Race and Marriage in the Labor Market: A Discrimination Correspondence Study in a Developing Country

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30 June 2013

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Abstract

In Mexico, as in most Latin American countries with indigenous populations, it is commonly believed that European phenotypes are preferred to mestizo or indigenous phenotypes. However, it is hard to test for such racial biases in the labor market using official statistics since race can only be inferred from native language. Moreover, employers may think that married females have lower productivity, and hence they may be more reluctant to hire them. We are interested in testing both hypotheses through a field experiment in the labor market. The experiment consisted on sending fictitious curriculums (CVs) responding to job advertisements with randomized information of the applicants. The CVs included photographs representing three distinct phenotypes: Caucasian, mestizo and indigenous. We also randomly vary marital status across gender and phenotype. Hence, our test consists on finding whether there are significant differences in the callback rates. We find that females have 40 percent more callbacks than males. We also find that indigenous looking females are discriminated against, but the effect is not present for males. Interestingly, married females are penalized in the labor market and this penalty is higher for indigenous-looking women. We did not find an effect of marital status on males.

Keywords: Discrimination; Gender; Race; Labor market; Mexico; Hiring; Correspondence study.

JEL: I24; J10; J16; J70; O54.

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1. Introduction

Recent literature in economics has made an increasing effort to provide credible measures of discrimination by race, age, gender and physical appearance.[1] Those studies have relied on the use of correspondence studies to measure discrimination at the point of hire. From our reading of the literature we have not found studies on racial discrimination in countries where race is not as physically salient as those countries with varied racial mixes derived from historical immigration influxes.[2] Mexico is a country in which racial features are not as pronounced, but there is however a range of darkness in the population going from Caucasian phenotypes to darker indigenous phenotypes and all the phenotypes within. Distinguishing discrimination in such a context is harder because the use of names does not directly imply a racial origin.

In this paper we aim at identifying racial discrimination in Mexico along the range of phenotypes generated by the miscegenation during the Spanish colony. We conduct a correspondence study in which we randomly vary the photograph of the CV and all other information. The photographs represent three distinct racial phenotypes in Mexico: a Caucasian individual, a mestizo with light-brown skin, and a dark-brown skin individual who resembles the indigenous population the most. This study is particularly important in the Mexican context for two reasons. First, after independence there was an explicit effort to create a mestizo identity in the country (Aguilar, 2011). The idea that "we are all mestizos" is widespread, yet 24.5 percent of youth declare that they are discriminated against because of their physical appearance (ENADIS, 2011). Given the idea that Mexico is a mestizo country, there is no information on racial origin nor skin color in labor surveys. Hence, it is impossible to estimate any kind of labor market performance racial gap using official

[1] See the literature review section for more details on this literature.

[2] Such is the case of the United States with the white and black distinction, and Canada or other European countries with the white-native and immigrant distinction.

statistics.[3,4] And second, as in many developing countries, employers explicitly ask applicants to include a photograph in their CVs. Thus the information on phenotype and physical appearance is explicitly conveyed in the CV, and used by employers in their at-point-of-hire decisions.

Another dimension that we want to investigate on is marital status. It has long been hypothesized that employers may think that married females have lower productivity, and hence they may be more reluctant to hire them due to statistical discrimination. With this in mind, in our fictitious CVs we also varied marital status randomly for men and women. The provision of this kind of private information in the CVs is very standard in the Mexican context. So we will be testing how marital status affects callback rates of men and women. Moreover, we will be able to test whether there is statistical or preference-based discrimination by exploiting the interaction of marital status and phenotypes. The working hypothesis in this case is that if marriage affects productivity of females, it should affect it equally across phenotypes.

Our research design consists on an audit study that will focus on recent college graduates. The reasons behind this choice are that online job searches for this group are more representative of the typical search, and that we do not introduce noise by having individuals with longer professional careers in which the experience may take a more prominent role as in Oreopoulos (2009). We sent comparable CVs to close to 1,000 online job advertisements.[5] To each job post, we sent 8 resumes on average varying the gender and the picture along with other observable characteristics of the fictitious applicants. The photographs represent three distinct phenotypes: Caucasian or European phenotype (white skin), the mestizo phenotype (light brown

[3] Some surveys have information on whether individuals speak an indigenous language. However, there is a large share of the population with an indigenous phenotype that only speaks Spanish.

[4] Some key Mexican studies on race discrimination include Béjar Navarro (1969) and Gall (2004) among others. None of these studies analyze the labor demand-side of the labor market as we do in this article.

[5] All job advertisements were posted by different firms.

skin), and the indigenous or dark mestizo phenotype. In the experiment, we built 10 different sets of 8 resumes in which all characteristics, including experience, are random, such that we have substantial variation across CVs. The experimental design of the study allows us to test in a straightforward fashion if there is discrimination in the Mexican labor market: given that the education and experience in the CVs are randomly assigned, the gender, the physical characteristics and the marital status of the applicants should not determine the probability of getting a callback for an interview.

For the more than 8,000 CVs we sent, our results indicate that women get 40 percent more callbacks on average than men. Hence we do not find evidence of discrimination against women in the group of study. In terms of physical characteristics, we found that a Caucasian woman receives 23 per cent more callbacks than a woman with an indigenous phenotype. In the case of men, we do not find statistically significant differences in the callback rates among phenotypes. Moreover, there is a marriage penalty in terms of callbacks for women but not for men. This penalty is larger for women with Indigenous phenotype, when we do not control for firm characteristics. When we included a fixed effect in our estimates, we found that there is no heterogeneity suggesting that there may be statistical discrimination against married women.

These results have important implications for the legislation on the labor market, and the promotion of equality in general, and public policies in Mexico and other developing countries. If individuals with the same education and labor experience receive a different treatment just because of their marital status or physical appearance, then there is no fostering of equality of opportunities or social mobility. For these reasons in many developed countries, employers are forbidden to ask personal information of the job applicant like marital status and racial background. Given that we found that these characteristics are used to discriminate against certain groups, it is desirable to improve the labor laws on these issues, and to prohibit explicitly the inclusion of personal information in the curriculum vitae.

The rest of the paper is organized as follows. In Section 2 we briefly review the findings of the literature. In Section 3, we describe the experiment we conducted and the methodology used to analyze the data collected. In Section 4, we present descriptive statistics and the results of the econometric analysis. Finally, Section 5 concludes and offers a discussion of public policies and regulations that are necessary to halt discriminatory behavior given our evidence.

2. Literature Review

The literature on discrimination using field experiments has grown exponentially in the last 30 years (Pager, 2007). We can find two main approaches in the literature: correspondence tests and in-person audits. In the correspondence tests, the researcher creates similar sets of fictitious resumes varying the trait of interest. For example, a pair of CVs has similar professional experience, but different gender. The goal in correspondence tests is to compare the callback rates between groups (in our previous example, between men and women). Given that the labor experience is comparable, if there is equality of opportunities, then the callback rates should not vary by gender. On the other hand, in-person audit studies match similar individuals on an observable characteristic. Then these individuals apply to jobs using in-person applications or interviews. The researcher trains the potential job applicants in order to reduce the bias for unobserved characteristics (for instance, the accent or the behavior during the interview).

