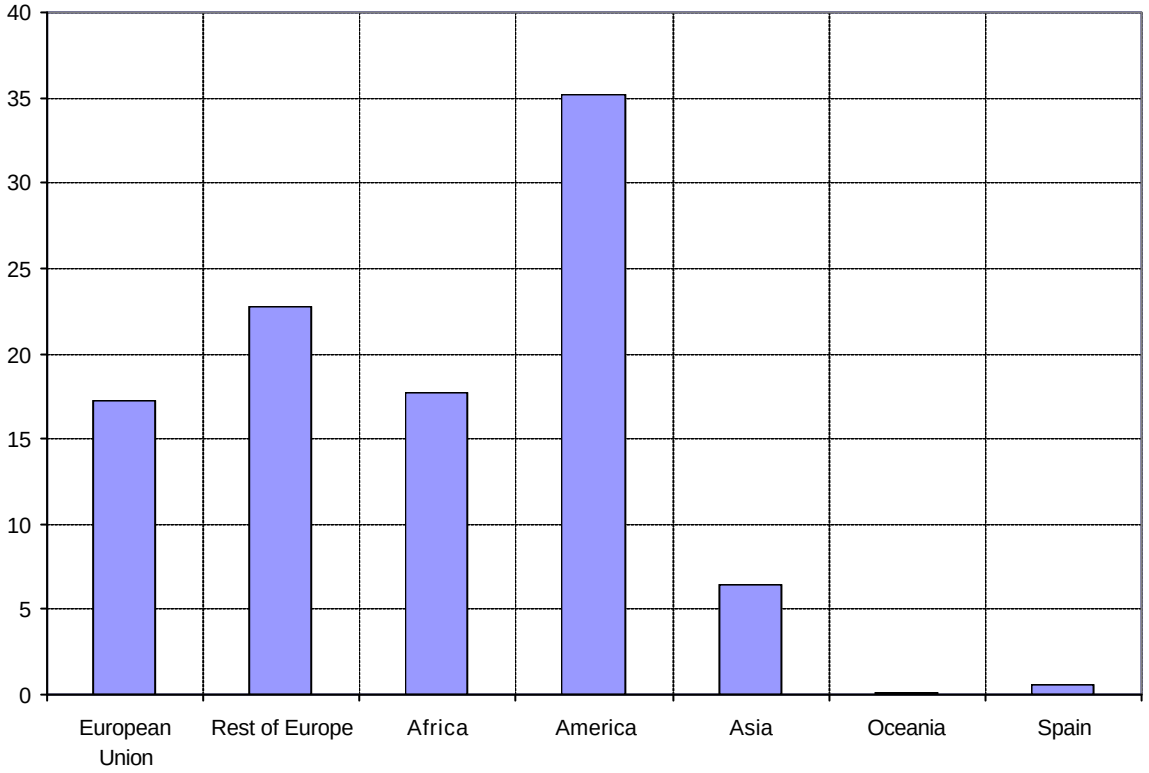
FIGURES A6a AND A6b ABOUT HERE

Figure 1. Foreign immigrations, 1998-2005. Thousands



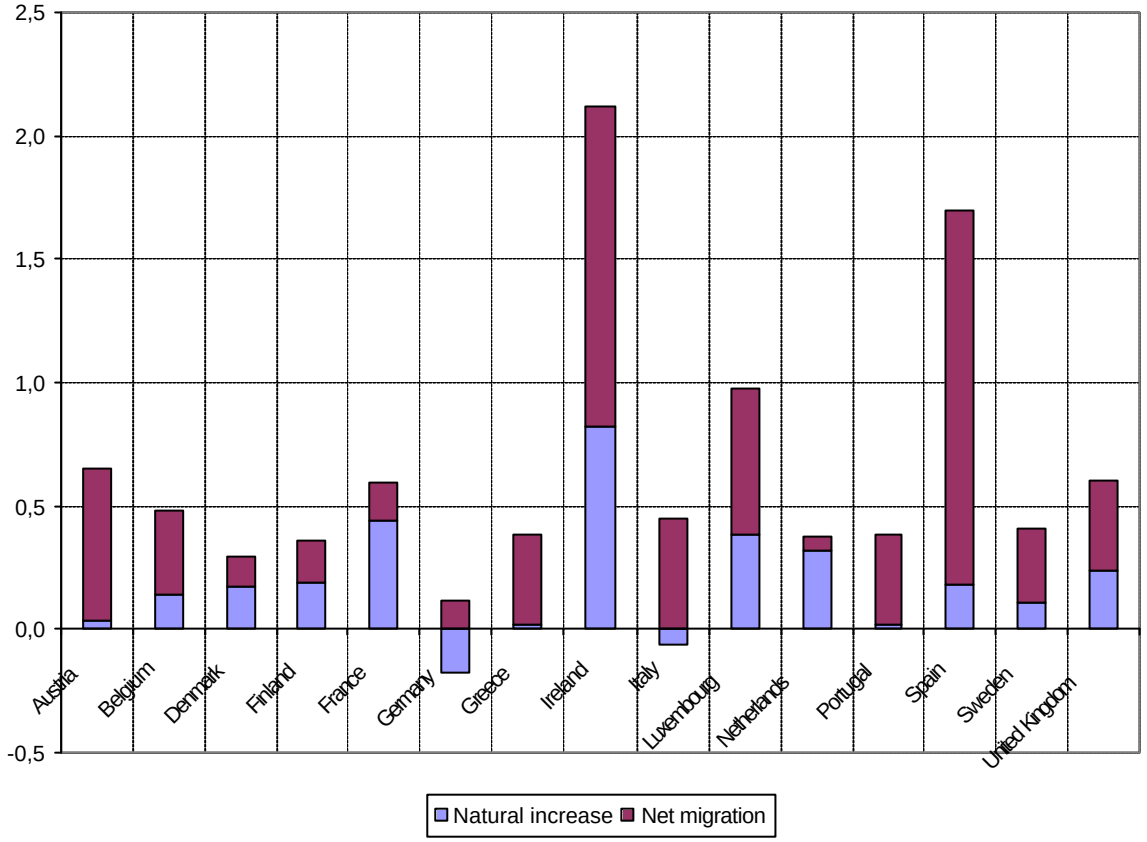
Source: 'Residential Variation Statistic' (*Estadística de Variaciones Residenciales-INE*), 1998-2005

Figure 2. Foreign immigrations by place of birth, 2005. Percentages



Source: 'Residential Variation Statistic' (*Estadística de Variaciones Residenciales-INE*), 2005

Figure 3. Population growth by cause in EU15, 2005. Percentages over total population



Source: EUROSTAT. The figure of population growth due to net migration for Belgium corresponds to year 2004

Table 1. Non-native workers by nationality, 1998-2006. Number (thousands) and percentage over the total number of workers

	Total		European Union		Rest of Europe		South America		Rest of the World and countryless	
	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
1998	221.5	1.6	88.7	0.6	11.6	0.1	43.2	0.3	78.0	0.6
1999	317.8	2.2	106.0	0.7	16.7	0.1	84.0	0.6	111.1	0.8
2000	454.2	2.9	133.8	0.9	36.4	0.2	143.7	0.9	140.3	0.9
2001	682.8	4.2	159.6	1.0	84.8	0.5	262.5	1.6	176.0	1.1
2002	954.2	5.7	176.7	1.1	151.3	0.9	431.7	2.6	194.7	1.2
2003	1,295.6	7.5	180.8	1.0	251.3	1.5	597.3	3.5	266.3	1.5
2004	1,659.3	9.2	209.9	1.2	342.1	1.9	795.8	4.4	311.5	1.7
2005	2,069.1	10.9	272.7	1.4	410.6	2.2	1,013.9	5.3	371,9	2.0
2006	2,461.1	12.5	300.0	1.5	508.6	2.6	1,172.7	5.9	479.8	2.4

Source: Labour Force Survey (*Encuesta de Población Activa-INE*)

Table 2a. Wage equation estimations for the Spanish subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	1.141	0.306	0.811	1.285	1.542	1.697
	(93.02)	(16.40)	(61.50)	(108.03)	(117.51)	(101.79)
Human capital and worker characteristics						
Seniority	0.033	0.038	0.028	0.025	0.024	0.023
	(75.31)	(52.11)	(56.51)	(57.67)	(49.09)	(36.42)
Seniority^2	-0.001	-0.001	-0.001	-0.0004	-0.0004	-0.0004
	(-51.39)	(-38.89)	(-36.79)	(-34.45)	(-28.47)	(-20.50)
Experience	0.019	0.015	0.015	0.017	0.018	0.019
	(44.77)	(23.65)	(34.90)	(43.16)	(41.91)	(36.31)
Experience^2	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(-33.18)	(-16.82)	(-25.03)	(-31.35)	(-29.14)	(-23.31)
Technical Education	0.139	0.138	0.135	0.141	0.144	0.143
	(41.68)	(25.07)	(34.66)	(39.60)	(35.79)	(28.02)
Secondary Education	0.136	0.099	0.107	0.129	0.158	0.193
	(31.47)	(14.86)	(22.77)	(30.42)	(33.51)	(32.68)
University Education	0.315	0.245	0.255	0.289	0.336	0.389
	(54.91)	(28.45)	(42.38)	(53.29)	(55.78)	(50.90)
Male	0.236	0.223	0.223	0.226	0.250	0.277
	(87.29)	(50.56)	(73.46)	(84.35)	(86.01)	(76.00)
Job and firm characteristics						
Permanent contract	0.298	0.683	0.463	0.212	0.144	0.128
	(81.08)	(134.73)	(130.41)	(65.22)	(39.73)	(28.26)
Full-time contract	0.025	0.120	0.076	0.032	-0.009	-0.062
	(4.81)	(17.19)	(15.56)	(7.38)	(-1.88)	(-10.44)
Managers and senior officials	0.805	0.654	0.690	0.762	0.878	0.994
	(78.29)	(45.46)	(68.24)	(83.69)	(86.73)	(77.53)
Professional occupations	0.602	0.564	0.565	0.582	0.633	0.693
	(76.55)	(48.60)	(69.16)	(80.15)	(79.81)	(69.12)
Associate professional and technical occupations	0.362	0.317	0.294	0.318	0.382	0.477
	(68.48)	(39.32)	(51.72)	(62.36)	(68.26)	(67.61)
Administrative and secretarial occupations	0.138	0.180	0.134	0.116	0.130	0.159
	(27.14)	(22.11)	(23.59)	(22.68)	(23.25)	(22.85)
Service occupations	0.102	0.119	0.087	0.086	0.100	0.126
	(18.15)	(13.79)	(14.32)	(15.74)	(16.66)	(16.77)
Qualified agricultural workers	0.046	0.068	-0.027	0.035	0.011	0.044
	(1.40)	(1.24)	(-0.69)	(0.97)	(0.29)	(0.90)
Qualified industrial workers	0.131	0.160	0.122	0.108	0.105	0.134
	(28.07)	(22.46)	(24.31)	(24.01)	(21.06)	(21.47)
Machine operatives	0.099	0.137	0.097	0.080	0.081	0.099
	(22.23)	(19.59)	(19.84)	(18.28)	(16.71)	(16.32)
Firm size 20-49	0.039	0.025	0.039	0.046	0.051	0.050
	(11.55)	(4.65)	(10.11)	(13.35)	(13.30)	(10.24)
Firm size 50-99	0.106	0.089	0.107	0.121	0.120	0.117
	(26.16)	(14.02)	(23.69)	(29.63)	(26.42)	(20.43)
Firm size 100-199	0.141	0.123	0.149	0.158	0.158	0.152
	(32.91)	(18.06)	(30.89)	(36.21)	(32.50)	(24.61)

