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The Inelastic Demand for Affirmative Action

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The Inelastic Demand for Affirmative Action*

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Abstract

We study the origins of support for gender-related affirmative action (AA) in two pre-registered online experiments ($N = 1,700$). Participants act as employers who decide whether to use AA in hiring job candidates. We implement three treatments to disentangle the preference for AA stemming from i) perceived gender differences in productivity, ii) beliefs about AA effects on productivity, or iii) other non-material motives. To test i), we provide information to employers that there is no gender gap in productivity. To test ii), we inform the candidates about the hiring rule ex-ante, allowing us to observe how AA is expected to affect productivity. To test iii), we remove the payment to the employers based on the chosen candidates' productivity, thus making AA cheaper. We do not find significant differences in AA support across treatments, despite successfully altering beliefs about expected productivity differences. Our results suggest that AA choice reflects a more intrinsic and inelastic preference for advancing female candidates.

JEL codes: C91, D02, D83, J38, J71

Keywords: affirmative action, beliefs, gender, information, institution

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1 Introduction

Affirmative action (AA), as a practice intended to help disadvantaged groups attain parity with the general population, is widely used in modern workplaces and educational institutions. AA typically takes the form of preferential treatment in hiring, promotion, or admission based on certain immutable characteristics like race, social class or gender. Examples include college admission policies which prioritise applicants from a certain race or social class or female quotas in managerial positions. Given that the practice of AA is exclusionary by design, it unsurprisingly draws substantial criticisms, some of which have been taken to US national courts.[1] In Europe, the decision by Eindhoven University to restrict job vacancies to women was recently taken to the human rights council and subsequently judged to be in conflict with equal treatment legislation.[2] Furthermore, although AA is conceptually accepted by certain groups, many are opposed to its explicit use in hiring practices (Pew Research Center, 2019).

In spite of the relatively broad prevalence of AA policies and the controversy surrounding them, relatively little is known about the nature of the support for them. Identifying these drivers of AA preference is crucial since they may have different policy prescriptions. If it stems from the belief that existing institutions are or have been unfavourable towards minority groups despite perceived skill parity (i.e. negative profiling), AA may be seen as a justified approach which corrects institutional barriers, in addition to other potentially less exclusionary practices. If, on the other hand, support for AA is in part driven by a misperception that minorities have lower ability than non-minorities, combined with the wish to eliminate outcome differences that arise due to these ability differences, AA as a policy response may be misguided as it is unlikely to affect core competencies. A better policy response in this case may be, for example, to correct misperceptions about the true abilities of minority groups. However, if the beliefs about lower competence are indeed correct, then a suitable policy response would be to direct resources to upskill minority groups. Understanding the motivations for AA

[1] See, e.g., Grutter v Bollinger 2003, Gratz v Bollinger 2003, Fisher v University of Texas 2016, Students for Fair Admissions v Harvard 2019.

[2] See https://mensenrechten.nl/nl/nieuws/college-oordeelt-over-voorkeursbeleid-tu-eindhoven (in Dutch, accessed 29-04-2021).

support thus helps determine the appropriate policy.

In this paper, we aim to address the gap in knowledge by identifying the driver(s) of preference for AA out of the following: i) presumed difference in ability, ii) beliefs about the effect of institutional changes, or iii) other more intrinsic, non-material ideological motives such as political ideology and outcome-based social preferences. We conduct two pre-registered online experiments where participants act as "employers" who hire from a pool of job candidates using either the standard hiring rule (top 2 job candidates with the highest scores in a work task) or the AA rule (one of the 2 hired job candidates must be female). Job candidates are participants in a separate experiment who complete a math task and their score is used as a proxy of productivity. Thus, our setting focuses on an external (non-competing) individual's hiring decision in the face of the salient stereotype of females having lower mathematical ability than males. The scores of the two hired job candidates determine how the employers are paid in the current experiment. Hence, choosing AA weakly decreases the expected payoff of the employer and the optimal choice for a payoff-maximising employer is to hire using the standard rule.

In an "Information" treatment, the employers are (truthfully) informed that in a previous study males and females were found to perform comparably in a similar math task. The exogenous shock to beliefs enables us to identify if demand for AA is driven by the perception of gender difference in productivity in the work task. In a "Reverse" treatment, the decision of the employer is communicated to a future pool of job candidates, enabling us to study whether employers expect job candidates' productivity would be altered if the institution is changed as they are told they would be hired using an AA or standard rule. Finally, in a "Cheap-talk" treatment, we remove the payment to the employers to study whether demand for AA would be higher when it involves no expected cost. In all treatments, we also elicit incentivized beliefs about the average productivity of male and female job candidates.

In a first experiment run with a US nationally representative sample ($N = 1,102$), we do not find significant differences in hiring behavior across treatments, despite beliefs about productivity being significantly altered in the Information and Reverse treatments. However, the results indicate significant treatment effects in the younger sub-sample,

which is potentially due to the more salient experience of applying for college admission where AA is commonly used. To better understand the motivation behind AA choice and verify the results found, we therefore re-run the study using a sample of US college students aged 18-24 ($N = 598$). While our findings on beliefs are confirmed, we also do not find significant treatment effects on AA choice in this younger sample.

Digging deeper into the beliefs of the employers helps shed light on the motivation behind choosing AA. In the Control of both samples, employers expect male job candidates to be more productive than female job candidates. Comparing the Information treatment with our Control, the information successfully eliminates the perceived productivity gap as indicated by the insignificant difference in expected male and female productivity after the information is provided. Thus, employers in this treatment should in principle be indifferent between AA and the standard rule, in contrast to the Control where employers should weakly prefer the standard rule (if they are motivated to maximise payoffs) or the AA rule (if support for AA is indeed driven by seeking to help females believed to be unable to compete on par with males). The fact that AA choice is not significantly different between the two treatments indicates that the perceived competence gap is not a likely driver of AA.

In the Reverse treatment, where the hiring rule is ex-ante communicated to job candidates, employers in both samples believe that there is no significant gender difference in productivity if candidates are told they would be hired under the standard rule. However, both groups believe that applying AA would lower job candidates' productivity. In the representative sample, this belief is driven by female productivity as employers expect males to perform equally under the standard and AA rules. By contrast, the younger employers believe that both males' and females' productivity would be significantly lowered when AA is applied relative to the standard rule. In sum, in the Reverse treatment AA is perceived to lower productivity. Employers in this treatment should thus favor the standard rule more than in the Control where the hiring rule is applied ex-post and should not be expected to change productivity. That we do not find a treatment effect on the choice of AA indicates that AA choice is *not* motivated by thinking that AA would alter productivity.

Finally, in the Cheap-talk treatment where the employers could freely state an AA preference without financial costs, AA choice is not found to be significantly higher relative to the Control. This indicates that AA choice might not be highly sensitive to financial incentives. Rather, the demand for and consequently opposition to AA seem to stem from more intrinsic reasons that are stable to changes in beliefs about productivity. This suggests that future work studying AA preferences should focus more on motives such as political ideology, potentially in an environment with much higher stakes than what an online experiment allows.

Our finding that employers expect female productivity to be lowered if they knew hiring would be done through an AA rule (compared to the standard rule) potentially has important implications for organisations implementing AA policies. If managers are told to hire or promote using an AA rule, and this decision is communicated to the candidates, managers may believe that the females in the pool of candidates may become less productive upon knowing they would be hired or promoted using AA—potentially causing backlash towards and lower trust in the hired female candidate.

Our study considers an issue that has so far received little attention in the economic literature.[3] To date, existing work on AA has focused on the assessment of these policies (Balafoutas and Sutter, 2012; Niederle et al., 2013; Ibañez and Riener, 2018), finding positive effects on female participation in competitive situations, or when and where AA is applied most effectively (Maggian et al., 2020). Others have looked at the effect of AA on effort levels of the helped group, with some finding positive effects (Calsamiglia et al., 2013; Akhtari et al., 2020; Banerjee et al., 2021) and others finding that it disincentivizes effort (Bodoh-Creed and Hickman, 2017, find that AA increases human capital investment amongst high learning cost minority students and reduces it for low learning cost minority students). Surprisingly, the existing economic literature focusing on the origins and the motivations of AA is sparse, with a few exceptions including recent work by Settele (2021). In an online experiment, the author shows that support for equal pay legislation and AA programs is driven by beliefs about the gender wage gap. Oth-

[3]Older work in other social sciences have focused on competitive self-interest, racial discrimination and fairness as motivations for opposing AA (Harrison et al., 2006; Kluegel and Smith, 1983; Kuklinski et al., 1997).

ers have also found that support for policies advantaging a certain group is correlated with perceived disadvantage or discrimination against that group (Haaland and Roth, 2021; Ip et al., 2020). The above results are consistent with our finding that preference for AA is driven by intrinsic motives unrelated to financial incentives. When support for AA is elicited directly from the competitors, however, AA support is unsurprisingly higher among the advantaged group (women) (Balafoutas et al., 2016). To the best of our knowledge, our paper is the first to study financial motives from a non-competitor perspective as a potential driver of AA preference. Our work thus contributes to the gap in the literature studying the drivers of support for minority rights, and AA specifically, which can be used to further build on in formulating policy advice.

The remainder of the paper proceeds as follows. Section 2 details the experimental set-up and hypotheses. Section 3 presents the results from the experiment, which are further discussed in Section 4. Section 5 concludes.

2 Experiment

2.1 Design

In the online experiment, subjects play the role of employers wishing to hire from a pool of job candidates. The employers are informed that the job candidates are participants who have completed a math task in a separate study, and that these job candidates are from the US, college-aged and are composed of 50% male and 50% female.

