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Keywords: Ethnic discrimination, hiring discrimination, resume study, field experiment, audit study

JEL Classification: C93, J23, J71, J78

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Is there a glass ceiling for ethnic minorities to enter leadership positions?

Evidence from a large-scale field experiment with over 12,000 job applications

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Abstract

Ethnic inequalities are pervasive in the higher echelons of organizations. We conducted a field experiment to analyze if there is a glass ceiling for ethnic minorities entering leadership positions. We submitted over 12,000 job applications, to over 4,000 job advertisements, to investigate hiring discrimination against six ethnic groups for leadership positions. Drawing on implicit leadership theory, we argue that ethnic discrimination is particularly pronounced in the recruitment of leadership positions. Our findings confirm this hypothesis. We find that discrimination increases for leadership positions. Resumes with non-English names receive 57.4% fewer positive responses for leadership positions than identical resumes with English names. For non-leadership positions, ethnic minorities receive 45.3 percent fewer positive responses. Ethnic discrimination for leadership positions is even more pronounced when the advertised job requires customer contact. In contrast, ethnic discrimination in leadership positions is not significantly influenced by whether the organization's job advertisement emphasizes individualism or learning, creativity, and innovation. These findings provide novel evidence of a glass ceiling for ethnic minorities to enter leadership positions.

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1. Introduction

Ethnic minorities represent a high percentage of the workforce in industrialized countries but only a low percentage in leadership positions (Fitzsimmons & Callan, 2020; Flores & Matkin, 2014; Ospina & Foldy, 2009; Obenauer & Langer, 2019). This discrepancy is particularly difficult to understand given that ethnic minorities are often born and educated, and have worked, in their country of residence. The terms "glass ceiling"[1] and "bamboo ceiling" are used in the U.S. to describe the barriers that employees face in their career advancement due to their different name, physical appearance, and cultural values (Hyun, 2005; Lu et al., 2020). In the United States, only 16.1% of board seats in Fortune 500 companies are occupied by ethnic minorities (Deloitte, 2018), although 36.4% of employees in the United States are ethnic minorities (U.S. Department of Labor, 2019). This problem also exists for many different ethnic minorities in many countries (Bush, 2019; Gahan et al., 2016). For example, in Australia, the context of the present study, only 8.4% of workplace leaders are born in a non-English speaking country (Gahan et al., 2016), although 21.5% of Australia's population was born in a non-English speaking country (ABS, 2018).

The causes for this ethnic imbalance in corporate leadership are unclear (Anderson, Ahmad et al., 2019). One explanation for the lack of ethnic minority leaders is the existence of negative stereotypes and their lack of a social network and mentoring opportunities in their workplace (Johnson et al., 2017; Kilian et al., 2005; Schoen & Rost, 2021; Thomas, 1995). Another explanation is that ethnic minorities face discrimination when starting their professional careers. Indeed, there is evidence that they receive fewer job interview invitations for entry-level positions (Adamovic, 2021; Bertrand & Mullainathan, 2004; Gaddis, 2018; Neumark, 2018; Quillian et al. 2017, 2019; Zschirnt & Ruedin, 2016). It is plausible that such

[1] According to the Oxford English Dictionary, glass ceiling is defined as "an unofficial or unacknowledged barrier to personal advancement, especially of a woman or a member of an ethnic minority in employment."

discrimination at entry-level percolates through all ranks and ultimately results in underrepresentation at the top. A complementary explanation is that there is explicit discrimination in the recruitment of leaders (Hyun, 2005; Lu et al. 2020). While there is a dearth of evidence, there are reasons to believe this is the case. For example, implicit leadership theory (Epitropaki et al., 2013; House et al. 1999; Junker & Van Dick, 2014; Lord et al., 1984; Lord & Maher, 1991) posits that ethnic minorities are not regarded as prototypical leaders, and thus may face barriers to enter leadership positions. Implicit leadership theory focuses on "cognitive structures thought to guide processing of leader characteristics and facilitate inferences about likely behaviors and outcomes" (Lord et al., 2020: 50).

This study investigates ethnic discrimination in recruitment of leadership positions with a large-scale field experiment. We submitted more than 12,000 job applications to over 4,000 job advertisements where we varied the names of job applicants from six ethnic groups in Australia. We targeted job advertisements for leadership and non-leadership positions. This offered the possibility to directly compare the extent of hiring discrimination between leadership and non-leadership positions. In addition, we investigated *when* ethnic discrimination in leadership positions is likely to occur (Bertrand & Duflo, 2016). Building on implicit leadership theory (House et al. 1999; Lord et al. 1984; Lord & Maher, 1991), we analyzed whether the job advertisements emphasize customer contact, individualism, or learning, creativity, and innovation, and whether these attributes influence the degree of discrimination against ethnic minorities in the recruitment of leadership positions.