Firm size >200	0.175	0.171	0.197	0.196	0.195	0.189
	(43.69)	(27.43)	(44.85)	(48.98)	(43.12)	(32.87)
Private company	-0.087	-0.092	-0.084	-0.089	-0.081	-0.048
	(-13.03)	(-8.18)	(-10.69)	(-12.63)	(-10.54)	(-5.06)
Local product market	-0.096	-0.089	-0.083	-0.089	-0.091	-0.095
	(-23.47)	(-13.39)	(-17.87)	(-21.00)	(-19.11)	(-15.58)
National product market	-0.050	-0.055	-0.051	-0.050	-0.045	-0.030
	(-15.42)	(-10.04)	(-13.31)	(-14.32)	(-11.44)	(-6.19)
Firm collective agreement	0.124	0.112	0.126	0.137	0.134	0.134
	(32.60)	(17.74)	(28.71)	(34.29)	(30.17)	(23.72)
Regional-Sector collective agreement	0.020	0.035	0.022	0.015	0.015	0.018
	(7.60)	(8.20)	(7.43)	(5.44)	(5.04)	(4.78)
R^2	0.60	0.39	0.36	0.40	0.43	0.43
No. of observations	138,447					

Table 2b. Wage equation estimations for the non-native subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	0.870	-0.209	0.481	1.066	1.371	1.738
	(7.64)	(-1.07)	(2.91)	(9.81)	(16.64)	(15.95)
Human capital and worker characteristics						
Seniority	0.102	0.125	0.095	0.089	0.082	0.073
	(17.28)	(9.18)	(8.89)	(13.47)	(15.98)	(9.27)
Seniority^2	-0.003	-0.004	-0.003	-0.003	-0.002	-0.002
	(-11.64)	(-8.38)	(-7.10)	(-9.38)	(-9.60)	(-5.20)
Experience	0.016	0.020	0.014	0.013	0.011	0.006
	(4.32)	(2.87)	(2.42)	(3.52)	(3.92)	(1.33)
Experience^2	-0.0002	-0.0003	-0.0002	-0.0002	-0.0001	-0.0001
	(-2.64)	(-1.99)	(-1.60)	(-2.38)	(-2.47)	(-0.10)
Technical Education	0.155	0.220	0.088	0.128	0.154	0.209
	(4.62)	(3.17)	(1.39)	(3.02)	(4.65)	(4.55)
Secondary Education	0.130	0.170	0.137	0.093	0.109	0.105
	(3.96)	(2.50)	(2.40)	(2.44)	(3.75)	(2.51)
University Education	0.384	0.452	0.316	0.301	0.350	0.320
	(8.33)	(4.55)	(4.06)	(6.07)	(9.46)	(5.83)
Male	0.184	0.166	0.156	0.283	0.196	0.239
	(8.87)	(3.95)	(4.38)	(12.74)	(10.81)	(9.21)
Job and firm characteristics						
Permanent contract	0.285	0.450	0.481	0.032	0.147	0.139
	(15.17)	(11.11)	(14.41)	(0.96)	(8.56)	(5.56)
Full-time contract	0.046	0.130	0.101	0.142	-0.023	-0.015
	(1.38)	(2.26)	(2.02)	(5.98)	(-0.92)	(-0.41)
Managers and senior officials	0.989	0.717	0.781	0.980	1.305	1.291
	(10.92)	(4.35)	(5.64)	(11.11)	(20.00)	(13.60)
Professional occupations	0.720	0.464	0.579	0.715	0.888	0.966
	(11.30)	(3.83)	(5.72)	(10.80)	(17.50)	(12.98)
Associate professional and technical occupations	0.414	0.234	0.368	0.403	0.492	0.643
	(9.59)	(2.69)	(5.10)	(8.47)	(13.84)	(12.50)
Administrative and secretarial occupations	0.030	-0.004	0.047	0.036	0.082	0.144
	(0.67)	(-0.05)	(0.61)	(0.70)	(2.09)	(2.59)
Service occupations	0.116	0.162	0.155	0.086	0.087	0.046
	(3.69)	(2.45)	(2.73)	(2.23)	(2.88)	(0.98)
Qualified agricultural workers	-0.019	-0.504	0.049	-0.096	0.208	0.087
	(-0.10)	(-1.93)	(0.21)	(-0.59)	(1.61)	(0.50)
Qualified industrial workers	0.092	0.073	0.117	0.086	0.103	0.069
	(4.05)	(1.51)	(2.86)	(3.17)	(4.89)	(2.25)
Machine operatives	0.046	0.104	0.031	0.018	0.038	0.037
	(1.83)	(1.92)	(0.66)	(0.59)	(1.60)	(1.06)
Firm size 20-49	0.042	0.016	0.050	0.063	0.038	0.053
	(2.03)	(0.38)	(1.37)	(2.56)	(1.98)	(1.87)
Firm size 50-99	0.077	0.102	0.090	0.120	0.073	0.068
	(3.01)	(1.93)	(1.97)	(3.95)	(3.10)	(1.95)
Firm size 100-199	0.092	0.114	0.072	0.104	0.110	0.102
	(3.02)	(1.83)	(1.37)	(2.99)	(4.05)	(2.44)

Firm size >200	0.199	0.234	0.244	0.209	0.197	0.171
	(7.02)	(4.24)	(5.05)	(6.38)	(7.68)	(4.53)
Private company	0.021	0.144	0.0001	0.002	0.055	-0.082
	(0.23)	(1.05)	(0.00)	(0.03)	(0.82)	(-1.01)
Local product market	-0.120	0.038	-0.095	-0.138	-0.126	-0.176
	(-4.16)	(0.63)	(-1.86)	(-4.02)	(-4.80)	(-4.37)
National product market	-0.083	0.007	-0.068	-0.112	-0.087	-0.060
	(-3.10)	(0.12)	(-1.43)	(-3.52)	(-3.54)	(-1.70)
Firm collective agreement	0.127	0.171	0.155	0.098	0.089	0.115
	(3.26)	(2.03)	(2.15)	(2.03)	(2.39)	(2.15)
Regional-Sector collective agreement	0.038	0.024	0.037	0.029	0.005	0.022
	(2.10)	(0.65)	(1.15)	(1.38)	(0.27)	(0.90)
R^2	0.55	0.28	0.30	0.31	0.39	0.49
No. of observations	4,205					

Table 3. Oaxaca decompositions

	Mean	Percentile				
		10	25	50	75	90
Observed wage differential (D)	0.412	0.614	0.514	0.369	0.454	0.328
Differential due to characteristics (A)	0.303	0.145	0.355	0.344	0.422	0.266
Discriminatory component (B)	0.109	0.197	0.236	0.139	0.045	-0.099
Percentage (B/(A+B))*100	26.38	57.54	39.88	28.80	9.55	-58.84

Figure 4. Discriminatory component of the wage differential (B) for each percentile

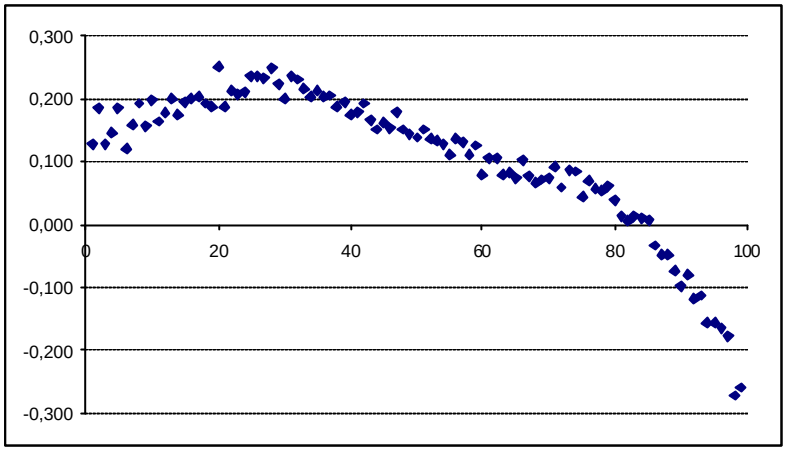
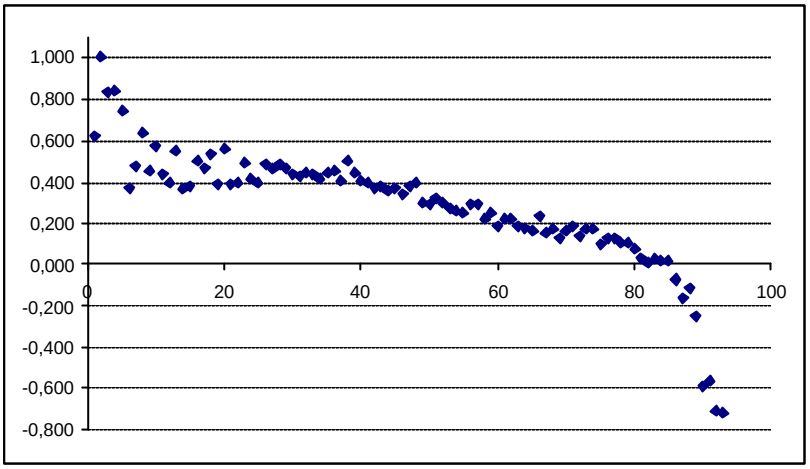


Figure 5. Discriminatory component over the total wage differential ((B/(A+B))*100) for each percentile



Note: Values for percentiles from 95th onwards have not been included as the results distort graphic understanding.