There are several advantages of correspondence test studies over in-person studies. First, correspondence test studies are less expensive than in-person studies. Second, the sample size may be considerable larger which increases statistical power calculations. Third, it is difficult to guarantee that potential job applicants in the in-person studies will behave identically or in a very similar way.[6] In the correspondence

[6] It is particularly worrisome that the behavior of the applicants varies in an unobservable fashion to the econometrician. For instance, it is possible that the individual representing the discriminated minority will try to compensate by having a better attitude or being more charismatic during the interview (after

test studies, we can be certain that CVs are comparable. Nevertheless, in some employment positions like entry-level jobs, job applicants are required to apply in person for the job position (Pager, Western and Bonikowski, 2009; Pager, 2007). In those cases, the correspondence study has limited impact. For the reasons just described, we implement a correspondence test study that limits to recent graduates from university. In Mexico, most of the job advertisements to recent college graduates require sending a CV by email.

Correspondence test studies have been used to measure discrimination in the labor market and real estate market by race or ethnicity, gender, age, physical attractiveness and social background in the labor and housing market (see the excellent reviews by Pager, 2007, and Pager and Shepherd, 2008). Most of the correspondence studies refer to developed countries. Moreover, in general these studies show evidence of discrimination by race or ethnicity and age.

In the United States, Bertrand and Mullainathan (2004) analyze the effect of race in the probability of callback. They sent similar resumes using "White names" like Greg and Emily and "Black names" like Jamal and Lakisha. They find that resumes with white names have a callback rate of 9.7 percent while resumes with black names have a callback rate of 6.5 percent. As they only vary the names of potential applicants, they argue that there is substantial race discrimination in the U.S. labor market.

Similar studies have been carried out in other countries. For Canada, Oreopoulos (2009) finds that employers place more value on resumes with English-sounding names and Canadian education and labor experience as opposed to foreign-sounding names (China, India or Pakistan) and foreign education and labor experience. For Sweden, there is ample evidence of discrimination against minorities in the labor market (Bursell, 2007; Carlsson and Rooth, 2007; Rooth, 2010) and in the housing market (Ahmed and Hammarstedt, 2008). In Australia, Booth et al.

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all, the subjects are actors). Or quite the contrary, that this individual has a bad attitude so that the study throws the expected results. This behavior is unobservable to the econometrician.

(2011) shows there is also discrimination against indigenous, Chinese or middle-eastern names. Chinese and Middle easterners have to submit at least 50 percent more applications than Anglo-Saxons in order to get a similar callback rate. In Germany, Kaas and Manger (2009) find discrimination in favor of German sounding names and against Turkish sounding names. In the rental market in Greece, Drydakis (2011) shows evidence that the probability of receiving an appointment to a showing in the house-renting market is lower for Albanians than for Greeks.

On the other hand, in developing countries there is little evidence of discrimination on the basis of social background or ethnicity. In Chile, Bravo et al. (2008) conduct a correspondence study in which they vary social class by name and surname as well as place of residence. They do not find any discrimination effect. In India, Banerjee et al. (2009) compare callback rates for Upper and Non-Upper caste names in software and call-center jobs. They only find evidence of discrimination in call-center jobs, but overall caste names do not affect callback rates.

Correspondence studies have been used to study age and gender discrimination. Lahey (2008) shows that in the United States young applicants are 44 percent more likely to be offered an interview than old applicants. In general, the evidence of discrimination against older workers is similar to other countries: France (Petit, 2007), Spain (Albert *et al.*, 2011) and United Kingdom (Riach and Rich, 2007). The studies in France and Spain do not find any gender discrimination. Finally, Booth and Leigh (2010) find discrimination against males in female-dominated occupations.

Some countries allow or require a picture in the resume. Some researchers have exploited this inclusion to examine the role of physical attractiveness on the probability of a callback. Rooth (2009) finds a negative differential treatment in hiring in Sweden for job applicants who are obese or unattractive. In Argentina, Lopez Boo *et al.* (2011) find that attractive individuals receive 36 percent more callbacks for interviews than unattractive individuals. In Peru, Moreno *et al.* (2004) find no gender or racial discrimination in the hiring process, however they do find that female adjust their expected wages by 7 percent below the average of expected

wages of males. Although there is no direct evidence of discrimination in the employment process using audit studies in Mexico, Aguilar (2011) tests whether ethnicity in fictitious political candidates matters. She finds that Mexicans vote more for fictitious candidates with "European" looks than with indigenous or mestizo looks.

Our paper is closer to the contributions of Oreopoulos (2009) and Lopez Boo *et al*. (2011). Similar to the case of immigrants' characteristics in Oreopoulos (2009), we are interested in the determinants of callbacks among recent college graduates. We are also interested on whether ethnicity and the notion of an "attractive" face (in terms of European vs. Mestizo phenotypes) is a determinant for callbacks. Moreover, we are interested on whether there is differential treatment by social background, as measured by the university in which individuals graduate, and marital status.

3. Experimental setup and methodology

In order to test whether gender and phenotype determine the callbacks for an interview, we constructed a bank of randomized CVs and a bank of job advertisements. A typical CV includes identity information (name, photograph, address, email, cell phone number, etc.), previous education, professional experience, hobbies and some additional information (like time availability and willingness to move to another city). On average, we sent 8 CVs to each job advertisement. These were determined on the basis of gender and phenotype (3 phenotypes and a CV without picture as control).[7]

We created CVs using experiences from CVs available online such that the professional experience of our fictitious candidates is realistic. Moreover, we contacted recent college graduates and asked them to modify the CVs as if they were

[7] In some cases the job advertisements specified the gender desired for the vacant position (only men, or only women), ask for a photograph in the CV, or other characteristics of the applicants. We sent less than 8 CVs to these ads: 4 CVs in the first example, and 6 in the second.

their own. For the names, we used 8 of the most common names and surnames in Mexico. We chose mainly surnames ending with "ez", because in Mexico these surnames are very common and they are not associated with social background.[8] Following Lahey & Beasley (2009), we randomized characteristics across CVs[9] and created 10 sets of 8 CVs each for six different majors and two experience levels;[10] hence, our bank of CVs has 960 different CVs. Each name was associated to a Gmail© account and a cell phone number.[11] The characteristics of the CVs are randomized, so on average each photograph has a CV of the same quality.

In order to distinguish phenotypes, we took pictures of three men and three women representing the phenotypes. The pictures have a white background and the subjects wear similar attires.[12] The pictures were taken with the express consent of the subjects, who granted us written permission to use their image in the experiment. We explained to each subject the nature of the experiment; and the way in which we would use their image during the experiment.[13] For the purpose of this study, we define a European phenotype as a white person. It is important to mention that our definition is not necessarily related to a particular color of the eyes or the hair. The next phenotype we defined is the mestizo, whose skin is a light shade. Finally, the indigenous phenotype is a dark-skinned individual. It is important to clarify that a

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[8] We chose the following names: Alejandro Flores Álvarez, Antonio González Lara, Carlos Romero Gómez, Javier Rodríguez Mendoza, Claudia García Ramírez, Gabriela López Acosta, Mariana Hernández Silva, Mónica Vázquez Rivera. According to *Instituto Federal Electoral* (2012), to Mateos (2010) and to the Baby Center website (2011) these names are very common in Mexico.

[9] For example, we randomized pictures, universities and high schools from which they graduated, professional experience, marital status, addresses, hobbies, and any additional information.

