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Anti-muslim bias in the Chinese labor market[☆]

Yue Hou[a,*], Chuyu Liu[b,*], Charles Crabtree[c]

[a] University of Pennsylvania, 133 S. 36th Street, Office 429, Philadelphia, PA 19104, USA
[b] Department of Political Science, Pennsylvania State University, 203 Pond Laboratory, University Park, PA 16802, USA
[c] Department of Political Science, University of Michigan, 5700 Haven Hall, 505 S. State St., Ann Arbor, MI 48109, USA

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ABSTRACT

Is there a Muslim disadvantage in economic integration to the Chinese economy? Do political mandates from the government help reduce disparities? To answer these questions, we conducted a large-scale audit study and submitted over 4000 resumes of fictitious male candidates to job advertisements for accounting and administrative positions posted by private firms, state-owned firms and foreign firms. We randomized the ethnic identities of job applicants, their academic merit, and requested salaries. Our results show that a Muslim job seeker is more than 50% less likely to receive a callback than a Han job seeker, and higher academic merit does not compensate for this bias. Importantly, we find that state-owned enterprises are equally likely to discriminate against Muslim job seekers, despite their political mandate to increase diversity. Interview evidence suggests that besides productivity concerns and outright hostility towards outgroups, bias is also driven by employer concerns over the operational costs of accommodating a diverse workforce.

1. Introduction

Ethnic violence in China, particularly between the majority Han Chinese and the Uyghur Muslims, has increased in frequency and severity since the late 1980s (Cao et al. 2018; Hou 2018). Many argue that prejudice and discrimination against minorities and ethnic-others increases grievances and fuels violence (Choi and Bowles 2007). Discrimination is prevalent in the Chinese labor market, where Muslim job seekers find it difficult to get a job. They are particularly at a disadvantage when it comes to securing high-wage and skilled jobs in cities (Hasmath 2011; Zhou and Wong 2019).[1] Uyghurs, a Turkic-speaking Muslim group, for instance, have a population of 10.1 million[2] and about 80% are farmers, a number much higher than the national average of 49% (Simpson 2015). Integration in the labor market is both important for individual wellbeing and for social stability. Prolonged unemployment could lead to various undesirable outcomes such as decreased levels of life satisfaction (Clark et al. 2008) and higher tendencies to commit crime (Fougere et al. 2009; Raphael and Rudolf 2001). According to an internal report, during the July 2009 Urumqi riots in Western China, Uyghur rioters were mainly unemployed young men who recently migrated from Southern Xinjiang and who were consistently excluded from the more profitable industries (Hopper and Webber, 2009; Xu and Wang, 2009).

It is well documented that Chinese employers are less likely to hire a minority applicant, even given comparable level of credentials (Maurer-Fazio 2012; Zang 2012). The government openly acknowledges the existence of this discrimination in its official policy document, bundling "ethnic minority laborers" together with the disabled, retired athletes, ex-criminals, and the rehabilitated as groups of job seekers facing discrimination and needing extra help in the labor market.[3] According to the Chinese College Student Survey (Jia and Li 2017), Han college graduates on average receive more interview invitations, more job offers, and higher initial monthly wages than their ethnic minority peers.

In part as a reaction to this well documented bias, the Chinese government has made notable efforts to create job opportunities for Uyghurs and other ethnic minorities in certain sectors. For example, state-owned enterprises (SOEs) have been encouraged to hire ethnic minority college graduates, especially those originally from Xinjiang, Tibet, and Qinghai, all of which have a high concentrations of ethnic minority populations.[4] One such effort by the state to encourage minority hiring is career fairs that target college graduates from these regions.[5] Another local-level policy implemented in the 1980s known as the Xinjiang Six Principles set a 60% quota for job admissions (Wu and Song 2014, 162),[6] although this quota has not been strictly implemented (Li 2015). Yet in Xinjiang, during the SOE reform in the 1990s, Uyghur workers were fired at a higher rate compared to their Han colleagues (Bovingdon 2014, 438).

Do political mandates and interventions offset biases in the labor market? There is mixed evidence in the existing literature. One study that looks at a city in Xinjiang finds that the Han-Uyghur pay gap is smaller among SOE firms, suggesting that SOEs might have been trying to correct some ethnic bias (Zang 2012). Another study finds that the ethnic pay gap is larger in sectors where the marketization level is high, but is negligible within government and public institutions, suggesting that state has an effective role in mitigating such bias (Wu and Song 2014). Other studies show that state policy alone is not enough to correct inveterate biases in the labor market. One study finds that very few job seekers, either Han or Uyghur, rely on the help of the state to get a job (Howell and Fan 2011).

Do ethnic minorities still face discrimination, even if they appear as qualified as their Han competitors? Are SOEs more likely to hire ethnic minority applicants than private companies, given the political mandate to promote diversity? The above-mentioned studies are mostly observational and only provide correlational evidence, which makes it difficult to tease out the effect of ethnic identity alone on various labor market outcomes (with the exception of Maurer-Fazio 2012). We are keen to find out whether there is a causal effect of one's ethnic identity on their successes on the Chinese labor market, and whether state initiatives helps increase diversity and eliminate bias. Following the classic design in Bertrand and Mullainathan (2004), we conduct an audit experiment, submitting fictitious but realistic resumes to job postings in major cities from one of the largest online job boards in China. We compare the callback rates of Han and Muslim (Hui and Uyghur) male job seekers who are otherwise identical in their credentials.[7] We further compare callback rates and measure bias in different types of firms to understand whether firm ownership affects labor market decision making.

We find that Chinese firms discriminate against Muslim job seekers, even if a Muslim candidate appears to have similar qualifications to his Han competitors. This finding suggests that besides productivity concerns, there could exist "outright hostility" against minority groups in the labor market (Teele et al. 2018). Counter to our expectations, state-owned firms are no more likely to extend an interview to Muslim candidates than private firms despite strong state mandate. Few experimental studies have explored the effectiveness of government labor market interventions, and we are one of the first to show that government intervention alone is not likely to correct the deep-rooted bias in the Chinese labor market. Qualitative evidence suggests that there exist burdensome administrative and operational costs to diversity. For instance, firms in certain areas are required to go through special registration procedures and report to public security bureaus regularly if they were to hire Uyghur workers (Martina 2014). Further, some firms do not have the capacity and resources to provide halal (*qingzhen*) food for their Muslim workers. These reasons are not directly related to taste-based preferences against a specific group, but they could be used by firms to mask their underlying prejudice.

2. Research design

We conducted an audit experiment with Chinese firms seeking candidates for accounting and administrative assistant positions. Specifically, we submitted resumes from fictitious candidates to job openings in major Chinese cities on a large job search website. Our outcome of interest is whether employers call back a job applicant given his ethnic identity, academic merit, and demanded

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[3] One government document explicitly mentions "ethnic minority laborers" together with the disabled, retired athletes, ex-criminals, and the rehabilitated as groups of job seekers facing discrimination and needing extra help in the labor market. State Council announcement regarding "13-5" employment promotion plan. http://www.sasac.gov.cn/n4470048/n4470081/n7942253/n7942263/c7980745/content.html, last accessed June 7, 2018. In 2013, the Beijing Municipal Legislative Affairs Office introduced a bill that prohibited job advisements from containing ethnicity-based discriminatory language. For more information, see "Discrimination, Mistreatment and Coercion," footnote 156, retrieved from https://uhrp.org/docs/Discrimination_Mistreatment_Coercion.pdf, last accessed July 8, 2019.