Table A1. Variable definitions

Dependent variable	
Logarithm of gross hourly wages	Gross wage is equal to basic wage plus overtime, seniority and attendance payments, and other earnings related to higher than usual productivity
Independent variables	
Human capital and worker characteristics	
Age	Age of the worker
Seniority	Seniority at firm (years)
Seniority^2	Squared seniority
Experience	Worker's potential experience in labour market (age-years of education-6)
Experience^2	Squared potential experience
Primary Education	Education dummy variable taking value 1 if worker has primary studies and 0 otherwise
Technical Education	Education dummy variable taking value 1 if worker has technical studies and 0 otherwise
Secondary Education	Education dummy variable taking value 1 if worker has secondary studies and 0 otherwise
University Education	Education dummy variable taking value 1 if worker has university studies and 0 otherwise
Male	Dummy variable taking value 1 if worker is a man and 0 otherwise
Spanish	Dummy variable taking value 1 if worker is Spanish and 0 otherwise
Job and firm characteristics	
Permanent contract	Dummy variable taking value 1 if worker has a permanent contract, and 0 otherwise
Full-time contract	Dummy variable taking value 1 if worker has a full-time contract, and 0 otherwise
Managers and senior officials	Dummy variable taking value 1 if worker is a manager and 0 otherwise
Professional occupations	Dummy variable taking value 1 if worker is a professional and 0 otherwise
Associate professional and technical occupations	Dummy variable taking value 1 if worker is an associate professional and 0 otherwise
Administrative and secretarial occupations	Dummy variable taking value 1 if worker is an administrative and 0 otherwise
Service occupations	Dummy variable taking value 1 if worker has a service occupation and 0 otherwise
Qualified agricultural workers	Dummy variable taking value 1 if the individual is a qualified agricultural worker and 0 otherwise
Qualified industrial workers	Dummy variable taking value 1 if the individual is a qualified industrial worker and 0 otherwise
Machine operatives	Dummy variable taking value 1 if worker is a machine operative and 0 otherwise
Elementary occupations	Dummy variable taking value 1 if worker has an elementary occupation and 0 otherwise
Firm size 10-19	Size dummy variable taking value 1 if firm size is between 10 and 19 workers, and 0 otherwise
Firm size 20-49	Size dummy variable taking value 1 if the firm size is between 20 and 49 workers, and 0 otherwise
Firm size 50-99	Size dummy variable taking value 1 if the firm size is between 50 and 99 workers, and 0 otherwise
Firm size 100-199	Size dummy variable taking value 1 if the firm size is between 100 and 199 workers, and 0 otherwise
Firm size >200	Size dummy variable taking value 1 if the firm size is more than 200 workers, and 0 otherwise
Private company	Dummy variable taking value 1 if it is a private firm, and 0 otherwise
Local product market	Dummy variable taking value 1 if the firm sells the products in local or regional markets, and 0 otherwise
National product market	Dummy variable taking value 1 if the firm sells the products in national

	markets, and 0 otherwise
International product market	Dummy variable taking value 1 if the firm sells the products in international markets, and 0 otherwise
Firm collective agreement	Dummy variable taking value 1 if the firm has signed its own collective agreement, and 0 otherwise
Regional-Sector collective agreement	Dummy variable taking value 1 if the firm must apply a regional-sector collective agreement, and 0 otherwise
National-Sector collective agreement	Dummy variable taking value 1 if the firm must apply a national-sector collective agreement, and 0 otherwise
Region	
Andalucia	Dummy variable taking value 1 if worker lives in Andalucia and 0 otherwise
Aragon	Dummy variable taking value 1 if worker lives in Aragon and 0 otherwise
Asturias	Dummy variable taking value 1 if worker lives in Asturias and 0 otherwise
Baleares	Dummy variable taking value 1 if worker lives in Baleares and 0 otherwise
Canarias	Dummy variable taking value 1 if worker lives in Canarias and 0 otherwise
Cantabria	Dummy variable taking value 1 if worker lives in Cantabria and 0 otherwise
Castilla-La Mancha	Dummy variable taking value 1 if worker lives in Castilla-La Mancha and 0 otherwise
Castilla-Leon	Dummy variable taking value 1 if worker lives in Castilla-Leon and 0 otherwise
Catalonia	Dummy variable taking value 1 if worker lives in Catalonia and 0 otherwise
Comunidad Valenciana	Dummy variable taking value 1 if worker lives in Comunidad Valenciana and 0 otherwise
Extremadura	Dummy variable taking value 1 if worker lives in Extremadura and 0 otherwise
Galicia	Dummy variable taking value 1 if worker lives in Galicia and 0 otherwise
Madrid	Dummy variable taking value 1 if worker lives in Madrid and 0 otherwise
Murcia	Dummy variable taking value 1 if worker lives in Murcia and 0 otherwise
Navarra	Dummy variable taking value 1 if worker lives in Navarra and 0 otherwise
País Vasco	Dummy variable taking value 1 if worker lives in País Vasco and 0 otherwise
La Rioja	Dummy variable taking value 1 if worker lives in La Rioja and 0 otherwise
Ceuta-Melilla	Dummy variable taking value 1 if worker lives in Ceuta-Melilla and 0 otherwise
Sector	
Mining	Dummy variable taking value 1 if the individual works in mining and 0 otherwise
Manufacturing	Dummy variable taking value 1 if the individual works in manufacturing and 0 otherwise
Production of electricity	Dummy variable taking value 1 if the individual works in electricity industry and 0 otherwise
Construction	Dummy variable taking value 1 if the individual works in construction and 0 otherwise
Trade	Dummy variable taking value 1 if the individual works in trade and 0 otherwise
Hotel industry	Dummy variable taking value 1 if the individual works in hotel industry and 0 otherwise
Transportation	Dummy variable taking value 1 if the individual works in transportation and 0 otherwise
Finance	Dummy variable taking value 1 if the individual works in finance and 0 otherwise
Real state services	Dummy variable taking value 1 if the individual works in real state services and 0 otherwise
Education	Dummy variable taking value 1 if the individual works in education and 0 otherwise
Health	Dummy variable taking value 1 if the individual works in the health system and 0 otherwise
Other social activities and community services	Dummy variable taking value 1 if the individual works in other social activities and community services and 0 otherwise

Table A2a. Descriptive statistics (whole sample)

	Whole sample		Natives		Non-natives	
	Mean	**St. Dev.**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Dependent variable						
Logarithm of gross hourly wages	2.16	0.65	2.18	0.64	1.76	0.73
Independent variables						
Human capital and worker characteristics						
Age	37.61	10.89	37.71	10.93	34.26	8.79
Seniority	7.87	9.75	8.06	9.81	1.61	3.73
Seniority^2	156.93	302.36	161.19	305.58	16.50	81.70
Experience	20.89	12.16	20.95	12.23	18.95	9.44
Experience^2	584.22	585.88	588.35	589.77	448.05	416.77
Primary Education	0.58	0.49	0.57	0.49	0.73	0.44
Technical Education	0.10	0.30	0.10	0.30	0.07	0.26
Secondary Education	0.16	0.37	0.17	0.37	0.06	0.23
University Education	0.16	0.37	0.17	0.37	0.14	0.34
Male	0.67	0.47	0.67	0.47	0.73	0.44
Spanish	0.97	0.17				
Job and firm characteristics						
Permanent contract	0.76	0.43	0.76	0.42	0.47	0.50
Full-time contract	0.91	0.28	0.91	0.28	0.90	0.30
Managers and senior officials	0.02	0.15	0.02	0.15	0.01	0.12
Professional occupations	0.09	0.28	0.09	0.28	0.07	0.26
Associate professional and technical occupations	0.14	0.35	0.14	0.35	0.07	0.26
Administrative and secretarial occupations	0.11	0.31	0.11	0.31	0.04	0.20
Service occupations	0.09	0.29	0.09	0.29	0.13	0.33
Qualified agricultural workers	0.001	0.03	0.001	0.03	0.003	0.06
Qualified industrial workers	0.19	0.39	0.19	0.39	0.23	0.42
Machine operatives	0.24	0.43	0.24	0.43	0.17	0.37
Elementary occupations	0.12	0.32	0.12	0.32	0.27	0.44
Firm size 10-19	0.19	0.39	0.19	0.39	0.27	0.45
Firm size 20-49	0.23	0.42	0.23	0.42	0.28	0.45
Firm size 50-99	0.14	0.34	0.14	0.34	0.15	0.35
Firm size 100-199	0.12	0.33	0.12	0.33	0.11	0.31
Firm size >200	0.32	0.47	0.32	0.47	0.20	0.40
Private company	0.96	0.19	0.96	0.20	0.99	0.11
Local product market	0.39	0.49	0.38	0.49	0.50	0.50
National product market	0.45	0.50	0.46	0.50	0.37	0.48
International product market	0.16	0.37	0.16	0.37	0.13	0.34
Firm collective agreement	0.15	0.35	0.15	0.36	0.05	0.21
Regional-Sector collective agreement	0.49	0.50	0.48	0.50	0.61	0.49
National-Sector collective agreement	0.37	0.48	0.37	0.48	0.35	0.48
Region						
Andalucia	0.10	0.30	0.10	0.30	0.04	0.19
Aragon	0.05	0.21	0.05	0.21	0.06	0.24
Asturias	0.03	0.17	0.03	0.18	0.01	0.11
Baleares	0.03	0.16	0.03	0.16	0.06	0.23
Canarias	0.04	0.20	0.04	0.20	0.07	0.25
Cantabria	0.02	0.15	0.02	0.15	0.01	0.10