Our findings paint a bleak picture for ethnic minorities, showing levels of ethnic discrimination for leadership positions that even eclipse the high levels for non-leadership positions. For leadership positions, our results show that applicants with English names receive 26.8 percent of positive responses for their job applications, while applicants with non-English names only receive 11.3 percent of positive responses. This means ethnic minorities receive

57.4 percent fewer positive responses than applicants with English names for leadership positions. For non-leadership positions, our results demonstrate that applicants with English names receive 21.2 percent of positive responses for their job applications, while applicants with non-English names only receive 11.6 percent of positive responses. This means ethnic minorities receive 45.3 percent fewer positive responses for non-leadership positions.

We further find that ethnic discrimination for leadership positions is particularly pronounced for jobs that require customer contact. For these jobs, our results show that applicants with English names receive 30.6 percent of positive responses for their job applications, while applicants with non-English names receive 11.1 percent of positive responses. This means ethnic minorities receive 63.7 percent fewer positive responses than applicants with English names for leadership jobs that require customer contact.

Understanding the different barriers that ethnic minorities face is a crucial first step in leveling the playing field. Our study provides novel evidence that one important barrier is at the point of the recruitment of leaders. As we also observe that the height of this barrier systematically varies with job characteristics, we can predict in which environments ethnic minorities are most disadvantaged and can focus our efforts on addressing them accordingly.

2. Implicit Leadership Theory and Leadership Prototypes

According to implicit leadership theory, employees evaluate leaders against a general leadership prototype, which is a mental representation of how typical leaders should look like and Maher behave (House et al. 1999; Lord et al. 1984; Lord &, 1991). This process is called leader categorization process (Van Knippenberg, 2011; Van Quaquebeke et al., 2014; Van Quaquebeke et al., 2011). Due to socialization, cultural values, social norms, and commonly held beliefs in a society, employees develop a shared, implicit understanding about how a leader should look like and behave (House et al., 2004). Previous research has reported that these leadership prototypes are related to the evaluation of leadership effectiveness (Junker &

Van Dick, 2014; Rosette et al., 2008) and key employee outcomes such as well-being, commitment, and the relationship quality between leader and follower (Epitropaki & Martin, 2005; Junker & Van Dick, 2014).

Implicit leadership theory focuses on an ideal or typical leader that is likely to be successful in different contexts and refers to a general knowledge structure of typical leadership. Implicit leadership theory takes a general approach and focuses on a leader's representatives of the general category of leaders (Steffens et al., 2021). In their initial work on implicit leadership theories, Foti, Fraser, and Lord (1982) consider prototypes as followers' implicit perceptions and assumptions of leadership. This means implicit leadership theory operates at a global level (Tee et al., 2013). Group leadership prototypes are based on the beliefs of the group members (e.g., members of political party, sports club, police team, and military team) and what they think reflects the group's identity, norms, and values (Epitropaki et al., 2017). Implicit leadership theory focuses on general and stable schemas of leadership (Giessner & Van Knippenberg, 2008).

In our study, we focus on implicit leadership theory, because it is applicable when the group membership is not salient (Hogg et al., 2005). In such context, employees apply more general leadership prototypes to evaluate leaders (Hogg et al., 2005). In contrast, if the group membership was salient, the social identity theory approach would be an appropriate alternative (Barreto & Hogg, 2017; Hogg et al., 2005; Hogg et al., 2012; Van Knippenberg, 2011). The social identity approach to leadership is another important theoretical approach to understand leadership prototypes (Hogg, 2001; Van Knippenberg & Hogg, 2003), arguing that employees perceive a person as more leaderlike if the person represents the leadership prototype of the employees' social group. The social identity approach and leadership group prototypicality become more important, when employees identify strongly with the group such as in a sports team, military team, police team, or a political party (Barreto & Hogg, 2017; Giessner et al.,

2009). As we do not know how strongly the recruiters in our study identify themselves with their team, organization, or with being a ethnic majority member in Australia, we think that it is appropriate to draw on implicit leadership theory.

