

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

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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. We have not found literature on racial discrimination in countries, like Mexico, where race is not as physically differentiated as in countries with varied racial mixtures derived from historical influxes of immigrants and where applicants' names or surnames may arguably convey racial or national

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¹ See the excellent literature reviews of Pager (2007) and Pager and Shepherd (2008).

origin.² In Mexico there is a range of color and features in the population, from white to indigenous phenotypes and all the mixed phenotypes in between, and people's surnames do not necessarily provide information on the racial origin. Distinguishing racial discrimination in such a context is difficult.

In this paper we aim to identify racial discrimination in Mexico throughout the range of phenotypes generated by racial mixing since the Spanish colony. We conduct a correspondence study in which we randomly vary photographs and information provided in employment resumes. The photographs used represent three distinct racial phenotypes in Mexico: white, *mestizo* (mixed-race, with light-brown skin), and indigenous (with dark-brown skin and indigenous features).

This study is particularly important in the Mexican context for two reasons. First, there is no information on racial origin or skin color in Mexican labor surveys. Hence, it is impossible to estimate any kind of racial gap in the labor market using official statistics.³ And second, as in many developing countries, employers explicitly ask applicants to include a photograph in their resumes. Thus, information on physical appearance is explicit in the job application, and is used by employers in hiring decisions. This work may also be useful for researchers interested in discrimination involving Latinos in contexts where surnames do not convey race or phenotype, as with the Latino population in the United States. An experiment which varies surnames would not be able to disentangle the effect of having a Latino origin from the effect of phenotype within the Latino population.

² Such is the case with the white/black distinction in the United States (see, for example, Bertrand and Mullainathan, 2004), or the native/immigrant distinction in Canada and some European countries (see Oreopoulos, 2011; Carlsson and Rooth, 2007; Kaas and Manger, 2012, among others).

³ Some surveys include information on whether individuals speak an indigenous language. However, a large proportion of the population with indigenous phenotypes speaks only Spanish. There is no information on physical phenotype (white, mestizo, or indigenous) in official statistics.

I. Experimental Design

Our research design consists of a correspondence study that focuses on recent college graduates with at most three years of work experience, who are those most likely to apply for jobs online. We answered close to 1,000 online advertisements for jobs in Mexico City from October 2011 to May 2012.⁴ To each job advertised we sent an average of eight fictitious resumes with randomly varied genders and photographs. We distinguished between a control resume with no picture and resumes with photographs representing three distinct phenotypes: white, *mestizo*, and indigenous. Unlike Rooth (2009), who digitally altered the weight of applicants in a study of the effects of obesity, we cannot artificially darken or whiten our applicants because phenotypes involve a set of facial features besides skin color.

A typical resume includes identity information (name, photograph, address, email, cell phone number, etc.), education (college and high school attended), professional experience, hobbies, and additional information like availability and willingness to move to another city. We used eight of the most common names and surnames in Mexico, which are not associated with racial background. We drew upon descriptions of previous professional experience from the many resumes available online to create realistic experience for our fictitious candidates. Following Lahey and Beasley (2009), we randomized characteristics across resumes and created ten sets of eight resumes each for six different academic majors and two experience levels,⁵ for a total of 960 different resumes. Each name was associated with an email account and a cell phone

⁴ All job advertisements were posted by different firms.

⁵ We selected the following academic majors: business administration, public accounting, economics, industrial engineering, electronics and telecommunications engineering, and computational engineering. These majors were selected to maximize the number of job advertisements that could be used in the experiment, and also to achieve some gender balance among the applicants. In 2007-2008, 48 percent of the graduates in these majors were women according to national statistics.

number. Since all the information in the resumes is randomized, each photograph has, on average, a resume of equal quality.

Resumes with appropriate characteristics were sent in response to advertisements, based on the qualifications solicited. Most of the ads were too general to allow pinpointing of information about the firm (such as firm size, revenue, and the like) or specifics of the position (such as its level in the firm hierarchy or whether it involved contact with clients). In Mexico it is common practice to explicitly request specific characteristics in the advertisement: men or women, married or single, photograph in the resume, etc. Our sample includes both types of advertisements: those that specified a particular characteristic and those that did not. We call the latter set of advertisements the 8-sample, as we were able to send a full set of eight resumes in response to those.⁶

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 types of people among its employees. This disutility is reflected in a higher psychic cost of hiring those people. On the other hand, statistical discrimination exists due to information asymmetries associated with worker productivity: the employer has a prior opinion about the productivity of people based on observable characteristics like marital status, gender, or race (Arrow, 1998; Phelps 1972). However, as Phelps (1972) notes, “[d]iscrimination is no less damaging to its victims for being statistical. And it is no less

⁶ For example, if the advertisement sought only women (a common practice in Mexico), we sent only women’s resumes. If it specified languages or programming skills, those were added to the resume.

important for social policy to counter.”⁷ For this reason, we do not concern ourselves here with the source of discrimination.

