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Two Field Experiments in Colombia

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Abstract

Affirmative action is a subject of intense debate. Supporters point to the increased representation of women and minority groups while critics contend that affirmative action can lead to inefficiencies. In this paper we present results from two field experiments that were designed to test how applicants sort in response to affirmative action rules that favor of women. Our results suggest that the criticism of affirmative action is misplaced. We find that affirmative action does not lead to lower standards in the pool of applicants.

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1 Introduction

Affirmative action is a subject of intense and polarized debate (Cohen and Sterba, 2003). Supporters point to the opportunities to address historical and statistical discrimination, and to the advantages of diversity both in the workplace and in the classroom. Critics contend that affirmative action is reverse discrimination (Newton, 1973) and violates the principle of merit (Walzer, 1983, pp.143–154). Quite apart from moral concerns, affirmative action can lead to economic inefficiencies. For instance, to attract the disadvantaged group, employers might be forced to lower their hiring standards incurring on productivity losses (Sowell, 1990). Besides, the intended beneficiaries of affirmative action may have lower incentives to improve performance to compete with peers leading to lower productivity. On the other hand, as affirmative action decrease the possibilities of the advantaged group to be hired this can potentially discourage qualified people from the advantageous group to apply.

This paper presents the results from two labor market field experiments that were designed to test how applicants sort in response to affirmative action policies. In particular this paper considers whether the quality of applications is compromised by such a policy. The experiments were conducted in Colombia. Potential applicants for two type of jobs were randomly informed that affirmative action for women would play a role in the hiring process. Applicant to the position received this information either before or after they completed the application form. Half the potential applicants, randomly selected, therefore applied expecting affirmative action to play a role in the hiring process, while the other half applied with no such expectation. In the experiment we use two types of Affirmative Action rules. A quota rule, where at least 50% of the positions were reserved for women, and a preferential rule by which with equal qualifications, women were to be preferred. The quality of the resulting applicant pools was measured through grades, experience, degree completed, aptitude and personality tests. In the analysis we consider the effect of AA rules on the distribution of the applicant pool. There fore we consider both the average effect as the effect on the tails of the distribution.

Our results in both experiments suggest that the criticism of allowing organizations and firms to use affirmative action policies is misplaced. Affirmative action does induce women to sort in the expected way: women are induced to apply in jobs that advertise preferential treatment to women. Contrary to the critics, affirmative action does not come at the cost of lower standards. In particular, the quality composition of applicants under affirmative action rules and the control group is not significantly different. Interestigly, we find that affirmative action policies seem to be associated with family friendly policies as they attract women with children.

While affirmative action policies have been at the center of popular debates, especially in the US and in India, there is relatively little empirical literature on the subject (Holzer and Neumark 1999; 2000; 2006). Some papers have focused on the impact of political quotas. For instance, Chattopadhyay and Duflo (2004) explore the random assignment of political quotas over regions in

India and show that increase female representation in politics fosters the provision of public goods, particularly those that improve the quality life of women (water provision vs. roads). Similarly, following the constitutional change, that granted a minimum representation quota to women in Rwanda, Powley (2006) finds that increased female representation in political arena is associated with increase investment in children, in health and in social issues and with the implementation of laws that protect women and girls rights. Other impacts of affirmative action rules are related with decreased corruption (Swamy et al. (2001) and Branisa, Klasen and Ziegler (2013)), and with changes in attitudes towards female politicians (Beaman et al., 2009; Duflo, 2005). Recent empirical evidence on quota rules in Norway where 40% of the public limited state-owned and inter-municipality companies should be occupied by either gender shows that quota rules increased the per-centage of women serving in multiple boards (Seierstad and Opsahl, 2010). However, increase female rep-resentation might have come at the expenses of short-term loss of profits and decrease of the value of the firm mainly due to increases in labor cost due to higher employment levels (Matsa and Miller, 2012). . Unlike the above papers, we consider how affirmative action affects labor market sorting.

Some papers have investigated how affirmative action rules affect sorting in education. For example, Bertrand, Hanna and Mullainathan (2010) analyze admission programs in India that favor admission of students from lower cast. They find that affirmative action rules succeed in attracting the desired population. The marginal low cast entrant comes from a less advantaged background than the marginal high-cast displaced. Furthermore, there does not seem to be a mismatch of educational institution and the student who gained admission under affirmative action. Two recent studies consider the the effect of a removal of affirmative action policies in College and University admission in California and Texas between 1996 and 1998. Card and Krueger (2005) examine the removal of affirmative action rules does not change the application behavior of highly qualified minority applicants (measured by sending SAT-scores) into schools. However, Dickson (2006) found that the application of minority groups was lowered on average. She suggests that financial aid for highly qualified minority students mitigated this effect.. Our study is complementary to these papers as it consider the effect of affirmative action rules in the labor market.

Recent lab experiments investigating the effect of affirmative action on sorting, demonstrates that affirmative action rules can incentivize women to enter competitive environments (Niederle, Segal and Vesterlund, 2010; Balafoutas and Sutter, 2010).[1] However, experiments in the laboratory on socially sensitive topics are are especially susceptible to experimenter demand effects (for a recent extensive discussion see Zizzo, 2010) that may lower external validity.

The remainder of the paper is organized as follows: The next section gives a shore background on the situation of the Colombian labor market. Section 3 describes the experimental procedure

[1] Another strand of experimental literature with an early contribution by Schotter and Weigelt (1992) and more recently Calsamiglia, Franke and Rey-Biel (2009) are more focused on the incentive effects of affirmative action and less on the sorting effects.

and data collected in the experiments. Section 4 presents the results and Section 5 discusses and concludes.

2 Background-Colombian Labor Market Context

In 2010, a group of Researchers from University of Goettingen was preparing two studies in Colombia (See Dietrich and Ibanez, 2013 and Ibanez and Vasquez, 2013). These studies required the help of 3 to 4 research assistants to conduct interviews with farmers and with local institutions in rural areas in Colombia. Within the context of these projects we decided to conduct a labor market field experiment. This experiment was set up in a natural environment and applicants to the position did not know that they were participating in an experiment. All the recruitment was done online and followed standard recruitment process. Hence, besides asking questions on background we included diverse tests on mathematical skills, general knowledge and reading comprehension. Besides we asked personality questions. As part of the recruitment we conducted telephone interviews with the best five candidates and the positions were offered to three candidates. The research assistants worked in one of the projects for two months and in the second project for three months.

During the preparatory visit to Colombia, the local consultancy firm with which we work, required to hire a Consultant. They agreed to allow us to participate in the recruitment process. Similar procedures as the previous experiment were applied here. Yet in some cases, we had to adjust to the requirements and preferences of the consultant firm. The consultant firm hired one consultant who work for six months.

For Latin American standards Colombia has a high level of unemployment rates and informal economy. In 2010 the official unemployment rate was 10.5% and the informal work accounted for about 40% of the employment. People between 14 and 26 were particularly vulnerable with unemployment rates of 21% in the urban areas. Whereas for new graduates, the unemployment rate is 14%. The demand for qualified and experienced workers is higher and hence unemployment rates for this segment are lower.

3 Experimental design and procedures

To test the effect of affirmative action rules on labor market participation, we set up two labor market field experiments in Colombia. In the first experiment (we will refer to this experiment from now on as *Assistant)* we recruited applicants for a research assistant positions offered by a German University. Potential candidates were not required to have previous experience or a particular field of study. If selected Research Assistants would be responsible for conducting field

work in rural areas in Colombia (i.e. collect secondary data, conduct interviews with farmers). The second experiment was conducted in collaboration with a consultancy company that was searching a consultant with at least some years of experience and at least a bachelor degree in a relevant field of study (we will refer to this experiment from now on as *Consultant).* The hired consultant would be responsible to do workshops in rural communities.