[4] SASAC announcement regarding SOE hiring college graduates, see http://www.sasac.gov.cn/n4470048/n4470081/n7942253/n7942263/c7982140/content.html, last accessed June 7, 2018.

[5] See a news report of an SOE-organized career fair targeting Tibet, Qinghai and Xinjiang student in Beijing, http://www.sasac.gov.cn/n103/n85881/n85901/c382493/content.html (in Chinese), last accessed June 7, 2018.

[6] See the Chinese description of the "six principle" policy here: https://goo.gl/HuhnEq

[7] We focus on Uyghur and Hui Muslims in this project. Other Muslim minorities (e.g., Han converts, Tibetan converts, foreign Muslims living in China) are not included in this study.

salary. The appendix provides additional details about our experimental design.

Before we implemented the experiment, we collected 40 resumes from the same job search site to identify realistic and favorable features to be included in our resumes. To get a better sense of real employers' hiring practices and priorities, and to assess the construct validity of our resume design, we also conducted an online snowball survey of employers from various industries in China. We distributed the survey in November 2016 and collected 50 responses from both private and the state-owned sector employers.[8] We asked them to rank order hypothetical job candidates of various academic backgrounds, extra-curricular activities, and ethnic identities. We then asked open-ended questions to collect feedback on whether these hypothetical profiles looked realistic and what types of candidates they were most interested in hiring. Further, we asked if they would anticipate any "difficulties" if they were to hire any Muslim employees. The survey replies helped us identify realistic features, especially regarding which schools, what academic awards, and what types of extra-curricular activities should be included on the resumes we later used. The pilot survey questions are included in the appendix.

While we keep the content of the resumes largely the same, we randomly vary three different treatment conditions. The first treatment condition is the ethnic identity of the job applicant. This treatment has three levels: control (Han Chinese), Hui Muslim, and Uyghur Muslim. We indicated a job applicant's ethnic identity by marking his Hui or Uyghur identity on top of the one-page resume, which is a common practice in the real job search environment in China. Uyghur applicants' names were written in Chinese characters rather than Uyghur characters.

We include separate cues for both Hui and Uyghur Muslims in our ethnicity treatment condition because these two groups are perceived and treated differently in Chinese society. According to the 2010 census, 23 million Muslims reside in China. Hui Muslims are the largest Muslim group with a population of 10.5 million. Hui and Uyghur Muslims are distinct in terms of their relationships with Han Chinese and the Chinese government. Most Hui Muslims look indistinguishable from Han and speak Mandarin Chinese, while Uyghurs primarily speak their own language, Uyghur, and look distinct from Han Chinese (Zang 2015). The Chinese state implements more liberal policies when it comes to religious regulation of the Hui communities (Friedrichs 2017, 63), and the Hui Muslims are more compliant with the status quo and maintained a "survivalist position" compared with the Uyghur discontent (Cooke 2008; Cote 2015; Gladney 2003). Overall, Hui Muslims are generally better integrated into the Han-dominant society than Uyghurs and some refer to the Hui ethnic group as China's "preferred Muslims"[9] or "insider minority" (MacDonald and Hasmath 2019). We therefore expect to detect stronger biases against Uyghurs than Hui Muslims.

The second treatment condition varies applicants' merit. Existing work suggests that firms might discriminate against individuals because they do not like them (i.e., taste-based discrimination) or because they believe members of certain groups are less productive in the labor force (i.e., statistical discrimination, using group-based traits to infer unknown information about individuals). In the case of China, firms might believe that Hui or Uyghur Muslims are less meritorious or productive than their Han competitors.

We indicate merit by varying applicants' college academic performance and include three levels in the merit factor: high merit, medium merit, and low merit. High merit is indicated by an applicant being in the 1st percentile of their class, medium merit is indicated by an applicant being in the top 10 percentile, and low merit by an applicant being in the top 30 percentile.[10] All applicants come from the same university, a selective, bachelor-granting institution located in Shanghai.[11]

The third treatment condition allows us to examine the extent to which employers are willing to pay for discrimination. Specifically, we are interested in whether employers are willing to pay more for applicants with desirable ethnic identity and whether a lower "asking price" from Muslim applicants would compensate for any anti-Muslim bias that potential employers might have. It is common practice for job seekers in China to include their "expected salary" on their resumes, and we take advantage of this feature by varying the expected salaries included on the resumes. We include three levels of asking salary: high-, medium-, and low-. We use information provided by firms in their job advertisements to create this treatment, and generate three types of resumes: one that asks for the average value of the salary range provided by the employer (medium), one that asks for a salary that is 20% lower than the medium (low), and one that asks for a salary that is 20% higher than the medium (high asking salary). If the advertisement does not provide a suggested salary or a salary range, we use the average value of the industry-average salary collected from our pilot round of experiment.

We fully cross the three treatment conditions, which results in a $3 \times 3 \times 3$ factorial design with 27 total conditions. Besides these treatment variations, we include a set of characteristics identical across all resumes and that we believe are favorable traits that would increase callback rates. All applicants have obvious male names. They all have three "school awards:" a school-wide scholarship, a social activity award, and a student leadership award. They all have a common "leadership position:" a social activity chair in a student group. In terms of skills, all resumes include computer skills (Microsoft Office and SPSS) and language skills (English and

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[8] We distributed the survey through friends in China. Because this was a survey primarily designed to assess construct validity, we did not aim for a representative sample of Chinese employers. Also, we did not survey any government employers, because we knew that we would not be able to send our resumes to government jobs through online job boards.

[9] See "The Hui - China's preferred Muslims?" *DW News.* September 12, 2016. https://www.dw.com/en/the-hui-chinas-preferred-muslims/a-36699666

[10] We acknowledge that applicants with a top 30 percentile GPA still performed well in school. We label this treatment as "low GPA" only because it is lower than the other two merit conditions.

[11] This university is considered a top university in China, but not a top-three university. Our pilot survey result suggests that employers do not find it credible that top-three universities would have accepted and graduated many students of Hui or Uyghur ethnic identities. But the university in our experiment has special programs for ethnic minority students. We also chose a Shanghai university because all of our research assistants were located in Shanghai, and it made more sense that they were from a local university because they needed to include a local mobile number.

Chinese language certificates). The Chinese language certificate is particularly crucial for Uyghur candidates because it signals that Uyghur candidates can speak and write Mandarin Chinese fluently. All resumes include two types of work experiences: one summer internship while the applicant was in school and a one-year full-time job immediately following one's graduation in a relevant and well-known company. Finally, all resumes include a paragraph of "self-evaluation,"another unique characteristics on Chinese resumes. This evaluation is a self-endorsement of one's positive personality traits: a strong work ethic, collegiality, a strong sense of responsibility at work, and readiness to adapt and learn in new environments. Again, all these characteristics are chosen based on our reading of real resumes sampled from the same online job search board and were deemed favorable by the firm recruiters we surveyed earlier.