Castilla-La Mancha	0.05	0.21	0.05	0.21	0.04	0.19
Castilla-Leon	0.06	0.23	0.06	0.23	0.03	0.18
Catalonia	0.16	0.37	0.16	0.36	0.22	0.41
Comunidad Valenciana	0.10	0.30	0.10	0.30	0.09	0.29
Extremadura	0.02	0.14	0.02	0.14	0.004	0.07
Galicia	0.06	0.24	0.06	0.24	0.02	0.14
Madrid	0.14	0.35	0.14	0.34	0.21	0.41
Murcia	0.04	0.20	0.04	0.20	0.04	0.19
Navarra	0.03	0.17	0.03	0.17	0.05	0.21
País Vasco	0.06	0.24	0.06	0.24	0.03	0.17
La Rioja	0.02	0.13	0.02	0.13	0.02	0.16
Ceuta-Melilla	0.001	0.04	0.001	0.03	0.003	0.05
Sector						
Mining	0.01	0.08	0.01	0.08	0.01	0.09
Manufacturing	0.53	0.50	0.53	0.50	0.42	0.49
Production of electricity	0.01	0.07	0.01	0.07	0.00	0.03
Construction	0.08	0.27	0.08	0.26	0.17	0.37
Trade	0.09	0.28	0.09	0.28	0.06	0.24
Hotel industry	0.05	0.22	0.05	0.21	0.14	0.34
Transportation	0.03	0.18	0.03	0.18	0.03	0.17
Finance	0.04	0.20	0.04	0.21	0.01	0.09
Real state services	0.07	0.26	0.07	0.26	0.08	0.27
Education	0.04	0.19	0.04	0.19	0.04	0.20
Health	0.04	0.19	0.04	0.20	0.02	0.12
Other social activities and community services	0.02	0.15	0.02	0.15	0.03	0.17
No. of observations	142,652		138,447		4,205	

Table A2b. Descriptive statistics (male subsample)

	Whole male subsample		Native male		Non-native male	
	Mean	**St. Dev.**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Dependent variable						
Logarithm of gross hourly wages	2.26	0.64	2.27	0.63	1.81	0.73
Independent variables						
Human capital and worker characteristics						
Age	38.43	11.14	38.56	11.18	34.42	8.83
Seniority	8.58	10.21	8.82	10.27	1.57	3.67
Seniority^2	177.88	324.61	183.26	328.25	15.90	81.71
Experience	22.04	12.22	22.13	12.29	19.50	9.26
Experience^2	635.14	606.12	640.75	610.44	466.01	423.37
Primary Education	0.61	0.49	0.60	0.49	0.77	0.42
Technical Education	0.16	0.37	0.17	0.37	0.05	0.22
Secondary Education	0.09	0.29	0.09	0.29	0.06	0.24
University Education	0.14	0.34	0.14	0.35	0.11	0.31
Spanish	0.97	0.18				
Job and firm characteristics						
Permanent contract	0.76	0.42	0.77	0.42	0.45	0.50
Full-time contract	0.96	0.18	0.97	0.18	0.95	0.22
Managers and senior officials	0.03	0.16	0.03	0.16	0.02	0.13
Professional occupations	0.07	0.26	0.07	0.26	0.06	0.23
Associate professional and technical occupations	0.13	0.34	0.14	0.34	0.06	0.24
Administrative and secretarial occupations	0.07	0.25	0.07	0.26	0.02	0.14
Service occupations	0.06	0.23	0.06	0.23	0.08	0.28
Qualified agricultural workers	0.001	0.04	0.001	0.04	0.004	0.06
Qualified industrial workers	0.26	0.44	0.26	0.44	0.30	0.46
Machine operatives	0.28	0.45	0.29	0.45	0.19	0.39
Elementary occupations	0.10	0.30	0.09	0.29	0.27	0.44
Firm size 10-19	0.19	0.40	0.19	0.39	0.27	0.45
Firm size 20-49	0.24	0.43	0.24	0.43	0.29	0.45
Firm size 50-99	0.15	0.35	0.15	0.35	0.16	0.36
Firm size 100-199	0.13	0.33	0.13	0.33	0.11	0.31
Firm size >200	0.29	0.46	0.30	0.46	0.18	0.38
Private company	0.97	0.17	0.97	0.17	0.99	0.10
Local product market	0.37	0.48	0.36	0.48	0.50	0.50
National product market	0.46	0.50	0.47	0.50	0.38	0.49
International product market	0.17	0.38	0.17	0.38	0.12	0.33
Firm collective agreement	0.16	0.37	0.17	0.37	0.05	0.21
Regional-Sector collective agreement	0.34	0.47	0.34	0.47	0.34	0.47
National-Sector collective agreement	0.50	0.50	0.49	0.50	0.62	0.49
Region						
Andalucia	0.10	0.30	0.10	0.30	0.03	0.18
Aragon	0.05	0.21	0.05	0.21	0.06	0.25
Asturias	0.03	0.18	0.04	0.19	0.01	0.11
Baleares	0.03	0.16	0.03	0.16	0.06	0.23
Canarias	0.04	0.20	0.04	0.20	0.07	0.25
Cantabria	0.02	0.15	0.02	0.15	0.01	0.11

Castilla-La Mancha	0.05	0.22	0.05	0.22	0.04	0.19
Castilla-Leon	0.06	0.24	0.06	0.24	0.04	0.19
Catalonia	0.15	0.35	0.14	0.35	0.22	0.42
Comunidad Valenciana	0.10	0.30	0.10	0.30	0.09	0.29
Extremadura	0.02	0.14	0.02	0.15	0.004	0.06
Galicia	0.06	0.24	0.06	0.24	0.02	0.13
Madrid	0.13	0.33	0.12	0.33	0.19	0.39
Murcia	0.04	0.20	0.04	0.20	0.04	0.20
Navarra	0.03	0.17	0.03	0.17	0.05	0.22
País Vasco	0.07	0.25	0.07	0.25	0.03	0.17
La Rioja	0.02	0.14	0.02	0.14	0.03	0.17
Ceuta-Melilla	0.001	0.04	0.001	0.04	0.004	0.06
Sector						
Mining	0.01	0.09	0.01	0.09	0.01	0.10
Manufacturing	0.59	0.49	0.59	0.49	0.47	0.50
Production of electricity	0.01	0.08	0.01	0.08	0.002	0.04
Construction	0.11	0.31	0.10	0.31	0.23	0.42
Trade	0.07	0.25	0.07	0.25	0.05	0.23
Hotel industry	0.03	0.18	0.03	0.17	0.09	0.28
Transportation	0.04	0.20	0.04	0.20	0.03	0.18
Finance	0.04	0.20	0.04	0.20	0.01	0.09
Real state services	0.05	0.21	0.05	0.21	0.05	0.23
Education	0.02	0.14	0.02	0.14	0.02	0.15
Health	0.02	0.12	0.02	0.13	0.005	0.07
Other social activities and community services	0.02	0.13	0.02	0.13	0.03	0.16
No. of observations	96,019		92,934		3,085	

Table A2c. Descriptive statistics (female subsample)

	Whole female subsample		Native female		Non-native female	
	Mean	**St. Dev.**	**Mean**	**St. Dev.**	**Mean**	**St. Dev.**
Dependent variable						
Logarithm of gross hourly wages	1.97	0.64	1.98	0.63	1.65	0.73
Independent variables						
Human capital and worker characteristics						
Age	35.92	10.17	35.98	10.20	33.83	8.69
Seniority	6.38	8.55	6.50	8.60	1.72	3.91
Seniority^2	113.78	244.83	116.14	247.03	18.18	81.67
Experience	18.52	11.68	18.54	11.72	17.42	9.76
Experience^2	479.37	526.56	481.36	529.26	398.57	393.98
Primary Education	0.50	0.50	0.50	0.50	0.62	0.49
Technical Education	0.16	0.37	0.17	0.37	0.07	0.25
Secondary Education	0.11	0.32	0.11	0.32	0.10	0.30
University Education	0.22	0.41	0.22	0.41	0.22	0.41
Spanish	0.98	0.15				
Job and firm characteristics						
Permanent contract	0.74	0.44	0.74	0.44	0.54	0.50
Full-time contract	0.81	0.40	0.81	0.39	0.75	0.44
Managers and senior officials	0.01	0.10	0.01	0.10	0.01	0.10
Professional occupations	0.12	0.32	0.12	0.32	0.11	0.31
Associate professional and technical occupations	0.15	0.36	0.16	0.36	0.10	0.30
Administrative and secretarial occupations	0.18	0.39	0.18	0.39	0.10	0.30
Service occupations	0.17	0.37	0.17	0.37	0.25	0.43
Qualified agricultural workers	0.0002	0.02	0.0002	0.01	0.0009	0.03
Qualified industrial workers	0.06	0.23	0.06	0.23	0.05	0.21
Machine operatives	0.15	0.35	0.15	0.35	0.10	0.30
Elementary occupations	0.17	0.37	0.16	0.37	0.28	0.45
Firm size 10-19	0.18	0.38	0.18	0.38	0.27	0.44
Firm size 20-49	0.22	0.41	0.22	0.41	0.25	0.44
Firm size 50-99	0.12	0.32	0.12	0.32	0.13	0.33
Firm size 100-199	0.11	0.32	0.11	0.32	0.11	0.32
Firm size >200	0.37	0.48	0.37	0.48	0.24	0.43
Private company	0.94	0.24	0.94	0.24	0.98	0.14
Local product market	0.43	0.50	0.43	0.50	0.52	0.50
National product market	0.43	0.50	0.44	0.50	0.33	0.47
International product market	0.13	0.34	0.13	0.34	0.15	0.35
Firm collective agreement	0.11	0.31	0.11	0.31	0.05	0.22
Regional-Sector collective agreement	0.43	0.49	0.43	0.49	0.37	0.48
National-Sector collective agreement	0.46	0.50	0.46	0.50	0.58	0.49
Region						
Andalucia	0.09	0.29	0.09	0.29	0.04	0.20
Aragon	0.04	0.20	0.04	0.20	0.05	0.22
Asturias	0.02	0.15	0.02	0.15	0.01	0.11
Baleares	0.03	0.17	0.03	0.16	0.06	0.24
Canarias	0.04	0.20	0.04	0.20	0.08	0.27
Cantabria	0.02	0.13	0.02	0.13	0.01	0.07