Both experiments proceeded in two stages. In a first stage we tried to get subjects interested in this work by applying only a low hurdle to *state interest* in the job where we elicited basic information of the candidate. In the second stage participants received an invitation to apply to the job completing a lengthy application questionnaire. In this stage they were randomly assigned to treatment (AA) and control. In the *affirmative action treatment* (AA) the statement was displayed in the invitation email *before* presenting the application questionnaire. *All participants* who completed the application process were presented the *affirmative action statement after* they have finished the questionnaire. This was done in order to achieve ex-post equality of information for subjects who completed the questionnaire and therefore effectively applied to the job. Therefore the experiment does not involve any form of deception.

As the assignment to the treatment and control is random, we can causally link the affirmative action statement to acceptance or rejection of the job conditions. This strategy also allows us to evaluate the impact of the affirmative action rule on the characteristics of the pool of applicants. Table 1 on page 30 summarizes the setup of the experiment. In the remainder of the section we will explain the setup of each experiment – their similarities and their differences – in detail.

[Table 1 about here.]

3.1 Experiment:Assistant

The experiment was conducted between October 2010 and January 2011 in Colombia. We used a two stage application procedure. In the first stage we posted small ads to announce that a German University is looking for research assistants to work in rural areas in Colombia. We used two main channels for recruiting applicants: direct mails over the internal job market of all major Colombian Universities and by posting a short advertisement in nation wide newspapers in the online classified pages of El Tiempo, El Pais and La Patria[2]. In both cases subjects received the information that a University offers positions as research assistants in rural areas. In both the newspaper and the mail campaign subjects were provided with a link to a more detailed job description and an application form. In the first-stage we asked to state interest in the position providing basic demographic information such as age and place of residence and educational achievements, including whether they obtained a master's degree.[3]This stage lasted two and a half months.

[2]The advertisements were posted on Nov 4 and 5, 2010. El Tiempo is located in Bogotá, El Pais in Cali and La Patria in Manizales.

[3]A translated version of the job description and the application form as well as a full list of variables asked can be found in appendices B and D, respectively.

In the second stage we used demographic information over gender and main residence in Bogotá to stratify participants into treatments and control. The subjects received an email with specific information about the job. The jobs we offered were research assistant positions where subjects are required to live and work in different regions in Colombia and work with farmers who cultivate tobacco. Besides, participants randomly selected into the treatment were informed that during the hiring female quota rules were to be used. We used the following (translated into Spanish) statement.

> "The University of [NAME HIDDEN] is an equal opportunities employer. To increase female participation in areas where women are up to now underrepresented, a minimum of 50% of the hired assistants will be women."

This email included two links: one link was an opt-out link where participants could state, that they were not interested in that offer. [4] The other link lead to the online application form. Participants were informed about the application procedure and especially about the extensive online questionnaire that followed upon agreement to continue the application procedure. The questionnaire included questions on education, family background, a Spanish version of the Big 5 personality test (Benet-Martinez and John, 1998), a test on numeracy (Lipkus, Samsa and Rimer, 2001) and a cognitive reflection test by Frederick (2005) a reading comprehension test and questions on general knowledge on Colombia Geography. Furthermore, we asked for risk aversion, time preferences and impulsivity using the questions from the German Socio Economic Panel - GSOEP (Wagner, Frick and Schupp, 2007). Participants had two weeks to complete the application questionnaire.

3.2 Experiment Consultant

The second experiment was conducted jointly with a consultancy agency offering a position for an consultant with at least two years of experience. In this experiment we introduced a *preferential rule for females*. The recruitment of subjects was done via newspaper and a "hot" mailing list containing around 3000 email addresses of currently active consultants. The experiment was conducted in February 2011. Subjects received a link to a recruiting homepage from the consultancy company where they were asked to enter information on gender, years of job experience. Randomization over affirmative action treatment was done using a random number generator within the survey software (LimeSurvey 2012). Hence, it was not possible to stratify participants based on demographic characteristics. Immediately after entering statement of interest in the job, participants were redirected to a page with information about the place of work and salary. Moreover, for participants in the *Affirmative Action Treatment* (AA) the following statement was included:

> *With equal qualification, women will be preferred.*

[4] We did not expect subjects to use this link as people tend to ignore emails they are not interested in.

If subjects agreed to the working conditions, they were redirected to a more extensive application questionnaire. Similarly as in the previous experiment, participants knew that this was a lengthy process before entering into the application. If they disagreed, they were redirected to the short exit questionnaire. Participants had two weeks to complete the application process.

3.3 Measuring Applicants Characteristics

To assess the quality of the applicants we used several measures. Some measure were taken when participants stated the interest in the job or were achieved before the treatment was implemented. Since this measures are not affected by the treatment we call them *exogenous.* Exogenous measures are university grades and quality of the university attended. The other measures were elicited using the application questionnaire and are likely to be endogenous to the treatment. Endogenous measures determined within the application procedure after the treatment has been assigned are cognitive and personality tests. Using self reported measures, truthful reporting is of some concern to the researcher, as people have a tendency to misreport in order to increase their chances to be hired. We therefore incentivize truthful reporting of the verifiable exogenous measures, and announced to the candidates that upon invitation to a job interview they have to bring along all the necessary documentation of the information provided in the questionnaire. Failing to bring supporting documents will lead to an immediate rejection of the applicant. This policy was communicated to the applicants before the first *and* the second stage online application form.

Exogenous Characteristics Subjects had to indicate the final grades in their bachelor and master studies. The Colombian grade scale for academic degrees is in a range from 1 to 5, where 5 is the best grade. To assess the quality of the university we use the result of a ranking of Colombian universities in 2010, the Boletín Científico Sapiens Research (see Badel and Peña, 2010, for a detailed description of the methodology). This ranking uses a unified methodology for the evaluation and puts the focus on research output and teaching quality and produces a summary statistics for quality of each university, the *sapiens weight.*

Endogenous Characteristics To measure job relevant cognitive ability we used the Lipkus, Samsa and Rimer (2001) numeracy test and the Frederick (2005) cognitive reflection test. The test by Lipkus, Samsa and Rimer is designed to measure people's ability to deal with probabilities. It is an eleven-item scale that measures the ability to differentiate and perform simple mathematical operations on risk magnitudes using percentages and proportions, conversion of percentages and probabilities to proportions and vice versa. The test outcomes of Frederick's cognitive reflection test (CRT) are highly correlated with outcomes of tests of general cognitive ability such as the Wonderlic Personnel Test and it measures "the ability or disposition to resist reporting the response that first comes to mind." (Frederick, 2005, p. 35), a skill that is important for both the research

assistants work and the consulting work.

Additionally, the questionnaire contained questions from the German Socioeconomic Panel (GSOEP) on risk aversion, time preferences and the determinants for success on the job. The question on risk aversion has been validated in a study by Dohmen et al. (2005) and showed high correlation with different measures of risk aversion for distinct domains of risk. In a 15-item scale taken from the GSOEP (Wagner, Frick and Schupp, 2007) for measuring people's beliefs over determinants of success. This scale tries to disentangle how much subjects belief qualification, selfish behavior or good connections determine the job success.

Additional Data in the Assistant Experiment In the Consultant Experiment we were limited in the number of covariates we could collect. In the Assistant Experiment we additionally collected data on the number of children and personality traits using the BIG-5 survey:

Exogenous Characteristics Affirmative action policies may signal not only preferential treatment of women in hiring, but, when used voluntarily, signal family friendly policies. We were therefore interested whether affirmative action statements are particularly appealing for people who have children. We therefore asked whether the applicants had children and if, how many. Previous research in business ethics has shown that firms engaging in what can be broadly be called corporate social responsibility attracts certain different types of workers of workers. (for a review see Albinger and Freeman, 2000, while Jones, Willness and Madey (2013) provide recent experimental evidence).