Each employer is matched with a random pool of 6 job candidates, 3 males and 3 females. Their task is to hire 2 people out of the 6 job candidates by choosing from the following hiring rules:

- **Standard (ST) rule:** the employer simply hires the 2 job candidates with the highest scores in the math task.
- **Affirmative Action (AA) rule:** the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

We clarify that if the top 2 candidates are both females OR 1 male and 1 female, the ST and AA rules are equivalent. However, if the top 2 candidates are both males, they will both be hired using the ST rule while the AA rule replaces the second-ranked male with the top-ranked female.[4] Each employer is paid \$0.10 times the total scores in the math task from the 2 hired candidates. Employers are also told that each hired candidate will be paid \$1 extra in earnings, in addition to their participation fee, and that the job candidates were told that *the higher their score, the higher the likelihood they would earn this hiring bonus*. Employers then answer two questions to check their understanding of the hiring rules.

We then explain the math task that job candidates had to complete in more detail to the employers. Each job candidate was shown nine two-digit numbers, and their task was to find the two numbers that add up to 100. The task is similar to the one used in Buser et al. (2020) but we present the nine numbers in a list rather than a 3×3 matrix. This task is particularly ideal for online implementation since it cannot be quickly done with the help of a calculator. Job candidates were asked to complete as many questions as possible within two minutes. Their score in the math task is equal to the number of questions solved correctly within two minutes. Employers are then given three example questions to test out the math task. For example,

54 64 59 52 44 23 88 40 41

Which two numbers add up to 100? (The answers are 59 and 41.)

We then elicit employers' beliefs about the job candidates' scores. Employers are asked, in random order:

- How many questions do you think the average **male** job candidate got correct in 2 minutes?
- How many questions do you think the average **female** job candidate got correct in 2 minutes?

[4]We apply a one-sided AA policy to focus on reasons for promoting disadvantaged groups. Such policies, as opposed to symmetric ones where a quota would be reserved for either gender, are also often seen in practice.

We incentivize this belief elicitation by paying employers $0.50 per correct answer.

Next we ask employers the main question of interest: *Which rule would you like to use to hire 2 people out of your pool of 6 job candidates?* The same description of the rules as used above is provided again to help the employers' recall. This is followed, on a new page, by a norm elicitation: *In the earlier math task study, we asked all job candidates (not only the 6 in your matched pool) what rule they think is the appropriate one for you to use. Which rule do you think the majority of candidates think is appropriate for you to use?* A correct answer is paid an extra $1. In case both rules are equally popular, either would be judged correct.

At the end, we include a post-experiment survey asking employers about their opinion on labor market policies such as freedom in wage setting, wage transparency, gender quotas in leading positions, the types of companies required to adopt affirmative action and child care provision (see Settele, 2021). These are summed to give an index of labor market policy views, where a higher score indicates a higher preference for regulations. We also collect information on each subject's gender, age, education, income, and political views on a left-right scale. The full survey is included in the appendix.

2.2 Treatments

We adopt three treatments to disentangle three possible motivations for AA preference. Below we describe how each treatment differs from the design of our Control condition above.

In our "Information" treatment, we exogenously shock employers' beliefs by informing them that males and females perform comparably in the math task. The aim of this treatment is to study whether a preference for AA is due to believing that females and males perform differently, in particular whether AA support is motivated by outcome-based social preference (when the employer believes that females perform worse and thus would be helped by AA). Following the belief elicitation and before the main hiring decision, we inform the employers that: *Previous research using a similar math task has shown that female participants on average perform comparably to male participants. You can read the academic article through this link.* If the link is clicked, the employer is taken to the abstract of the Niederle and Vesterlund (2007) paper which states that "there are no gender

differences in performance" in a laboratory experimental task.[5] The link is clicked by 41 employers in the representative sample (15%) and 43 in the younger sample (22%). Following this information, employers are asked: *If the average male participant got 11 questions correct, how many questions should you expect that the average female participant got?* Employers cannot proceed unless they input the correct answer of 11. Before proceeding to the main hiring decision, we offer employers the chance to revise their beliefs about how many questions the average male and female job candidates got correct. We remind them that a correct answer would earn them an extra $0.50 per question.

Our next treatment is the "Reverse" treatment, which differs from the Control by reversing the order of the job candidates' math task and the employers' hiring decision. In this treatment, we tell employers that their hiring decision will be communicated to job candidates who will complete the math task in a *future* study. In other words, the job candidates will perform the math task knowing *exactly* how their additional earnings (the $1 hiring bonus) is determined (using the ST or AA rule), instead of simply knowing that the higher their score, the higher the likelihood they would be hired and thus earn the $1 bonus. The employers are still paid based on the productivity of their hired candidates. This treatment will allow us to identify AA preference driven by the belief that it will change the productivity of certain groups who know that they will be hired under an AA hiring practice. In this treatment we do not ask the norm elicitation question, otherwise everything else is the same as in the Control.

In our final "Cheap-talk" treatment, we do not incentivize employers' hiring choice, unlike in the Control where we pay $0.10 times the total math task scores of the 2 hired candidates. If choosing AA is perceived as the "right" thing to do, employers may choose AA to signal to the self or to the experimenter that they are doing the "right" thing. In the Control, this choice involves potential monetary cost. If the top two candidates are both males, employers who choose AA will forego some earnings since AA picks the (less productive) female ahead of the second-ranked male. Hence, AA choice in the

[5]The link is https://doi.org/10.1162/qjec.122.3.1067. In Niederle and Vesterlund (2007), the task is to add up sets of five two-digit numbers for five minutes. While not exactly the same as the task we use, the fact that the authors use a mathematical task and clearly state no gender difference in the abstract makes this study ideal for our purpose.

Cheap-talk treatment is "cheaper" and the proportion of employers choosing AA should be higher compared to the Control. Employers in this treatment are still paid for the belief and norm elicitation.

2.3 Hypotheses

We design the above experiment to test the following pre-registered hypotheses.[6] We first investigate how AA preference correlates with beliefs about the relative performance of females versus males. In a recent study, Dupree and Fiske (2019) find that white liberals—but not conservatives—present themselves as less competent when affiliating with minorities stereotyped as lower status and less competent. This finding suggests that groups that tend to endorse equality may do so out of the belief that the minority group has lower competence. Outcome-based social preferences, in particular fairness norms, may thus motivate the former to support policies that help the latter (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000). While the causal mechanism is not yet established, we start by first hypothesising that preference for AA is positively correlated with believing that females perform worse compared to males. This is in contrast to the standard economic theory which would predict that AA choice should be less likely for a payoff-maximising employer when the minority group is perceived to be more incompetent.

Hypothesis 1. *Preference for AA is positively correlated with the perception of relative incompetence of females.*

Our Information treatment aims to investigate the causal effect of belief about relative performance on AA preference. Females are typically stereotyped as having lower mathematical ability than males. When we inform a random group of employers that males and females in fact perform comparably, we therefore expect that AA choice should decrease relative to the Control where no information is given, assuming (as pre-registered in Hypothesis 1) that employers with a preference for AA are driven by a motive for

[6] Our pre-registration is available at https://aspredicted.org/blind.php?x=r7ma4s.

fairness. While for a payoff-maximizing employer our Information treatment should reduce the expected cost of AA, the ST rule still stochastically dominates AA. Thus, we hypothesize that:

Hypothesis 2. *Preference for AA decreases when information about equal productivity between the genders is provided.*

Another motivation for AA is that employers may believe that an AA hiring rule could motivate females to perform better since they have a higher chance of being hired. Studies have found that students increase their efforts in high school in response to AA in college entry policies (Akhtari et al., 2020; Bodoh-Creed and Hickman, 2017), while in a job-seeking context AA has been found to increase the effort spent by women (Banerjee et al., 2021). Hence, we expect that AA choice in the Reverse treatment should be higher than in the Control where the AA rule is applied ex-post of the productivity task.

Hypothesis 3. *Preference for AA increases when AA is expected to increase the productivity of females.*

A final motivation for choosing AA is that it is perceived as the ”right” thing to do despite the potential for monetary loss. Choosing AA in the Control means risking some earnings in case a less productive female is picked ahead of the second most productive male. We hypothesise that removing the monetary incentive in the Cheap-talk treatment would lead to a higher preference for AA compared to the Control.

Hypothesis 4. *Preference for AA increases in the absence of monetary incentives.*

2.4 Procedure

The experiment was programmed in Qualtrics. We conducted two waves of the experiment in January 2021 and recruited all participants through Prolific. They received a baseline monetary compensation (approximately $1.70 for the 10-minute experiment) and an additional bonus payment as described above. The average bonus payment was $1.58. All bonuses are paid after a few weeks' delay to allow us time to match employers to the job candidates in the separate studies.

In the first wave, we studied AA preference in a US nationally representative sample in terms of age, sex and ethnicity ($N = 1,102$). We note that AA is potentially more relevant in a younger student sample since college is often the first or only time people are affected by AA. AA is less salient for an older person as they would only experience the implementation of an AA hiring rule if they are employed in a company above a certain size. Hence, in order to further explore the drivers of AA preference in the relevant group, three weeks after the first wave we conducted a second wave recruiting participants aged 18-24, US nationals, and currently enrolled in an undergraduate degree ($N = 598$).[7] In this second wave, we dropped the Cheap-talk treatment due to budgetary constraints. Summary statistics of key variables are presented in Table 1.[8]

Table 1: Summary statistics

	Wave 1					Wave 2				
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
Age (in years)	1102	45.13	15.81	19	89	598	20.66	1.55	18	24
Male	1102	0.47	0.50	0	1	598	0.47	0.50	0	1
College degree	1102	0.77	0.42	0	1	598	0.36	0.48	0	1
Log monthly income	1058	7.96	0.70	6	9	526	7.86	0.86	6	9
Full-time job	1102	0.44	0.50	0	1	598	0.07	0.25	0	1
Race=Asian	1102	0.07	0.26	0	1					
Race=Black	1102	0.14	0.35	0	1					
Race=Mixed	1102	0.04	0.19	0	1					
Race=Other	1102	0.02	0.15	0	1					
Race=White	1102	0.73	0.45	0	1					
Political position	1102	3.88	2.86	0	10	598	2.85	2.33	0	10
Labor market policy views	1102	13.26	4.08	0	20	598	14.09	3.33	3	20

Notes: Race information is only provided by Prolific for the representative sample. Political position is the response to "In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?" (0-10). Labor market policy views aggregate responses (0-4) to five questions eliciting support for policies such as wage transparency, gender quotas and subsidising childcare (Settele, 2021).