[10] We selected the following majors: business administration, public accounting, economics, industrial engineering, engineering in electronics and telecommunications, and engineering in computational systems. We will explain why we chose those majors further ahead.

[11] Those were the means through which the firms could contact our fictitious applicants.

[12] Women wore a black blazer and a soft-toned blouse; men, a dark suit, white shirt and a tie with discrete patterns. We also attached colored pictures so that the physical characteristics are better observed by the employers.

[13] Please refer to Appendix A to see the photographs.

subject labeled as indigenous is not necessarily a native of the Americas. These types of individuals resemble native Americans more than mestizos in the color of their skin and facial features. In Mexico, it is widely recognized that a European appearance is preferred to a mestizo appearance, which is also preferred to an indigenous appearance (Aguilar, 2011). In fact, the word "indio" (Indian) is still an insult in Mexico.[14] In our experiment, we are particularly interested on the existence of this preference for European looks. This preference would result in a higher callback rate to the applications of European-looking individuals as compared to the mestizos or the indigenous ones, even when all other information in the CVs is the same on average.

We also randomized the universities where the applicants went to college. We used do public universities and three private universities, all them widely known in Mexico City. An employer can discriminate an indigenous-looking individual. However, we would also like to test whether this type of discrimination is independent of the type of university attended by the individual. In Mexico, employers prefer the graduates of some private universities than those of public ones (for instance, the newspaper *Reforma*, 2012, reports university rankings).[15,16] In the CV, we also randomized the marital status. It is very common in Mexico that the CV includes such personal information; in fact some employers explicitly ask for that kind of information. This is quite in contrast to what is legally allowed in developed countries.

As for the job advertisements, we only focused on those requesting candidates with zero to three years of experience, given that we are analyzing the market for recent

[14] There are anthropological studies which present those cases. See, for instance, Oehmichen (2006) and Wade (2009).

[15] In order to build the index, *Reforma* takes into account the opinion of the employers about college graduates.

[16] It is important to mention that just sent CVs to firms looking for employers online. One can argue that network effects are more important in private than in public universities (mouth-to-mouth recommendations or than the information on vacancies is kept within the firm). We cannot test the existence of those effects. Hence, our results should be interpreted as the impact of universities on callbacks derived from online job postings, and not as the impact in the whole labor market.

college graduates. The graduates are confined to the following majors: business administration, public accounting, economics, industrial engineering, engineering on electronics and telecommunications, and engineering on computational systems. These majors were selected to try to maximize the number of job ads available before the beginning of the experiment; and also to achieve some gender balance among the graduates. We found that 48 percent of the graduates in those majors of the 2007-2008 class were women (ANUIES, 2009). Hence, given a relatively balanced distribution of graduates we would expect a relatively balance callback rate in the absence of discrimination.

We sent the CVs from October 2011 to May 2012. We collected the job ads information on a weekly basis from internet websites commonly used to publicize and look for jobs in the Metropolitan Area of Mexico City.[17] For each job ad we collected some information on the job characteristics, but the ads did not allow us to collect information on the firm (such as the firm size, revenues, and the like) or on the specifics of the job position within the firm (such as whether there is contact with customers or clients and the hierarchy within the firm).[18] If the advertisement was looking only for women, we just sent women's CVs. If the ad had some requirements on languages or programming skills, then we added all requirements to all CVs sent to that ad.

In order not to raise suspicions about the experiment, we did not send all the CVs at the same time. We scheduled the deliveries of emails at different times within two consecutive days using Boomerang©.[19] The employer could make contact with the applicant via email or cell phone, so each name was associated with a cell phone number and an email account. If the firm contacted the applicant to schedule an

[17] The websites were OCC Mundial (http://www.occ.com.mx/) y CompuTrabajo (http://www.computrabajo.com.mx/).

[18] The reason for this lack of firm and job position data is that the job ad is too general and does not identify the firm.

[19] http://www.boomeranggmail.com/

interview, we registered the callback. These are the callbacks that we use to estimate the probability of a callback in our econometric model.[20]

In sum, in most of the cases we sent 8 CVs per job advertisement. In each set of CVs we included 4 men and 4 women. For each gender, we randomized universities, marital status, and a picture representing 3 characteristic phenotypes, so we left a CV without picture as a control. When the employers called to schedule an interview with the applicant, we recorded the callback as a success. These callbacks will be used as our dependent variable in the econometric model presented below.

Given that the information on the CVs is randomly assigned, if the employers are only interested on the candidates' qualifications, then gender, marital status or phenotype should not matter in the callback decision. We are therefore interested on three results. First, we want to test whether employers have a strict gender preference when presented with both options. Second, we want to whether if there is discrimination against people with facial features which are close to the indigenous one. Finally, we want to test whether marital status affects callback rates. We will thus estimate the following statistics:[21]

$$E[Callback|Woman] - E[Callback|Man] \quad (1)$$

$$E[Callback|White] - E[Callback|Dark] \quad (2)$$

$$E[Callback|Single] - E[Callback|Married] \quad (3)$$

[20] In order to avoid having problems with the employers and to avoid having follow-up call, right after recording the callback, our research assistants informed the firms that they were pleased for the interest in their application, but that they had already found a job.

[21] We will also condition the estimates of (2)-(4) on gender.

A statistical difference in equations (1)-(3) may be interpreted as discrimination. The literature on discrimination in economics distinguishes between preference-based discrimination and statistical discrimination. There is preference-based discrimination when the employer derives disutility from having certain type of people among his employees. This disutility is reflected on a higher psychic cost of hiring those people. On the other hand, statistical discrimination exists due to information asymmetries about workers' productivities: the employer has a prior about the productivity of people based on some observable characteristic like marital status, gender or race (Arrow, 1998; Dickinson and Oaxaca, 2006; Phelps 1972). In our case, the employer may expect single to married women because they expect single women to be more productive.[22] Similarly, the employer may think that European-looking people are more productive, and hence they call them back with a higher probability. However, as Phelps (1972) states "[d]iscrimination is no less damaging to its victims for being statistical. And it is no less important for social policy to counter."[23] For this reason, in this article we do not aim to find out the source of discrimination. However, some relevant comparison between specific groups may provide suggestive evidence on the type of discrimination.

We can formalize the expression above with the following estimating equation:

$$\Pr\left(Callback_{ij} = 1 \middle| G_{ij}, R_{ij}, U_{ij}, X_{ij}, W_j\right) = \Pr(\alpha G_{ij} + \beta R_{ij} + \gamma U_{ij} + \delta X_{ij} + \theta W_j) \qquad (4)$$

where i denotes individual y j the ad/firm, the dependent variable is an indicator of whether the firm contacted the applicant, G denotes gender; R, the phenotype (European, mestizo, and indigenous), U is the type of college attended, and X and W are control variables of the individual and the ad, respectively. Our control variables include age, major dummies, and dummies for scholarships, public high schools,

[22] For instance, married women may ask for more days off in order to take care of sick children.

[23] Phelps (1972), p. 661. Statistical discrimination is as damaging as preference-based discrimination because if a high-productivity individual belongs to a group with a low average productivity, that individual will be considered to be low productivity when she is not.

foreign language proficiency, time availability and leadership activities within the university. In all the regressions we estimate standard errors robust to heteroskedasticity and clustered at the firm level.