3. Implementation

To conduct the audit experiment, we recruited nine student research assistants from a university in Shanghai to submit resumes and to record responses. In January 2017, we provided an on-site training on campus. All research assistants were provided information necessary to complete several tasks: (1) how to create and send out assigned resumes to targeted firms; (2) what information about targeted firms to be collected; (3) how to record responses; (4) how to inform firms that the candidate had accepted another offer when the firm calls back or sends out a follow-up e-mail. We also provided all research assistants with a mobile phone number so that they did not have to use their personal phones for this task. In addition to the nine research assistants, we also hired two graduate student "project managers"to manage the RA team. They checked whether the RAs had sent out the resumes timely, facilitated coordination between RAs, and held periodic meetings to keep track of the experiment's progress.

We randomly assigned one set of ethnic and salary cues to each research assistant. For example, one assistant might submit resumes from Hui applicants with high expected salaries only. Whether assistants submit resumes for high, medium, or low merit applicants depends on the last digit of the job advertisement identifier assigned on the website.[12] Jobs with an identifier that ended in 1–3 were assigned a low merit applicant, jobs with an identifier that ended in 4–6 were assigned a medium merit, and jobs with an identifier that ended in 7-0 were assigned a high merit applicant.

We submitted resumes to suitable job postings via e-mail. Each application contained an active e-mail address and a mobile phone number through which firms could contact us. After sending out these resumes, we provided firms a month to reply via phone, text messages, or e-mail. The audit experiment was in the field between June 19, and July 25, 2017.[13] In total, we sent out 4441 resumes to five clusters of major cities spanning across China-the Yangtze River Delta Area (e.g., Shanghai, Hangzhou, Suzhou, Nanjing), the Pearl River Delta Area (e.g., Shenzhen and Guangzhou), Beijing and surrounding cities, Wuhan and surrounding cities, and Chengdu and surrounding cities. Each company only received one resume.

In terms of collecting responses, our protocol was to ask for the name of the company and to decline any interview invitation by indicating that the applicant had already taken a different job offer. For e-mail and text message callbacks, we matched their e-mail addresses or phone numbers with the resume submitted.

Table 1 shows covariate balance across control and treatment groups. Resume-level characteristics include GPA levels and asking salary categories. Firm-level characteristics include firm ownership status (private, SOE, or foreign), industry (agricultural, manufacturing, or service industry), firm location (whether the firm is located in Beijing, Guangdong, Shanghai, Jiangsu, or Zhejiang). Submission characteristics includes whether a resume is submitted on a weekday or weekend.

Our treatments are balanced across most of the above dimensions, but two variables appear imbalanced: asking salary categories and weekend submission. The imbalance was caused by the fact that one RA (assigned to the Uyghur treatment and the low asking salary group) quit unexpectedly in the middle of the experiment. We found a replacement as soon as we could and the new RA had to catch up with some submissions over the weekend, hence causing a higher submission rate over the weekend for the Uyghur group. Because of the delay in submission, some job advertisements had already closed, which therefore caused a lower overall submission number for the Uyghur treatment group. We do not believe that the imbalance of the asking salary variable would affect our results, because we find that the salary variable does not affect callback rates. There is also no evidence that resumes submitted over the weekend receive lower callback than those during the weekdays. But to address any remaining concerns about imbalance, we conduct a robustness check by excluding all submissions of the low asking salary group and find that our main results hold. We discuss this result further in the next section.

4. Results

Our main outcome measure is the rate of callbacks from employers, CALLBACK, and it is coded as 1 if a firm contacted us (by phone, text message, or e-mail) to extend an interview invitation, to refer the candidate to a different position within the company, or to ask for more information, and 0 otherwise. Across all treatment conditions, 3.74% of firms called back.[14] Among all callbacks, about half

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[12] We assume here that the job advertisement identifier is exogenous to any firm-level characteristics. This is a plausible assumption because the system creates the identifier based on when the job advertisement is placed and not on any input from the firm.

[13] We implemented a pilot round between May 17, and May 31, to train our RAs. Data collected in this pilot round does not enter our analysis, but we took advantage of this test run and collected information about industry-specific salary ranges and incorporated the numbers into our resume design.

[14] This callback rate is lower than some other resume studies in China. For instance, in Pan and Zhang (2018)'s audit study, the overall callback

Table 1
Covariate balance across control and treatment groups.

	Control	Hui	Uyghur	p-value
GPA				
Top 1%	0.399	-0.013	-0.020	0.535
Top 10%	0.314	-0.008	-0.015	0.662
Top 30%	0.287	0.021	0.035	0.111
Asking salary				
Average	0.337	-0.009	0.022	0.191
Average + 20%	0.321	0.009	0.047	0.020
Average - 20%	0.341	0.0003	-0.068	0.000
Firm wnership status				
Private	0.771	0.012	0.016	0.560
SOE	0.152	-0.008	-0.009	0.751
Foreign	0.078	-0.003	-0.007	0.748
Industry				
Agriculture	0.015	-0.007	-0.006	0.197
Manufacturing	0.313	-0.018	-0.026	0.294
Service	0.666	0.024	0.032	0.155
Firm location				
Beijing	0.112	-0.005	0.004	0.715
Guangdong	0.360	0.006	0.030	0.216
Shanghai	0.126	-0.003	-0.009	0.756
Zhejiang	0.115	0.000	-0.012	0.487
Jiangsu	0.118	-0.006	-0.009	0.722
Weekend submission	0.520	-0.021	0.061	0.000

Note: All variables are binary variables indicating whether the submission falls into this group. The "Control" column contains the mean value for the variable, the "Hui" column shows the group mean difference between the Hui and Han conditions, and the "Uyghur" colunm shows the group mean difference between the Uyghur and Han conditions. The "p-value" column contains the p-values corresponding to the F-test from a regression of the variable on all the Hui and Uyghur treatment indicators.

arrived via e-mail, with the rest arriving via phone calls or text messages. About 90% of callbacks came in within two days.

We first look at whether firms replied to resumes submitted by different ethnicities differently. As expected, Muslim job seekers face a significant disadvantage. Overall, the callback rate for Han candidates is 6.19%, 3.29% for Hui candidates, and only 1.64% for Uyghur candidates. On average, a Hui applicant is only 50% as likely to get a callback compared with a Han candidate. The chance is much smaller for Uyghur job seekers-they are only 25% likely to receive a positive response from contacted firms. In sum, firms prefer Han to Muslim job applicants, and among Muslim applicants, Hui applicants to Uyghur applicants. The magnitude of ethnic discrimination is among the highest compared to similar experimental studies done in Australia, Europe and North America (see Riach and Rich (2002) for a survey of earlier studies; more recent works include Adida et al. (2010); Bertrand and Mullainathan (2004); Deming et al. (2016) Gaddis (2015); Maurer-Fazio (2012) and Oreopoulos (2011)).[15]

Next, we show results from an OLS regression, taking into account applicants' ethnic identity together with various other factors that might affect firm decisions. The outcome measure is a binary variable for whether the employer called back, and the model includes both the Hui and the Uyghur binary ethnicity indicators. It also includes applicants' academic merit variables (i.e., binary indicators for medium and low GPA) and the asking salary binary indicators (i.e., binary indicators for medium and high asking salary). To study how firms' ownership types might affect firm responses, we include two binary indicators of firm types: whether a firm is a state-owned enterprise and whether a firm is a foreign firm. Results are presented in Table 3.