While the job candidates are not the focus of our study, we provide some information about them for completeness. All participants were US nationals aged 18-24 recruited through Prolific. They completed the math task which was programmed in oTree (Chen

[7]This second experiment was pre-registered at https://aspredicted.org/blind.php?x=9iq9zs. Apart from dropping the Cheap-talk treatment, the pre-registration is identical to that from the first wave.

[8]We pre-screened the sample using the question *Which level of education are you currently in?* and included only participants answering "Undergraduate degree (BA/BSc/other)". However, responses to our survey question *What is the highest level of education you completed?* indicate that 36% of participants have completed another college degree.

et al., 2016). For the treatments where the job candidates do the math task *before* the employers' hiring decision, we recruited 25 males and 25 females. They were only told that the higher their score, the higher the likelihood they would earn the hiring bonus. The average score is 7.1 ($\sigma = 2.89$) for males and 5.4 ($\sigma = 2.92$) for females (t-test, $p = 0.0513$).

For the Reverse treatment, where the job candidates do the math task *after* the employers' decision, we recruited 25 males and 22 females to be matched to employers choosing ST and another 29 males and 25 females to be matched to employers choosing AA. In each of the two groups, we informed participants that they would be matched to an employer who had chosen the corresponding rule and hence their bonus would be determined accordingly. When participants knew they would be hired using the ST rule, males on average got 6.4 correct ($\sigma = 2.14$) while females got 5.9 ($\sigma = 3.03$), the difference is not significant ($p = 0.4829$). When participants knew they would be hired using the AA rule, males on average got 6.7 correct ($\sigma = 2.70$) while females got 6.4 ($\sigma = 3.24$), the difference is not significant ($p = 0.7931$). The within-gender comparisons across ST and AA rules are not significant either (males: 6.4 vs 6.7, $p = 0.7054$, females: 5.9 vs 6.4, $p = 0.5337$).

3 Results

3.1 Perception of relative competence

To assess our first hypothesis, we examine whether support for AA is correlated to participants' expectations of male and female performance in the math task. To do that, we create an indicator of the gender difference in expected performance, defined for each employer as their belief about the productivity of the average male job candidate minus their belief about the productivity of the average female job candidate: $gdiff = \mathbb{E}[male] - \mathbb{E}[female]$. Table 2 shows the average beliefs about male and female productivity across treatments, these are summarised in Figure 1.[9] In Wave 1, we observe

[9]The distribution of expected scores for male and female job candidates in each treatment is never significantly different in a Kolmogorov-Smirnov test. The plots are shown in Figure A1 for Wave 1 and

Table 2: Beliefs

	Control	Info Prior	Info Post	Info Post-Info Prior	Rev ST	Rev AA	Rev AA-Rev ST	Cheap-talk
				Wave 1				
Males	9.805	9.826	10.690	0.865	9.792	9.622	-0.170	10.533
	(0.816)	(0.514)	(0.357)	(0.549)	(0.727)	(0.736)	(0.209)	(0.682)
Females	9.514	9.662	10.637	0.975	9.532	9.110	-0.422***	10.339
	(0.768)	(0.561)	(0.357)	(0.594)	(0.670)	(0.678)	(0.131)	(0.674)
$gdiff$	0.291***	0.164	0.053*	-0.110	0.260	0.512***	0.252	0.194
	(0.101)	(0.157)	(0.028)	(0.151)	(0.210)	(0.193)	(0.245)	(0.195)
Observations	282	281	281	281	250	250	250	289
				Wave 2				
Males	9.141	8.687	10.036	1.349***	9.069	8.592	-0.476**	
	(0.385)	(0.288)	(0.187)	(0.219)	(0.392)	(0.314)	(0.223)	
Females	8.888	8.492	10.021	1.528***	9.114	8.458	-0.656***	
	(0.454)	(0.286)	(0.187)	(0.225)	(0.370)	(0.363)	(0.148)	
$gdiff$	0.252	0.195*	0.015	-0.179	-0.046	0.134	0.180	
	(0.176)	(0.104)	(0.051)	(0.110)	(0.134)	(0.211)	(0.282)	
Observations	206	195	195	195	197	197	197	

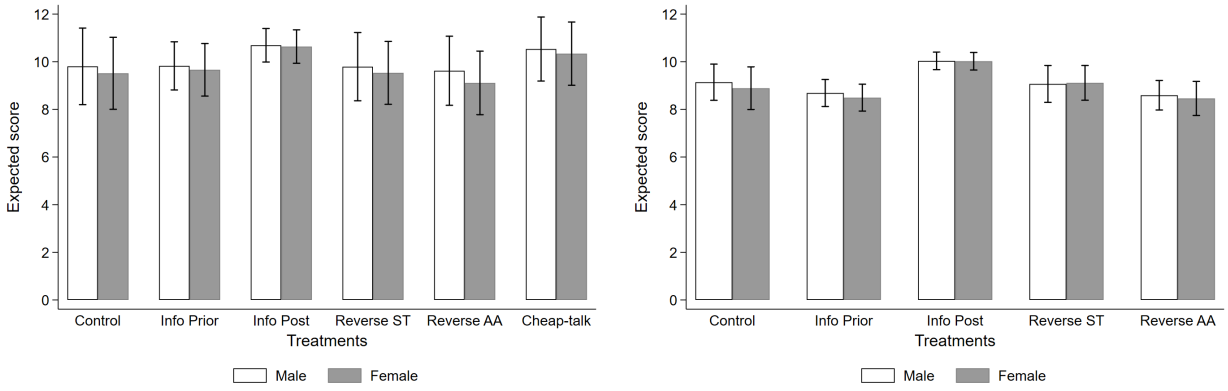
Notes: Expected scores obtained in the different treatments. The first panel shows the estimates from Wave 1, while the second panel shows the estimates from Wave 2. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

that females are on average expected to perform worse than males. Despite this, we do not find a statistically significant correlation between $gdiff$ and AA choice ($\rho = -0.04$, $p = 0.1963$).[10] However, we find a stronger negative correlation in Wave 2 ($\rho = -0.13$, $p = 0.0095$), indicating that a higher perceived productivity gap (lower female productivity) is associated with lower support for AA, contrary to our first hypothesis and consistent with payoff-maximisation.

To check the robustness of the above results, we regress AA choice in the Control, Information and Cheap-talk treatments on $gdiff$, the results are shown in Table 3. While the estimate is significant at the 10% level for the representative sample in Wave 1 ($\beta = -0.010, se = 0.006$), it is lower and no longer significant when including our vector of demographic controls which include age, gender, race, education, income and

A2 for Wave 2 in the appendix, where for readability we have dropped 7% of subjects stating an expected score of greater than 20.

[10]This correlation is calculated excluding subjects in the Reverse treatment for whom $gdiff$ is defined separately for the ST and AA scenarios.



(a) Wave 1 **(b) Wave 2**

Notes: Bars indicate 95% confidence intervals.

Figure 1: Beliefs about productivity across treatments

employment. This suggests that preferences for AA are not strongly linked to a relatively lower expectation for female performance in our subjects.

At the same time, we observe a negative corresponding relationship for our younger sample in Wave 2. This entails that our younger sample are less likely to choose AA in hiring if they expect males to perform relatively better in the math task, which is robust when including demographic controls ($\beta = -0.029, se = 0.009$).[11] This effect is in the opposite direction to our original hypothesis and thus provides support for the payoff-maximising motive being a stronger predictor of AA support between subjects than the fairness motives. This effect seems driven by the females in the sample.

3.2 Information treatment

To address our second hypothesis, we exposed a random subset of our participants to information that males and females perform comparably in a similar task, providing a link to the abstract of the Niederle and Vesterlund (2007) paper which clearly states that "there are no gender differences in performance". Comparing the posterior beliefs in the Information treatment with the beliefs in the Control, we find that information exposure seems to be effective in altering the subjects' beliefs about the expected

[11] In Wave 2 we do not control for race since this information is only available when sampling from the representative population on Prolific.

Table 3: Beliefs and AA choice

	All		Females		Males	
	(1)	(2)	(3)	(4)	(5)	(6)
			Wave 1			
$gdiff$	-0.010*	-0.008	-0.008	-0.006	-0.012*	-0.010
	(0.006)	(0.006)	(0.012)	(0.012)	(0.006)	(0.006)
Observations	852	822	446	435	406	387
R-squared	0.00	0.03	0.00	0.02	0.00	0.06
			Wave 2			
$gdiff$	-0.032***	-0.029***	-0.031***	-0.028***	-0.024	-0.033
	(0.009)	(0.009)	(0.010)	(0.010)	(0.024)	(0.024)
Observations	401	346	206	169	195	177
R-squared	0.02	0.06	0.02	0.04	0.01	0.03
Demographics		X		X		X

Notes: OLS regressions of choosing AA. The first two columns show the results for the sample with both genders (All). The subsequent two columns show coefficient estimates for the female participants, and the final two columns for the males. The first panel shows the result for Wave 1, and the second panel for Wave 2. $gdiff$: expected male productivity minus expected female productivity. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

performance gap (0.053 vs 0.291, $p = 0.0241$). The expected productivity difference between male and female job candidates is no longer significant at the 5% level and the expected numbers of correct answers for males and females are almost identical ($\mathbb{E}[male] = 10.690, \mathbb{E}[female] = 10.637, p = 0.0546$).[12] In Wave 2, we observe that information has similar effect in magnitude on beliefs about the difference in performance (0.015 vs 0.252, $p = 0.2080$). While the drop in $gdiff$ is not statistically significant, we are similarly successful in removing the expected gender gap in productivity within the Information treatment ($\mathbb{E}[male] = 10.036, \mathbb{E}[female] = 10.021, p = 0.7615$). However, this change in beliefs about relative performance does not appear to translate into a reduction in the participants' likelihood of selecting the AA hiring rule relative to the Control. AA choice in the Information treatment is slightly lower but not significantly different from

[12]Note that while we also find a reduction in the gender gap in expected performance comparing the prior and the posterior beliefs within the Information treatment, this difference is not statistically significant (0.164 vs 0.053, $p = 0.4671$). We suspect that this is due the fact that the performance gap for prior beliefs is already smaller than in the Control, although the difference between the prior beliefs in the Information treatment and the beliefs in the Control is not significant either (0.164 vs 0.291, $p = 0.4969$). In the remainder of this paper, we will proceed by focusing on the comparison between posterior beliefs and beliefs from the Control group.

the Control (34% vs 36%, $p = 0.6189$ in Wave 1, 30% vs 33%, $p = 0.6259$ in Wave 2).