Castilla-La Mancha	0.04	0.19	0.04	0.19	0.03	0.17
Castilla-Leon	0.05	0.22	0.05	0.22	0.02	0.15
Catalonia	0.19	0.39	0.19	0.39	0.21	0.41
Comunidad Valenciana	0.10	0.29	0.10	0.29	0.09	0.28
Extremadura	0.02	0.14	0.02	0.14	0.004	0.07
Galicia	0.06	0.24	0.06	0.24	0.02	0.15
Madrid	0.17	0.37	0.16	0.37	0.27	0.45
Murcia	0.04	0.20	0.04	0.20	0.03	0.16
Navarra	0.03	0.16	0.03	0.16	0.04	0.20
País Vasco	0.05	0.22	0.05	0.22	0.02	0.14
La Rioja	0.02	0.13	0.02	0.13	0.01	0.11
Ceuta-Melilla	0.0006	0.02	0.0006	0.02	0.00	0.00
Sector						
Mining	0.001	0.04	0.001	0.04	0.003	0.05
Manufacturing	0.39	0.49	0.40	0.49	0.29	0.45
Production of electricity	0.003	0.05	0.003	0.05	0.00	0.00
Construction	0.02	0.13	0.02	0.13	0.01	0.10
Trade	0.12	0.33	0.13	0.33	0.08	0.27
Hotel industry	0.08	0.27	0.08	0.26	0.27	0.44
Transportation	0.02	0.14	0.02	0.14	0.02	0.14
Finance	0.05	0.21	0.05	0.21	0.01	0.10
Real state services	0.12	0.33	0.12	0.32	0.14	0.35
Education	0.07	0.26	0.07	0.26	0.09	0.29
Health	0.09	0.28	0.09	0.28	0.05	0.21
Other social activities and community services	0.04	0.19	0.04	0.19	0.04	0.20
No. of observations	46,663		45,513		1,120	

Figure A1. Distribution of the logarithm of gross hourly wages for both native and non-native workers

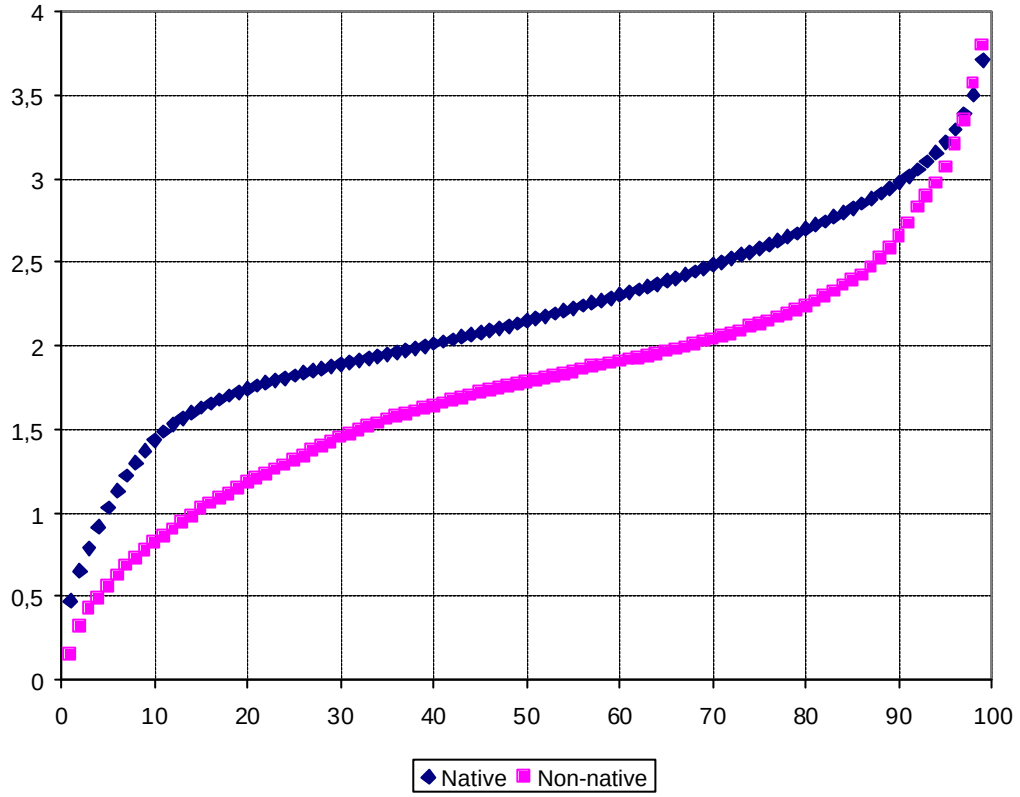


Figure A2. Difference of the logarithm of gross hourly wages between native and non-native workers