We find that Chinese firms still exhibit substantively significant bias against Hui and Uyghur applicants, after taking into account of their GPA and asking salary. Foreign firms have a slightly higher callback rate compared to SOEs and private firms. As we expected, job seekers with lower academic merit are less likely to receive a callback, suggesting that firms do take into account of academic merit when making hiring decisions. Because two covariates are imbalanced, we adopt Lin (2013)'s method to correct these imbalances by including interaction terms of de-meaned covariates and the treatment indicators in the OLS regressions. Results are reported in Table A.6. Again, we find statistically and substantively significant discrimination against Hui and Uyghur applicants.

We do not claim that we completely rule out statistical discrimination here. We use academic merit as a proxy for productivity, but there could be other measures of productivity that companies find important that were not sufficiently addressed in our resumes. For instance, language proficiency might also capture differences in workplace productivity but companies may not necessarily trust

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(footnote continued)

rate is 19.1%. In Chen (2019), the callback rate is 15%. Three reasons could explain the gap: first, these two studies both included "computer science" or "business" as one of applicants majors, and these majors might be in high demand than accounting majors on the current job market; second, we could have chosen different major online job platforms, and these platforms vary in responses to job seekers; third, while the other studies were conducted in winter or spring, we conducted our experiment in mid-summer, which might be a little off-season in hiring. Our callback rate is similar to Maurer-Fazio (2012)'s study.

[15] Also see Costa (2017) for a summary of studies on ethnic discrimination in government representations.

the "Mandarin Chinese language certificate" included in our resumes as a sufficient measure for language proficiency in professional settings.[16] One way for employers to overcome such an information asymmetry problem is to verify whether a Uyghur applicant could indeed speak fluent Mandarin by conducting a phone conversation while calling back a potential candidate. Table 4 shows a breakdown of the types of callbacks by ethnicity. To our surprise, Uyghur applicants are no more likely to receive calls rather than emails if they were to receive a callback. We note that the total number of callbacks for Uyghur applicants is only 24, and a breakdown of such a number might be too small for us to make any meaningful inferences. It could also mean that potential employers indeed treat the "Mandarin Chinese language certificate" as a reliable measure for language proficiency.

We also conducted two subsample analysis. First, because all resumes included a physical address from Shanghai, we performed the same analysis using jobs posted only in Shanghai and surrounding areas. In a third specification, we restrict our sample to companies located in Beijing, Shanghai, Guangzhou and their surrounding cities, because these three first-tier cities are used to receive job seekers from all over the country, while other smaller cities might prefer local residents. We could therefore test whether firms in bigger cities act differently from firms in smaller cities in terms of their treatment to job seekers of different ethnic identities. We find similar magnitudes of discrimination against Hui and Uyghur applicants when we restrict our samples to these selected cities.

Theoretically, we did not have strong priors about what firm type might be more likely to callback. Empirically, we do not detect any statistical difference between callback rates across SOEs, foreign companies and private firms except for one specification where foreign companies were more likely to call back. We did, however, expect SOEs to be less likely to exhibit bias against Muslim candidates. We test this hypothesis in the next section.

Finally, asking salary seems irrelevant to companies' decision to callback in our study. There are a few possible reasons for this null result. First, the asking salary treatment is located at the bottom of the resumes and employers might have missed it. Existing psychological work suggests that individuals pay more attention to the first line and last line of a page (Healy et al. 2000), and we decided to insert this treatment in the last line of the one-page resume. Because this is a one-time audit experiment, it was impossible for us to conduct a manipulation check.[17] Second, although we envisioned "asking salary" to be a signal of willingness to get paid, it could be interpreted as a signal of quality. For instance, if a Muslim candidate expects that he would be discriminated in the labor market only because of his ethnicity, he could provide an asking salary below the market average in the hope that a lower asking price would compensate for firms' distaste for ethnic minority. Nevertheless, a firm could have interpreted a lower asking salary as a signal of lower productivity. Therefore, the treatment condition of "asking salary" fails to generate much meaningful insight.

As discussed in the previous section, the asking salary variable is not balanced across our ethnicity treatments due to the fact that one RA assigned to the Uyghur-low asking salary group quit abruptly in the middle of the experiment. To address the imbalance, we conduct the same analysis but exclude all submissions of the low asking salary group across all three ethnicities. Table A.2 presents this analysis, and the findings are consistent with the main findings discussed above.

4.1. Can high merit offset ethnic bias?

Next, we ask whether high academic merit can offset ethnic bias. We explore this by including interaction terms comprised of binary indicators for levels of GPA and the ethnicity treatments in our main linear regression models.

There is little evidence that firms exhibit less discrimination against more qualified Hui or Uyghur applicants. In fact, firms appear to be more biased against high-achieving Hui, and more significantly, Uyghur job seekers. This finding is puzzling: if higher academic merit cannot offset anti-Uyghur bias, at least it should not strengthen such bias. One possible explanation is that employers do not find it credible that a Uyghur student could rank in the top 1 percentile at a top university - which in itself is a form of discrimination, statistical or otherwise-and thus they were more likely to treat those resumes as "fake resumes," resulting in an even lower callback rate. A second possibility is that ethnic bias is greater among applicants who are of higher stakes to the firms. Employers might expect that top-ranking students from elite universities to be more likely to advance to higher positions in the future, and there the demand for the Han ethnicity is stronger. Similarly, Pan and Zhang (2018) find that Chinese employers discriminate against ideologically heterodox job seekers only among those coming from elite universities and those who ranked top in academic performances. In any case, we do not find that high merit reduces anti-Muslim bias here.

4.2. Are state-owned firms less likely to exhibit bias?

The existing literature identifies increasing variation in employment practices across firm types in China (Gallagher et al. 2011). Here, we expect that SOEs would be less likely to exhibit ethnic bias, because the Chinese government has repeatedly mandated SOEs to hire ethnic minority job seekers. Therefore, we expected that this political mandate would correct ethnic bias to some extent. We were agnostic about whether foreign firms would be more or less biased against Muslim job seekers. On the one hand, they could exhibit less bias, because foreign firms might not hold the same stigma against ethnic minorities in China; on the other hand, foreign firms may hire local Chinese employees to run recruitments, and local employees might exhibit the same type of bias with those in

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[16] Uyghur students who graduated from these elite universities are usually fluent in Mandarin Chinese especially those who attended middle school or high school outside of Xinjiang, although some employers might not be aware of the fact (Leibold 2019, p.6).

[17] We do, however, receive some comments from employers suggesting that they indeed paid attention to the asking salary line on applicants' resumes. One comment says "the asking salary is laughably high." Another firm countered with a lower salary. These comments suggest that at least some firms paid attention to the "asking salary" line on the resume.
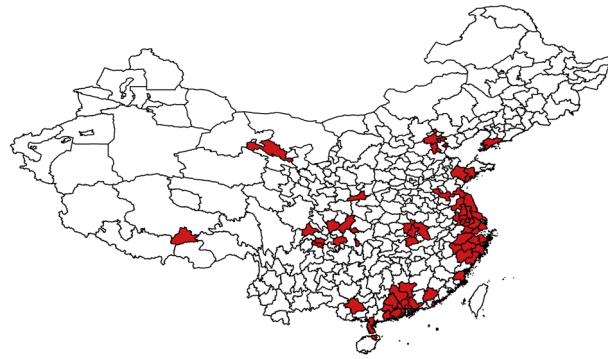
Fig. 1. Cities in our experiment.
Note: Highlighted Chinese cities are places where job vacancies were posted and to which we successfully submitted resume(s).

domestic firms.