These null results are confirmed in regressions shown in Table 4 where the coefficient of Information is never significant. This holds across both of our samples regardless of the choice of specification. In the full specification, we control for $gdiff$, whether AA is considered the appropriate choice, and other demographic controls.[13] It is worth noting that females in Wave 1 exhibit a greater decline in their propensity to choose AA than do males when exposed to performance information. Females are more likely to opt for AA in the Control (40% among females vs 32%), but exposure to information decreases the gap in AA preferences (36% vs 32%).[14]

These results jointly have an interesting implication for the information hypothesis. The fact that we cannot reject the null hypothesis suggests that preferences for AA are not primarily driven by beliefs about relative performance. Treated participants are exposed to information about comparable performance of males and females in these tasks. The treatment is generally successful in shifting beliefs and bridging the expectation of a relative performance gap to the point where it is no longer statistically significant. In spite of that, the proportion of individuals who have a preference for AA is not significantly altered, in contrast to Hypothesis 2. This suggests that support for AA, which in our setting would only benefit females, is not derived from a pre-existing belief that males would outperform females. However, it appears that there is a more intrinsic preference for policies to support female job candidates, even when abilities are comparable.

However, it is worth pointing out that the estimated coefficient of the Information treatment is consistently negative for both genders in both of our experiments. While we wish to be careful with interpretations as the estimate is never significant, we believe that this finding directionally supports our initial assumption that choice of AA is rather a result of fairness than payoff concerns.

[13] No treatment effect is observed when selecting AA as the appropriate choice is the dependent variable.

[14] Heterogeneity analysis by political position reveals that the treatment effect is highly significant and negative for female participants holding left-wing views. However, the more right-wing the female employer is, the more muted is the treatment effect. The results are provided in Table A1 in the appendix.

Table 4: Treatment effects

	All			Females			Males		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Wave 1					
Information	-0.020	-0.024	-0.028	-0.036	-0.030	-0.035	-0.003	-0.020	-0.025
	(0.040)	(0.040)	(0.041)	(0.056)	(0.056)	(0.057)	(0.058)	(0.056)	(0.058)
Reverse	-0.030			-0.002			-0.062		
	(0.041)			(0.059)			(0.057)		
Cheap-talk	0.002	-0.007	-0.000	0.048	0.053	0.055	-0.040	-0.067	-0.057
	(0.040)	(0.040)	(0.040)	(0.058)	(0.057)	(0.057)	(0.055)	(0.055)	(0.055)
Observations	1,102	852	822	579	446	435	523	406	387
R-squared	0.00	0.04	0.08	0.00	0.04	0.06	0.00	0.06	0.10
				Wave 2					
Information	-0.023	-0.028	-0.045	0.001	-0.003	-0.063	-0.039	-0.048	-0.026
	(0.046)	(0.046)	(0.049)	(0.069)	(0.068)	(0.073)	(0.059)	(0.062)	(0.068)
Reverse	0.025			0.088			-0.080		
	(0.047)			(0.067)			(0.059)		
Observations	598	401	346	319	206	169	279	195	177
R-squared	0.00	0.03	0.07	0.01	0.05	0.09	0.01	0.01	0.03
$gdiff$		X	X		X	X		X	X
AA norm		X	X		X	X		X	X
Demographics			X			X			X

Notes: OLS regressions of choosing AA. The first three columns show the results for the sample with both genders (All). The subsequent three columns show coefficient estimates for the female participants, and the final three columns for the males. The first panel shows the result for Wave 1, and the second panel for Wave 2. $gdiff$: expected male productivity minus expected female productivity. AA norm: responding AA to *Which rule do you think the majority of candidates think is appropriate for you to use?*. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. The Reverse treatment is excluded whenever we control for $gdiff$ since this variable is only calculated for the Control, Information and Cheap-talk treatments. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3.3 Reverse treatment

In our third treatment, we reversed the order of the job candidates performing their task and the employers deciding on which rule they would like to implement. Our hypothesis is that if the employers believe AA would increase the productivity of females by changing the institutional environment faced, they would be more likely to opt for it. Previous studies have suggested that implementing AA in college admission may increase the productivity of the high-performing minority group whose relative likelihood of college entry is higher with the AA policy (Akhtari et al., 2020; Bodoh-Creed and Hickman, 2017). In the context of job applications, AA has also been shown to increase the effort of female job seekers as measured by the time spent on their applications (Banerjee et al., 2021). While we do find that employers expect job candidates to perform differently under ST and AA, the direction is the opposite to the one in the aforementioned studies. As shown in Table 2, we find that employers expect AA implementation to *reduce* female productivity. The mean expected score of female job candidates drops by 0.422 for Wave 1 and by 0.656 in Wave 2. Both of these drops are highly statistically significant. Notably, both male and female participants expect AA policies to worsen female performance. This result holds in both of our samples.[15] While the expectation of the employers is opposite to what was predicted in our hypothesis, it is not entirely counter-intuitive from an economic perspective: if female job candidates can expect to face a reduced competition, employers might also expect their performance to decline.[16]

In spite of observing a significant decline in the expected productivity of the female job candidates, we do not see a corresponding change in the likelihood of choosing AA. AA choice in this treatment is not significantly different from the Control (33% vs 36%, $p = 0.4737$ in Wave 1, 35% vs 33%, $p = 0.5966$ in Wave 2). These results are confirmed in regressions shown in Table 4 and hold for both male and female participants across both of our samples. In fact, in Wave 2 we even observe a slight increase in the likelihood

[15] In Wave 1, males expect $\mathbb{E}[female]_{ST} = 8.34, \mathbb{E}[female]_{AA} = 7.95, p = 0.0074$, females expect $\mathbb{E}[female]_{ST} = 10.58, \mathbb{E}[female]_{AA} = 10.13, p = 0.0354$. In Wave 2, males expect $\mathbb{E}[female]_{ST} = 9.13, \mathbb{E}[female]_{AA} = 8.46, p = 0.0092$, females expect $\mathbb{E}[female]_{ST} = 9.11, \mathbb{E}[female]_{AA} = 8.46, p = 0.0004$.

[16] While our sample of job candidates is too small to test this, we do not find employers' expectation to be correct either: in fact females perform better under AA than ST (6.4 vs 5.9, $p = 0.0533$).

of choosing AA, albeit not a statistically significant one.[17] Thus, a substantial relative reduction in expected female productivity does not translate into a lower preference for AA in our samples.

Our null finding complements our results from the Information treatment with respect to the elasticity of support for AA to associated costs. In the Information treatment, we do not find a link between expected gap in performance and support for AA despite the reduction in the expected cost of implementing it. In the Reverse treatment, there is an implicit increase in the cost for hiring females as their performance is expected to decline. In spite of that, we do not observe a corresponding decline in preferences for AA. This additionally suggests that preferences for promoting female job candidates might be inelastic to the associated financial cost.

Finally, we regress the choice of hiring policy on beliefs about relative performance under both ST and AA, the results are shown in Table 5. In Wave 1, we observe that AA choice is more likely if participants think choosing ST would lead to males performing worse than females. In Wave 2, AA is more likely to be chosen if it is expected to make females more productive than males. To see whether these results are due to believing the hiring rule would affect the performance of males or females, we regress AA choice on the within-gender difference in relative performance under both hiring rules (Table 6). The results reveal that AA choice in Wave 1 is driven by the belief that males would be more productive given the more competitive setting under AA relative to the ST rule. As in our finding in Table 3, the effect seems to be driven by females. However, these effects do not seem to be present in Wave 2.

3.4 Cheap-talk treatment

In the absence of a penalty for potentially hiring less productive job candidates, implementing an AA policy becomes relatively cheaper.[18] In spite of that, we do not find a statistically significant increase in the likelihood of support for it. AA choice in the

[17] Heterogeneity analysis by political position indicates that the positive treatment effect is lower for employers holding more right-wing views. The results are provided in Table A2 in the appendix.

[18] Comparing Control and Cheap-talk, no significant difference is found in the expected productivity of males, females or $gdiff$.