II. Empirical Results

Table 1 presents the callback rates by phenotype for men and for women, restricting the sample to those advertisements to which a set of eight resumes was sent (8-sample). The first thing to notice in this table is that women are called back more often than men, with an overall callback rate of 13.78 percent, compared with 10.75 percent for men; men thus need to send 28 percent more resumes to receive the same number of responses as women (the difference is statistically significant at the 1 percent level, not shown). The difference exists in almost every dimension analyzed in Table 1.

Table 1: Callback rates by phenotype (percentage)

	White	<i>Mestizo</i>	Indigenous	No photo	p-value
	[1]	[2]	[3]	[4]	[5]
A. Women					
All	15.59	14.21	13.22	12.09	0.22
Single	15.65	13.25	14.10	13.35	0.62
Married	15.42	17.49	9.94	9.63	0.04
Public university	14.90	15.28	12.92	11.93	0.38
Private university	16.78	12.89	13.85	12.32	0.38
N	802	802	802	802	
B. Men					
All	11.60	11.72	9.85	9.85	0.43
Single	11.53	11.21	8.55	9.96	0.33
Married	11.79	12.92	13.10	9.63	0.60
Public university	11.94	12.31	10.59	9.53	0.46
Private university	11.00	10.53	8.68	10.42	0.79
N	802	802	802	802	

⁷ 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 have low productivity even if she does not.

Notes: Estimations by the authors for the advertisements to which a full set of eight resumes were sent. "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 chi-squared.

Our main interest is in racial discrimination. Table 1 shows that when we consider all women, callback rates decrease monotonically for darker applicants. These differences are, however, not statistically significant, as shown in Column (5). The pattern likewise does not hold if we split the sample of women according to other characteristics, like marital status or type of university attended; nor does it hold for the sample of men. In sum, a simple comparison of means does not allow us to identify racial discrimination in our sample.

We also estimate a linear probability model in which the dependent variable is an indicator of whether the applicant received a call to schedule an interview.⁸ We want to test the effects of phenotype and gender. Our control variables include age, major dummies, and dummies for scholarships, public university, public high schools, 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. Table 2 presents these results for two different samples: the whole sample (Columns 1 to 3) and the 8-sample described above (Columns 4 to 6). Our results confirm that women are called back more often than men: for the 8-sample, women's callback rate is 3 percentage points higher than that of men and the difference is statistically significant at the 1 percent level (Column 4).

⁸ We also estimated probit regressions and the results did not change (not shown).

Table 2: Econometric results

	All	Women	Men	All	Women	Men
	[1]	[2]	[3]	[4]	[5]	[6]
Women	0.043*** [0.008]			0.030*** [0.008]		
Public university	-0.000 [0.006]	-0.006 [0.011]	0.004 [0.008]	0.004 [0.006]	-0.002 [0.011]	0.008 [0.009]
Married	-0.010 [0.008]	-0.028** [0.013]	0.009 [0.012]	0.003 [0.011]	-0.011 [0.014]	0.014 [0.014]
White	0.025*** [0.007]	0.033*** [0.011]	0.015 [0.010]	0.021*** [0.008]	0.024** [0.012]	0.018 [0.012]
<i>Mestizo</i>	0.017** [0.007]	0.019* [0.010]	0.014 [0.010]	0.014* [0.008]	0.010 [0.011]	0.018* [0.010]
No photo	-0.006 [0.008]	-0.009 [0.011]	-0.004 [0.010]	-0.006 [0.008]	-0.010 [0.012]	-0.001 [0.010]
N	8,149	4,157	3,992	6,416	3,208	3,208

Notes: Estimation by the authors using a linear probability model. Standard errors in brackets are robust and clustered at the firm level. All regressions also control for age, business dummy, scholarship dummy, public high school dummy, dummies for foreign language, and a leadership dummy. Columns (1) to (3) use the entire sample. Columns (4) to (6) use the sample of advertisements to which we sent 8 resumes.

*** Significance at the 1 percent level.

** Significance at the 5 percent level.

* Significance at the 10 percent level.