Endogenous Characteristics We use the Spanish version of the Big 5 personality test (Benet-Martinez and John, 1998) measuring: (i) Openness to new experience, (ii) Conscientiousness, (iii) Extroversion, (iv) Agreeableness and (v) Neuroticism. This scale — although based on self reports — has shown to be reliable and stable over time (Barrick and Mount, 1991; Barrick, Mount and Judge, 2001; Salgado, 1997) and the measured traits haven proven to be good predictors for various types of job performance. Openness is correlated with traits such as philosophical, creative and intellectual abilities. Conscientiousness is typically related characteristics such as achievement orientation, organization and orderliness, and responsibility. Agreeableness is typically related to kindness, cooperativeness or warmth. Some studies relate personality traits as measured by the Big 5 with behavior in laboratory experiments: Volk, Thöni and Ruigrok (2011) show, that Agreeableness correlates with pro-social behavior in public good games. Park and Antonioni (2007) show that Extroversion and Agreeableness were significantly related to conflict management strategies..

While there is general consent that cognitive skills matter in job performance, i.e. Schmidt and Hunter (1998), in a meta-study of research on personnel psychology concluded that "*the most valid predictor of future performance and learning is general mental ability, i.e., intelligence or*

general cognitive ability.", the analysis of the importance of non-cognitive skills and personality traits is far less studied in economics, although there is some suggestive evidence from personnel psychology that there is a link between stable personality traits and career success (Seibert and Kraimer, 2001)

. Some recent empirical studies find a positive relationship between salary level and extroversion Mueller and Plug (2006); Ng et al. (2005); Nyhus and Pons (2005); Rode et al. (2008).

Exit Questionnaire In both experiments we applied a voluntary exit questionnaire, asking subjects who actively dropped out of the application process either via clicking the opt-out link in the Assistant experiment or by disagreeing to the conditions in the Consultant experiment to help us improving future job advertisements. In this questionnaire we asked subjects about the reasons why thy left the application process. However, the turnout was with 3.2% — as expected — relatively low and therefore we abstain from reporting the results.

4 Results

First Stage Recruits

In this section we give an overview of the characteristics of the first stage recruits (we will refer to these first stage recruits as recruits from now on). For the assistant job, there are no significant differences in the average characteristics of participants in the affirmative action treatment and control. In the first phase more women stated interest in the possition (407) than men (326). Around 10% of the recruits have a Master's degree and over 73% live in the metropolitan areas of Bogota and Medellin.[5] The average age of the applicants was 28 years and they had on average 3 years of work experience.

For the Consultant job more men stated interest in the first round than women (157 vs 136). Around 40% of the applicants had a master degree and the average work experience was 9 years. We do not observe initial significant differences on observables over the affirmative action treatment and control suggesting that randomization worked well in both experiments. Detailed tables of summary statistics and tests can be found in the appendix 9.

Applicants Sorting

Due to the random assignment of treatments identification of the causal effect of the treatment on the completion of the application process is straight forward. We estimate following equation using a linear probability model with bootstrapped standard errors. The dependent variable is binary *Completed*. Completed means that the subjects have agreed to the conditions and submitted a

[5] A definition of the metropolitan areas is presented in E.

complete application form. We use this specification as completed applications are the economic relevant variable when taking the point of view of the firm.[6]:

$$Completed_i = \alpha + \beta_1 AA_i + \beta_2 female_i + \beta_3 AA_i \times female_i + \epsilon_i \quad (1)$$

Table 2 reports the results from the linear probability model of Equation (1) for both experiments. For the Assistant job, first column shows that in the absence of affirmative action rules women are 7 percentage points less likely to apply than men. Yet, affirmative action rules compensate for this effect and increase the likelihood of women to apply in 9 percentage points. While these coefficients are not significant, they point at a large potential impact of affirmative action rules and its potential to overcome female self-segregation from the labor market. Column 2 presents the results for participants who have maximum a Bachelor degree. We see that for this group of participants, female self-segregation out of the labor market is lower. On average women are 3 percentage points less likely to apply to the research assistant position than men when there are no affirmative action rules. Affirmative action rules are effective in closing the gap and increase female participation in 5 percentage points. Yet, as before none of this effects is significant. The main effect of affirmative action policies is found for the pool of applicants with master degree. The likelihood of women to apply to the position is 37 percent points lower than that of men when there are no female quota rules. Quota rules succeed in closing the gap and increase female participation in 40 percent compared with the case of no affirmative action. However, female quota rules, are also associated with lower participation of qualified men. Men with master degree are 38 percent points less likely to apply when female quota rules are announced compared with the control group. The large and positive effect of affirmative action rules for qualified people could be related with higher opportunity cost of this group of participants. Whereas recently graduated students, who confront higher unemployment rates, might be forced to take what ever job is available for them, master graduates can be more selective. Hence, they would also be more sensitive tot he job conditions.

This hypothesis seems to be confirmed by the results of the Consultant experiment (columns 4 to 6 present the results). For the Consultant experiment, we find that in the absence of affirmative action rules women self-segregate out of the labor market and are 14 percent less likely to apply to the position than men. Preferential treatment for women, helps to close the gap and induce more women to apply. Similarly as before, affirmative action discourage men from applying to the job, although the effect is not significant. Once that we disaggregated the results by degree (bachellor and Master), we find that the results are robust, though the significance is lower). It is interesting to note that again, affirmative action has a significant effect for women with master degree but not for women with a bachelor degree.

[6]From a psychological point of view one could also be interested in the first affective reaction to the affirmative action statement. All results hold true when looking also at subjects who agreed to the conditions and started the application procedure, but not necessarily finished it

[Table 2 about here.]

In the second estimation, we include control variables from the statement of interest questionnaire to check the robustness of the results. Therefore the following equation is estimated:

$$Completed_i = \alpha + \beta_1 AA_i + \beta_2 female_i + \beta_3 AA_i \times female_i + \gamma \mathbf{X} + \epsilon_i \tag{2}$$

For the assistant job we include dummies for Marital status, Metropolitan area and University as controls $\mathbf{X}$, while for the consultant job we include experience. The findings are robust to the inclusion of the co-variates, showing that the likelihood of females with Master of applying without affirmative action is lower and the size of the coefficient increased. In the Consultant job the sign and significance of the results stay stable. We take this is further suggestive evidence that the randomization procedure has worked.

[Table 3 about here.]

When interpreting applying to the position as a competitive process we can draw parallels to the results of previous results from laboratory experiments. Our results are in line with the findings in the laboratory by Balafoutas and Sutter (2010).

Comparison of Applicants' Characteristics by Treatment

One pressing question in the literature of affirmative action is, whether the voluntary use of affirmative action policies decreases the quality of the applicant pool. First evidence on the master's degree we presented in the previous section. Now we will exploit the covariates collected in the experiment to assess how costly — in terms of potential changes in the composition of characteristics of the applicant pool — affirmative action policies are. To assess the causal effect of the treatment on the composition of the applicant pool according to characteristics of applicants who finished the application process we use a Seemingly Unrelated Regressions (SUR) approach. We apply this estimation procedure to take into account that we are testing multiple hypothesis over different characteristics. SUR allows for correlations of the error terms across equations. We estimate the following system of equations:

$$Y_{ci} = \alpha + \beta_1 AA_i + \beta_2 female_i + \beta_3 AA_i \times female_i + \epsilon_{ic} \tag{3}$$

Where Y_{ci} is the value of characteristic c of individual i. Table 4 reports the results of a linear probability model presented in Equation 3 for the assistant job.

We do not find significant differences in most of the quality measures and the differences treatments are small. There are no differences in experience, Scores on the cognitive reflection test (CRT), bachelor grades or survey experience. However, we find that females applying under the

AA treatment perform slightly worse on the probability test (significant at the 10% level).[7] The differences in all quality measures except for having a Master's degree are not only not significant but also economically small.

[Table 4 about here.]

In the Consultant experiment, women tend to have more experience than men in the non affirmative action treatment, but we do not see any effects of the AA treatment on the measures of quality of the applicants. We do not find any effects on either the Probability test, the CRT scores indicating that men and women do not exert different effort depending on the treatment effort[8]in order to increase their chances to get hired.