Table 5: Beliefs and AA choice in the Reverse treatment

	All		Females		Males	
	(1)	(2)	(3)	(4)	(5)	(6)
			Wave 1			
$gdiff_{ST}$	-0.013**	-0.014**	-0.017***	-0.016**	-0.012	-0.007
	(0.007)	(0.006)	(0.006)	(0.007)	(0.026)	(0.030)
$gdiff_{AA}$	0.006	0.011	0.016*	0.022**	-0.052***	-0.045**
	(0.010)	(0.010)	(0.009)	(0.009)	(0.017)	(0.019)
Observations	250	236	133	125	117	111
R-squared	0.01	0.06	0.03	0.10	0.04	0.11
			Wave 2			
$gdiff_{ST}$	-0.041**	-0.029	-0.048*	-0.033	-0.019	-0.014
	(0.020)	(0.018)	(0.026)	(0.028)	(0.023)	(0.021)
$gdiff_{AA}$	-0.029***	-0.023**	-0.028**	-0.018	-0.030	-0.032**
	(0.011)	(0.010)	(0.013)	(0.013)	(0.022)	(0.015)
Observations	197	180	113	99	84	81
R-squared	0.04	0.23	0.04	0.09	0.04	0.13
Demographics		X		X		X

Notes: OLS regressions of choosing AA. The first two columns show the results for the sample with both genders (All). The subsequent two columns show coefficient estimates for the female participants, and the final two columns for the males. The first panel shows the result for Wave 1, and the second panel for Wave 2. $gdiff_{ST}$: expected male productivity minus expected female productivity under the ST rule. $gdiff_{AA}$: expected male productivity minus expected female productivity under the AA rule. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Beliefs and AA choice in the Reverse treatment

	All		Females		Males	
	(1)	(2)	(3)	(4)	(5)	(6)
			Wave 1			
Male Difference (AA-ST)	0.016**	0.021***	0.019***	0.021***	-0.010	-0.010
	(0.007)	(0.006)	(0.006)	(0.006)	(0.021)	(0.024)
Female Difference (AA-ST)	0.005	0.005	-0.006	-0.011	0.043*	0.037
	(0.011)	(0.011)	(0.010)	(0.013)	(0.022)	(0.025)
Observations	250	236	133	125	117	111
R-squared	0.01	0.07	0.03	0.10	0.02	0.10
			Wave 2			
Male Difference (AA-ST)	-0.012	-0.011	-0.016*	-0.011	-0.014	-0.016
	(0.009)	(0.008)	(0.009)	(0.010)	(0.025)	(0.020)
Female Difference (AA-ST)	-0.008	-0.007	-0.026	-0.018	0.006	0.010
	(0.016)	(0.014)	(0.025)	(0.028)	(0.013)	(0.012)
Observations	197	180	113	99	84	81
R-squared	0.01	0.21	0.02	0.08	0.01	0.10
Demographics		X		X		X

Notes: OLS regressions of choosing AA. The first two columns show the results for the sample with both genders (All). The subsequent two columns show coefficient estimates for the female participants, and the final two columns for the males. The first panel shows the result for Wave 1, and the second panel for Wave 2. Male (Female) difference: expected male (female) productivity under AA minus that under ST. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Cheap-talk treatment is not significantly different from the Control (36.3% vs 36.2%, $p = 0.9680$ in Wave 1). This is confirmed in regressions shown in Table 4 where the coefficient of Cheap-talk is never significant. While female participants become somewhat more likely to support AA relative to the Control, the direction of the effect is the opposite for male participants. These effects are, however, not statistically significant. Thus, a decrease in the relative cost of implementing AA does not impact the likelihood of individuals opting for it. This suggests that demand for AA is not highly elastic with respect to the price incurred by the participants. Similar to the previous findings from the Information and Reverse treatments, this suggests a more intrinsic preference for a policy promoting females that is not immediately captured by our experimental design. We believe that the results from this treatment analysis further support our initial assumption that the fairness motive would be stronger than the motive for payoff-maximization.

4 Discussion

Our finding that demand for AA is not responsive to changes in financial incentives is somewhat surprising.[19] While our preferred explanation is that subjects have an intrinsic preference for promoting females, which could be motivated by ideological reasons, in this section we discuss other potential confounds that might explain the unexpected finding.

The first alternative explanation is that the penalty for choosing AA is too low. Choosing AA means replacing a male job candidate by a potentially less productive female, which involves a cost of \$0.1 times the expected score differential between the two genders. Given that the average $gdiff$ is at most 0.5 (see Table 2), this translates to a marginal cost of choosing AA of \$0.05—which is low, given the average total earnings of \$3.28. At the same time, the variance of both $\mathbb{E}_{female}$ and $\mathbb{E}_{male}$, as well as $gdiff$, is relatively high.[20] This suggests that ex-ante many subjects could see the incentive as potentially substantial. Although the majority of subjects expect $gdiff \leq 0$, when we focus on the 26% who

[19] Neither does policy view respond to treatment, the results are provided in Table A3 in the appendix.
[20] $var(\mathbb{E}_{male}) = 10.93; var(\mathbb{E}_{female}) = 10.55; var(gdiff) = 2.18$.

do expect males to perform better, we also do not observe treatment effects (see Table A4 in the appendix). No significant treatment effect is observed either when treatment is interacted with $gdiff$ (see Table A5 in the appendix). These support our finding that subjects' preference for AA is inelastic even for those expecting a greater financial cost. Nevertheless, future research should study demand for AA in other environments with higher stakes than what our online experiment allows.

Second, the fact that we ask for subjects' expectations about male and female job candidates' productivity may potentially trigger demand effects, prompting subjects to overstate $gdiff$ if they suspect that the researchers are interested in studying beliefs that males are more productive. On the other hand, social desirability bias may prompt subjects to understate $gdiff$ to signal that they believe that females are not less productive. These effects go in opposite directions and present a limitation that should be addressed in future studies.

Another concern may be that there is a demand effect stemming specifically from our Information treatment: that subjects' *stated* posterior $gdiff$ moves in the direction predicted by the information, but subjects do not update their *actual* beliefs. While our design does not allow us to disentangle stated from actual beliefs, recent results from Haaland and Roth (2021) provide support for our finding. The authors find that an information treatment, while successful in changing (stated) beliefs about racial discrimination, does not lead to a change in support of pro-black policies. Thus, altering stated beliefs may not translate to a shift in behavior (Costa-Gomes and Weizsäcker, 2008).

There may be other confounds stemming from the fact that the experiment was run online, outside the more controlled lab environment. However, our results are robust to excluding subjects from the bottom and top 25% in terms of duration for completing the study.[21] This suggests that diminished attention was not a major driver of our results.

In spite of these potential confounders, we believe that our paper contributes to the gap in the existing literature on the determinants of AA preference. Preference for AA appears to be inelastic to changes in expected and real incentives in the representative sample, but we find unexpected treatment effects in the younger participants sub-sample

[21] These are subjects who complete the study in less than 387 seconds or more than 695 seconds.

which motivated us to collect more data from a similar demographic group.[22] We consider it a strength in our study that we tested and confirmed the robustness of the null findings even in the younger sample in Wave 2.

5 Concluding remarks

This paper contributes to a literature that attempts to understand the motives and determinants of the support for affirmative action policies. While we study them specifically in the context of hiring decisions, there is a broader scope of situations where these policies may apply. Therefore, understanding the underlying motivations is crucial in the discussion about how to address existing inequalities. While previous research has largely focused on the efficacy of AA policies (e.g. Balafoutas and Sutter, 2012; Niederle et al., 2013), the focus of this paper is on the beliefs that promote the application of those policies in the first place. In that vein, we contribute more specifically towards the literature that looks at the relationship between the perception of minority groups and political attitudes (see e.g. Dupree and Fiske, 2019; Alesina et al., 2018).

In this work, we address four hypotheses about the nature of preferences for AA. Firstly, in a representative population (Wave 1), preferences for AA are not associated with a perception of relative competences between the genders. We only observe a positive relationship between expected female performance and AA support in younger females (Wave 2). Second, we do not find an effect of removing the perceived productivity gap on AA support. While we are able to significantly decrease the perceived gap in the expectations of employers, this does not translate into a reduction in the likelihood of choosing AA as a hiring policy. Third, while implementing AA ex-ante is perceived to lower female productivity, we do not find that support for AA decreases compared to when AA is implemented ex-post. Finally, we find that removing the financial disincentive for choosing AA does not increase the likelihood of selecting AA relative to the Control group.

Our results suggest that reducing the cost of instituting AA, by removing the finan-

[22] See Figure A3 in the appendix.

cial incentive to hire a more productive job candidate or removing the expectation of a gender gap in productivity, does not significantly alter the likelihood of choosing an AA policy. Nor is the increase in the perceived cost of AA, due to lower expected female performance, associated with a lower demand for AA. Jointly, these findings suggest a low elasticity of demand for AA and a likely more intrinsic preference for policies promoting female job candidates. These outcomes also suggest that attitudes towards AA are unlikely to be changed by financial incentives or adjusting beliefs about productivity, rather it is likely to be entrenched ideologically and may be only moved by appealing to ideological motives such as fairness (see e.g. Settele, 2021).