2. Theory and Hypotheses

2.1 Ethnic discrimination in leadership jobs

One potential cause for the underrepresentation of ethnic minorities in corporate leadership is that they face discrimination in the recruitment process of leadership positions (Hyun, 2005; Lu et al. 2020). Implicit leadership theory (Epitropaki et al., 2013; House et al. 1999; Junker & Van Dick, 2014; Lord et al., 1984; Lord & Maher, 1991) highlights several underlying reasons why this might be the case. To explain the basis of implicit leadership theory, Lord and Maher (1990, 1991) focus on recognition-based information processing mechanisms. People are considered to rely on cognitive categorizations to process information, because they are often not willing or able to process all available information (Lord et al., 1986). Such cognitive categorizations are needed to facilitate information processing, to make sense of available information, and to make decisions. This cognitive categorization process is based on the comparison of the available information (e.g., name/cultural background of the job applicant for a leadership position) to an abstract and general knowledge structure (e.g., name/cultural background of a prototypical leader) (Van Quaquebeke & Eckloff, 2013). If a leader's characteristic matches a leadership prototype, a leader is evaluated as being a typical leader.

Previous research suggests that these recognition-based processes are related to a bias against ethnic minority leaders due to negative stereotypes (Carton & Rosette, 2011). In the recruitment context, recruiters often receive many job applications and therefore may have no time to evaluate each job application in detail and to process all available information. Indeed, according to recent eye-tracking research, the average time to scan a CV is only seven seconds

for recruiters (TheLadder, 2018). Therefore, it is likely that many recruiters engage in limited information processing and rely on their general leadership prototype as decision-making heuristic to invite applicants for leadership job positions. We expect that this general leadership prototype in Australia includes being White with an English name.

One fundamental assumption of implicit leadership theory is that "individuals hold a set of beliefs about the kinds of attributes, personality characteristics, skills, and behaviors that contribute to or impede outstanding leadership" (Dorfman et al., 2004: 669). The Globe study (House et al. 2004), conducted in 62 societies, has shown, that these beliefs are related to cultural factors and people from the same culture tend to share their beliefs of outstanding leadership (Dorfman et al. 2004; Hanges & Dickson, 2004). In the U.S., there is evidence that being White with an English name is an important characteristic of a leadership prototype (Anderson et al., 2019; Cunningham, 2010; Gündemir et al., 2014; Nkomo & Al Ariss, 2014; Rosette et al., 2008; Sy et al., 2012). We predict a similar situation for the Australian context. In Australia, more White people with English names (as compared to ethnic minorities with non-English names) are business leaders (Gahan et al., 2016). Therefore, we posit that having an English name might be a characteristic of the leadership prototype in Australia. We argue that recruiters will compare the job applicants to their existing leadership prototype and are more likely to categorize applicants with English names as leaders and applicants with non-English names as non-leaders. The leadership prototype development process is based on history, socialization, and experience (Rosette et al., 2008). In modern Australia, business and political leaders have been traditionally White people with English names. In contrast, ethnic minorities have rarely attained any leadership positions and often experienced discrimination and exploitation in Australia's history.

Recruiters and managers may, therefore, not see ethnic minorities as prototypical leaders in their country (Eagly & Chin, 2010; Kawahara et al., 2013; Lee & Williams, 2017;

Rosette et al. 2008), thereby explaining ethnic discrimination for leadership positions. Indeed, prior research indicates that people consider ethnic minorities as lacking leadership and interpersonal skills (Craig & Feasal, 1998; McCray et al., 2007; Ospina & Foldy, 2009; Rosette et al. 2008). Importantly, these reasons specifically apply to leadership roles and are in addition to other barriers, stereotypes, and types of discrimination that ethnic minorities already face in non-leadership jobs (Fiske et al., 2002; Quillian et al. 2017, 2019). Hence, we expect that discrimination is more pronounced for leadership roles.

Hypothesis 1: Ethnic discrimination in recruitment is higher for leadership jobs than non-leadership jobs.

2.2 Customer contact and ethnic discrimination in leadership jobs

We further argue that discrimination against ethnic minorities entering leadership positions is particularly pronounced if the position involves customer contact. Implicit leadership theory (House et al. 1999; Lord et al. 1984; Lord & Maher, 1991) states that people may prefer a leader that matches their expectation of a prototypical leader. Accordingly, recruiters might be concerned that customers expect and prefer to deal with a prototypical leader. There is mixed evidence regarding the influence of customer contact on hiring discrimination (Andriesen et al., 2012; Booth et al., 2012; Baert et al., 2015; Derous et al., 2017; Nunley et al., 2016). One reason for the inconsistent results and non-significant findings might be that previous studies focused on non-leadership positions. We expect that the influence of customer contact would be more important for leadership positions because a leader represents the organization (Eisenberger et al. 2010). In contrast to non-leadership positions, recruiters may, therefore, be more concerned about customer expectations for leadership positions, which may manifest in more hiring discrimination against ethnic minorities. Although employees in non-leadership positions also deal with customers, we expect that customer contact does not play a very important role for these employees. The

reason is that compared to leaders and managers, customers are less likely to consider employees in non-leadership positions as representatives of the organization.