[Table 5 about here.]

Using the full sample of subjects may not accurately reflect the actual consequences the affirmative action process has on the selection process. From research in personnel recruiting there is some suggestive evidence that decision makers use grades as a first selection criterion (see Jenkins and Wolf, 2005). We therefore chose bachelor grades as the preferred dimension for truncation. We apply the same estimation equation outlined in Equation 3, restricting our sample to the upper 20th percentile of bachelor grades. The only effect that survives this truncation of the data is the negative effect of the affirmative action on male applicants with master's degree. All other quality indicators are not effected by the treatments.[9]

Children Females are by around 8 percentage points less likely to have children than males under the No Affirmative Action treatment, while we observe that under the AA treatment they are as likely as men to have children. This is an important and interesting observation as it indicates that voluntary affirmative action policies may not only increase women's perception of the probability of winning the job (as in Balafoutas and Sutter, 2010; Niederle, Segal and Vesterlund, 2010), but also indicates that a voluntarily applied Affirmative Action policy may change the perception of the potential working environment. Applying affirmative action policies may transport the image of the firm as family friendly. These results are robust when splitting the sample into master and bachelors as in the previous analysis.

[7]Comparing the findings of the CRT score with the original results by Frederick (2005) we observe that the applicants performance on that test is in the range of the test scores of students of the University of Toledo (0.57) and Michigan State university (0.79). These seem to be plausible values for the applicant pool.

[8]As we can not control for cheating in this setup, we can not disentangle to what extent applicants engaged in in cheating activities.

[9]The tables and statistical tests can be found in Appendix F.2

Personality Traits

We now turn to the analysis of the personality traits. Table 6 summarizes the results of the Big 5 personality test. Comparing these results with the comparative study of Spanish and American students in Benet-Martinez and John (1998) we do not find striking differences over all treatments, so that we are confident that our results are of a similar quality than other questionnaire studies. We find some differences over treatments: Females under AA tend to be more conscientious than males (t-test, p-value <0.01). This can be interpreted as a positive result for employers, as Conscientiousness — which is related to higher dependability and stronger achievement orientation — seems to be consistently related to job performance in the real world (Barrick and Mount, 1991; Ng et al., 2005). However, there does not seem to be a relationship between measured Neuroticism, a variable found to be negatively correlated with success on the job Ng et al. (2005), and the Affirmative Action treatments.

[Table 6 about here.]

We furthermore compare the responses of completed applicants to their personal assessments of success on the job in Colombia. We took this series of questions from the German Socioeconomic Panel (GSOEP). We find no treatment differences however, we observe that women find recklessness less important than men.

5 Discussion and Conclusion

Affirmative action policies have been and are increasingly used to establish equal opportunities in all parts of society. Little has been known how affirmative action policies that are voluntarily implemented in organizations influence the pool of applicants. We conducted two field experiments designed to show the effect on the applicant pool. The first experiment we were offering a job as field research coordinator and in the second experiment we offered a job as a consultant in a local consultant company. Both experiments consisted of two stages. In the first stage we established a database of potential applicants and in the second stage we used this database in order to randomize the affirmative action statements. This procedure allows us to determine the causal effect of the statements on sorting behavior, that can not be established with pure observational data.

The results of this study suggests that the the positive effects of voluntarily applied affirmative action dominate in the application process. We show that affirmative action statements have an effect on applicants sorting. In their absence females apply less often to the offered jobs than men. However, when they are shown female participation in the application process reaches the level of their male competitors. This suggests that affirmative action contributes to equalizing the application rates due to a self sorting. One fear of organizations is that this self sorting leads

qualified applicants from the disadvantaged group to apply less. We have some indication for this, as it seems that men with a Master's degree apply less when AA statements are shown.

The voluntary application of affirmative action policies may entail additional signaling value despite increasing the probability of employment. Under affirmative action rules, women with children are more likely to apply. Affirmative action policies may signal that the employer is also more open to family friendly policies. This implies that signaling the compatibility of family and female job market opportunities might be enough to to increase compatibility of career opportunities and family life. For instance, Jensen (2012) shows that in rural villages in India access to information about employment influences women's decision to marry or have children.

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A Randomization Checks

[Table 7 about here.]

[Table 8 about here.]

[Table 9 about here.]

B Job Advertisements

Initial recruitment texts

- Email
- Newspaper
- Job description
- Application form

C Treatment announcements

Assistant

[Figure 1 about here.]

Consultant

[Figure 2 about here.]

D Variables

D.1 Collected Variables in the First Stage

This Appendix informs about the variables that we collected *before* and *after* the randomization of treatments.

[Table 10 about here.]

[Table 11 about here.]

D.2 Cognitive Ability Measures

The following section presents the questions used for the cognitive tasks.

Frederick (2005)

Would you please answer the following questions.

A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? _____ cents

If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes

In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days

Lipkus, Samsa and Rimer (2001)

1. Which of the following numbers represents the biggest risk of getting a disease? 1 in 100, 1 in 1000, 1 in 10
2. Which of the following represents the biggest risk of getting a disease? 1%, 10%, 5%
3. If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 100?
4. If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1000?
5. If the chance of getting a disease is 20 out of 100, this would be the same as having a ____% chance of getting the disease.
6. If Person A's risk of getting a disease is 1% in ten years, and Person B's risk is double that of A's, what is B's risk?
7. If Person A's chance of getting a disease is 1 in 100 in ten years, and Person B's risk is double that of A, what is B's risk?
8. In the BIG BUCKS LOTTERY, the chances of winning a $10.00 prize are 1%. What is your best guess about how many people ould win a $10.00 prize if 1,000 people each buy a single ticket from BIG BUCKS?
9. Imagine that we roll a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up even (2, 4, or 6)?

10. The chance of getting a viral infection is .0005. Out of 10,000 people, about how many of them are expected to get infected?

11. In the ACME PUBLISHING SWEEPSTAKES, the chance of winning a car is 1 in 1,000. What percent of tickets of ACME PUBLISHING SWEEPSTAKES win a car?

D.3 Questions success GSOEP

Of what do you think it depends actually in Colombia, if someone has success and rises socially? Please indicate for each of the following statements, to what extent you agree with it

1. You have to work hard and be diligent
2. You have to use others
3. You have to be talented and intelligent
4. You must come from the right family
5. You have to have good knowledge in ones field
6. You have to have money and wealth
7. You have to have the best possible education
8. You have to be ruthless and hard
9. You have to have relations with the right people
10. You have to get involved politically on the right side
11. You have to have the "right" gender, men have better chances of promotion
12. You must be dynamic and have initiative
13. You have to retaliate
14. You must be able to work well in teams
15. You must be able to express yourself well verbally

E Metropolitan Areas

Bogota Area Cajicá, Chía, Cota, Facatativá, Soacha

Medellin Area Barbosa/Antioquia, Bello, Copacabana, Envigado, Girardota, Itagui, La Estrella, Sabaneta

Caribbean Area Barranquilla, Candelaria, Ponedera, Cartagena, Santa Marta, Montería, Cereté, Planeta Rica, San Carlos/Cordoba

Cali Area Calí, Palmira, Yumbo, Jamundí

Coffee Area Chinchiná, Villamaría, Manizales, Dosquebradas, Santa Rosa de Cabal, Calarca, Filandia, Pereira

F Quality of Applicants

F.1 Cumulative Distribution Plots of Quality

The following Figures present

[Figure 3 about here.]

[Figure 4 about here.]