The parameters of interest in the regression of equation (4) are the coefficients on gender, phenotype, university and marital status. In order to present some evidence on the existence of preference-based labor market discrimination we will interact the phenotype with marital status in equation (4), and we will run the regression on some subsamples of interest.[24]

4. Results

A. Descriptive results

Table 1 shows the descriptive statistics of the fictitious job applicants. Overall, employers post more ads requiring "only women" than "only men". There are more job ads for majors on business than on engineering. In fact, 71 percent of all fictitious applicants graduated from business majors. Given the random assignment that we established, 62 percent of the applicants graduated from a public university. By the same token, and consistent with the parameters we established, 27 percent of individuals are married and the average age is 24.5 years. The CVs also include information on scholarships, foreign languages and availability of extra time and to move to another city. These aspects are included in order to analyze if they are an important factor in the determination of a callback.

[Table 1 about here]

[24] For example, assume that there is statistical discrimination against married women in the labor market. That is, the employers expect that married women are going to be less productive than single women on average. This prior expectation may be due to a higher absenteeism among married women given their care-giving responsibilities in the household. Then we would expect that an interaction between marital status and phenotype in regression (4) will not any additional effect on the probability of a callback after controlling for the levels of those two variables.

Table 2 shows the callback rates by gender, major, type of university, marital status and time availability. Most of the differences are not statistically significant (the table only includes the t-statistics for the statistically significant tests). However, women receive a higher proportion of callbacks than men. The difference between women and men is 4.2 percentage points. In other words, men need to send 40 percent more job applications in order to get the same number of callbacks than women. Approximately for every 20 job applications sent, men receive around 2 calls and women receive 3 calls.

[Table 2 about here]

The callback rates are similar for individuals who majored in business and from public universities for both genders. Notwithstanding, we noticed that there is a gender gap in the callback rates, which is larger of business graduates (4.8 percentage points) than for engineering (2.9 percentage points). Similarly, the gender gap is larger for private universities (5.2 percentage points) than for public universities (3.7 percentage points). All these gaps are statistically significant.

The callback rate for single applicants is 13.1 percent and for married applicants, 12.3 percent; the difference is not statistically significant. However, there is a large heterogeneity when we analyze men and women separately. The callback rate is 11.5 and 10.3 percent for married and single men, respectively. In contrast, single women have a larger callback rate than married women; the difference is 2.5 percentage points and it is statistically significant. Additionally, the gender gap is larger among single individuals than among married individuals. So our results point out that employers do not care about the marital status of men, but they do take into account the marital status of women.

Finally, the inclusion of time availability in the CV does not matter for a callback, even after we split the sample by gender. Apparently, employers do not even read this part of the CV (which is place at the end) given that in all cases those who do

not provide that information seem to receive more callbacks than the rest of the applicants. Nevertheless, even when we split the sample by availability, women continue to receive more callbacks than men in every case.

[Table 3 about here]

Table 3 presents the callback rates by gender and phenotype (European, mestizo, indigenous and without picture), and the p-value of the Pearson independence test. We found that the phenotype is correlated with the callback rate only for women. In the case of men, even when European-looking men have a larger callback rate than indigenous-looking men (or those without a picture), the difference is not statistically significant. In contrast, there are statistically significant differences between women with a European phenotype and those with an indigenous phenotype (or without a picture). European-looking women have 23 percent more callbacks tan indigenous-looking women, and 34 percent more callbacks tan women who did not include a picture on their CVs. It is surprising to find these differences only for women. If we believe that employers discriminate statistically in favor of attractive people because they expect them to be more productive, then we would expect to observe the same differences among men and women, but we only observe them for women.

Table 3 also includes the callback rates by marital status and the type of college attended. For women, we found that European-looking singles have a larger callback rate than their married counterparts. This marriage penalty is even higher for those with an indigenous phenotype and those without a picture. In fact, the lowest callback rate that we wound in our sample is for married indigenous-looking women. As a result, the callback rate of married Caucasian women is 61 percent larger than the callback rate of married women with indigenous appearance. It is important to notice that married women with a mestizo look have a premium with respect to their single counterparts. We do not observe any type of marriage penalty for men, if any we observe a relatively larger callback rate for married indigenous-looking men.

The results from tables 2 and 3 imply that, in general, employers prefer to call single women to married women, whereas for men marital status does not play any role. However, the marriage penalty for women differs according to phenotypes. Statistical discrimination against married women would suggest a similar penalty for all women independently of phenotype (that is, employers would expect a lower productivity from all married women). This result is no consistent with our data, which suggests that preference-based discrimination may be present in the Mexican labor market.

B. Econometric results

Table 4 presents the estimation of equation (4) using all the sample, and Table 5 restricts the estimation to women. The results are similar to those described in the previous subsection, which is consistent with the randomization of the information in the CVs. The tables include six columns in which we vary the omitted photo dummy variable or subsets of photo dummies. The first five columns do not control for firm fixed effects; those are included in Column (6).[25] All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The standard errors are robust to heteroskedasticity and clustered at the firm level to control for error correlation within the firm.

Table 4 shows that the probability that women receive a callback is 4.3 percentage points higher than that of men. That is, women receive 40 percent more callbacks than men. This result is robust to the inclusion of marital status, dummies for phenotypes (photos) and all other control variables. This result was rather unexpected. However we think that it may be a result of the self-selection process of women graduating from college and participating in the labor market. These selection processes may signal employers of high productivity in the case of women,

[25] The results are similar if we estimate the marginal effects in a logistic or normal probability model. The main reason for using a linear probability model is precisely the inclusion of firm fixed effects in the model. Tables B1 to B3 in Appendix B show the results using a probit model. We do not show the results of the logit estimation for simplicity, but they are very similar to those of the probit and the linear probability models.

but not in the case of men. As such, there may be unobservable characteristics which are unobserved by the econometrician, but which may help employers on their hiring decisions. This may be interpreted as statistical discrimination against males. We provide a test on this on the robustness subsection. The results are consistent with the descriptive analysis in the sense that having attended a public university and being married do not have any effect on the probability of a callback when we consider both men and women in the estimations.

[Table 4 about here]

As for phenotypes, the results show that the European phenotype has a higher callback rate as shown in Column (2). Individuals with a European appearance have a callback rate 2.5 percentage points larger than indigenous phenotypes (omitted category). Mestizos have a callback rate 1.7 percentage points higher than indigenous phenotypes. However, there is no statistically significant difference between the callback rates of indigenous applicants and those without a photo in their CVs. Columns (3) to (5) change the phenotype of reference and the results are qualitatively similar. That is, we always find that European or mestizo phenotypes have a higher callback rate than indigenous phenotypes or CVs without a photo.

Column (6) includes firm fixed effects and the results hold. This column controls for all unobserved factors at the firm level like the firm size, sales, industry and so on. Hence, the biases introduced by the firm's type are eliminated with the introduction of firm fixed effects. These fixed effects also control for the fact that some firms demand only men or only women. For this reason, the coefficient on *Women* is the only one that changes in a significant way. These results imply that even within firms women and European phenotypes are preferred, and that the results are not a consequence of the firms demanding certain characteristics from their employees.

[Table 5 about here]

Table 5 shows the results when we restrict the sample to women.[26] Public universities are irrelevant to receive a call. However, and in contrast to men, marital status does have an impact on the female callback rates. Married females have a callback rate between 2.7 and 3 percentage points less than single women (columns [1] to [5]). A European phenotype also exhibits a higher callback rate than all other phenotypes. Specifically, European-looking women have a callback rate 3.3 percentage points higher than indigenous phenotypes. Hence, "indigenous" females need to send 23 percent more CVs to receive the same number of calls than whites.