Hypothesis 2: Ethnic discrimination increases in the recruitment of leadership jobs, when jobs require customer contact.

2.3 Cultural congruence proposition and ethnic discrimination in leadership jobs

Based on implicit leadership theory (House et al. 1999; Lord et al. 1984; Lord & Maher, 1991), Dorfman and House (2004) developed the cultural congruence proposition. Dorfman and House's theorizing represents the theoretical foundation of the Globe study, in which leadership prototypes were analyzed across 62 societies (House et al. 2004). The cultural congruence proposition argues that organizations may prefer leaders who endorse a country's culture and values, because they are more likely to create a more harmonious workplace and better correspond to employees' expectations of a leader. Specifically, the cultural congruence proposition (Dorfman & House, 2004: 64) states that "behavior that is consistent with collective values will be more acceptable and effective than behavior that represents conflicting values." When hiring in English-speaking countries, recruiters may think that job applicants with English names are likely to represent the country's leadership prototype (Flores & Matkin, 2014; Gündemir et al., 2014; McCray et al. 2007; Rosette et al. 2008). In cultural value research, Australia scores high on individualism and Australian leaders are expected to act in line with individualistic values (Ashkanasy, 2007; Hofstede et al., 2010; House et al. 2004). People, who live in countries with high scores on individualism, tend to value autonomy, independence, freedom, individual skills, personal development, individualistic work methods, decisiveness, and confidence (Hofstede, 2001). If organizations search for a leader with these values, we argue they are less likely to employ applicants with non-English names, because recruiters may believe they are less likely to act with these values.

Hypothesis 3: Ethnic discrimination increases in the recruitment of leadership jobs, when job advertisements emphasize individualism.

2.4 Cultural difference proposition and ethnic discrimination in leadership jobs

To complement the cultural difference proposition, Dorfman and House (2004) developed the cultural difference proposition, in which they argue that, in some cases, organizations may actually prefer ethnic minority leaders, because they bring new ideas and perspectives to the organization. Dorfman and House's (2004: 65) explanation for the cultural difference proposition is that by "being different with respect to some behaviors, (ethnic minority) leaders introduce more changes of the kind required for innovation and performance improvement." Thus, we argue that ethnic discrimination will be less pronounced in the recruitment of leadership positions, when organizations emphasize learning, creativity, and innovation in their job advertisements. In these cases, recruiters might be more willing to invite ethnic minorities for job interviews, because they could believe that ethnic minority leaders will increase creativity and innovation, inspiring organizational change (Dorfman & House, 2004; Richard et al., 2013).[2]

Hypothesis 4: Ethnic discrimination decreases in the recruitment of leadership jobs, when job advertisements emphasize learning, creativity, and innovation.

3. Experimental Design

3.1 Experimental procedures

After having received ethics approval from the first author's university, a field experiment was conducted to study discrimination in the recruitment of leadership positions. In this experiment, conducted 2018-19, we varied names on resumes and submitted 12,274 job applications for 4,140 job advertisements in Melbourne, Sydney, and Brisbane in Australia.

[2] Relatedly, research on cultural diversity suggests that a culturally diverse workforce can increase creativity and innovation, because culturally diverse employees are more likely to have different ideas, backgrounds, and perspectives that can lead to information and knowledge exchanges (Cox, 1993; Early & Gibson, 2002; Joshi & Roh, 2009; Ramarajan & Thomas, 2011).

We applied for non-leadership positions as well as leadership positions. To clearly identify leadership roles, trained research assistants scrutinized job advertisements on online job search websites. Similar to Baert and colleagues (2016), certain criteria needed to be met to classify a job as a leadership position. In particular, the job advertisement needed to include the management of employees, teams, or departments; team leader responsibilities; frontline leader responsibilities; or the supervision of employees. This way, we identified 359 leader job advertisements and submitted 1,071 applications for leadership positions. This means we had 9% of leadership positions in our sample, reflecting the common ratio of leadership versus non-leadership positions in most OECD countries (OECD, 2018). We submitted the applications to different organizations, meaning that the job advertisements were not nested in organizations.