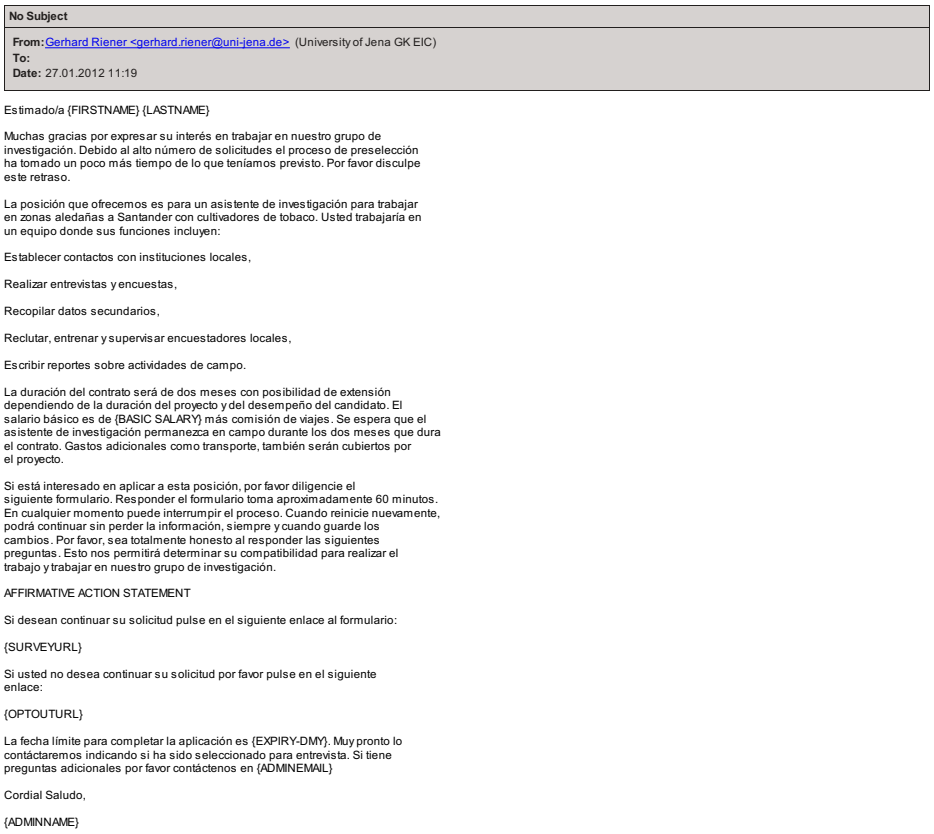
F.2 Over 80th percentile Bachelor Grade

[Table 12 about here.]

[Table 13 about here.]

List of Figures

Figure 1: Email with Treatment Information: Assistant Experiment



No Subject

From: Gerhard Riener <gerhard.riener@uni-jena.de> (University of Jena GK EIC)
To:
Date: 27.01.2012 11:19

Estimado/a {FIRSTNAME} {LASTNAME}

Muchas gracias por expresar su interés en trabajar en nuestro grupo de investigación. Debido al alto número de solicitudes el proceso de preselección ha tomado un poco más tiempo de lo que teníamos previsto. Por favor disculpe este retraso.

La posición que ofrecemos es para un asistente de investigación para trabajar en zonas aledañas a Santander con cultivadores de tobaco. Usted trabajaría en un equipo donde sus funciones incluyen:

Establecer contactos con instituciones locales,

Realizar entrevistas y encuestas,

Recopilar datos secundarios,

Reclutar, entrenar y supervisar encuestadores locales,

Escribir reportes sobre actividades de campo.

La duración del contrato será de dos meses con posibilidad de extensión dependiendo de la duración del proyecto y del desempeño del candidato. El salario básico es de {BASIC SALARY} más comisión de viajes. Se espera que el asistente de investigación permanezca en campo durante los dos meses que dura el contrato. Gastos adicionales como transporte, también serán cubiertos por el proyecto.

Si está interesado en aplicar a esta posición, por favor diligencie el siguiente formulario. Responder el formulario toma aproximadamente 60 minutos. En cualquier momento puede interrumpir el proceso. Cuando reinicie nuevamente, podrá continuar sin perder la información, siempre y cuando guarde los cambios. Por favor, sea totalmente honesto al responder las siguientes preguntas. Esto nos permitirá determinar su compatibilidad para realizar el trabajo y trabajar en nuestro grupo de investigación.

AFFIRMATIVE ACTION STATEMENT

Si desean continuar su solicitud pulse en el siguiente enlace al formulario:

{SURVEYURL}

Si usted no desea continuar su solicitud por favor pulse en el siguiente enlace:

{OPTOUTURL}

La fecha límite para completar la aplicación es {EXPIRY-DMY}. Muy pronto lo contáctaremos indicando si ha sido seleccionado para entrevista. Si tiene preguntas adicionales por favor contáctenos en {ADMINEMAIL}

Cordial Saludo,

{ADMINNAME}

Detalles sobre oferta

Por favor, lea atentamente las condiciones de la oferta antes de iniciar su solicitud!

Región y Desarrollo Ltda. –Redes Ltda. – es una empresa consultora con más de 15 años de experiencia trabajando para el sector público y privado.

Buscamos profesionales con más de 2 años de experiencia para vincularlos como asesor, mediante contrato de prestación de servicios a un proyecto de consultoría. El candidato seleccionado deberá trabajar en la implementación, seguimiento y evaluación participativa de planes municipales de desarrollo en dos municipios de Santander.

La duración del contrato es de 4 meses.

La duración del contrato es de 4 meses. El salario mensual es negociable.

Además de la experiencia es indispensable contar con disponibilidad para viajar fuera de Bogotá. Buscamos preferiblemente profesionales en: *Administración Pública*, *Gobierno*, *Gestión Pública* y *Economía*.

Si está interesado en aplicar a esta posición, por favor diligencie el siguiente formulario. Responder el formulario toma aproximadamente 40 minutos. En cualquier momento puede interrumpir el proceso. Cuando reinicie nuevamente, podrá continuar sin perder la información, siempre y cuando guarde los cambios.

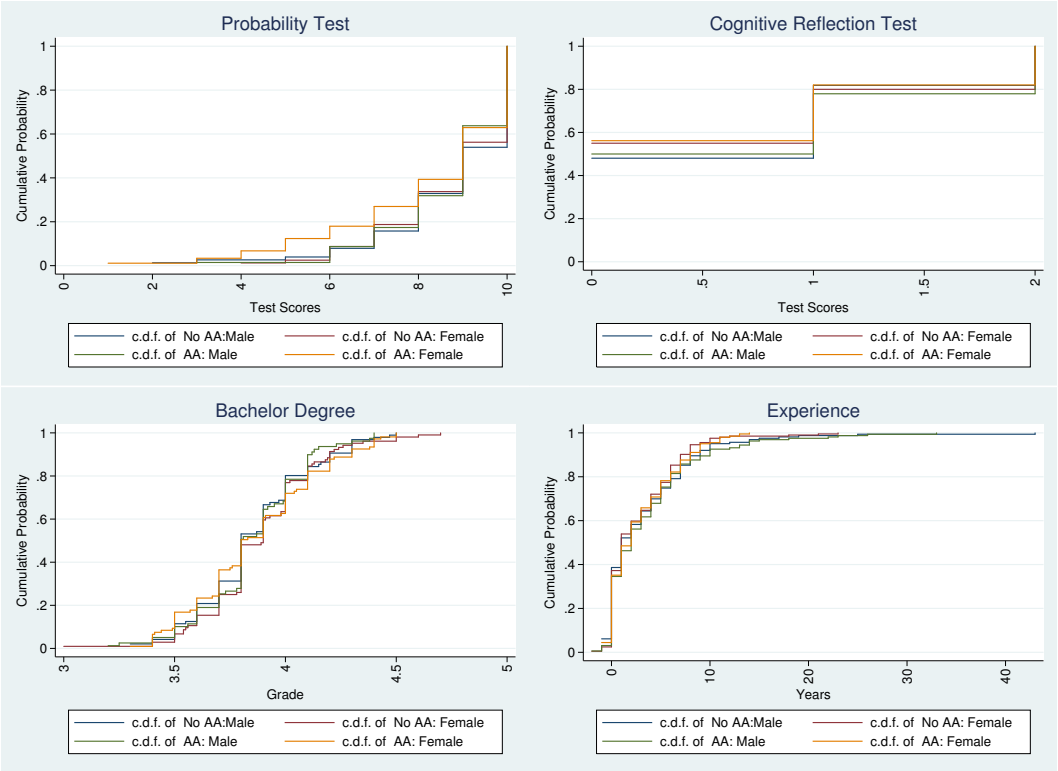
La fecha límite para completar la aplicación es {EXPIRY-DMY}. Muy pronto lo contactaremos indicando si ha sido seleccionado para entrevista. Si tiene preguntas adicionales por favor contáctenos en asesor.redes@gmail.com.