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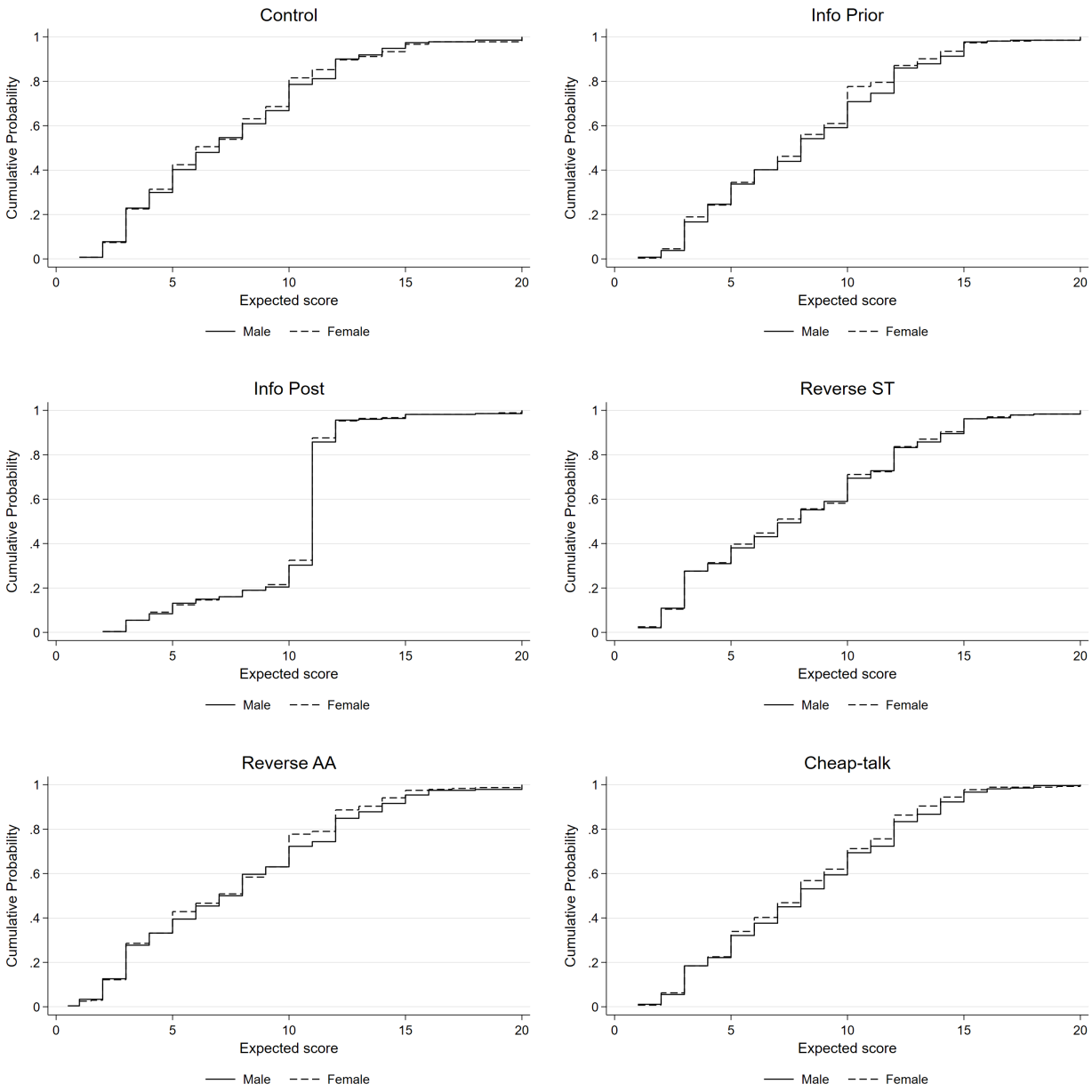
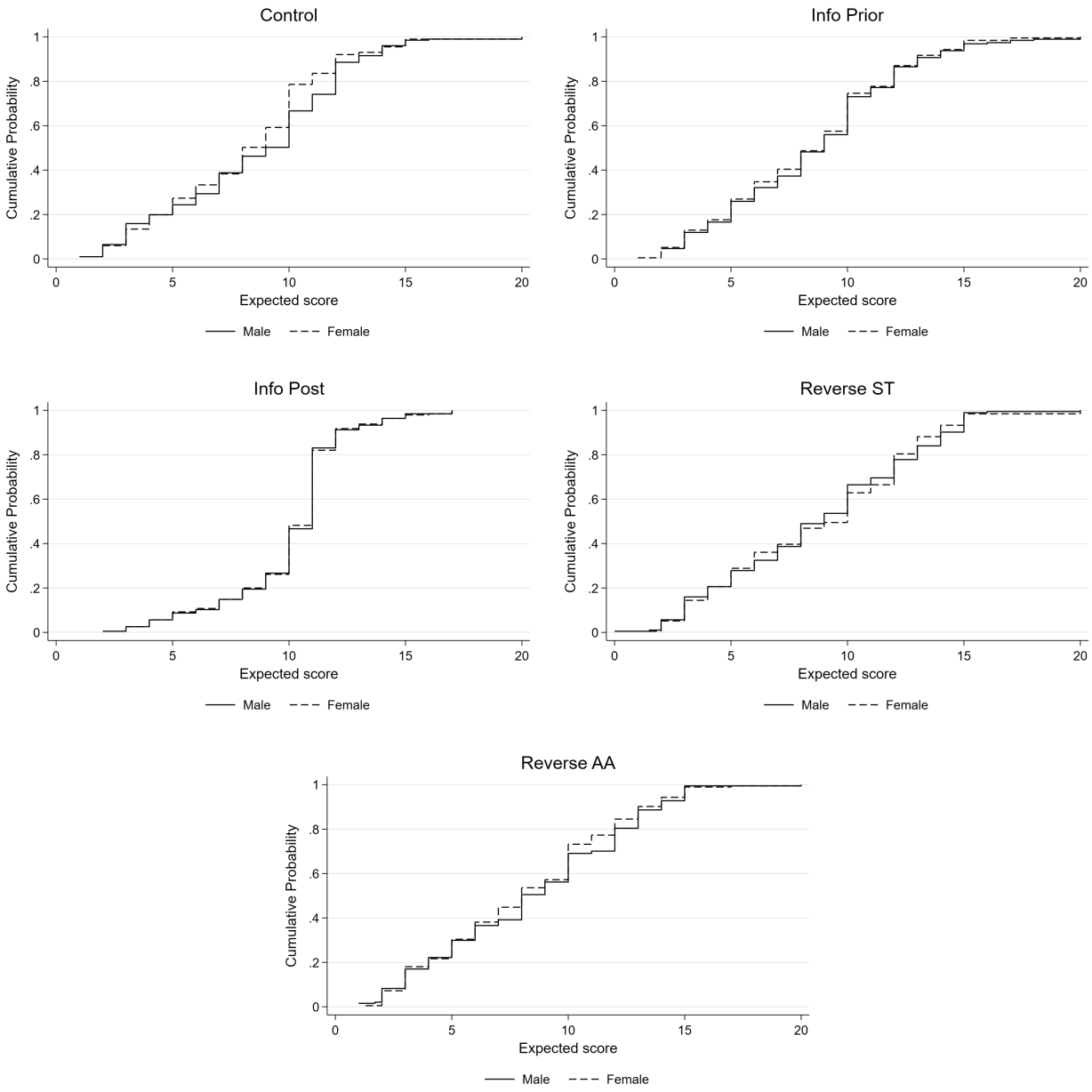
Appendices

A Additional figures and tables



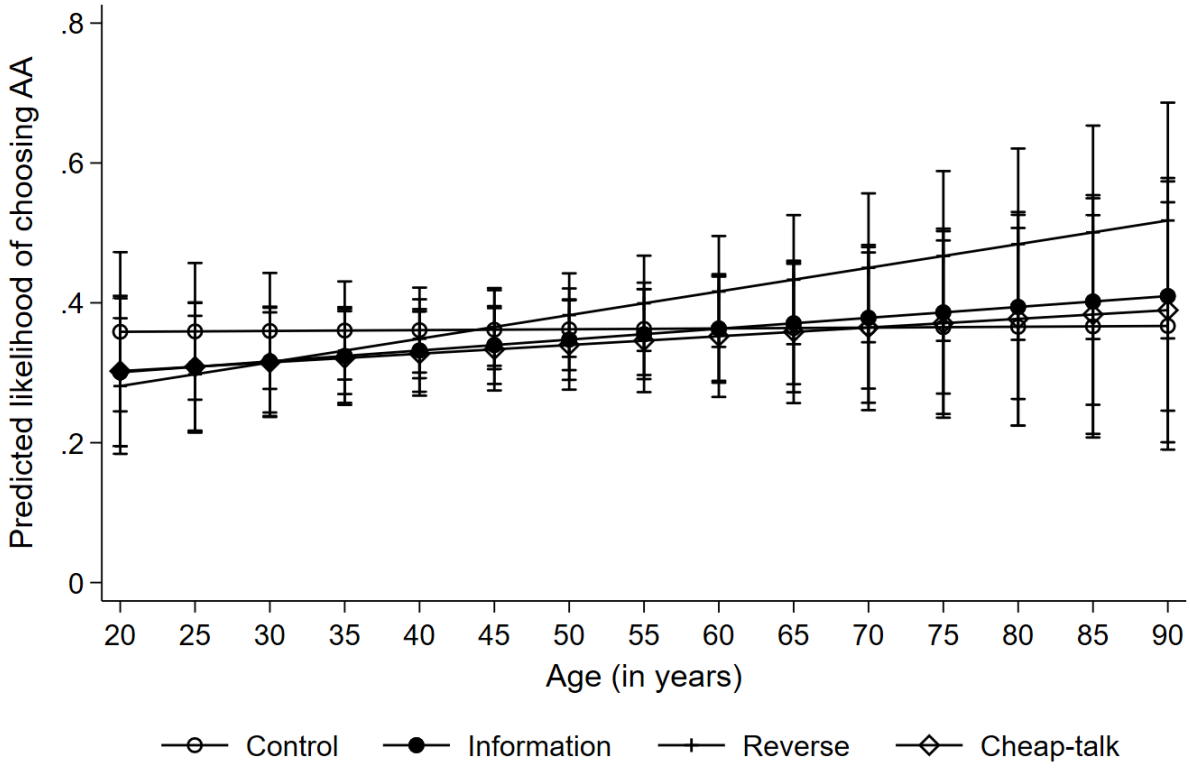
Notes: For readability, we drop fewer than 7% subjects who state an expected score greater than 20.

Figure A1: CDF of productivity across treatments in Wave 1



Notes: For readability, we drop fewer than 7% subjects who state an expected score greater than 20.

Figure A2: CDF of productivity across treatments in Wave 2



Notes: Bars indicate 95% confidence intervals.