Maurer-Fazio (2012)'s audit experiment touches upon firm owernship type and firms' hiring practice. Our study differs from her work in the following ways. While she studies firm callback patterns by firm ownership type, she only analyzes firms which called back and analyzes applicant ethnicity *only* among the callbacks, while our study analyzes callback rates across firm ownership types and across applicant ethnicities, which is a more comprehensive approach. Our study also includes a much larger number of SOE firms, covers more cities, and studies Hui job seekers that were excluded in Maurer-Fazio (2012).

We analyze how firm ownerships might impact ethnic bias by including the interaction terms of ethnicity variables and firm ownership variables into the main OLS regression analysis.

Table 6 shows results of this analysis. We do not find evidence that SOEs or foreign firms exhibit less discrimination against equally qualified Hui and Uyghur applicants compared to the private firms in the sample. If anything, SOEs are slightly more biased against Uyghur candidates, but no more against Hui candidates. Ethnic bias against Muslim job seekers exists across firms of all ownership types. Fig. 3 presents these results visually.
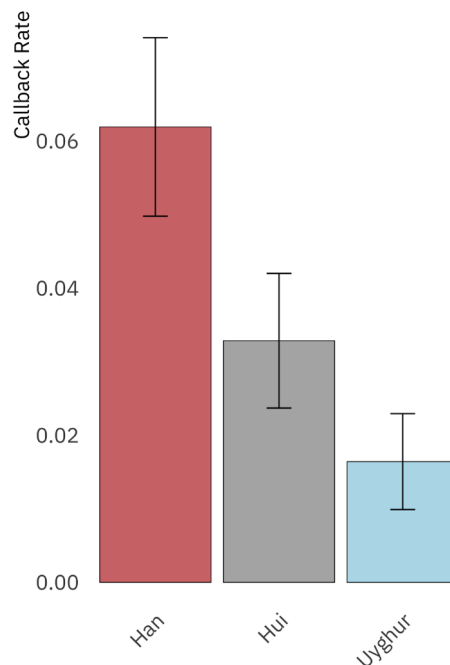

Fig. 2. Callback rates comparison across ethnic groups. *Note*: The callback rate is the percentage of resumes that received a positive contact from a potential employer via phone, e-mail or text message. Mean callback rates by ethnicity group and 95% confidence intervals with robust standard errors are plotted.
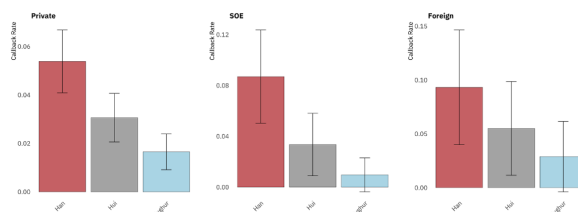
Fig. 3. Callback rates comparison across firm types and ethnic groups *Note*: The callback rate is the percentage of resumes that received a positive contact from a potential employer via phone, e-mail or text message. Mean callback rates by ethnicity group and 95% confidence intervals with robust standard errors across firm types are plotted.

One caveat is that 60% of Chinese college students find jobs through online job boards, while 30% through career fairs (Chen 2019). It is possible that companies interview more ethnic minority job candidates at their career fairs, especially because some of them are organized specifically to target ethnic minority. Also, these online job boards rarely list vacancies from the public sector (Pan and Zhang 2018), and perhaps the strongest diversity initiatives are observed when the government makes hiring decisions directly.

4.3. Understanding anti-Muslim bias

Although the audit experiment itself does not reveal mechanisms underlying the Han favoritism and the Muslim bias beyond what we could have considered in our experiment (e.g., academic performance, work experience, and expected salaries), our pre-experiment employer survey suggests that there could be practical reasons why employers might not prefer Muslim employees.

First, quite a few employers mentioned "different eating habits," especially the prohibition of pork consumption. One employer told us that his company currently hires a chef to cook lunch for all employees, but if he hires new Muslim employees, his chef would have to cook halal fare separately for them. This would incur additional costs that he cannot afford. This might be a genuine logistic concern, but it could also be a reflection of anxiety among some Han Chinese that the "spread of halal" is a signal that the Chinese society is becoming more Islamicized (Erie 2019).

Second, some employers mentioned "cultural, religious, and language differences" between Hans and Uyghur Muslims, suggesting that such differences could result in communication problems and even work space conflict.[18] Some worry that Muslim employees would use paid work time and space to "practice religion" (eg. praying), resulting in lost productivity.[19] The third concern relates to career mobility. Some employers point out that being religious could hurt one's chance to move up-especially in the state sector-because the Chinese Communist Party (CCP) mandates that members "should not have religious beliefs" and should be "firm Marxist atheists." Being a religious non-CCP member in a state-owned firm, they argue, would limit an employee's upward mobility.

Other comments suggest that employers also form unjustified stereotypes of Muslim workers. One comment is that Muslim employers have "execution problem" without any further elaboration. Another respondent worries about "ethnic minority mentality" (*minzu xinli*), which has a negative connotation.

These comments help us unpack the multi-faceted reasons behind why some employers prefer not to hire Muslim employees. Some are related to taste-based discrimination, and others deal with language, culture, career mobility, or logistical concerns. The latter type of reasoning suggests that there are real costs to diversity when it comes to hiring ethnic minority employees. Those costs are largely unrelated to hostility towards an outgroup, and are more about building infrastructure that accommodates religious and cultural needs or larger institutional limitations that go beyond individual companies. Yet still, firms could use the cost argument as a socially desirable rationale to mask underlying their prejudice.

5. Conclusion

In this study, we use a classic experimental approach to examine labor market discrimination and how state capital mighat affect labor market outcomes. Applying for jobs on a large online job platform in China, we show that ethnic minorities-Hui and Uyghur Muslims-face strong discrimination, even after adjusting for merit and salary demands. We also find evidence, consistent with existing studies that firms select candidates based on merit (Pan and Zhang 2018), but this effect is attenuated among minority job seekers. Importantly, we find that all types of firms discriminate, a result that contradicts with our prior belief that state-owned enterprises might be fairer to ethnic minority applicants given the political mandate they receive from the Chinese state to promote minority hires and increase diversity.

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[18] In our audit experiment, five companies asked to speak to the job applicant on the phone. Among these five applicants, four are Hui applicants and one is Han. Here, companies might be concerned that Hui applicants do not speak fluent Mandarin and would like to speak to the applicant and test his language ability. But surprisingly, none of the Uyghur applicants received such requests.

[19] A recent study finds that Muslim job applicants face stronger disadvantage when they appeal more religious on the French labor market (Valfort 2018).

As Hedegaard and Tyran (2018) suggest in their innovative labor market study, it is easier to reject the statistical discrimination explanation but more difficult to exactly pin down taste-based discrimination. Our case is similar: statistical discrimination (i.e., productivity proxied by academic merit) alone does not explain firm-level behaviors towards different ethnicities fully, and there might still exist other sources of statistical-discrimination not captured by our research design. Given the evidence we have, we cannot conclude that firms engage in purely taste-based discrimination or outright hostility. Interviews with employers suggest that there are real operational issues when it comes to hiring ethnic minority candidates that are not animus driven. Relatedly, Dobbin et al. (2011) argue that corporate culture (or what they call "internal advocacy") can be more important than external pressure to improve diversity in the workforce. For instance, firms with more women managers are more likely to adopt inclusion programs.