Redes Ltda. está comprometido con la política de igualdad de oportunidades en la búsqueda y selección de su personal. Por eso busca incrementar la participación femenina en áreas en la que hasta el momento han estado sub-representadas. En caso de tener candidatos con igual nivel de calificación, las mujeres serán preferidas.

* Estoy de acuerdo con las condiciones de la oferta y deseo continuar el proceso de solicitud de empleo.

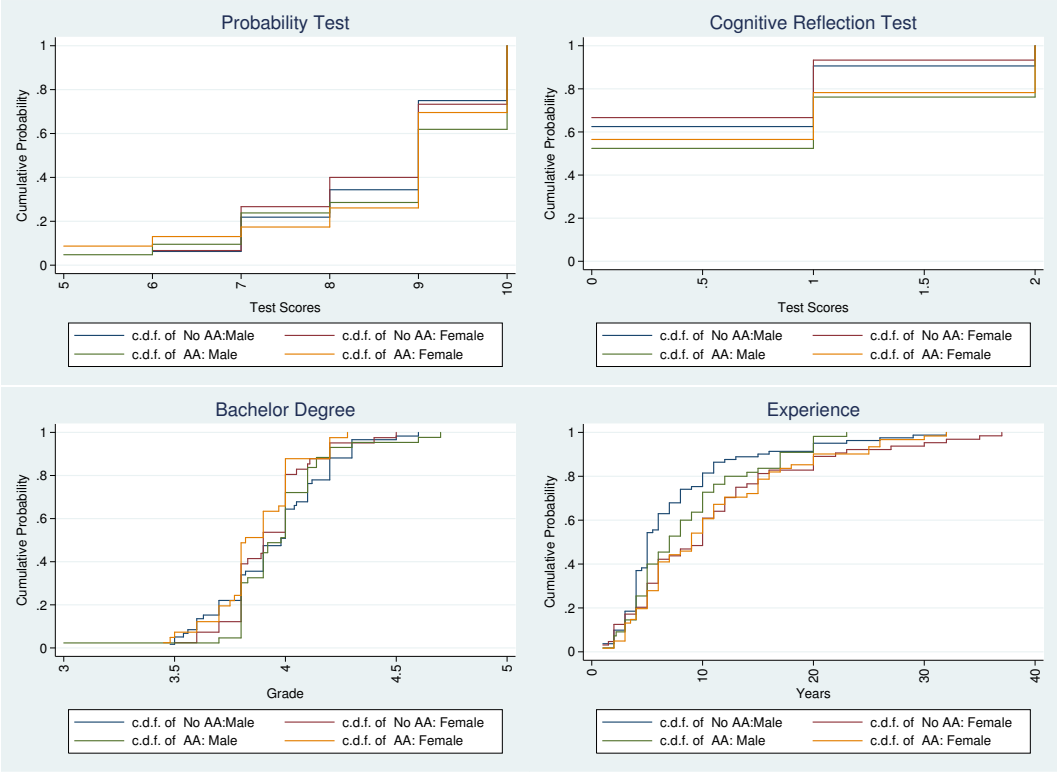
Sí No

Figure 3: Cumulative Distribution Functions of Characteristics: Assistant



Note: This Figures report the cumulative distribution functions of several quality characteristics of the applicants. in the Assistant experiment. Judging my Mann-Whitney tests with significance level of 10%, we do not find differences between any of the treatment combinations AA and Gender.

Figure 4: Cumulative Distribution Functions of Characteristics: Consultant



Note: This Figures report the cumulative distribution functions of several quality characteristics of the applicants. in the Assistant experiment. Judging my Mann-Whitney tests with significance level of 10%, we do find significant differences between men and women in the AA treatment, where men seem to be more likely to have a better bachelor degree than women in the AA treatment. However, in the AA treatment women seem to have more experience than men in the AA treatment (p-value: 0.070). Furthermore, men in the no AA treatment have less experience than women in the No AA (p-value: 0.089) and in the AA treatment (p-value: 0.002).

List of Tables

Table 1: Experimental Setup

	Experiment 1	**Experiment 2**
Position	Assistant	Consultant
Required qualifications		
Experience	Recently Graduated	2 years of experience
Education	University degree (completed or about to complete)	University degree
	Any field	Accountancy, business or public administration
Experimental Implementation		
Treatment	Quota Rule	Preferential Rule
First Stage	01.10.10 - 15.12.10	15.01.11
Second Stage	21.12.10 - 07.01.11	30.01.11
Employment	01.02.11- 30.03.11	01.02.11 - 01.08.11

Table 2: Linear Probability Model of Applications under Affirmative Action

	Assistant			Consultant		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: completed	All	Bachelor	Master	All	Bachelor	Master
Affirmative action	-0.0368	0.00499	-0.389**	-0.0421	0.0186	-0.108
	(0.0534)	(0.0624)	(0.174)	(0.0774)	(0.105)	(0.108)
Female	-0.0716	-0.0348	-0.372**	-0.144*	-0.0848	-0.202
	(0.0530)	(0.0481)	(0.180)	(0.0774)	(0.106)	(0.135)
AA X Female	0.0929	0.0548	0.407*	0.185*	0.0976	0.312*
	(0.0616)	(0.0749)	(0.238)	(0.108)	(0.159)	(0.181)
Constant	0.454***	0.421***	0.722***	0.356***	0.271***	0.452***
	(0.0392)	(0.0385)	(0.104)	(0.0506)	(0.0707)	(0.0898)
N	733	661	72	293	172	121
Deg. of Freedom						

Note: The table reports the results of a linear probability model for Research Assistant (Columns 1 to 3) and the consultant (Column 4 to 6). **AA** indicates the respective Affirmative Action treatment employed for the experiment: *Quota rule* for Research Assistant and *Preferential Treatment rule* for the Consultant. Standard errors are bootstrapped over strata gender and master for columns (1) and (4) and only gender for the other columns. * p<0.1, ** p<.05, *** p<.01.

Table 3: Linear Probability Model with controls

	Assistant			Consultant		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: Applied	All	Bachelor	Master	All	Bachelor	Master
Affirmative action	-0.0381	0.00635	-0.219	-0.0468	0.00834	-0.103
	(0.0637)	(0.0674)	(0.327)	(0.0767)	(0.0997)	(0.120)
Female	-0.0413	0.000578	-0.683***	-0.159**	-0.120	-0.191
	(0.0613)	(0.0646)	(0.238)	(0.0715)	(0.0904)	(0.116)
AA X Female	0.105	0.0545	0.641	0.192*	0.120	0.314*
	(0.0865)	(0.0910)	(0.380)	(0.109)	(0.136)	(0.181)
Constant	0.125	-0.177	1.096***	0.325***	0.225***	0.492***
	(0.330)	(0.207)	(0.360)	(0.0593)	(0.0733)	(0.0987)
Marital status	Yes	Yes	Yes	No	No	No
University	Yes	Yes	Yes	No	No	No
Metropolitan Area	Yes	Yes	Yes	No	No	No
Experience	No	No	No	Yes	Yes	Yes
N	711	651	60	293	172	121
Deg. of Freedom	596	538	31	288	167	116

Robust standard errors in paranthesis
* p¡0.1, ** p¡0.05, *** p¡0.01

Note: This table reports the results of a linear probability model for Research Assistant (Columns 1 to 3) and the Consultant (Columns 4 to 6). **AA** indicates the respective Affirmative Action treatment employed for the experiment: *Quota rule* for Research Assistant and *Preferential Treatment rule* for the Consultant. For the Assistant, we asked from the recruits marital status, University and Residency *before* the treatments, while for the Consultant we have information about years of experience.