As in Table 4, we introduce firm fixed effects in Column (6) of Table 5. Even when controlling for unobserved firm characteristics, the marital status continues to be important in the firm's decision to call back. The significance of the coefficient drops due to the small number of married females in the sample (26 percent). Similarly, even after adding firm fixed effects, firms still prefer European phenotypes to indigenous ones.

C. Extensions

In order to further test whether the marital status has differential effects depending on gender, phenotype and other characteristics, we present the estimates in tables 6 and 7. These tables will allow us to show evidence on the existence of preference-based or statistical discrimination. Recall that if there is statistical discrimination against married women, we would expect the marriage penalty to be similar across phenotypes. Table 6 presents the results when we add interactions of marital status and phenotypes. Column (1) shows that there is a marriage penalty of 6.3 percentage points in the probability of a callback. Being European does not entail

[26] We also estimated the regressions for the sample of men, but none of the relevant variables are of significance in the determination of a callback. That is, in the case of men, the firms do not use any of the personal information in the CV on the callback decision. Only in the case when we combined the European and Mestizo photos in a single dummy is the coefficient statistically significant at 10%. The coefficient is significant at 5% only in the case when the omitted groups are indigenous and no photo. When we split the phenotypes and estimate the coefficients for European and mestizo photos separately the estimations are not robust. These results are presented in Appendix C, Table C1.

any additional penalty as compared to all other groups. However, when we control for mestizo photographs in Columns (2) and (3), we find that mestizo females receive more calls than any other group. We do not find a marriage penalty in the case of males (columns 4 to 6); if anything we find a premium for being married, though the coefficient is only significant at 10% in Column (6). In the case of men, we do not see a phenotype-differentiated premium or penalty. Hence, given that there are heterogeneous effects of marriage on females according to phenotypes, it is possible that there is preference-based discrimination against married indigenous females.

[Table 6 about here]

However, in Table 7 we estimate the same specifications as in Table 6, but we added firm fixed effects. Once we include firm controls the effect of marriage is smaller in magnitude as in Table 5, and in one case it becomes statistically insignificant due to the larger standard errors. More interestingly, the heterogeneity of marriage across female phenotypes disappears as a result of a large drop in the coefficient of the interaction between mestizo females and being married. The results for males remain constant, but the marginally statistical significant marriage premium that we had found in Table 6 also vanishes (see Column (6) in Table 7). Hence, the results in Table 6 may be driven by some firms in the market.

[Table 7 about here]

D. Robustness of results

Heckman and Sigelman (1993) argue that one could find discrimination in correspondence studies when there is actually none, even when observable characteristics are similar. The reason is that if the variance of unobservable characteristics differs across groups, then this could lead us to find discrimination. Neumark (2010) provides an elegant derivation of this critique, and shows that we

can empirically test for the presence of heteroskedasticity across the groups of interest in correspondence studies. He proposes the estimation of a probit that allows for heteroskedasticity on the variables used to determine the existence of discrimination. We follow Neumark's test and assume that heteroskedasticity is distributed as an exponential.[27]

[Table 8 about here]

The null hypothesis of this test is that the variance of unobservable characteristics is constant across groups. We use this Neumark's test to provide evidence on two hypotheses. First, we want to test whether our results on physical phenotypes are spurious correlation. Table 8 presents the results of the heteroskedastic probit where we performed the test suggested by Neumark (2010). We assumed that the heteroskedasticity is only due to marital status or European phenotypes (or both). The inclusion of heteroskedasticity in the model complicates the identification of the parameters, so we are going to observe an increase in the standard errors of the marginal effects of the photos and marital status. In spite of that power loss, the results are similar to those presented in previous tables. The takeaway from Table 8 is that the null of variance equality across groups cannot be rejected. Hence Heckman and Sigelman's (1993) critique does not apply in our case. We can interpret our results on phenotype and marital status as discrimination.

Finally, we want to test whether the higher callback rates for females are due to differences in the variance of unobservables across gender categories. As we discussed before, female college graduates who are participating in the labor market may signal higher productivity than similar males due to a self-selection process. As econometricians, we do not know of this signal and hence we cannot control for it. However we can use Neumark's test to provide some evidence on it. We ran the test

[27] That is, we assume that $Var(\varepsilon) = [\exp(\gamma D)]^2$, so the variance of the unobservables follows an exponential distribution, where D defines the groups of interest. The null hypothesis is that $\gamma = 0$.

using different specifications and found that the variance of the unobservables is indeed related to gender (results not shown), and hence our hypothesis seems likely.

As Neumark himself points out, "the idea that the variances of unobservables differ across groups has a long tradition in research on discrimination, stemming from early models of statistical discrimination" (p.8). Hence, we can interpret the latter test as evidence of the existence of statistical discrimination across gender categories. In the former test on phenotypes and marriage, we can discard that statistical discrimination has its source on difference in group variances; however, we cannot discard other models of statistical discrimination.

E. Interpretation of results

In tables 4 and 5 we found that women have on average a higher callback rate than men. In the case of men we do not find a differential callback rate across phenotypes, marital status or type of university attended. So, the employers do not seem to prefer a specific type of male applicant. In contrast, employers do discriminate certain types of women. In particular, European-looking females have a higher callback rate than their indigenous counterparts. Moreover, there is a penalty for being married for European and indigenous phenotypes, but the penalty is much larger in the case of married females with an indigenous appearance.

The results in tables 6 and 7 present suggestive evidence in favor of statistical discrimination against married women. We explained that statistical discrimination would suggest that the marriage penalty is the same for women. If marriage has an impact on productivity, this impact should be the same for all women independently of phenotype. Our fixed effects models confirm this expected result. However the findings on the preference for Caucasian women may be more consistent with preference-based discrimination. We found that none of the variables that may have signaled greater productivity such as being single, coming from a private university, and time availability make a dent on the higher callback for white women.

5. Discussion and conclusions

Most societies aspire to offer equality of opportunities to their members. Any form of discrimination would deter societies' efforts to reach that goal. Colonial societies have a wide range of skin colors in their populations. This diversity tends to generate discrimination against their darker members thus preventing a non-negligible portion of the populace of equality of opportunities. In this paper we wanted to test if there is racial discrimination in a society in which the racial divide is not between blacks and whites, nor natives and immigrants, but a range of skin colors from white to dark brown. With this goal in mind, we conducted a correspondence study in which we varied the information in fictitious CVs. We sent approximately 8,000 CVs responding to around 1,000 online job advertisements. In each set of 8 CVs we included 4 men and 4 women. Each CV was distinguished by a photograph representing 3 phenotypes (Caucasian, mestizo, and indigenous) and one CV did not have a picture as a control. Hence, we are particularly interested on gender and race discrimination among youths.

We found that women have on average a higher callback rate than men. Women receive 40 percent more calls. So, we do not find any evidence on discrimination against women in our study; in any case, we found evidence of discrimination against men. As discussed the selection of women into college graduation and the labor market may signal a higher productivity than in the case of men. We find evidence that this estimate is a result of differences in the variance of unobservables between men and women by means of a heteroskedastic probit. As for discrimination based on physical appearance, women with a European phenotype receive more calls than women with an indigenous phenotype. Specifically, a Caucasian woman receives 23 percent more calls than an "indigenous-looking" woman. In the case of men, we do not find any statistically significant differences across phenotypes. Having graduated from a public university has no impact on the callback rate in our sample of job ads.