Future works should look at whether pro-diversity cultures in certain firms or industries can be more effective at reducing outgroup bias than government mandates. And if so, what are ways to cultivate such cultures in highly homogenous contexts. Future research should also explore ways to reduce bias between groups of different identities. An innovative study by Choi et al. (2019), for instance, highlights the capacity of cultural integration signaled by shared social norms to mitigate bias towards immigrants.

Appendix A
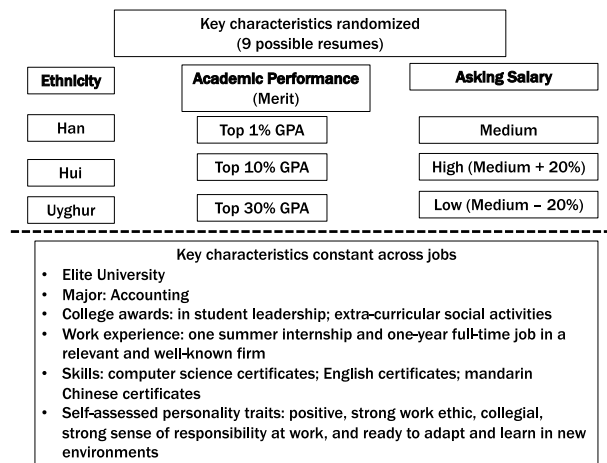
A1. Original resumes in Chinese

Fig. A.1. Experimental design.

A2. Pilot survey of potential employers

Imagine you are in charge of hiring in your company/institutions, and you are looking for an entry-level trainee. Please answer the following questions. These questions will take at most 5 minutes. Thank you.

Block 1: Merit Questions

(Randomize the order of 1–3)

1. If there are two college graduates with the same major and similar backgrounds in terms of past work/extra curricular experience. Candidate One graduated from Beijing University and he ranks top 20% in his class/major. Candidate Two graduated from Beijing Business University and he ranks top 5% in his class/major. Which candidate would you prefer? (One, Two, Indifferent)

2. If there are two college graduates with the same major and similar backgrounds in terms of past work/extra curricular experience. Candidate One graduated from Beijing University and he ranks top 40% in his class/major. Candidate Two graduated from Beijing Business University and he ranks top 5% in his class/major. Which candidate would you prefer? (One, Two, Indifferent)

3. If a college graduate candidate was awarded a national scholarship, would you give him priority? (Yes, No, Doesn't matter)

4. Can you rank order the following characteristics when you select job candidates (dropdown: schools, rankings within majors, scholarship, relevant internship experience, extra curricular, write-in answers)

Block 2: Ethnicity Questions

(Randomize the order of 5–6)

5. If your company/institution just hired a new employee and he is a Hui Chinese. Do you think he will encounter any difficulty at work? (Yes/No). If so, please describe what it would look like.

6. If your company/institution just hired a new employee and he is a Uyghur Chinese. Do you think he will encounter any difficulty at work? (Yes/No). If so, please describe what it would look like.

Block 3: General Questions

Fig. A.2. Callback rates between Han, Hui, and Uyghur job applicants across GPAs *Note:* The left graph plots the callback rate difference between Han and Hui applicants across three GPA levels, and the right graph plots the callback rate difference between Han and Uyghur applicants across three GPA levels. The bars are 95% confidence interval with robust standard errors.

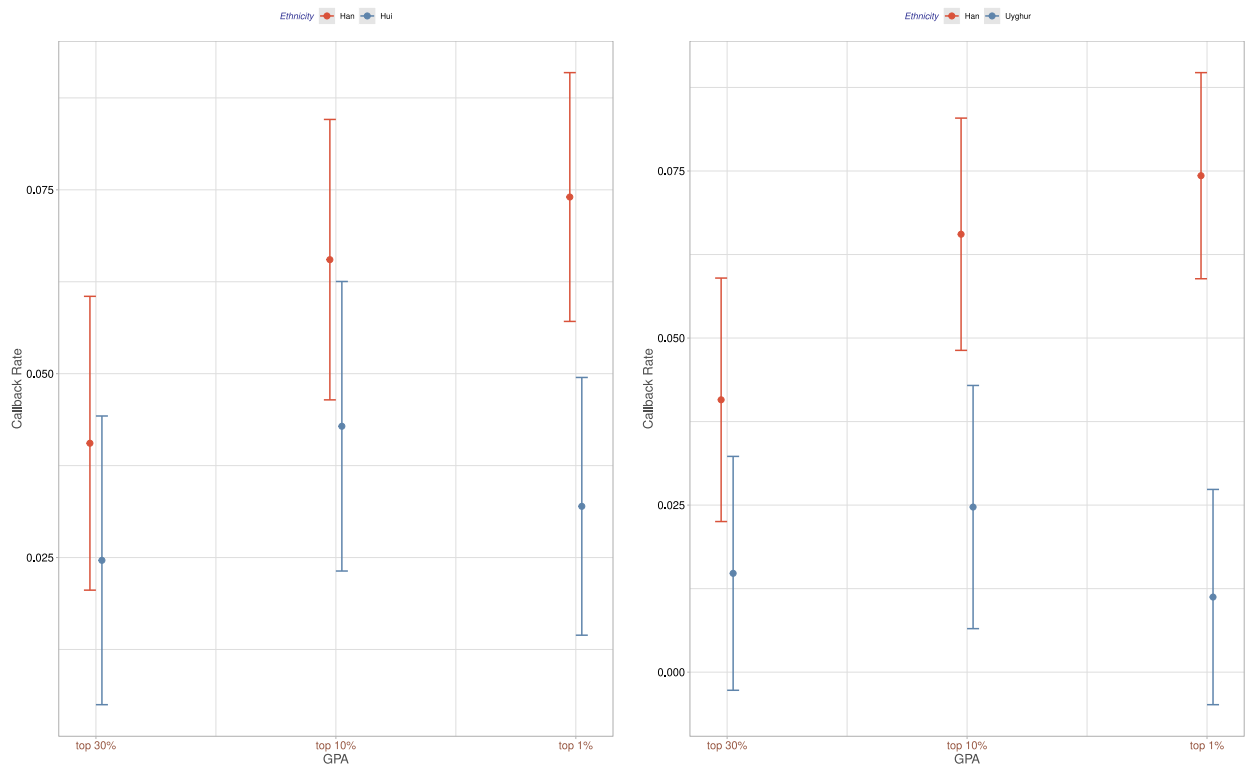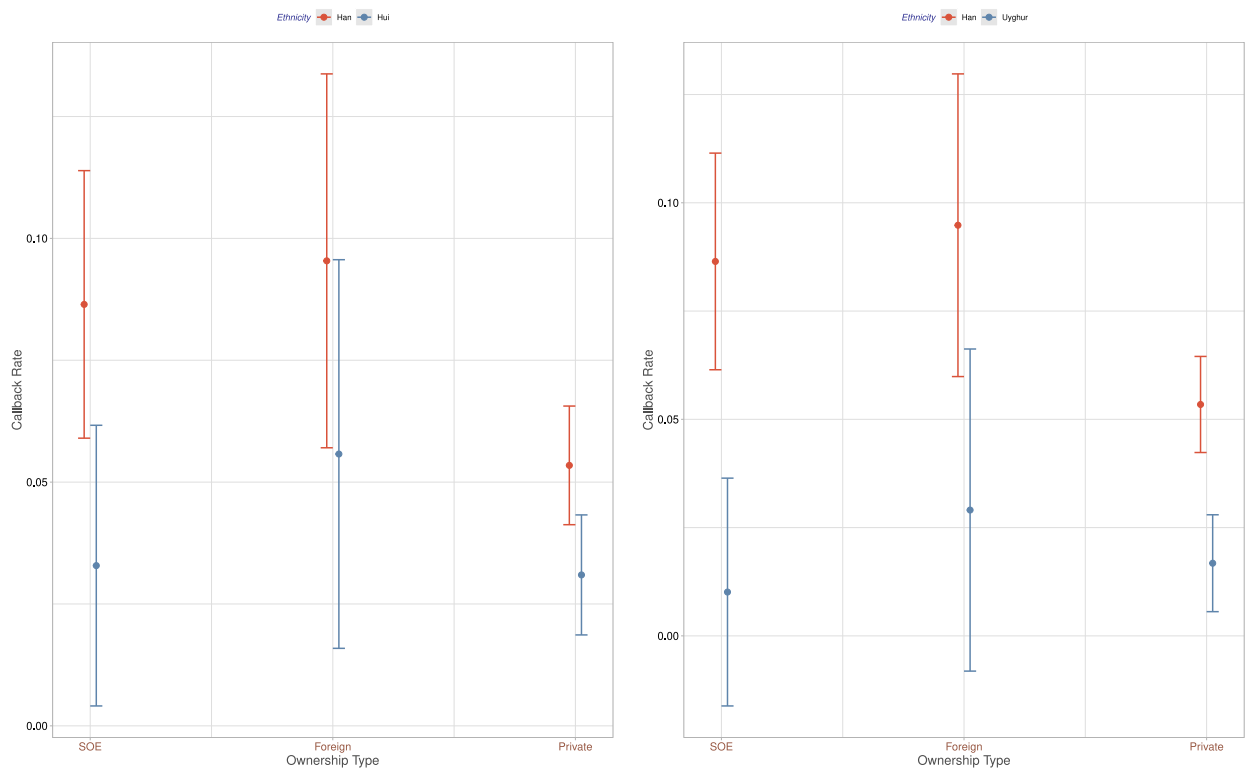**Fig. A.3.** Callback rates between Han, Hui, and Uyghur job applicants across firm ownership types *Note:* The left graph plots the callback rate difference between Han and Hui applicants across three firm ownership types, and the right graph plots the callback rate difference between Han and Uyghur applicants across three firm ownership types. The bars are 95% confidence interval with robust standard errors.