Following previous research (e.g., Baert & Verhaest, 2019; Carlsson & Eriksson, 2019; Carlsson et al., 2018; Jacquemet, & Yannelis, 2012) we sent out three applications in response to each job advertisement. Every time, we included a resume of an applicant with an English name and the resumes of two applicants with non-English names. We submitted more than two applications to increase efficiency, but we did not use more than three resumes for any one job to avoid the detection of our field experiment (Carlsson & Eriksson, 2019; Carlsson et al., 2018). Furthermore, we waited several hours between the submissions of the different applications to, again, avoid the detection of the field experiment. We also varied the order of the submissions between the different ethnic groups. This means the resume of a job candidate was either submitted as first, second, or third resume to a job advertisement.

To design suitable resumes and cover letters, we followed best practices and analyzed existing online resume databases, which provided information on required skills and educational degrees (Adamovic, 2020; Lahey & Beasley, 2018). They were then proofread and revised. Resumes included contact details, work experience, skills, qualifications, and hobbies/social activities. We used slightly different formatting and layouts throughout the

experiment to avoid detection and controlled for this in our analysis. To have a realistic chance to receive a positive response for leadership applications, we included the required qualifications and up to seven years of work experience with different employers in the job applicants' resumes. All candidates were born in Australia, worked in Australia, and went to an Australian school or university.

Six different ethnic groups were investigated by varying resumes with Aboriginal and Torres Strait Islander, Arabic, Chinese, English, Greek and Indian names. In line with best practices for resume study research, we used different names for every ethnic group to avoid the use of a single stereotypical name that could bias the results (Adamovic, 2020; Butler & Homola, 2017; Gaddis, 2017). Before the field experiment, we selected six female and male names for each ethnic group. We further ran three surveys (around 130 participants per survey). To collect data, we collaborated with a market research company. The survey allowed us to evaluate if people can identify the ethnicity and gender of the names as well as the socio-economic status (SES) of the names.

We asked the survey respondents to evaluate the ethnic origins of the selected names (Table 1). The correct responses were very high for English (97% correct), Greek (94%), Chinese (92%), and Arabic names (88%). The correct responses were still high for Indian names (71%) but somewhat lower for Aboriginal and Torres Strait Islander names (59%). As we predicted this issue for Aboriginal and Torres Strait Islander names, we included a membership to an Aboriginal and Torres Strait Islander organization under the section Social Activities/Hobbies/Volunteering (see examples of resumes in the appendix). We also included similar social activities and hobbies in the other resumes.

The survey respondents were also instructed to evaluate the gender of the first names. The correct responses were very high for Arabic and English names (>93%), high for Greek, Aboriginal and Torres Strait Islander, and Indian names (>80%), and low for Chinese names

(49%). As we predicted this issue, we wrote the gender in brackets in the personal statement of the resumes for all Chinese names and for a few Aboriginal and Torres Strait Islander, Greek, and Indian names. Our preparations and consultations of online resume databases indicated that it is common for job applicants with foreign names (which do not allow most Australians to identify the gender) to do so.

To measure the SES of the names, we first used the question "imagine a person with that name and what education you think that person's mother had" (response options: no high-school, high-school degree, technical certificate, undergraduate degree, master's degree, PhD/doctor, don't know). The SES scores were the same for female and male names (mean score: 3.26 for both). Second, based on recent research (Gaddis, 2019), we used the question "For each of the following names, select the social class category that you associate with that name" (response options: lower class, working class, middle class, upper class, other, and don't know). The SES scores were very similar for female (mean score: 2.75) and male names (mean score: 2.70). When we consider the SES scores of female and male names for each occupation, we also identify a strong similarity of SES scores between female and male names. Based on these results, we conclude that the SES is very similar for female and male names in our study.

To generalize our findings across different occupations and skill levels, we consulted the Australian and New Zealand Standard Classification of Occupations (ANZSCO, 2009) and applied for twelve different occupations (accountant: 1,242 job applications, paralegal: 518, marketing professional: 1,219, human resource management professional: 1,083, personal care assistant: 792, electrician: 1,078, clerk/administrative worker: 1,237, sales assistant: 1,275, receptionist: 1,206, waitstaff: 941, construction laborer: 954, and cleaner: 761). Before we finalized the choice for the occupations, we also conducted an online search on a job search website to check how many job advertisements were listed for each occupation. To facilitate a resume study, it is important that a high number of job advertisements is available (Adamovic,

2020; Lahey & Beasley, 2018). More detailed information on the experimental procedures can be found in the Appendix.

Insert Table 1

3.2 Measurements

Ethnic discrimination in recruitment was measured by comparing the number of positive responses (also called callbacks by some previous studies) between the different ethnic groups. This is the common outcome measure in resume studies (Adamovic, 2020; Lahey & Beasley, 2018). After the resumes were sent out, we measured the number of positive responses for every candidate by recording email and voicemail responses. If we received a positive response, we rejected it via email or phone call.