Figure A3: Predicted likelihood of choosing AA by age

Table A1: Heterogeneity in AA choice by policy views in Wave 1

	All	Female	Male	All	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)
Information	-0.102	-0.188**	0.022	0.016	0.216	-0.170
	(0.070)	(0.090)	(0.111)	(0.107)	(0.172)	(0.135)
Reverse	0.005	-0.014	0.014	0.000	0.232	-0.125
	(0.072)	(0.093)	(0.115)	(0.108)	(0.176)	(0.132)
Cheap-talk	-0.024	-0.038	-0.022	0.095	0.394**	-0.076
	(0.069)	(0.088)	(0.110)	(0.107)	(0.186)	(0.132)
Information × Political position	0.021	0.047***	-0.008			
	(0.014)	(0.017)	(0.021)			
Reverse × Political position	-0.005	0.016	-0.017			
	(0.013)	(0.017)	(0.020)			
Cheap-talk × Political position	0.009	0.026	-0.003			
	(0.013)	(0.017)	(0.021)			
Information × Pro-regulation				-0.003	-0.018	0.014
				(0.008)	(0.012)	(0.011)
Reverse × Pro-regulation				-0.000	-0.012	0.006
				(0.008)	(0.013)	(0.011)
Cheap-talk × Pro-regulation				-0.006	-0.023*	0.004
				(0.008)	(0.013)	(0.011)
Observations	1,058	560	498	1,058	560	498
R-squared	0.11	0.13	0.09	0.17	0.18	0.18
Demographics	X	X	X	X	X	X

Notes: OLS regressions of choosing AA. Political position: *In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?* Pro-regulation: sum of responses to five questions about labor market policy views, agreement to higher regulations is coded with a higher score. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A2: Heterogeneity in AA choice by policy views in Wave 2

	All	Female	Male	All	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)
Information	-0.078	-0.113	-0.029	0.029	-0.222	0.177
	(0.080)	(0.109)	(0.120)	(0.181)	(0.286)	(0.252)
Reverse	0.153*	0.170*	0.074	-0.187	-0.035	-0.163
	(0.078)	(0.100)	(0.131)	(0.151)	(0.306)	(0.205)
Information × Political position	0.010	0.020	-0.001			
	(0.020)	(0.033)	(0.028)			
Reverse × Political position	-0.048***	-0.033	-0.042			
	(0.018)	(0.032)	(0.027)			
Information × Pro-regulation				-0.005	0.010	-0.015
				(0.013)	(0.019)	(0.020)
Reverse × Pro-regulation				0.015	0.008	0.009
				(0.011)	(0.020)	(0.018)
Observations	526	268	258	526	268	258
R-squared	0.14	0.09	0.08	0.17	0.12	0.12
Demographics	X	X	X	X	X	X

Notes: OLS regressions of choosing AA. Political position: *In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking?* Pro-regulation: sum of responses to five questions about labor market policy views, agreement to higher regulations is coded with a higher score. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: OLS regressions of Pro-regulation

	All			Females			Males		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Wave 1				
Information	-0.091	-0.109	-0.042	-0.056	-0.149	-0.058	-0.157	-0.189	-0.199
	(0.344)	(0.345)	(0.338)	(0.424)	(0.426)	(0.438)	(0.518)	(0.519)	(0.531)
Reverse	-0.385			-0.741*			0.019		
	(0.349)			(0.436)			(0.532)		
Cheap-talk	-0.333	-0.339	-0.273	-0.231	-0.188	-0.195	-0.301	-0.354	-0.417
	(0.336)	(0.336)	(0.327)	(0.417)	(0.412)	(0.415)	(0.499)	(0.497)	(0.512)
Observations	1,102	852	822	579	446	435	523	406	387
R-squared	0.00	0.00	0.11	0.01	0.03	0.08	0.00	0.00	0.05
					Wave 2				
Information	0.060	-0.022	0.016	0.031	0.017	0.071	0.166	-0.030	-0.054
	(0.324)	(0.318)	(0.349)	(0.437)	(0.432)	(0.494)	(0.447)	(0.451)	(0.518)
Reverse	0.008			0.544			-0.918*		
	(0.345)			(0.423)			(0.495)		
Observations	598	401	346	319	206	169	279	195	177
R-squared	0.00	0.04	0.10	0.01	0.04	0.07	0.02	0.03	0.04
gdiff		X	X		X	X		X	X
AA norm		X	X		X	X		X	X
Demographics			X			X			X

Notes: OLS regressions of Pro-regulation, the sum of responses to five questions about labor market policy views, agreement to higher regulations is coded with a higher score. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Treatment effects for subjects with $gdiff > 0$

	All			Females			Males		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
					Wave 1				
Information	-0.031	-0.040	-0.082	-0.059	-0.086	-0.084	-0.012	-0.023	-0.106
	(0.072)	(0.075)	(0.078)	(0.107)	(0.111)	(0.119)	(0.096)	(0.106)	(0.109)
Reverse	-0.053			-0.047			-0.068		
	(0.094)			(0.141)			(0.120)		
Cheap-talk	-0.007	-0.015	0.007	0.050	0.061	0.071	-0.040	-0.071	-0.045
	(0.071)	(0.071)	(0.072)	(0.112)	(0.114)	(0.120)	(0.089)	(0.089)	(0.093)
Observations	292	259	252	141	124	123	151	135	129
R-squared	0.00	0.02	0.10	0.01	0.02	0.07	0.00	0.06	0.16
					Wave 2				
Information	0.083	0.111	0.114	0.046	0.232	0.225	0.112	0.070	0.104
	(0.078)	(0.102)	(0.112)	(0.112)	(0.179)	(0.198)	(0.110)	(0.124)	(0.144)
Reverse	-0.090			-0.172			-0.018		
	(0.095)			(0.142)			(0.127)		
Observations	157	137	121	80	72	63	77	65	58
R-squared	0.02	0.07	0.09	0.02	0.08	0.11	0.02	0.06	0.11
$gdiff$		X	X		X	X		X	X
AA norm		X	X		X	X		X	X
Demographics			X			X			X

Notes: OLS regressions of choosing AA among subjects stating $gdiff > 0$ in the Control and Cheap-talk treatments, $gdiff_{prior} > 0$ in the Information treatment, and $gdiff_{ST} > 0$ and $gdiff_{AA} > 0$ in the Reverse treatment. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A5: Heterogeneity in AA choice by $gdiff$

	All			Females			Males		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Wave 1					
Infomation	-0.018	-0.021	-0.022	-0.037	-0.031	-0.034	0.012	-0.001	-0.004
	(0.041)	(0.040)	(0.041)	(0.057)	(0.056)	(0.057)	(0.059)	(0.058)	(0.059)
Cheap-talk	0.003	-0.006	0.004	0.052	0.052	0.057	-0.042	-0.064	-0.053
	(0.041)	(0.040)	(0.040)	(0.059)	(0.058)	(0.058)	(0.056)	(0.055)	(0.056)
Information	-0.013	-0.010	-0.016	-0.006	0.001	-0.002	-0.037	-0.038	-0.044
$\times$ $gdiff$	(0.019)	(0.020)	(0.020)	(0.031)	(0.031)	(0.031)	(0.028)	(0.029)	(0.030)
Cheap-talk	-0.007	-0.006	-0.015	-0.006	0.002	-0.007	-0.011	-0.014	-0.018
$\times$ $gdiff$	(0.018)	(0.019)	(0.018)	(0.032)	(0.033)	(0.032)	(0.022)	(0.023)	(0.023)
$gdiff$	-0.005	-0.006	0.003	-0.005	-0.009	-0.000	-0.003	-0.003	0.002
	(0.017)	(0.018)	(0.018)	(0.029)	(0.029)	(0.029)	(0.021)	(0.023)	(0.023)
Observations	852	852	822	446	446	435	406	406	387
R-squared	0.01	0.05	0.08	0.01	0.04	0.06	0.02	0.07	0.11
				Wave 2					
Information	-0.032	-0.029	-0.048	0.006	0.006	-0.057	-0.065	-0.062	-0.039
	(0.046)	(0.046)	(0.050)	(0.068)	(0.067)	(0.074)	(0.061)	(0.061)	(0.068)
Information	0.037	0.031	0.039	0.004	-0.011	0.007	0.087*	0.085*	0.099*
$\times$ $gdiff$	(0.028)	(0.027)	(0.031)	(0.032)	(0.032)	(0.034)	(0.047)	(0.047)	(0.053)
$gdiff$	-0.041***	-0.040***	-0.036***	-0.038***	-0.035**	-0.031**	-0.040	-0.039	-0.047*
	(0.011)	(0.012)	(0.013)	(0.013)	(0.015)	(0.015)	(0.025)	(0.026)	(0.026)
Observations	401	401	346	206	206	169	195	195	177
R-squared	0.03	0.04	0.08	0.04	0.07	0.10	0.02	0.03	0.05
AA norm		X	X		X	X		X	X
Demographics			X			X			X

Notes: OLS regressions of choosing AA. $gdiff$ is re-defined as $gdiff_{prior}$ in the Information treatment. Demographic controls include age, gender, race (Wave 1 only), education, income and employment. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B Full survey

Begins on next page.

Welcome!

This study is conducted by a researcher at University College Dublin and has been given ethical approval by the university's ethics committee. You must be at least 18 years of age to participate in this study. You are not allowed to participate in this study more than once. If you have any questions regarding this study, please email margaret.samahita@ucd.ie.

This questionnaire will take about 10 minutes to complete. Your answers are anonymous; only aggregate results will be published.

I have read and understood the above and want to participate in this study.

- Yes
- No

What is your Prolific ID? _____

What is your age (in years)? _____

What is your gender?

- Male
- Female

Instructions T1, T2, T3

In addition to your participation fee, you have the possibility to be paid **additional earnings**. These additional earnings will be determined by your decision(s) during the study [T3 only: and will be explained to you when you get to the relevant question].

In this study, you will be acting as an **"employer"** wishing to hire from a pool of **"job candidates"**. "Job candidates" are participants who have completed a math task in a separate study. These participants are from the US, college-aged and are composed of 50% male and 50% female.

As an employer, you will be matched with a random pool of **6 job candidates, 3 males and 3 females**. You will now hire **2** people out of the 6 job candidates. Your task is to choose whether to hire using i) the **standard (ST)** rule or ii) the **affirmative action (AA)** rule.