In terms of phenotypes, we find that white applicants have higher callback rates than indigenous applicants, and *mestizo* applicants have a slightly higher callback rate than indigenous ones (Columns 1 and 4). The effects are sensitive to the sample used. When we use the complete sample, white and *mestiza* women are called more than indigenous ones; we do not find any effect for men. However, in the case of women in the 8-sample, employers contact white women more often than any other phenotype; for men, however, whites and mestizos are called back more often than indigenous applicants, though the effect is at best only marginally

significant.⁹ For women, the effect of phenotype is economically significant: indigenous applicants must send 18 percent more resumes than whites to get the same number of callbacks.

Employers seem to favor single over married women. If we consider the whole sample, married women have a callback rate that is 2.8 percentage points lower than that of single women. We do not find any effect of marriage in men. However, this marriage penalty for women disappears when we look only at those advertisements which received the complete sets of eight resumes (the 8-sample).

In sum, we find evidence of discrimination against indigenous individuals. It is clear that employers tend to favor white women. In the case of men, the result depends on whether we consider the whole sample or not. In the case of the regressions by gender, the use of the complete sample may be more justified than in the case of the pooled regression, where we need those firms that were presented with all the options. These findings are significant in the sense that discriminatory advertisements (those asking only for male or female applicants, or requiring a photograph in the resume) show a tendency in the estimates toward greater discrimination for women in the dimensions of race and marital status. Kuhn and Shen (2013) explain that explicit discrimination in job ads “measures different aspects of employer discrimination than are measured by the audit/correspondence approach” (p. 290). However, our results are evidence that both measures may be related: explicit discrimination in advertisements magnifies discrimination in our correspondence study.

⁹ We do not have any information on the firm or the specifics of the job position. Hence, in order to control for firm characteristics, we also estimated regressions using firm fixed effects. However, this comes at the additional cost of eliminating the variation of those firms which treat all applicants equally. Notwithstanding, the results presented in Columns (4) to (6) are robust to the inclusion of fixed effects (results not shown).

III. Discussion and Conclusions

We provide evidence of discrimination in Mexico, a developing country in which the racial divide is not as physically differentiated and cannot be associated with surnames as in other correspondence studies. We find that firms discriminate against applicants of indigenous appearance. In the case of female applicants, explicit discrimination in employment advertising translates into discrimination on the basis of marital status and race. However, women are always favored over men in the market of recent college graduates who apply for jobs online. These results have important policy implications. Mexican labor law does not explicitly forbid the inclusion of personal information (such as marital status or a photograph) in the application process. Our results are evidence that firms are using personal information to discriminate against indigenous applicants, and thus the inclusion of personal information in resumes should be prohibited.

References

- Arrow, Kenneth.** 1998. "What has economics to say about racial discrimination?" *Journal of Economic Perspectives* 12 (2): 91-100.
- Bertrand, Marianne and Sendhil Mullainathan.** 2004. "Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." *The American Economic Review* 94 (4): 991-1013.
- Carlsson, Magnus and Dan-Olof Rooth.** 2007. "Evidence of ethnic discrimination in the Swedish labor market using experimental data." *Labour Economics* 14 (4): 716-729.
- Kaas, Leo and Christian Manger.** 2012. "Ethnic Discrimination in Germany's Labour Market: A Field Experiment." *German Economic Review* 13 (1): 1-20.

- Kuhn, Peter and Kailing Shen.** 2013. "Gender Discrimination in Job Ads: Evidence from China." *Quarterly Journal of Economics* 128 (1): 287–336.
- Lahey, Joanna N. and Ryan A. Beasley.** 2009. "Computerizing audit studies." *Journal of Economic Behavior & Organization* 70 (3): 508–514.
- Oreopoulos, Philip.** 2011. "Why Do Skilled Immigrants Struggle in the Labor Market? A Field Experiment with Thirteen Thousand Resumes." *American Economic Journal: Economic Policy* 3 (4): 148-171.
- Pager, Devah.** 2007. "The Use of Field Experiments for Studies of Employment Discrimination: Contributions, Critiques, and Directions for the Future." *The Annals of the American Academy of Political and Social Science* 609 (1): 104-133.
- Pager, Devah and Hana Shepherd.** 2008. "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." *Annual Review of Sociology* 34:181–209.
- Phelps, Edmund S.** 1972. "The Statistical Theory of Racism and Sexism." *The American Economic Review* 62 (4): 659-661.
- Rooth, Dan-Olof.** 2009. "Obesity, Attractiveness, and Differential Treatment in Hiring: A Field Experiment." *The Journal of Human Resources* 44 (3): 710–735.