Customer contact. Based on the Australian and New Zealand Standard Classification of Occupations (ANZSCO, 2009), we considered the following jobs as those that require high customer contact: waitstaff, receptionist, personal carer, electrician, and sales assistant. Based on the same classification, we considered the following jobs as those with low customer contact: construction laborer, cleaner, and administrative roles. In some cases, the advertised roles did not fit the allocated classification of high/low customer contact and so, after discussing these cases with the first author, the research assistants changed the classifications. However, this only happened in less than 1% of the job advertisements. For the remaining occupations, the research assistants coded the job advertisements for customer contact according to the job description, resulting in the following proportions: accounting (37% low customer contact, 63% high customer contact), human resource management (15.1% low, 84.9% high), paralegal (29% low, 71% high), marketing (81.5% low, 18.5% high). This was due to the advertisements for these occupations differing significantly in terms of their required

customer contact. All research assistants received individual training and were unaware of the hypotheses.

Creativity, innovation, and learning. Adopting the approach by Ozen, Hut, Levin, and Boudet (2020), trained research assistants coded the job advertisements for creativity innovation, and learning. More precisely, we asked the research assistants to search the job advertisements for the following terms: creativity, innovation, and learning. Related terms like creative and innovative were also included in the search.

Individualism. Again, following Ozen and colleagues (2020), trained research assistants coded the job advertisements for the cultural value dimension individualism, based on Hofstede's definition (2001). To make the coding as objective as possible, the research assistants searched for the following terms in the job advertisements: autonomy, independence, freedom, individual skills, personal development, individual work methods, decisiveness, and confidence. Related terms like autonomous, independent, decisive, and confident were also included as search terms.

Controls. Based on prior research (e.g., Baert et al. 2015; Midtboen, 2016; Bertrand & Duflo, 2016), we controlled for gender (0 = female name, 1 = male name), order of submission, job advertisements, and resume layout.

4. Experimental Findings

4.1 Descriptive statistics

Overall, 14.9% (N=1,832 out of 12,274) of the job applications received a positive response (16.5%, N=177 out of 1,071 for leadership job applications). In total, 75.0% of the advertised leadership roles entailed customer contact, 51.5% entailed individualism, and 20.6% entailed creativity, innovation, and learning (Appendix B).

4.2 Ethnic discrimination in the recruitment of leadership positions

We observe very stark differences in the percentage of positive responses for leadership positions. Specifically, 26.8% of the job applicants with English names received positive responses, compared to only 11.4% of those with non-English names (14.3% for Greek, 11.8% for Aboriginal and Torres Strait Islander, 10.3% for Chinese, 10.8% for Indian, and 9.7% for Arabic names) (Figure 1). That is, applicants with non-English names have a positive response rate that is 15.4 percentage points lower than those with English names, which translates to a 57.4% lower likelihood of receiving a positive response. We also observe stark, albeit less pronounced, differences for non-leadership positions. Applicants with English names had a positive response rate of 21.2%, whereas those with non-English names had a positive response rate of 11.6% (13.7% for Greek, 12.4% for Aboriginal and Torres Strait Islander, 12.3% for Chinese, 9.8% for Indian, and 10.0% for Arabic names) (Figure 1). This means the positive response rate difference is 9.6% for non-leadership jobs, representing a 45.3% lower likelihood for applicants with non-English names receiving a positive response.

Insert Figure 1

To test the hypotheses, we estimated linear probability models. Linear probability models (LPM) are commonly used for binary outcomes and have the advantage that they are easier to be interpreted, not subject to convergence failures, and computationally easier to generate. We estimated a multi-level model in which we controlled for the (random) effects of job advertisement. Put differently, we conducted a random-effects regression with job advertisement as grouping variable. We used robust standard errors in our regressions to take care of heteroscedasticity and violations of normality are very unlikely to be a concern given our large sample size. All models also control for gender, skill level of occupation, organizational size, organizational revenue, layout, and order of submission.

In Table 2, we estimate the extent of ethnic discrimination using linear probability models with job advertisement random effects and controls for the layout of the application,[3] potential order effects when sending multiple applications, and the gender of the applicant.[4] In model 1, we observe that for leadership jobs, applicants with non-English names are 14.0 percentage points less likely to receive a positive response ($p<.001$). In model 2, we distinguish between the different non-English names. We observe that the negative impact of having a non-English name applies to all five non-English names and varies between 11.1 – 16.9 percentage points ($p<.01$ for each ethnic group). We also observe that women have a higher positive response rate than men ($p<.001$).