- **Standard (ST) rule**: the employer simply hires the 2 job candidates with the highest score in the math task.
- **Affirmative Action (AA) rule**: the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

To clarify, if the top 2 candidates are both females OR 1 male and 1 female, the ST and AA rules are equivalent. However, if the top 2 candidates are both males, they will both be hired using the ST rule while the AA rule replaces the second ranked male with the top ranked female.

You will be paid **0.10 USD times the total scores in the math task from the 2 hired candidates**. [T3 only: **You will NOT be paid for this decision.**]

Each hired candidate will also be paid 1 USD extra in earnings, in addition to their participation fee. They were aware that the higher their score, the higher the likelihood they would earn this hiring bonus.

In summary, the hiring rule you choose will determine your additional earnings from this study.

Instructions T4

In addition to your participation fee, you have the possibility to be paid **additional earnings**. These additional earnings will be determined by your decision(s) during the study.

In this study, you will be acting as an **"employer"** wishing to hire from a pool of **"job candidates"**. "Job candidates" are participants who will complete a math task in a separate future study, to take place within a week. These participants are from the US, college-aged and are composed of 50% male and 50% female.

As an employer, you will be matched with a random pool of **6 job candidates, 3 males and 3 females**. You will now, in advance, hire **2** people out of the 6 job candidates. Your task is to choose whether to hire using i) the **standard (ST)** rule or ii) the **affirmative action (AA)** rule.

- **Standard (ST) rule**: the employer simply hires the 2 job candidates with the highest score in the math task.
- **Affirmative Action (AA) rule**: the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

To clarify, if the top 2 candidates are both females OR 1 male and 1 female, the ST and AA rules are equivalent. However, if the top 2 candidates are both males, they will both be hired using the ST rule while the AA rule replaces the second ranked male with the top ranked female.

You will be paid **0.10 USD times the total scores in the math task from the 2 hired candidates**.

Each hired candidate will also be paid 1 USD extra in earnings, in addition to their participation fee. They will be made aware that the higher their score, the higher the likelihood they would earn this hiring bonus.

Your decision will be communicated to the job candidates before they start the math task. In other words, the job candidates will perform the math task knowing how their additional earnings will be determined.

In summary, the hiring rule you choose will determine your additional earnings from this study.

Attention check

To test your understanding, suppose that you are matched with a pool of 6 job candidates with the following scores: [Participants are randomised to either tis attention check or another where the top 2 candidates are females. Participants cannot proceed unless they give the right answer.]

Candidate	Score
Male 1	15
Male 2	14
Female 1	12
Male 3	9
Female 2	8

Female 3	5

Recall that the rules are as follows:

- **Standard (ST) rule**: the employer simply hires the 2 job candidates with the highest score in the math task.
- **Affirmative Action (AA) rule**: the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

Which candidates would be hired under the Standard (ST) rule?

- 2 males
- 2 females
- 1 male and 1 female

Which candidates would be hired under the Affirmative Action (AA) rule?

- 2 males
- 2 females
- 1 male and 1 female

Math task

Before you make the hiring decision, we will explain to you the math task so you have some idea of what the "job candidates" had to do.

Each job candidate was shown 9 two-digit numbers. Their task is to **find the 2 numbers that add up to 100**. They are asked to complete **as many questions as possible within 2 minutes**. Their score in the math task is equal to the number of questions solved correctly within 2 minutes.

Here are three example questions for you to test out the task. [Participants cannot proceed unless they give the right answer.]

Example 1:

54 64 59 52 44 23 88 40 41

Which two numbers add up to 100?

_____ First number (1)

_____ Second number (2)

Example 2:

19 49 77 12 91 61 74 23 18

Which two numbers add up to 100?

_____ First number (1)

_____ Second number (2)

Example 3:

67 57 98 17 78 13 75 12 83

Which two numbers add up to 100?

_____ First number (1)

_____ Second number (2)

Belief elicitation T1, T2, T3

Please answer the following questions carefully. A correct answer will earn you an **extra 0.50 USD per question**.

How many questions do you think the average **male** job candidate got correct in 2 minutes? _____

How many questions do you think the average **female** job candidate got correct in 2 minutes? _____

Belief elicitation T4

Please answer the following questions carefully. A correct answer will earn you an **extra 0.50 USD per question**.

How many questions do you think the average **male** job candidate got correct in 2 minutes if they were told that the **Standard (ST)** rule would be applied? _____

How many questions do you think the average **female** job candidate got correct in 2 minutes if they were told that the **Standard (ST)** rule would be applied? _____

How many questions do you think the average **male** job candidate got correct in 2 minutes if they were told that the **Affirmative Action (AA)** rule would be applied? _____

How many questions do you think the average **female** job candidate got correct in 2 minutes if they were told that the **Affirmative Action (AA)** rule would be applied? _____

Information T2

Previous research using a similar math task has shown that female participants on average perform comparably to male participants. You can read the academic article through this link.

Suppose, for example, that the average male participant got 11 questions correct. How many questions should you expect that the average female participant get? _____ [Participants cannot proceed unless they give the right answer.]

In light of the information you just saw, you now have the chance to revise your answers to the questions below. Remember that a correct answer will earn you **an extra 0.50 USD per question**.

How many questions do you think the average **male** job candidate got correct in 2 minutes? _____

How many questions do you think the average **female** job candidate got correct in 2 minutes? _____

Hiring rule

Now you have all the information you need to decide on your hiring rule. **Which rule would you like to use to hire 2 people out of your pool of 6 job candidates?**

Recall that the rules are as follows:

- **Standard (ST) rule**: the employer simply hires the 2 job candidates with the highest score in the math task.
- **Affirmative Action (AA) rule**: the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

- Standard (ST) rule

- Affirmative Action (AA) rule

In the earlier math task study, we asked all job candidates (not only the 6 in your matched pool) what rule they think is the appropriate one for you to use. Which rule do you think **the majority of candidates think is appropriate for you to use?** Please answer the above question carefully. A correct answer will earn you **an extra 1 USD.** (In case both rules are equally popular, either would be judged correct.)

Recall that the rules are as follows:

- **Standard (ST) rule**: the employer simply hires the 2 job candidates with the highest score in the math task.
- **Affirmative Action (AA) rule**: the employer hires i) the female job candidate with the highest score in the math task and ii) the job candidate with the highest score in the math task out of the remaining 5 job candidates.

- Standard (ST) rule

- Affirmative Action (AA) rule

Additional question in T4 younger sample only

What motivated you to choose your hiring rule earlier (Affirmative Action or Standard Rule)? Please tell us in the next two questions.

Choosing Affirmative Action rather than the Standard rule will…

- decrease the exerted effort level of **male** workers
- leave the exerted effort level of **male** workers unaffected

- increase the exerted effort level of **male** workers

Choosing Affirmative Action rather than the Standard rule will…

- decrease the exerted effort level of **female** workers
- leave the exerted effort level of **female** workers unaffected
- increase the exerted effort level of **female** workers

Questionnaire

We would like to ask for your opinion on the following **labor market policies**. When making your choice, please think of all potential costs and benefits.

Currently, federal law requires that men and women get equal pay for work that is comparable in terms of skill, effort, responsibility and working conditions in the same establishment. In case of suspected discrimination employees may file a lawsuit against their employers. If they win the case, then they are to be compensated by their employers. Should the government give more freedom in wage setting to companies by making legislation less strict or would you like to see stricter enforcement of the existing legislation?

- A lot less strict
- Somewhat less strict
- Keep status quo
- Somewhat stricter
- A lot stricter

Large public contractors are legally required to have so-called "Affirmative Action Plans", i.e. they have to support women and minorities at all levels of the hierarchy through measures such as training programs and outreach efforts. Do you think the government should strengthen or soften this requirement in terms of strictness and the set of companies that have to comply?

- Soften a lot
- Soften somewhat
- Neither strengthen nor soften
- Strengthen somewhat
- Strengthen a lot

Wage transparency within firms provides a basis for wage negotiations and may discipline companies by making discriminatory wages visible. Currently, wage transparency is not legally required. However, employees are protected by law from retaliation through employers in case they share information on their wages. Would you like the government to enforce more or less wage transparency?

- A lot less
- Somewhat less
- Keep current level
- Somewhat more
- A lot more

Many countries currently have gender quotas in place in order to increase the representation of women in leading positions. Are you in favor or against the introduction of similar statutory gender quotas in the United States?

- Strongly against
- Somewhat against
- Neither in favor nor against
- Somewhat in favor
- Strongly in favor

Child day care may enable mothers as well as fathers to work full-time if they want to. Should the government increase or decrease the amount of public resources spent on making child care available and affordable?

- Decrease strongly
- Decrease somewhat
- Neither increase nor decrease
- Increase somewhat
- Increase strongly

What is the highest level of education you completed?

- 8th grade
- High school diploma
- Associate degree or certificate
- Bachelor's degree
- Master's degree
- Doctorate degree
- Other

Estimate your household's total net monthly income (including salary, pension, social security, sickness benefit).

- Less than or equal to 500 USD
- 500 up to and including 1000 USD
- 1000 up to and including 1500 USD
- 1500 up to and including 2000 USD
- 2000 up to and including 2500 USD
- 2500 up to and including 3000 USD
- 3000 up to and including 3500 USD
- 3500 up to and including 4000 USD
- 4000 up to and including 4500 USD
- 4500 up to and including 5000 USD
- Greater than 5000 USD
- Prefer not to say

In political matters, people talk of 'the left' and 'the right'. How would you place your views on this scale, generally speaking? [0 The Left – 10 The Right]

How willing are you to give up something that is beneficial for you today in order to benefit more from that in the future? [0 Completely unwilling to do so – 10 Very willing to do so]

Thank you for participating in our study

As soon as data collection is complete, you will receive your bonus payment on top of the fixed payment.

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