Table 4: Comparison of Characteristics of Applicants: Assistant

	Experience	Prob	CRT	Master	Bach: grade	Survey Experience	Uni rank	Children	Num children
Affirmative action	5.33e-15	0.0799	0.0286	-0.102**	0.0291	-0.0183	0.0197	-0.0735	-0.0662
	(0.00)	(0.29)	(0.22)	(-1.98)	(0.65)	(-0.22)	(0.28)	(-1.34)	(-0.69)
Female	-0.403	0.0907	-0.0493	-0.0872*	0.0630	-0.0356	0.0573	-0.0865*	-0.116
	(-0.60)	(0.34)	(-0.39)	(-1.75)	(1.46)	(-0.46)	(0.84)	(-1.65)	(-1.26)
AA X Female	0.230	-0.637*	-0.0458	0.0919	-0.0212	-0.0679	-0.0172	0.133*	0.145
	(0.24)	(-1.67)	(-0.25)	(1.31)	(-0.35)	(-0.61)	(-0.18)	(1.80)	(1.11)
Baseline	3.000***	8.753***	0.699***	0.178***	3.824***	0.685***	0.387***	0.164***	0.233***
	(6.22)	(45.39)	(7.66)	(5.00)	(123.40)	(12.23)	(7.94)	(4.37)	(3.54)
Observations	303								
R^2	0.00157	0.0206	0.00233	0.0180	0.0115	0.0101	0.00373	0.0115	0.00563
χ^2	0.475	6.376	0.708	5.540	3.512	3.107	1.135	3.513	1.714
p-value	0.924	0.0947	0.871	0.136	0.319	0.375	0.769	0.319	0.634

t statistics in parentheses
* p¡0.1, ** p¡0.05, *** p¡0.01

Note: This table reports the result from a Seemingly Unrelated Regression (SUR) model where the dependent variables are the characteristics of the applicants in the *Assistant* experiment. *Prob* is the result from the probability understanding test by Lipkus, Samsa and Rimer (2001) and *CRT* is the result from the cognitive reflection test by Frederick (2005).

Table 5: Comparison of Characteristics Applicants: Consultant

	Experience	Prob	CRT	Master	Bach: grade	Uni rank	Prev salary
Affirmative action	1.589	0.0893	0.246	-0.118	-0.00314	-0.119	296815.3
	(0.81)	(0.24)	(1.19)	(-0.84)	(-0.06)	(-1.09)	(0.52)
Female	5.455**	-0.0917	-0.0687	-0.127	-0.0502	-0.254**	297215.3
	(2.51)	(-0.22)	(-0.30)	(-0.82)	(-0.83)	(-2.10)	(0.47)
AA X Female	-2.296	0.0296	0.00664	0.0857	-0.0428	0.108	386527.7
	(-0.76)	(0.05)	(0.02)	(0.40)	(-0.51)	(0.64)	(0.44)
Baseline	7.078***	8.625***	0.469***	0.594***	3.952***	0.493***	3022851.3***
	(5.76)	(36.26)	(3.61)	(6.78)	(115.07)	(7.23)	(8.45)
Observations	91						
R^2	0.0957	0.00180	0.0267	0.0178	0.0417	0.0807	0.0341
χ^2	9.630	0.164	2.496	1.649	3.962	7.990	3.210
p-value	0.0220	0.983	0.476	0.648	0.266	0.0462	0.360

t statistics in parentheses
* p¡ 0.1, ** p¡0.05, *** p¡0.01

Note: This table reports the result from a Seemingly Unrelated Regression (SUR) model where the dependent variables are the characteristics of the applicants in the *Consultant* experiment. *Prob* is the result from the probability understanding test by Lipkus, Samsa and Rimer (2001) and *CRT* is the result from the cognitive reflection test by Frederick (2005).

Table 6: Seemingly Unrelated Regressions: Comparison of Personality Traits in the Assistant experiment

	Extraversion	Agreeableness	Conscientousness	Neuroticism	Openness
Affirmative action	-0.0304	0.0402	-0.0940	0.0169	-0.0465
	(-0.64)	(0.86)	(-1.57)	(0.36)	(-0.74)
Female	-0.0149	0.0369	-0.0347	0.0356	-0.104*
	(-0.33)	(0.82)	(-0.60)	(0.79)	(-1.71)
AA X Female	-0.00838	-0.00668	0.173**	-0.0483	0.0796
	(-0.13)	(-0.11)	(2.12)	(-0.76)	(0.93)
Baseline	3.010***	3.308***	2.842***	3.150***	3.473***
	(91.62)	(102.27)	(68.79)	(97.92)	(79.60)
Observations	309				
R^2	0.00520	0.00833	0.0196	0.00253	0.0100
χ^2	1.615	2.597	6.175	0.783	3.132
p-value	0.656	0.458	0.103	0.854	0.372

t statistics in parentheses
* p¡0.1, ** p¡0.05, *** p¡0.01

Table 7: Summary Statistics for First Stage Recruitment Process and Allocation to Affirmative Action Treatments Categorical Characteristics: Assistant

Panel A:									
	No AA	AA	Total	No AA	AA	Total	No AA	AA	Total
		N		Column Percentages			Row Percentages		
Master									
No	329	332	661	49.8%	50.2%	100.0%	89.6%	90.7%	90.2%
Yes	38	34	72	52.8%	47.2%	100.0%	10.4%	9.3%	9.8%
Total	*367*	*366*	*733*	*50.1%*	*49.9%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Pearson $\chi^2(5)$	0.2345		Pr=	0.628					
Gender									
Male	163	163	326	50.0%	50.0%	100.0%	44.4%	44.5%	44.5%
Female	204	203	407	50.1%	49.9%	100.0%	55.6%	55.5%	55.5%
Total	*367*	*366*	*733*	*50.1%*	*49.9%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Pearson $\chi^2(1)$ =	0.0011		Pr =	0.974					
Marital status									
Single	313	313	626	50.0%	50.0%	100.0%	85.3%	85.5%	85.4%
Married	31	30	61	50.8%	49.2%	100.0%	8.4%	8.2%	8.3%
Divorced	3	4	7	42.9%	57.1%	100.0%	0.8%	1.1%	1.0%
Partnership	9	13	22	40.9%	59.1%	100.0%	2.5%	3.6%	3.0%
Separated	3	1	4	75.0%	25.0%	100.0%	0.8%	0.3%	0.5%
N.A.	8	5	13	61.5%	38.5%	100.0%	2.2%	1.4%	1.8%
Total	*367*	*366*	*733*	*50.1%*	*49.9%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Pearson $\chi^2(5)$	2.5775		Pr=	0.765					
Metropolitan Area									
Medellin area	128	135	263	48.7%	51.3%	100.0%	34.9%	36.9%	35.9%
Caribbean area	15	5	20	75.0%	25.0%	100.0%	4.1%	1.4%	2.7%
Bogota area	139	139	278	50.0%	50.0%	100.0%	37.9%	38.0%	37.9%
Coffee area	10	15	25	40.0%	60.0%	100.0%	2.7%	4.1%	3.4%
Cali area	24	18	42	57.1%	42.9%	100.0%	6.5%	4.9%	5.7%
Other	51	54	105	48.6%	51.4%	100.0%	13.9%	14.8%	14.3%
Total	*367*	*366*	*733*	*50.1%*	*49.9%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*
Pearson $\chi^2(5)$ =	7.1278		Pr=	0.211					
N							367	366	733

This table shows the summary statistics of the categorical variables of the fist stage applicants. The differences of the treatments were assessed using χ^2 tests.