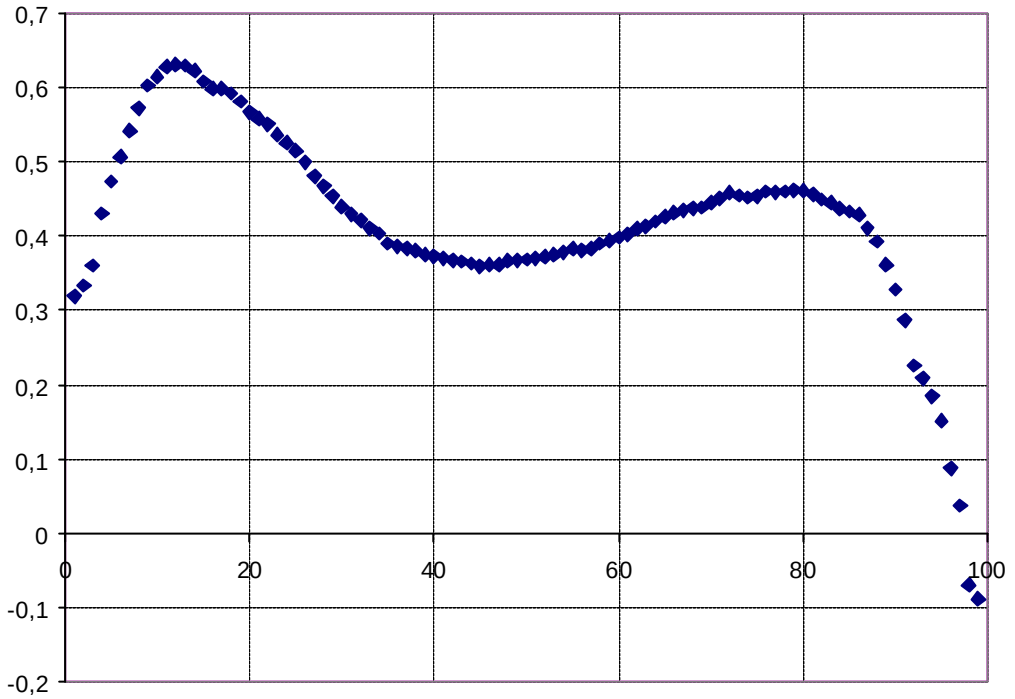


Table A3a. Wage equation estimations for the Spanish male subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	1.225	0.355	0.872	1.358	1.666	1.863
	(68.31)	(14.74)	(49.23)	(91.02)	(97.48)	(80.84)
Human capital and worker characteristics						
Seniority	0.031	0.035	0.026	0.025	0.024	0.022
	(60.27)	(41.90)	(45.29)	(51.97)	(42.79)	(29.00)
Seniority^2	-0.001	-0.001	-0.0005	-0.0004	-0.0004	-0.0004
	(-41.59)	(-30.94)	(-29.88)	(-32.07)	(-26.01)	(-16.73)
Experience	0.021	0.016	0.016	0.018	0.019	0.022
	(39.64)	(21.88)	(30.49)	(40.38)	(38.65)	(32.72)
Experience^2	-0.0003	-0.0002	-0.0002	-0.0003	-0.0003	-0.0003
	(-29.46)	(-15.76)	(-22.01)	(-29.67)	(-26.92)	(-21.19)
Technical Education	0.145	0.140	0.135	0.143	0.151	0.164
	(36.95)	(22.25)	(29.14)	(36.42)	(33.13)	(26.60)
Secondary Education	0.140	0.093	0.096	0.127	0.166	0.209
	(26.17)	(11.68)	(16.46)	(25.90)	(29.70)	(27.98)
University Education	0.312	0.227	0.242	0.287	0.348	0.399
	(42.07)	(21.78)	(31.61)	(44.72)	(47.20)	(40.63)
Job and firm characteristics						
Permanent contract	0.284	0.682	0.429	0.187	0.133	0.124
	(61.13)	(111.47)	(96.17)	(49.19)	(30.43)	(21.26)
Full-time contract	0.094	0.238	0.188	0.113	0.018	-0.071
	(8.63)	(20.32)	(21.95)	(15.69)	(2.18)	(-6.59)
Managers and senior officials	0.827	0.677	0.717	0.778	0.882	0.987
	(70.19)	(42.60)	(61.80)	(79.91)	(79.14)	(66.26)
Professional occupations	0.610	0.577	0.582	0.573	0.614	0.681
	(58.77)	(40.05)	(55.02)	(65.30)	(62.17)	(52.06)
Associate professional and technical occupations	0.384	0.323	0.310	0.332	0.408	0.490
	(56.40)	(33.27)	(43.39)	(55.35)	(60.23)	(54.22)
Administrative and secretarial occupations	0.141	0.177	0.137	0.108	0.125	0.166
	(19.91)	(16.33)	(17.17)	(16.17)	(16.78)	(17.04)
Service occupations	0.134	0.143	0.118	0.110	0.114	0.143
	(15.66)	(11.34)	(12.75)	(14.30)	(13.10)	(12.55)
Qualified agricultural workers	0.076	0.077	0.042	0.030	0.024	0.034
	(2.29)	(1.41)	(1.03)	(0.89)	(0.62)	(0.66)
Qualified industrial workers	0.156	0.186	0.152	0.127	0.122	0.142
	(27.57)	(23.51)	(25.92)	(25.47)	(21.35)	(18.84)
Machine operatives	0.130	0.164	0.130	0.103	0.104	0.118
	(23.35)	(20.44)	(22.15)	(20.69)	(18.16)	(15.47)
Firm size 20-49	0.044	0.026	0.039	0.054	0.060	0.055
	(10.75)	(4.17)	(8.59)	(13.98)	(13.53)	(9.28)
Firm size 50-99	0.118	0.089	0.118	0.135	0.140	0.139
	(24.37)	(12.25)	(22.12)	(30.15)	(27.05)	(20.00)
Firm size 100-199	0.165	0.149	0.173	0.184	0.188	0.180
	(32.28)	(18.83)	(29.89)	(37.74)	(33.42)	(23.74)
Firm size >200	0.203	0.198	0.227	0.227	0.223	0.210
	(40.54)	(26.65)	(41.74)	(49.23)	(41.42)	(28.95)

Private company	-0.038	-0.063	-0.038	-0.038	-0.018	0.019
	(-4.15)	(-4.29)	(-3.57)	(-4.32)	(-1.78)	(1.40)
Local product market	-0.087	-0.082	-0.072	-0.075	-0.078	-0.080
	(-17.99)	(-10.80)	(-13.01)	(-15.98)	(-14.38)	(-10.76)
National product market	-0.039	-0.050	-0.039	-0.035	-0.036	-0.018
	(-10.42)	(-8.14)	(-8.73)	(-9.06)	(-8.06)	(-3.00)
Firm collective agreement	0.120	0.108	0.123	0.136	0.126	0.123
	(26.38)	(14.98)	(23.46)	(30.47)	(24.31)	(17.74)
Regional-Sector collective agreement	0.015	0.024	0.014	0.011	0.011	0.018
	(4.72)	(4.85)	(3.77)	(3.57)	(3.05)	(3.94)
R^2	0.59	0.39	0.35	0.39	0.41	0.42
No. of observations			92,934			

Table A3b. Wage equation estimations for the non-native male subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	0.911	0.025	0.467	1.015	1.333	1.452
	(6.15)	(0.10)	(2.34)	(6.86)	(11.48)	(9.31)
Human capital and worker characteristics						
Seniority	0.100	0.120	0.095	0.090	0.079	0.075
	(13.68)	(7.86)	(7.89)	(10.66)	(11.90)	(7.61)
Seniority^2	-0.003	-0.004	-0.003	-0.003	-0.002	-0.002
	(-9.28)	(-7.82)	(-6.67)	(-7.57)	(-7.19)	(-4.90)
Experience	0.017	0.023	0.015	0.012	0.011	0.014
	(3.90)	(3.02)	(2.25)	(2.57)	(3.08)	(2.85)
Experience^2	-0.0002	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002
	(-2.49)	(-2.01)	(-1.23)	(-1.65)	(-2.15)	(-1.66)
Technical Education	0.163	0.246	0.149	0.136	0.178	0.231
	(4.05)	(3.23)	(2.11)	(2.52)	(4.38)	(4.23)
Secondary Education	0.117	0.259	0.152	0.030	0.042	0.119
	(2.91)	(3.40)	(2.36)	(0.60)	(1.12)	(2.31)
University Education	0.351	0.392	0.262	0.286	0.331	0.330
	(5.37)	(3.17)	(2.70)	(4.22)	(6.64)	(4.78)
Job and firm characteristics						
Permanent contract	0.270	0.457	0.441	0.249	0.130	0.124
	(11.79)	(10.03)	(11.74)	(8.71)	(5.90)	(4.11)
Full-time contract	0.068	0.148	0.147	0.043	0.031	-0.002
	(1.19)	(1.70)	(1.98)	(0.76)	(0.73)	(-0.04)
Managers and senior officials	1.109	0.885	0.931	1.103	1.387	1.326
	(10.05)	(4.97)	(6.17)	(10.28)	(17.13)	(11.72)
Professional occupations	0.812	0.568	0.686	0.799	0.957	1.071
	(9.44)	(3.86)	(5.66)	(8.97)	(14.40)	(11.47)
Associate professional and technical occupations	0.488	0.207	0.420	0.440	0.647	0.722
	(8.54)	(2.02)	(4.93)	(7.09)	(13.99)	(11.61)
Administrative and secretarial occupations	0.090	0.096	0.196	0.034	0.084	-0.004
	(1.31)	(0.74)	(1.73)	(0.40)	(1.30)	(-0.04)
Service occupations	0.173	0.142	0.193	0.162	0.123	0.070
	(3.57)	(1.68)	(2.47)	(2.62)	(2.54)	(1.02)
Qualified agricultural workers	-0.089	-0.597	0.001	-0.079	0.179	0.023
	(-0.43)	(-2.26)	(0.01)	(-0.45)	(1.36)	(0.12)
Qualified industrial workers	0.101	0.083	0.120	0.081	0.114	0.085
	(4.13)	(1.76)	(2.94)	(2.60)	(4.73)	(2.60)
Machine operatives	0.071	0.124	0.066	0.016	0.055	0.065
	(2.49)	(2.24)	(1.37)	(0.44)	(1.98)	(1.73)
Firm size 20-49	0.021	-0.001	0.039	0.045	0.034	0.052
	(0.90)	(-0.02)	(0.97)	(1.49)	(1.42)	(1.59)
Firm size 50-99	0.069	0.073	0.093	0.133	0.072	0.071
	(2.30)	(1.33)	(1.92)	(3.58)	(2.52)	(1.80)
Firm size 100-199	0.077	0.076	0.083	0.132	0.139	0.118
	(2.14)	(1.15)	(1.44)	(3.01)	(4.06)	(2.47)
Firm size >200	0.206	0.261	0.287	0.236	0.225	0.234
	(5.89)	(4.23)	(5.33)	(5.67)	(6.97)	(5.28)

Private company	0.140	0.004	0.091	0.191	0.220	0.273
	(1.13)	(0.02)	(0.58)	(1.61)	(2.35)	(2.15)
Local product market	-0.114	0.038	-0.062	-0.116	-0.087	-0.114
	(-3.39)	(0.59)	(-1.08)	(-2.67)	(-2.64)	(-2.45)
National product market	-0.081	0.001	-0.083	-0.077	-0.054	-0.032
	(-2.61)	(0.02)	(-1.56)	(-1.93)	(-1.76)	(-0.79)
Firm collective agreement	0.110	0.132	0.121	0.118	0.066	0.117
	(2.24)	(1.47)	(1.48)	(1.90)	(1.43)	(1.95)
Regional-Sector collective agreement	0.045	0.038	0.032	0.045	-0.004	0.009
	(2.15)	(0.95)	(0.93)	(1.70)	(-0.18)	(0.33)
R^2	0.55	0.27	0.28	0.30	0.39	0.50
No. of observations			3,085			

Table A4a. Wage equation estimations for the Spanish female subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	1.322	0.475	0.929	1.430	1.748	1.893
	(67.78)	(15.40)	(41.29)	(81.36)	(87.39)	(81.19)
Human capital and worker characteristics						
Seniority	0.036	0.047	0.031	0.026	0.024	0.025
	(44.39)	(33.13)	(31.84)	(33.28)	(27.00)	(23.48)
Seniority^2	-0.001	-0.001	-0.001	-0.0005	-0.0004	-0.0004
	(-29.25)	(-24.63)	(-20.23)	(-18.37)	(-13.26)	(-11.38)
Experience	0.016	0.014	0.014	0.015	0.014	0.015
	(22.35)	(12.24)	(17.90)	(24.83)	(20.34)	(18.75)
Experience^2	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(-18.10)	(-9.51)	(-13.78)	(-19.37)	(-15.58)	(-13.90)
Technical Education	0.102	0.102	0.107	0.108	0.099	0.101
	(15.82)	(9.75)	(13.84)	(17.57)	(13.78)	(11.74)
Secondary Education	0.118	0.106	0.109	0.120	0.128	0.155
	(15.94)	(9.12)	(13.08)	(18.07)	(16.72)	(17.21)
University Education	0.291	0.240	0.248	0.263	0.279	0.350
	(31.01)	(16.69)	(23.74)	(31.99)	(29.39)	(30.93)
Job and firm characteristics						
Permanent contract	0.316	0.651	0.508	0.253	0.158	0.133
	(52.59)	(77.27)	(83.08)	(51.71)	(27.67)	(20.12)
Full-time contract	-0.002	0.058	0.044	0.007	-0.022	-0.068
	(-0.35)	(6.55)	(6.93)	(1.46)	(-3.94)	(-10.39)
Managers and senior officials	0.806	0.699	0.678	0.766	0.903	0.981
	(33.89)	(20.99)	(27.84)	(39.86)	(40.58)	(37.72)
Professional occupations	0.613	0.565	0.574	0.620	0.677	0.688
	(49.74)	(30.46)	(41.67)	(57.99)	(55.58)	(47.50)
Associate professional and technical occupations	0.343	0.334	0.299	0.310	0.366	0.434
	(38.62)	(23.85)	(29.29)	(38.82)	(39.94)	(39.92)
Administrative and secretarial occupations	0.132	0.194	0.143	0.127	0.126	0.135
	(16.54)	(15.12)	(15.44)	(17.52)	(15.21)	(13.81)
Service occupations	0.091	0.111	0.093	0.089	0.105	0.114
	(11.23)	(8.71)	(10.00)	(12.33)	(12.68)	(11.72)
Qualified agricultural workers	0.051	0.145	-0.094	0.146	0.083	0.232
	(0.34)	(0.71)	(-0.68)	(1.28)	(0.65)	(1.43)
Qualified industrial workers	0.027	0.053	0.013	0.034	0.035	0.073
	(2.61)	(3.16)	(1.04)	(3.52)	(3.22)	(5.56)
Machine operatives	0.017	0.062	0.014	0.014	0.015	0.033
	(2.11)	(4.65)	(1.39)	(1.82)	(1.75)	(3.23)
Firm size 20-49	0.029	0.023	0.029	0.031	0.033	0.030
	(4.70)	(2.31)	(4.00)	(5.32)	(5.03)	(3.85)
Firm size 50-99	0.078	0.082	0.078	0.080	0.080	0.078
	(10.52)	(7.00)	(8.95)	(11.63)	(9.99)	(8.39)
Firm size 100-199	0.086	0.067	0.078	0.101	0.093	0.096
	(11.21)	(5.46)	(8.64)	(14.00)	(11.12)	(9.87)
Firm size >200	0.126	0.117	0.134	0.139	0.141	0.148
	(18.64)	(10.92)	(16.95)	(22.12)	(19.25)	(17.16)