Furthermore, the extent of ethnic discrimination is more pronounced for leadership positions. In Figure 1, we can see that the difference in positive responses between English and non-English names is greater for leadership than non-leadership positions. Models 3 and 4 (Table 2) provide additional evidence through linear probability models. In model 3, we find that ethnic minorities are 8.9 percentage points less likely to receive a positive response for non-leadership positions and an *additional* 5.7 percentage points less likely for leadership positions ($p<.001$). This result provides support for Hypothesis 1. Model 4 further shows that the additional impact is present for the different non-English names except for Arabic names (additional 5.9 to 6.8 percentage points). Model 5 shows that there are no differences in the additional impact between men and women with the triple interaction leadership position * ethnicity * gender being insignificant.

Finding 1: *Resumes with non-English names receive fewer positive responses for leadership positions than resumes with English names. The level of ethnic discrimination is more pronounced for leadership than non-leadership positions.*

[3] We also estimated probit models to replicate our main findings and observe that the predicted *p*-values are generally smaller in the probit models. For example, our main finding, the interaction effect in Table 2 (leadership * minority) is significant in the probit model ($p=.004$). In addition, we used fixed-effects instead of random-effects which lead to very similar findings.

[4] There is a small number of missing values in our regression analysis in Table 4 for ethnicity (models 1 and 2), ethnicity category (models 3 and 4), and customer contact (models 5 and 6).

Insert Table 2 here

4.3 The role of customer contact for ethnic discrimination in leadership positions

According to our second hypothesis, customer contact may exacerbate ethnic discrimination for leadership jobs. We find support for this hypothesis. According to our findings, applicants with English names receive 19.5% more positive responses for leadership jobs that require customer contact than those with non-English names, as compared to 8.1% more positive responses for jobs where it is not required.

We included customer contact in the linear probability models. In Table 3 (model 1), which uses the same control variables as in Table 2, we first observe a non-significant effect of customer contact for the positive response rate of ethnic minority applicants. This means, the response rate itself does not differ for ethnic minority applicants in dependence on customer contact. However, in Table 3 (model 2), we observe a significant interaction effect between ethnicity and customer contact for leadership positions. This means ethnic discrimination increases for leadership positions that require customer contact. Compared to ethnic majority applicants, we find that ethnic minorities receive particularly low positive response rates for leadership positions where customer contact is required. More precisely, the interaction between customer contact and ethnicity shows an additional significant negative impact of 13.2 percentage points for ethnic minorities ($p<.001$) (model 2, Table 3). This result provides support for Hypothesis 2.

Finding 2: *The level of discrimination in recruitment against ethnic minorities is more pronounced for leadership positions that involve customer contact.*

Insert Tables 3 and 4 here

4.4 The role of creativity and individualism for ethnic discrimination in leadership positions

To test the role of individualism (Hypothesis 3) and creativity (Hypothesis 4), we first compare the positive responses for leadership jobs that emphasized individualism (creativity) to those that did not (Table 3). For leadership jobs that did not emphasize individualism, ethnic minorities received positive responses for 13.8% of their job applications (Table 2). In contrast, if the advertisement emphasized individualism, ethnic minorities received positive responses for only 9.3% of the job applications. In model 5 of Table 3, individualism has a negative coefficient of 4.5 percentage points, but this effect was non-significant (p=.134). In model 6 of Table 3, the interaction between individualism and ethnicity was non-significant (p=.559). The linear probability model results do not support Hypothesis 3.

For leadership jobs that did not emphasize creativity, learning, or innovation, ethnic minorities received positive responses for 10.8% of their job applications (Table 2). In contrast, where advertisements emphasized creativity, innovation, and learning, minorities received positive responses for 14.5% of the applications. Applicants with English names received 16% more positive responses than those with non-English names for job advertisements that did not include creativity, learning, or innovation as compared to 11.5% more positive responses for jobs that did include these traits. We further include creativity/innovation/learning in the linear probability models. In models 3 and 4 (Table 3), we control for creativity and its interaction with ethnicity. Model 3 indicates that minorities receive 3.8 percentage points more positive response rates for leadership jobs that emphasize creativity than those that do not (p=.348). However, this effect as well as the interaction between creativity/innovation/learning and ethnic minority status were non-significant (p=.554). This result does not support Hypothesis 4.