Table 8: Summary Statistics for First Stage Recruitment Process and Allocation to Affirmative Action Treatments: Assistant

	No AA	AA	Diff.	p-value
Age	27.512	27.861	-0.348	(0.458)
Experience (years)	3.076	3.255	-0.179	(0.584)
University: ranking	0.228	0.221	0.007	(0.807)
Observations				733

This table shows averages of the continuous variables. Pr reports the p-value of a pairwise t-test of the equality of the means between the treatments.

Table 9: Summary Statistics for First Stage Recruitment Process and Allocation to Affirmative Action Treatments: Consultant

Panel A: Categorical Characteristics									
	No AA	AA	Total	No AA	AA	Total	No AA	AA	Total
		N		Column Percentages			Row Percentages		
Master									
No	91	81	172	52.9%	47.1%	100.0%	56.5%	61.4%	58.7%
Yes	70	51	121	57.9%	42.1%	100.0%	43.5%	38.6%	41.3%
Total	161	132	293	54.9%	45.1%	100.0%	100.0%	100.0%	100.0%
Pearson $\chi^2(1)$=	0.7014		Pr =	0.402					
Sex									
Male	90	67	157	57.3%	42.7%	100.0%	55.9%	50.8%	53.6%
Female	71	65	136	52.2%	47.8%	100.0%	44.1%	49.2%	46.4%
Total	161	132	293	54.9%	45.1%	100.0%	100.0%	100.0%	100.0%
Pearson $\chi^2(1)$=	0.7714		Pr =	0.380					
N							161	132	293

Panel B: Continuous Characteristics				
	No AA	AA	Diff.	p-value
Experience (years)	8.904	9.377	-0.473	(0.564)
University: ranking	0.250	0.280	-0.030	(0.506)
Observations			293	

Panel A shows the summary statistics of the categorical variables of the fist stage applicants and their resulting distributions after stratification into treatments **No AA** and **AA.**

Panel B shows averages of the continuous variables. *Pr* reports the p-value of a pairwise t-test of the equality of the means between the treatments

Table 10: Variables Collected *Before* Treatment Manipulation

Variable	**Assistant**	**Consultant**
Personal information		
National ID Number (Cedula)		x
Sex	x	x
Marital status	x	x
Do you have a master degree	x	x
How many years of experience do you have		x
Day of Birth	x	
Place of Birth	x	
Actual address	x	
Permanent residence	x	
Please indicate time availability for next year	x	
Academic Information		
Institution	x	
University	x	
Area of studies	x	
Titles	x	
Years of graduation	x	
Family Information		
Father's name (First name, last name)	x	
Address Street Barrio City Municipality Department	x	
Mothers's name (First name, last name)	x	
Address Street Barrio City Municipality Department	x	
Academic History		
University/College	x	
City	x	
From/To (Dates)	x	
Degree	x	
Year	x	
Health information		
Do you have medical insurance? Yes No	x	
Is your medical insurance valid for outside Bogota? Yes No	x	
Vaccinations: tuberculosis, tetanus, diphtheria, yellow fever, hepatitis B	x	
Where did you find the job offer? Email, poster, web-portal, newspaper, other	x	

Table 11: Variables Collected *After* Treatment Manipulation

Variable	**Assistant**	**Consultant**
Education		
Bachelor		
In which University did you study or do you study to get your Bachelor degree?	x	x
Main undergraduate studies	x	x
What are you studying?	x	x
Which average grade did you get in your degree?	x	x
When did you get or are you expecting to get your degree?	x	x
Do you have another degree?	x	x
In which University did you study or do you study for your second bachelor degree?	x	x
Second undergraduate studies	x	x
What are you studying?	x	x
Which average grade did you get in your degree?	x	x
In which year did you get or are you expecting to get your degree?	x	x
Master		
Do you have a master degree?	x	x
In which university?	x	x
Name of the Master Program?	x	x
Which average grade did you get in your degree?	x	x
When did you get or are you expecting to get your degree?	x	x
Investigation Methods		
Have you taken courses on investigation methods?	x	
In which University?	x	
Year	x	
Level: Bachelor/Master, PhD	x	
Subject	x	
Credits	x	
Classification	x	
Other courses taken		
Have you taken courses on qualitative or quantitative investigation methods	x	
In which University?	x	
Year	x	
Level: Bachelor/Master, PhD	x	
Subject	x	
Credits	x	
Classification	x	
Have you taken another relevant course (1)?	x	
In which University?	x	
Name of the course?	x	
Another course (1)	x	
Year	x	
Level: Bachelor/Master, PhD	x	
Subject	x	
Credits	x	
Classification	x	

Table 13: Comparison of Characteristics of Completed Applicants above 80th percentile bachelor grade: Assistant

	Experience	Prob. score	CRT score	Master	Bachelor: grade	Survey Experience	Uni ranking	Children	No children
Affirmative action	-0.550	-0.513	0.0625	-0.238**	-0.0686	0.0125	-0.125	0.0875	0.0500
	(-0.35)	(-0.65)	(0.20)	(-2.26)	(-1.28)	(0.07)	(-0.76)	(0.74)	(0.31)
Female	-0.578	0.133	0.444	-0.189*	-0.00689	0.0333	0.158	0.0111	-0.0889
	(-0.38)	(0.17)	(1.47)	(-1.84)	(-0.13)	(0.20)	(0.98)	(0.10)	(-0.56)
AA X Female	-0.431	-0.0245	-0.377	0.126	0.0955	-0.179	-0.0493	-0.162	-0.124
	(-0.22)	(-0.02)	(-0.98)	(0.96)	(1.42)	(-0.84)	(-0.24)	(-1.09)	(-0.61)
Baseline	3.300***	8.700***	0.500**	0.300***	4.233***	0.800***	0.502***	0.100	0.200
	(2.68)	(14.14)	(2.06)	(3.64)	(100.28)	(6.02)	(3.89)	(1.08)	(1.58)
Observations	71								
R^2	0.0214	0.0183	0.0430	0.123	0.0597	0.0303	0.0562	0.0367	0.0437
χ^2	1.550	1.320	3.187	9.992	4.512	2.220	4.226	2.706	3.246
p-value	0.671	0.724	0.364	0.0186	0.211	0.528	0.238	0.439	0.355

t statistics in parentheses
* p¡0.1, ** p¡0.05, *** p¡0.01

Table 14: Comparison of Characteristics of Completed Applicants above 80th percentile bachelor grade: Consultant

	Experience	Prob score	CRT score	Master	Bachelor grade	Uni ranking	Exp. salary
Affirmative action	2.433	0.733	-0.378	-0.378	-0.0884	0.0933	588889.2
	(1.07)	(1.24)	(-0.94)	(-1.55)	(-1.36)	(0.42)	(0.51)
Female	16.83***	-1.667**	-0.778	-0.278	0.0556	0.103	2038887.1
	(5.26)	(-2.01)	(-1.39)	(-0.81)	(0.61)	(0.34)	(1.25)
AA X Female	-17.43***	1.267	0.378	-0.122	-0.0116	0.457	-4338885.4
	(-3.16)	(0.89)	(0.39)	(-0.21)	(-0.07)	(0.86)	(-1.55)
Baseline	4.167***	8.667***	0.778***	0.778***	4.244***	0.297**	1711112.9**
	(3.05)	(24.47)	(3.25)	(5.33)	(109.53)	(2.26)	(2.46)
R^2	0.620	0.303	0.145	0.209	0.145	0.128	0.133
χ^2	27.78	7.375	2.873	4.502	2.883	2.495	2.606
p-value	0.00000404	0.0609	0.412	0.212	0.410	0.476	0.457

t statistics in parentheses
* p¡0.1, ** p¡0.05, *** p¡0.01