Private company	-0.157	-0.145	-0.146	-0.154	-0.157	-0.111
	(-15.93)	(-8.67)	(-11.85)	(-15.97)	(-14.41)	(-8.76)
Local product market	-0.123	-0.099	-0.110	-0.124	-0.127	-0.135
	(-16.01)	(-8.11)	(-12.21)	(-17.38)	(-15.25)	(-13.79)
National product market	-0.071	-0.054	-0.073	-0.082	-0.066	-0.059
	(-11.05)	(-5.23)	(-9.56)	(-13.56)	(-9.44)	(-7.10)
Firm collective agreement	0.112	0.081	0.104	0.119	0.136	0.168
	(15.41)	(6.93)	(12.14)	(17.72)	(17.71)	(18.63)
Regional-Sector collective agreement	0.016	0.038	0.024	0.017	0.017	0.014
	(3.56)	(5.14)	(4.36)	(3.99)	(3.47)	(2.41)
R^2	0.58	0.37	0.34	0.37	0.43	0.43
No. of observations	45,513					

Table A4b. Wage equation estimations for the non-native female subsample
Dependent variable: Logarithm of gross hourly wages

		Percentile				
	Mean	**10**	**25**	**50**	**75**	**90**
Independent variables	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**	**Coefficient (t-statistics)**
Constant	1.100	-0.035	0.520	1.187	1.828	2.096
	(5.75)	(-0.10)	(2.01)	(8.30)	(8.78)	(10.25)
Human capital and worker characteristics						
Seniority	0.106	0.128	0.130	0.083	0.074	0.062
	(10.42)	(5.18)	(7.25)	(8.48)	(5.08)	(4.28)
Seniority^2	-0.003	-0.004	-0.004	-0.002	-0.002	-0.001
	(-6.86)	(-4.38)	(-6.00)	(-5.41)	(-3.09)	(-1.42)
Experience	0.010	0.009	0.019	0.015	0.004	0.006
	(1.52)	(0.71)	(1.94)	(2.74)	(0.45)	(0.51)
Experience^2	-0.0001	-0.0001	-0.0004	-0.0003	-0.0001	-0.0001
	(-0.76)	(-0.28)	(-1.86)	(-2.31)	(-0.06)	(-0.08)
Technical Education	0.159	0.169	0.191	0.157	0.139	0.167
	(2.49)	(1.20)	(1.76)	(2.50)	(1.50)	(1.56)
Secondary Education	0.142	0.002	0.148	0.151	0.127	0.088
	(2.43)	(0.02)	(1.57)	(2.84)	(1.66)	(1.12)
University Education	0.421	0.391	0.391	0.343	0.370	0.505
	(6.26)	(2.68)	(3.43)	(5.40)	(4.14)	(4.62)
Job and firm characteristics						
Permanent contract	0.318	0.488	0.482	0.395	0.219	0.180
	(9.10)	(6.96)	(8.82)	(12.31)	(4.35)	(3.20)
Full-time contract	0.049	0.133	0.081	0.065	-0.045	-0.073
	(1.12)	(1.57)	(1.32)	(1.87)	(-0.84)	(-1.18)
Managers and senior officials	0.591	0.565	0.419	0.821	0.857	0.531
	(3.90)	(1.58)	(2.03)	(5.88)	(4.00)	(4.36)
Professional occupations	0.498	0.306	0.268	0.610	0.730	0.592
	(4.87)	(1.47)	(1.69)	(6.80)	(5.46)	(4.18)
Associate professional and technical occupations	0.243	0.319	0.160	0.325	0.315	0.272
	(3.50)	(2.11)	(1.30)	(4.85)	(3.37)	(2.74)
Administrative and secretarial occupations	-0.065	-0.089	-0.187	0.062	-0.037	0.028
	(-0.96)	(-0.66)	(-1.69)	(1.04)	(-0.42)	(0.27)
Service occupations	0.050	0.195	0.022	0.077	0.021	0.012
	(1.10)	(2.05)	(0.30)	(1.75)	(0.31)	(0.15)
Qualified agricultural workers	0.589	1.094	0.782	0.406	0.319	0.087
	(8.42)	(8.04)	(7.12)	(6.20)	(3.02)	(0.75)
Qualified industrial workers	0.096	0.191	0.125	0.132	0.129	0.116
	(1.25)	(1.11)	(1.01)	(1.79)	(1.17)	(0.87)
Machine operatives	-0.051	0.034	-0.040	0.006	-0.114	-0.094
	(-0.85)	(0.27)	(-0.40)	(0.10)	(-1.30)	(-0.93)
Firm size 20-49	0.086	0.015	0.127	0.094	0.087	0.046
	(2.09)	(0.19)	(1.95)	(2.45)	(1.48)	(0.69)
Firm size 50-99	0.098	0.127	0.095	0.145	0.081	0.025
	(1.79)	(1.11)	(1.12)	(2.91)	(1.04)	(0.28)
Firm size 100-199	0.153	0.159	0.149	0.091	0.098	0.114
	(2.56)	(1.39)	(1.65)	(1.72)	(1.20)	(1.12)
Firm size >200	0.212	0.231	0.256	0.214	0.123	0.169
	(4.31)	(2.38)	(3.18)	(4.48)	(1.65)	(1.96)

Private company	-0.159	0.176	-0.009	-0.280	-0.320	-0.249
	(-1.13)	(0.74)	(-0.05)	(-2.66)	(-2.02)	(-1.73)
Local product market	-0.118	-0.027	-0.111	-0.110	-0.141	-0.226
	(-2.19)	(-0.22)	(-1.27)	(-2.11)	(-1.75)	(-2.42)
National product market	-0.075	-0.003	-0.028	-0.118	-0.087	-0.098
	(-1.46)	(-0.02)	(-0.34)	(-2.43)	(-1.14)	(-1.20)
Firm collective agreement	0.148	0.268	0.231	0.140	0.049	0.019
	(2.36)	(1.88)	(1.94)	(2.02)	(0.45)	(0.15)
Regional-Sector collective agreement	-0.003	-0.060	-0.039	-0.026	0.003	-0.008
	(-0.08)	(-0.85)	(-0.67)	(-0.75)	(0.06)	(-0.13)
R^2	0.49	0.35	0.34	0.35	0.43	0.50
No. of observations			1,120			

Table A5a. Oaxaca decompositions (male subsample)

	Mean	Percentile				
		10	25	50	75	90
Observed wage differential (D)	0.468	0.720	0.552	0.425	0.503	0.388
Differential due to characteristics (A)	0.348	0.236	0.328	0.339	0.472	0.353
Discriminatory component (B)	0.120	0.159	0.241	0.150	0.058	-0.054
Percentage (B/(A+B))*100	25.70	40.23	42.36	30.66	11.02	-18.24

Table A5b. Oaxaca decompositions (female subsample)

	Mean	Percentile				
		10	25	50	75	90
Observed wage differential (D)	0.329	0.546	0.445	0.267	0.354	0.175
Differential due to characteristics (A)	0.240	0.167	0.291	0.191	0.362	0.159
Discriminatory component (B)	0.089	0.222	0.166	0.129	0.040	-0.081
Percentage (B/(A+B))*100	26.92	57.10	36.37	40.33	9.92	-103.76

Figure A3a. Discriminatory component of the wage differential (B) for each percentile (male subsample)

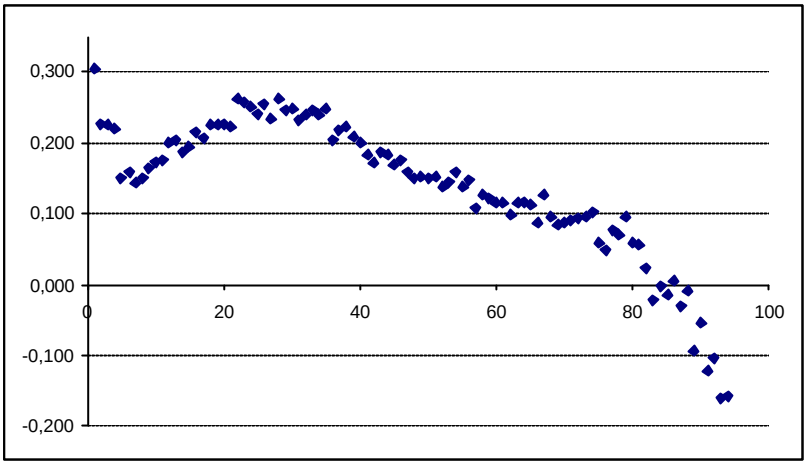


Figure A3b. Discriminatory component of the wage differential (B) for each percentile (female subsample)