Although disentangling the type of discrimination is not the objective of this paper, we provide some suggestive evidence on the existence of statistical discrimination in the Mexican labor market. If there were statistical discrimination, and thus employers are only concerned with expected productivity, then we should observe that groups with a given characteristic are equally discriminated. For example, married women should receive fewer calls than single women independently of the phenotype. Our results confirm this implication from statistical discrimination. Initially, we find that the marriage penalty is not the same across phenotypes: the callback rate gap between European- and indigenous-looking females increases when they are married, and mestizo females have a premium for being married. However, this heterogeneity vanishes when we include firm fixed effect. Thus the marriage penalty is the same for all marred women independently of the phenotype. We cannot say the same regarding the preference for white women over mestizo or indigenous looking women, which may be more in line with preference-based discrimination. We can thus conclude that employers are driven by both productivity beliefs and tastes in their hiring decisions.

Our study has several drawbacks. First, job seekers use different means to search for a job and we are only focusing on online job searches. This could potentially bias the impact of private universities, since these could rely on networks to find placements for their graduates in the labor market. Second, we restrict the analysis to an age group in the Metropolitan Area of Mexico City. Third, we do not have information on the firm and lack some information about the job position within the firm. Fourth, our discrimination measure is limited to only the first contact in the hiring process. We do not have information on starting wages or the actual hires, which would allow us to have arguably more relevant measures of discrimination. And finally, the results on correspondence tests may be a result of differences in the variance of unobservables across groups as suggested by Heckman and Sigelman (1993) and Neumark (2010).

Here are our answers to these critiques. The first critique is valid, and for this reason we do not generalize our results to the whole labor market. Our results are only valid

for online searches. Second, future research should focus on other age groups and regions to analyze the robustness of our results. We are confident that our results are robust to other regions and majors because the major included in our study represent 36 percent of the graduating classes and Mexico City's Metropolitan Area has the highest concentration of both public and private universities in Mexico. Third, it would be interesting to extend our study to analyze discrimination by the type of firm. However, our results are robust to the inclusion of firm fixed effects. Future research should also collect data on the job positions within the firm to analyze discrimination by job position. Fourth, an analysis of wage discrimination or hiring discrimination would require an in-person audit. As we mentioned in our literature review, in-person audits cannot fully control for unobservable behavior of the interviewees, which could bias the results. And in order to address the last critique, we performed the test suggested by Neumark (2010) and did not find any evidence that our results are a product of heteroskedasticity stemming from marital status and phenotypes.

Our findings have important implications for public policy in developing countries, and particularly for Mexico. It is clear that employers should not require personal information and photographs in the applicants' CVs. For instance, in the United States the Equal Employment Opportunity Commission (EEOC) "is responsible for enforcing federal laws that make it illegal to discriminate against a job applicant or an employee because of the person's race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability or genetic information."[28] However, in most Latin American countries, and Mexico is not an exception, it is not illegal for employers to ask for personal information in the curriculums, which includes marital status and a photograph.[29]

[28] Taken from http://www.eeoc.gov/eeoc/.

[29] This practice is strictly forbidden in the United States. For instance, visit the EEOC website, where you can find the following prohibition: "employers should not ask for a photograph of an applicant. If needed for identification purposes, a photograph may be obtained after an offer of employment is made and accepted" (EEOC, 2012)

The Mexican labor law is ambiguous on what is allowed and prohibited when it comes to discrimination. The 3rd article of the Federal Labor Law states that "No distinction may be made between employees on the basis of race, sex, age, religion, political views or social background." The term "employees" is problematic here, since it entails that there exists an employer-employee relationship among parties. This relationship is absent among job seekers and employers, which would allow discrimination against a job applicant. The law should explicitly forbid discrimination based on physical appearance or phenotype. The Federal Labor Law also establishes in its 9th article Section III that the following behavior is considered discriminatory: "Prohibiting the free access to employment; or restricting the access to, tenure in or promotion in the job." However, the explicit requirement of a photograph (racial features included) and marital status in CVs facilitates the restriction to access employment for reasons unrelated to aptitude for the job position.

The evidence in this paper shows that the inclusion of private information, such as the marital status and a photograph, may be detrimental for young applicants. As we mentioned in the introduction, youth idleness halts human capital investments during a crucial stage of the life cycle. Moreover, if indigenous phenotypes are somehow correlated with social background, then the inclusion of a photograph may even inhibit social mobility. In sum, Mexico could take a big step in the promotion of equality of opportunities by prohibiting employers to require the disclosure of personal information, like marital status and a photograph, in the curriculum vitae.

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Table 1: Descriptive statistics of the sample of sent fictitious CVs

	All	Men	Women
A. Gender			
Men	0.49		
Women	0.51		
B. Major			
Business	0.71	0.70	0.73
Engineering	0.29	0.30	0.27
C. University			
Public	0.62	0.64	0.61
Private	0.38	0.36	0.39
D. Marital status			
Married	0.27	0.29	0.26
E. Other characteristics			
Age	24.5	24.6	24.4
Scholarship	0.26	0.23	0.28
Leadership	0.50	0.49	0.51
Foreign languages	0.25	0.25	0.25
Time availability	0.50	0.51	0.50
Sample size (N)	8149	3992	4157

Notes: Estimates by the authors based on the sample of sent fictitious CVs. All variables are dichotomous with the exception of age. Business majors include accounting, business administration and economics; engineering majors include electronics and telecommunications, computational systems and industrial engineering.

Table 2: Callback rates (percentages)

	All	Men	Women	t-statistic
A. Gender				
Men	10.67			
Women	14.94			
t-statistic	5.78			
B. Major				
Business	13.20	10.72	15.48	5.41
Engineering	11.97	10.57	13.45	2.16
C. University				
Public	12.82	10.97	14.67	4.35
Private	12.90	10.13	15.35	3.95
D. Marital status				
Married	12.31	11.51	13.12	
Single	13.05	10.31	15.57	6.06
t-statistic			2.00	
E. Other characteristics				
Available	12.50	11.52	14.78	3.08
Not available	13.21	9.86	15.10	5.09

Notes: Estimates by the authors. The t-statists are from a test of the difference in means. They are presented only when there is statistical significance at 5%.

Table 3: Callback rates by phenotype

	European	Mestizo	Indigenous	No photo	p-value
A. Women					
All	17.05	15.78	13.82	12.76	0.03
Single	17.93	15.02	15.06	14.03	0.19
Married	14.80	18.37	9.21	10.10	0.01
Public university	16.69	15.63	13.18	12.93	0.15
Private university	17.71	15.98	15.07	12.53	0.24
B. Men					
All	11.53	11.40	9.97	9.64	0.41
Single	11.53	11.04	8.58	9.92	0.25
Married	11.52	12.29	13.23	9.09	0.43
Public university	11.93	12.20	10.05	9.46	0.31
Private university	10.89	9.76	9.84	9.97	0.95

Notes: Estimations by the authors. The last column "p-value" is the probability value of the Pearson independence test. The null hypothesis is that there is independence across columns within the category represented by the row, and the statistic is distributed as a chi-squared.