- Which category describes your company/institution? (Government/SOE/Private companies/Non-profit/Others)
- Which industry does your company belong to? (dropdown of 20 industries)
- What is your age? (3 intervals: 25–35; 36–50; 51 or above)
- Have you been involved in hiring (Yes, No)
- Can you describe what characteristics/merit you look for when your company is hiring?

A3. Other reasons for rejection

Sometimes employers were kind enough to write back or call to explain why they rejected a candidate. Six companies told us that the job location does not fit. Although the applicant mentioned that he was willing to move to a different city, all resumes included a Shanghai address, and this made some companies believe that the applicant would prefer staying in Shanghai. Four companies prefer female applicants, and rejected the applicant on gender grounds. In terms of qualification, two companies suggested that the applicant's major does not fit the position, and eight companies pointed out that the candidate did not have "enough work experience." There are two companies that suggested that the applicant "overqualified." None of these reasons are biased towards any particular ethnicity in our study.

A4. Tables and graphs

Table 2
Summary of callback rates.

	Callback rate	Number of resumes
Overall	3.74%	4,441
By ethnicity		
Han	6.19%	1,518
Muslim (Hui&Uyghur)	2.46%	2,923
Hui	3.29%	1,461
Uyghur	1.64%	1,462
By academic merit		
GPA top 1%	4.00%	1,725
GPA top 10%	4.48%	1,361
GPA top 30%	2.66%	1,355
By asking salary		
Low	3.67%	1,416
Medium	4.09%	1,516
High	3.45%	1,509
By ownership sector		
Private	3.38%	3,463
SOE	4.48%	648
Foreign	6.06%	330

Note: The callback rate is the percentage of resumes that received a positive response (by phone, text or e-mail) from a potential employer.

Table 3
OLS regression results for predicting callbacks: Main results .

	All (1)	Shanghai (2)	Shanghai, Beijing, Guangdong (3)
Hui	-0.029***	-0.036***	-0.028***
	(0.008)	(0.014)	(0.008)
Uyghur	-0.045***	-0.059***	-0.042***
	(0.005)	(0.013)	(0.008)
GPA Medium	0.005	0.012	0.003
	(0.007)	(0.014)	(0.008)
GPA Low	-0.012**	-0.011	-0.012*
	(0.006)	(0.012)	(0.007)
Salary Medium	0.006	0.016	0.003
	(0.007)	(0.013)	(0.008)
Salary High	0.001	0.002	-0.001
	(0.007)	(0.013)	(0.008)

Table 3 (*continued*)

	All (1)	Shanghai (2)	Shanghai, Beijing, Guangdong (3)
SOE	0.010	0.018	0.010
	(0.009)	(0.017)	(0.009)
Foreign	0.027**	0.029	0.020
	(0.013)	(0.021)	(0.013)
Observations	4441	1539	3768

Note: The dependent variable is an indicator for receiving personalized response from potential employers. The second specification only includes cities in Shanghai and its surrounding cities in Jiangsu and Zhejiang provinces. The third specification includes all cities in Shanghai, Beijing, Guangdong and their surrounding cities in the same province, neighboring provinces of Jiangsu and Zhejiang, and Tianjin. Robust standard errors are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table 4
Types of callback received.

	Email	Phone call	Email and phone call	Text message	Total
Overall	43.98%	50.60%	4.82%	0.60%	166
By ethnicity					
Han	42.55%	55.32%	1.06%	1.06%	94
Hui	35.42%	54.17%	10.42%	0	48
Uyghur	66.67%	25%	8.33%	0	24

Note: The callback rate is the percentage of resumes that received a positive response from a potential employer.

Table 5
OLS regression results for predicting callbacks with ethnicity and merit interactions.

	(1)	(2)
Hui	-0.016	-0.016
	(0.012)	(0.012)
Uyghur	-0.026**	-0.026***
	(0.011)	(0.011)
GPA medium	0.025*	0.025*
	(0.014)	(0.015)
GPA high	0.034**	0.034**
	(0.014)	(0.014)
Hui × GPA medium	-0.007	-0.007
	(0.019)	(0.019)
Uyghur × GPA medium	-0.015	-0.015
	(0.018)	(0.018)
Hui × GPA high	-0.026	-0.026
	(0.018)	(0.018)
Uyghur × GPA high	-0.038**	-0.037**
	(0.016)	(0.016)
Firm type indicators	Yes	Yes
Asking salary indicators	No	Yes
Observations	4,441	4,441

Note: The dependent variable is the binary indicator for receiving a callback. Robust standard errors are in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Table 6

OLS regression results for predicting callbacks: with ethnicity and firm type interactions.