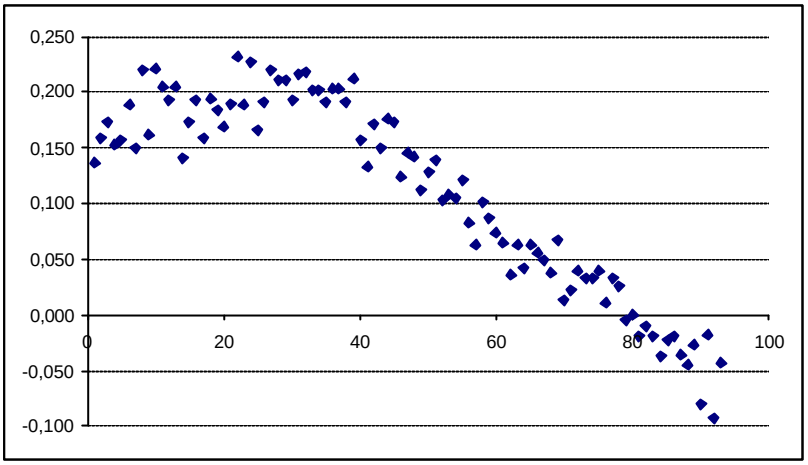
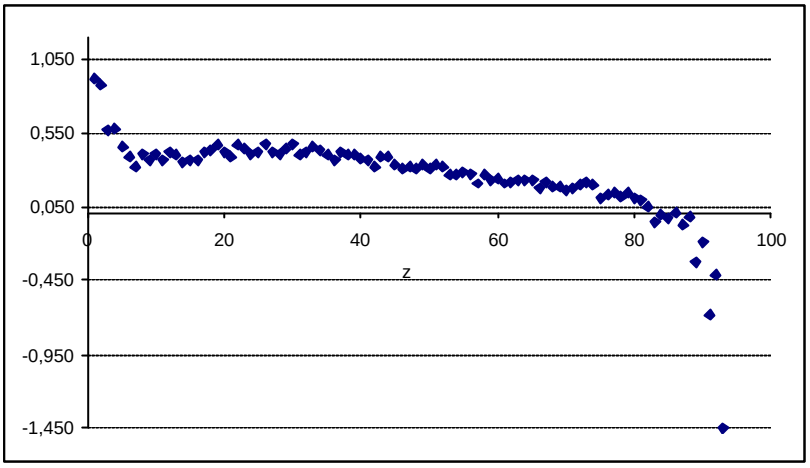
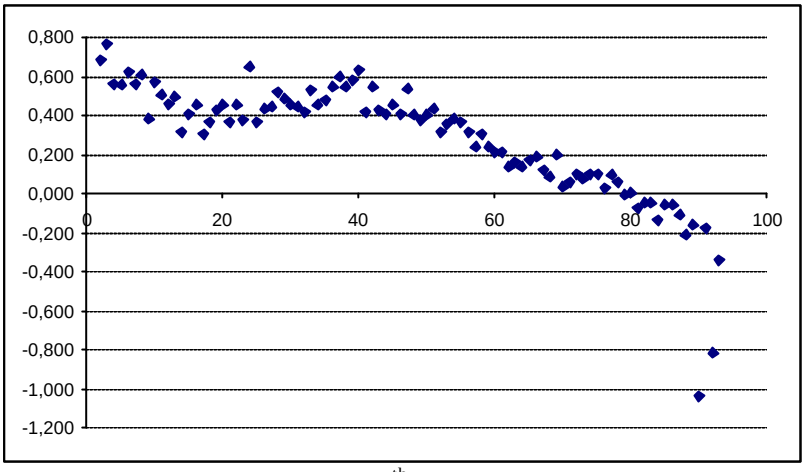


Figure A4a. Discriminatory component over the total wage differential ((B/(A+B))*100) for each percentile (male subsample)



Note: Values for percentiles from 95th onwards have not been included as the results distort graphic understanding.

Figure A4b. Discriminatory component over the total wage differential ((B/(A+B))*100) for each percentile (female subsample)



Note: Values for percentiles from 94th onwards have not been included as the results distort graphic understanding.

Figure A5a. Contribution of variables to wage differences (male subsample - 25th percentile)

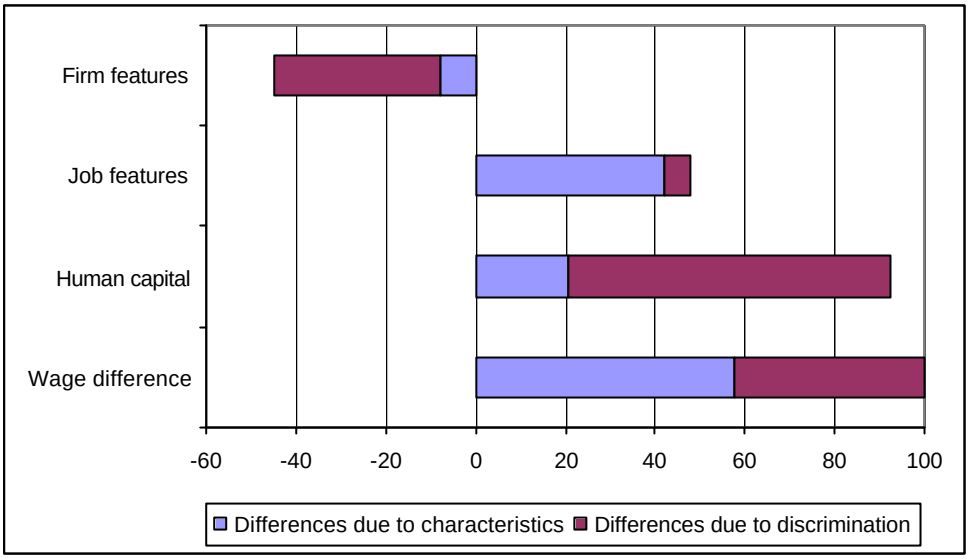


Figure A5b. Contribution of variables to wage differences (female subsample - 25th percentile)

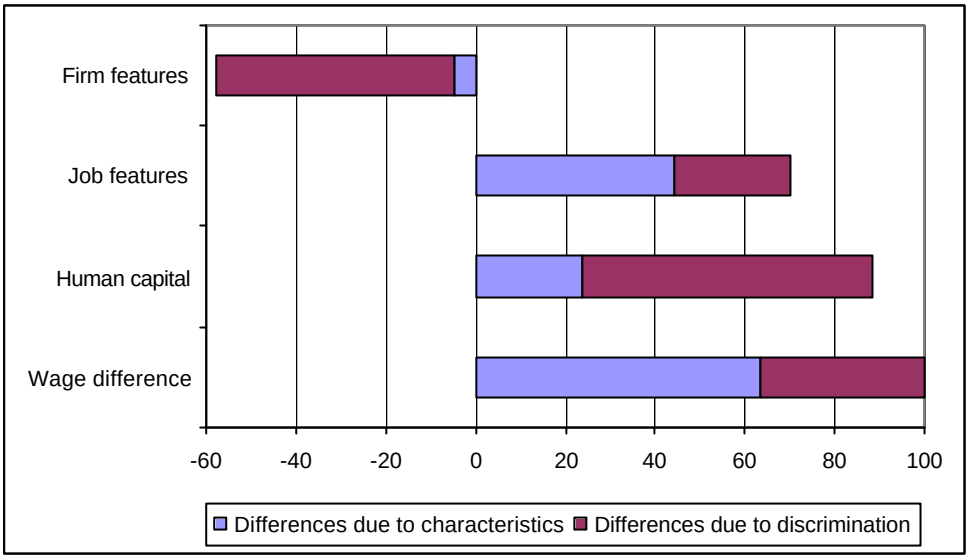


Figure A6a. Contribution of variables to wage differences (male subsample - 75th percentile)

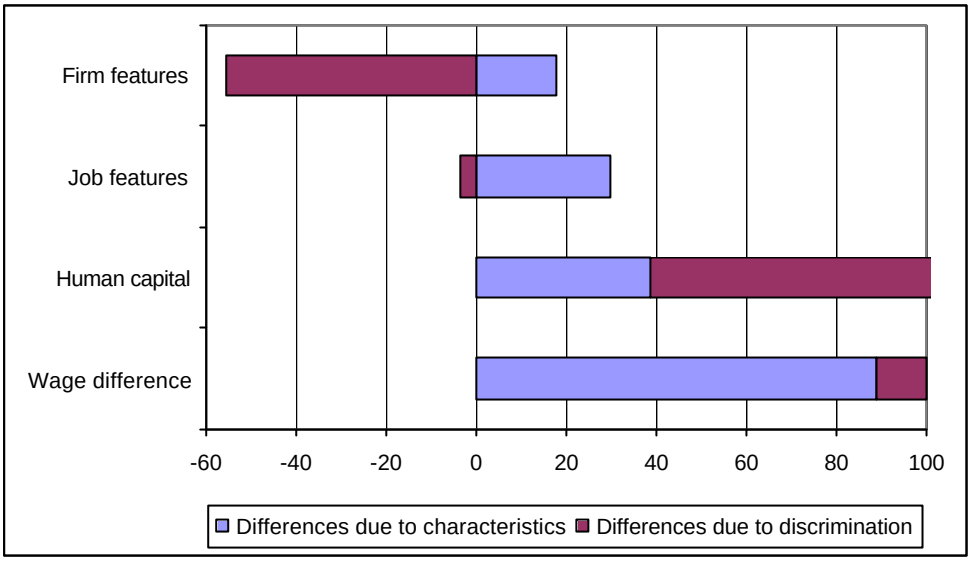


Figure A6b. Contribution of variables to wage differences (female subsample - 75th percentile)