Table 4: Econometric results: All

	[1]	[2]	[3]	[4]	[5]	[6]
Woman	0.043***	0.043***	0.043***	0.043***	0.043***	0.035***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Public university	-0.000	-0.000	-0.000	-0.000	-0.000	0.001
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
Married	-0.011	-0.010	-0.010	-0.010	-0.011	-0.003
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]
Photo 1 (European)		0.025***			0.026***	0.026***
		[0.007]			[0.007]	[0.007]
Photo 2 (Mestizo)		0.017**				0.018***
		[0.007]				[0.007]
No photo		-0.006		-0.01		-0.005
		[0.008]		[0.008]		[0.007]
Photo 1 & 2 (European and mestizo)			0.024***	0.021***		
			[0.005]	[0.006]		
Photo 2 & 4 (mestizo and no photo)					0.006	
					[0.006]	
Firm fixed effects	No	No	No	No	No	Yes
N	8,149	8,149	8,149	8,149	8,149	8,149

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) denotes statistical significance at 1% (5%). All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major). Columns (1) to (5) do not include firm fixed effects. The results are similar when using marginal effects in a logit or probit (see Table B1 in Appendix B for the probit estimation).

Table 5: Econometric results: Women

	[1]	[2]	[3]	[4]	[5]	[6]
Public university	-0.005	-0.006	-0.005	-0.005	-0.007	-0.012
	[0.010]	[0.011]	[0.010]	[0.010]	[0.011]	[0.008]
Married	-0.028**	-0.028**	-0.027**	-0.027**	-0.030**	-0.018*
	[0.013]	[0.013]	[0.013]	[0.013]	[0.013]	[0.011]
Photo 1 (European)		0.033***			0.033***	0.036***
		[0.011]			[0.011]	[0.011]
Photo 2 (Mestizo)		0.019*				0.022**
		[0.010]				[0.010]
No photo		-0.009		-0.009		-0.004
		[0.011]		[0.011]		[0.010]
Photo 1 & 2 (European and mestizo)			0.030***	0.026***		
			[0.008]	[0.009]		
Photo 2 & 4 (mestizo and no photo)					0.006	
					[0.009]	
Firm fixed effects	No	No	No	No	No	Yes
N	4,157	4,157	4,157	4,157	4,157	4,157

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major). Columns (1) to (5) do not include firm fixed effects. The results are similar when using marginal effects in a logit or probit (see Table B2 in Appendix B for the probit estimation).

Table 6: Econometric results by marital status and gender: Women

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Married	-0.029**	-0.056***	-0.063***	0.010	0.015	0.041*
	[0.015]	[0.016]	[0.023]	[0.013]	[0.015]	[0.022]
Photo 1	0.030**	0.029**	0.025*	0.014	0.020*	0.026**
	[0.012]	[0.013]	[0.014]	[0.010]	[0.011]	[0.013]
Photo 2		0.002	-0.003		0.019*	0.025**
		[0.012]	[0.013]		[0.011]	[0.012]
Photo 4			-0.011			0.013
			[0.014]			[0.013]
Photo 1 x Married	-0.004	0.026	0.033	-0.007	-0.012	-0.038
	[0.028]	[0.029]	[0.033]	[0.025]	[0.027]	[0.032]
Photo 2 x Married		0.091***	0.099***		-0.011	-0.038
		[0.033]	[0.037]		[0.026]	[0.030]
Photo 4 x Married			0.017			-0.055*
			[0.032]			[0.030]
Firm fixed effects	N	N	N	N	N	N
N	4,157	4,157	4,157	3,992	3,992	3,992

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the leadership dummy for males). The results are similar when using marginal effects in a logit or probit (see Table B3 in Appendix B for the probit estimation).

Table 7: Econometric results by marital status and gender: Women Fixed effects model

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Married	-0.028**	-0.029*	-0.026	0.001	0.002	0.016
	[0.013]	[0.016]	[0.021]	[0.011]	[0.013]	[0.018]
Photo 1	0.022**	0.029**	0.029**	0.009	0.015	0.016
	[0.011]	[0.012]	[0.013]	[0.010]	[0.011]	[0.012]
Photo 2		0.021*	0.020		0.016	0.017
		[0.011]	[0.012]		[0.010]	[0.011]
Photo 4			-0.002			0.003
			[0.012]			[0.012]
Photo 1 x Married	0.027	0.030	0.027	0.016	0.015	0.001
	[0.023]	[0.025]	[0.028]	[0.021]	[0.023]	[0.026]
Photo 2 x Married		0.012	0.009		0.001	-0.013
		[0.028]	[0.033]		[0.021]	[0.025]
Photo 4 x Married			-0.004			-0.029
			[0.027]			[0.026]
Firm fixed effects	Y	Y	Y	Y	Y	Y
N	4,157	4,157	4,157	3,992	3,992	3,992

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant).

Table 8: Difference on the variance of unobservables: Women

	[1]	[2]	[3]
Married	-0.026	-0.004	-0.017
	[0.027]	[0.017]	[0.023]
Photo 1 (European)	0.012	0.045	0.089
	[0.040]	[0.068]	[0.226]
Photo 2 (Mestizo)	0.015	0.022	0.022
	[0.043]	[0.014]	[0.023]
No photo	0.000	-0.012	-0.007
	[0.006]	[0.013]	[0.014]
Heteroskedasticity			
Married	-1.99		-0.10
	[2.98]		[0.067]
Photo 1 (European)		-2.04	-2.66
		[2.52]	[2.84]
N	4,157	4,157	4,157

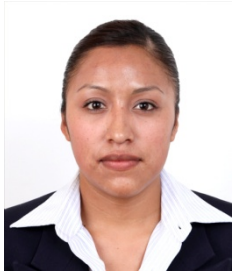
Notes: Estimations by the authors using heteroskedastic probit. The coefficients presented are marginal effects. We asume heteroskedasticity has an exponential distribution. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy.

Appendix A – Photographs of the fictitious applicants

WOMEN

European

Mestiza



Indigenous

MEN

European

Mestizo

Indigenous

Appendix B – Estimation results using a probit model

Table B1: Econometric results: All
Probit model

	[1]	[2]	[3]	[4]	[5]
Woman	0.043***	0.043***	0.043***	0.043***	0.043***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Public university	0.000	-0.000	-0.000	-0.000	-0.000
	[0.006]	[0.006]	[0.006]	[0.006]	[0.006]
Married	-0.011	-0.010	-0.010	-0.010	-0.011
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Photo 1 (European)		0.026***			0.026***
		[0.007]			[0.007]
Photo 2 (Mestizo)		0.017**			
		[0.007]			
No photo		-0.006		-0.006	
		[0.008]		[0.008]	
Photo 1 & 2 (European and mestizo)			0.024***	0.021***	
			[0.005]	[0.006]	
Photo 2 & 4 (mestizo and no photo)					0.006
					[0.006]
N	8,149	8,149	8,149	8,149	8,149

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) denotes statistical significance at 1% (5%). All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).