	(1)	(2)
Hui	-0.023***	-0.023***
	(0.008)	(0.008)
Uyghur	-0.037***	-0.037***
	(0.008)	(0.008)
Hui × SOE	-0.031	-0.031
	(0.024)	(0.024)
Uyghur × SOE	-0.040*	-0.040*
	(0.021)	(0.021)
Hui × Foreign	-0.017	-0.018
	(0.035)	(0.036)
Uyghur × Foreign	-0.029	-0.029
	(0.032)	(0.033)
SOE	0.033*	0.033*
	(0.020)	(0.020)
Foreign	0.041	0.042
	(0.028)	(0.028)
GPA medium	0.018**	0.018**
	(0.007)	(0.007)
GPA high	0.013**	0.013**
	(0.006)	(0.006)
Asking salary indicators	No	Yes
Observations	4,441	4,441

Note: The dependent variable is the binary indicator for receiving a callback. See Table A.4 for additional robustness checks. Robust standard errors are in parentheses. $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A.1

Robustness check: Logistic regression results for predicting callbacks .

	All	Shanghai	Shanghai, Beijing, Guangdong
	(1)	(2)	(3)
Hui	-0.655***	-0.674**	-0.652***
	(0.181)	(0.276)	(0.198)
Uyghur	-1.365***	-1.575***	-1.227***
	(0.233)	(0.395)	(0.241)
GPA Medium	0.130	0.255	0.073
	(0.181)	(0.278)	(0.197)
GPA Low	-0.402*	-0.311	-0.378*
	(0.209)	(0.326)	(0.223)
Salary Medium	0.175	0.368	0.093
	(0.193)	(0.297)	(0.008)
Salary High	0.011	0.038	-0.027
	(0.202)	(0.319)	(0.216)
SOE	0.269	0.397	0.276
	(0.213)	(0.326)	(0.230)
Foreign	0.639**	0.597*	0.497*
	(0.251)	(0.341)	(0.271)
Observations	4441	1539	3768

Note: The dependent variable is an indicator for receiving personalized response from potential employers and the specifications are logistic regressions. The second specification only includes cities in Shanghai and its surrounding cities. The third specification includes all cities in Shanghai, Beijing, Guangdong and their surrounding cities. Robust standard errors are in parentheses. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

Table A.2
OLS regression results for predicting callbacks: Main results excluding the low salary group .

	All (1)	Shanghai (2)	Shanghai, Beijing, Guangdong (3)
Hui	-0.035***	-0.045***	-0.032***
	(0.010)	(0.018)	(0.010)
Uyghur	-0.053***	-0.068***	-0.047***
	(0.009)	(0.016)	(0.009)
GPA Medium	0.006	0.018	0.005
	(0.009)	(0.016)	(0.009)
GPA Low	-0.011	-0.003	-0.010
	(0.008)	(0.015)	(0.008)
Salary High	-0.005	-0.015	-0.004
	(0.007)	(0.013)	(0.007)
SOE	0.017	0.020	0.020
	(0.011)	(0.021)	(0.012)
Foreign	0.008	0.012	0.011
	(0.014)	(0.024)	(0.015)
Observations	3025	1062	2575

Note: This analysis excludes all submissions with low asking salary and replicates the main results in Table 3. The dependent variable is an indicator for receiving personalized response from potential employers. The second specification only includes cities in Shanghai and its surrounding cities in Jiangsu and Zhejiang provinces. The third specification includes all cities in Shanghai, Beijing, Guangdong and their surrounding cities in the same province, neighboring provinces of Jiangsu and Zhejiang, and Tianjin. Robust standard errors are in parentheses. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

Table A.3
Robustness check: Logistic regression results for predicting callbacks with ethnicity and merit interactions.

	(1)	(2)
Hui	-0.518	-0.524
	(0.389)	(0.391)
Uyghur	-1.022**	-1.033**
	(0.452)	(0.454)
GPA medium	0.513*	0.512*
	(0.307)	(0.307)
GPA high	0.647**	0.638**
	(0.288)	(0.287)
Hui $\times$ GPA medium	0.062	0.068
	(0.491)	(0.492)
Uyghur $\times$ GPA medium	0.022	0.019
	(0.578)	(0.579)
Hui $\times$ GPA high	-0.377	-0.365
	(0.483)	(0.484)
Uyghur $\times$ GPA high	-0.969	-0.952
	(0.631)	(0.632)
Firm type indicators	Yes	Yes
Asking salary indicators	No	Yes
Observations	4,441	4,441

Note: Robustness check of results presented in Table 5. Predicting callbacks with ethnicity and merit interactions using logistic regressions. The dependent variable is the binary indicator for receiving a callback. The coefficients for *Uyghur * GPA high* become insignificant under these two specifications. Robust standard errors are in parentheses. $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A.4
Robustness check: Logistic regression results for predicting callbacks: with ethnicity and firm type interactions.

	(1)	(2)
Hui	-0.575***	-0.571***
	(0.215)	(0.215)
Uyghur	-1.204***	-1.204***
	(0.265)	(0.267)
Hui × SOE	-0.439	-0.441
	(0.498)	(0.498)
Uyghur × SOE	-1.051	-1.072
	(0.795)	(0.798)
Hui × Foreign	-0.027	-0.052
	(0.567)	(0.572)
Uyghur × Foreign	-0.093	-0.052
	(0.723)	(0.572)
SOE	0.513*	0.514*
	(0.268)	(0.268)
Foreign	0.650	0.668*
	(0.343)	(0.344)
GPA medium	0.531**	0.532**
	(0.217)	(0.218)
GPA high	0.404*	0.401**
	(0.210)	(0.209)
Asking salary indicators	No	Yes
Observations	4,441	4,441

Note: Robustness check of results presented in Table 6. Predicting callbacks with ethnicity and firm type interactions using logistic regressions. The dependent variable is the binary indicator for receiving a callback. Robust standard errors are in parentheses. *$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

Table A.5
OLS regression results for predicting callbacks: Firm type subgroup analysis.

	Private Firms (1)	SOEs (2)	Foreign Firms (3)
Hui	-0.023***	-0.054**	-0.034
	(0.008)	(0.022)	(0.036)
Uyghur	-0.037***	-0.078***	-0.064*
	(0.008)	(0.020)	(0.033)
GPA Medium	0.006	-0.026	0.055
	(0.008)	(0.020)	(0.036)
GPA Low	-0.009	-0.034*	-0.005
	(0.007)	(0.019)	(0.027)
Salary Medium	0.009	0.030	-0.066**
	(0.008)	(0.019)	(0.032)
Salary High	-0.001	0.022	-0.028
	(0.007)	(0.020)	(0.036)
Observations	3463	648	330

Note: The dependent variable is an indicator for receiving personalized response from potential employers. Robust standard errors are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.6
OLS regression results for predicting callbacks: Main results with the Lin (2013) covariate adjustment.

	All (1)	Shanghai (2)	Shanghai, Beijing, Guangdong (3)
Hui	-0.027***	-0.035***	-0.026***
	(0.008)	(0.015)	(0.008)
Uyghur	-0.044***	-0.058***	-0.042***
	(0.007)	(0.013)	(0.008)
Observations	4441	1539	3768

Note: The dependent variable is an indicator for receiving personalized response from potential employers. The second specification only includes cities in Shanghai and its surrounding cities in Jiangsu and Zhejiang provinces. The third specification includes all cities in Shanghai, Beijing, Guangdong and their surrounding cities in the same province, neighboring provinces of Jiangsu and Zhejiang, and Tianjin. Robust standard errors are in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. This table only shows the treatment effect estimates, adjusted using the Lin (2013) method.

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