Table B2: Econometric results: Women
Probit model

	[1]	[2]	[3]	[4]	[5]
Public university	-0.005	-0.006	-0.005	-0.005	-0.007
	[0.010]	[0.010]	[0.010]	[0.010]	[0.010]
Married	-0.028**	-0.028**	-0.028**	-0.027**	-0.030**
	[0.013]	[0.013]	[0.013]	[0.013]	[0.013]
Photo 1 (European)		0.033***			0.034***
		[0.011]			[0.011]
Photo 2 (Mestizo)		0.020*			
		[0.010]			
No photo		-0.010		-0.010	
		[0.012]		[0.012]	
Photo 1 & 2 (European and mestizo)			0.030***	0.025***	
			[0.008]	[0.009]	
Photo 2 & 4 (mestizo and no photo)					0.007
					[0.009]
N	4,157	4,157	4,157	4,157	4,157

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).

Table B3: Econometric results by marital status and gender: Women
Probit model

	Women			Men		
	(1)	(2)	(3)	(4)	(5)	(6)
Married	-0.029**	-0.059***	-0.067***	0.010	0.016	0.043*
	[0.015]	[0.017]	[0.025]	[0.013]	[0.015]	[0.022]
Photo 1	0.029**	0.028**	0.023*	0.014	0.022*	0.029**
	[0.012]	[0.012]	[0.014]	[0.011]	[0.012]	[0.015]
Photo 2	-0.001	0.037	0.049	-0.007	-0.012	-0.033
	[0.028]	[0.035]	[0.044]	[0.023]	[0.024]	[0.023]
Photo 4		0.002	-0.003		0.021*	0.028**
		[0.012]	[0.013]		[0.012]	[0.014]
Photo 1 x Married		0.113**	0.128**		-0.012	-0.035
		[0.045]	[0.056]		[0.022]	[0.021]
Photo 2 x Married			-0.012			0.015
			[0.014]			[0.015]
Photo 4 x Married			0.022			-0.047**
			[0.043]			[0.021]
Firm fixed effects	N	N	N	N	N	N
N	4,157	4,157	4,157	3,992	3,992	3,992

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).

Table B4: Econometric results by groups: Women Probit model

	[1]	[2]	[3]	[4]	[5]	[6]
Public university	-0.010	0.007	0.005	-0.011		
	[0.012]	[0.020]	[0.022]	[0.013]		
Married	-0.029*	-0.018			-0.044**	-0.022
	[0.015]	[0.028]			[0.021]	[0.017]
Photo 1 (European)	0.035***	0.027	0.049	0.024	0.029	0.037**
	[0.013]	[0.021]	[0.033]	[0.015]	[0.025]	[0.017]
Photo 2 (Mestizo)	0.020	0.022	0.102**	-0.001	0.001	0.032*
	[0.013]	[0.019]	[0.041]	[0.013]	[0.023]	[0.019]
No photo	-0.018	0.011	0.012	-0.012	-0.022	-0.006
	[0.014]	[0.021]	[0.035]	[0.015]	[0.025]	[0.018]
Group	Business	Engineering	Married	Single	Private university	Public university
N	3,029	1,128	1,074	3,083	1,622	2,535

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).

Appendix C – Estimation results for Men

Table C1: Econometric results: Men

	[1]	[2]	[3]	[4]	[5]	[6]
Public university	0.005	0.004	0.004	0.004	0.005	0.014*
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]
Married	0.008	0.009	0.009	0.009	0.008	0.006
	[0.012]	[0.012]	[0.012]	[0.012]	[0.012]	[0.010]
Photo 1 (European)		0.015			0.016	0.016
		[0.010]			[0.010]	[0.010]
Photo 2 (Mestizo)		0.014				0.014
		[0.010]				[0.010]
No photo		-0.004		-0.004		-0.007
		[0.010]		[0.010]		[0.009]
Photo 1 and 2 (European and mestizo)			0.016**	0.015*		
			[0.008]	[0.009]		
Photo 2 and 4 (mestizo and no photo)					0.006	
					[0.008]	
Firm fixed effects	No	No	No	No	No	Yes
N	3,992	3,992	3,992	3,992	3,992	3,992

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. ** (*) denotes statistical significance at 5% (10%). All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major). Columns (1) to (5) do not include firm fixed effects. The results are similar when using marginal effects in a logit or probit (see Table C2 in this appendix for the probit estimation).

Table C2: Econometric results: Men
Probit model

	[1]	[2]	[3]	[4]	[5]
Public university	0.005	0.004	0.004	0.004	0.004
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Married	0.008	0.009	0.009	0.009	0.008
	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]
Photo 1 (European)		0.016			0.016
		[0.011]			[0.011]
Photo 2 (Mestizo)		0.014			
		[0.010]			
No photo		-0.004		-0.004	
		[0.010]		[0.010]	
Photo 1 and 2 (European and mestizo)			0.016**	0.015*	
			[0.008]	[0.009]	
Photo 2 and 4 (mestizo and no photo)					0.006
					[0.008]
N	3,992	3,992	3,992	3,992	3,992

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. ** (*) denotes statistical significance at 5% (10%). All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).

Table C3: Econometric results by group: Men

	[1]	[2]	[3]	[4]	[5]	[6]
Public university	0.010	-0.008	0.058***	-0.011		
	[0.009]	[0.017]	[0.019]	[0.010]		
Married	0.029**	-0.023			-0.028	0.027*
	[0.014]	[0.022]			[0.018]	[0.015]
Photo 1 (European)	0.021	0.018	-0.005	0.028**	0.002	0.024
	[0.013]	[0.018]	[0.027]	[0.013]	[0.020]	[0.016]
Photo 2 (Mestizo)	0.013	0.017	-0.014	0.025**	0.006	0.022
	[0.012]	[0.018]	[0.026]	[0.012]	[0.021]	[0.015]
No photo	-0.005	-0.012	-0.048**	0.012	-0.002	-0.006
	[0.012]	[0.018]	[0.024]	[0.013]	[0.023]	[0.015]
Group	Business	Engineering	Married	Single	Private university	Public university
N	2,781	1,211	1,151	2,841	1,440	2,552

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major). Columns (1) to (5) do not include firm fixed effects. The results are similar when using marginal effects in a logit or probit (see Table C4 in this appendix for the probit estimation).

Table C4: Econometric results by groups: Men Probit model

	[1]	[2]	[3]	[4]	[5]	[6]
Public university	0.009	-0.007	0.056***	-0.011		
	[0.009]	[0.016]	[0.018]	[0.010]		
Married	0.030**	-0.023			-0.028*	0.027*
	[0.014]	[0.021]			[0.017]	[0.015]
Photo 1 (European)	0.023	0.018	-0.007	0.030**	-0.001	0.026
	[0.014]	[0.019]	[0.025]	[0.014]	[0.020]	[0.017]
Photo 2 (Mestizo)	0.013	0.018	-0.015	0.028**	0.004	0.022
	[0.013]	[0.019]	[0.022]	[0.014]	[0.022]	[0.016]
No photo	-0.003	-0.011	-0.046**	0.014	-0.002	-0.005
	[0.012]	[0.018]	[0.021]	[0.015]	[0.023]	[0.016]
Group	Business	Engineering	Married	Single	Private university	Public university
N	2,781	1,211	1,151	2,841	1,440	2,552

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. *** (**) [*] denotes statistical significance at 1% (5%) [10%]. All regressions control for age, business dummy, scholarship dummy, public high-school dummy, dummies for foreign language, and a leadership dummy. The coefficients on the control variables are not presented (all of them are not statistically significant, with the exception of the business major).