Finding 3: *We do not find that the level of discrimination for leadership positions is significantly influenced by individualism as well as creativity, innovation, and learning.*

Post-Hoc Analysis

To provide further evidence for the robustness of our findings, we conclude our data analysis by considering several additional organizational and job characteristics. Table 4 takes these characteristics into account and investigates whether they interact with ethnicity. More precisely, Model 1 distinguishes job advertisements according to whether they contained a diversity and inclusion statement (e.g., this workplace values cultural diversity). The interaction between diversity and inclusion statement and ethnicity is positive (7.2 percentage points), suggesting that minorities are less discriminated for leadership positions when the job advertisement contains diversity and inclusion statement. However, the interaction does not reach significance (p=.102), which may be due to the small sample size of advertisements containing such a statement (6.4%). Models 2 and 3 look at the organizational size. More precisely, model 2 looks at the role of financial revenue and Model 3 at the role of organizational size measured by the number of employees.[5] Interestingly, we observe a significant interaction with financial revenue (p=.006) but not with the number of employees (p=.773) providing mixed evidence that organizational size plays an important role for hiring discrimination against ethnic minorities applying for leadership positions. Finally, Model 4 looks at the occupational skill level. Based on the Australian and New Zealand Standard Classification of Occupations (ANZSCO, 2009), we coded the twelve occupations into three categories (1=low skill level required, 2=medium skill level required, and 3=high skill level required). In Category 1, we included sales assistant, receptionist, waitstaff, construction laborer, and cleaner. In Category 2, we included personal care assistant, electrician, and clerk/administrative worker. In Category 3, we included accountant, paralegal, marketing professional, and human resource management professional. We find no differences in the

[5] To include the revenue and number of employees, we consulted Company360; a database of Australian organizations. It should be taken into account that this reduced our sample size by over half as their data is incomplete.

interactions with minority for low, mid, and high skill levels of occupations (p=0.228 and p=0.458, respectively).

5. Discussion and Conclusion

Drawing on implicit leadership theory (House et al. 1999; Lord et al. 1984; Lord & Maher, 1991), we conducted a field experiment to analyze ethnic discrimination in recruitment. Our findings show that job applicants with non-English names receive fewer positive responses. Further, ethnic discrimination is more pronounced for leadership than non-leadership positions and when leadership positions require customer contact. Through our findings, we make several contributions.

Theoretical Contributions

We expand our understanding of why there is a lack of ethnic minority leaders (Flores & Matkin, 2014; Hyun, 2005; Lu et al. 2020) by conducting the first resume study on ethnic discrimination for leadership positions. Previous resume studies have mostly focused on entry-level and/or low-skilled jobs (Bertrand & Duflo, 2016). Not much is therefore known about ethnic discrimination in the recruitment of leadership positions. Our results suggest that ethnic discrimination in recruitment is higher for leadership positions than non-leadership positions. Our findings therefore indicate that ethnic discrimination in leadership positions is an important factor for the lack of ethnic minority leaders.

Previous research, which conducted interview, vignette, laboratory, and survey studies, suggests that the lack of ethnic minority leaders is related to negative stereotypes and a lack of social network or mentoring opportunities and not by hiring discrimination (Johnson et al., 2017; Kilian et al., 2005; Schoen & Rost, 2021; Thomas, 1995). For example, Giscombe and Mattis (2002:103) stated regarding the career and promotion prospects of people of color in the USA that "the major barriers to upward career mobility are no longer at recruitment and job entry stages of the employment process but at the advancement stages." Similarly, Baekgaard

and George (2018) concluded based on their vignette study that ethnic minority applicants "are generally considered more qualified for the job." Further, in a survey study, only seven percent of White participants observed fewer hiring options for female leaders of color (Hite, 2004). We challenge this conclusion of previous non-resume study research by providing strong evidence that hiring discrimination can be a driver for the lack of ethnic minority leaders.

Our study also expands the applicability of implicit leadership theory (House et al. 1999; Lord et al. 1984; Lord & Maher, 1991) to the recruitment context. Specifically, ethnic discrimination for leadership positions increases when customer contact is required. It is possible that recruiters in Australia think that leaders who deal with customers, need to match their country's leadership prototype. Our findings are in line with few previous studies that reported non-leadership positions, requiring customer contact, increase hiring discrimination (Andriesen et al. 2012; Derous et al. 2017; Nunley et al. 2016).

Further, this study adapts Dorfman and House's cultural difference and cultural congruence propositions (2004) to resume study research, which had mostly focused on measuring hiring discrimination (Betrand & Duflo, 2016; Quillian et al. 2017; Zschirnt & Ruedin, 2016). While most resume studies have reported ethnic discrimination in recruitment, there are differences in discrimination findings (Quillian et al. 2019). While many studies found a high degree of discrimination (e.g., Drydakis & Vlassis, 2010; McGinnity & Lunn, 2011), few studies did not report any discrimination (Bendick et al. 1991; Decker et al. 2015) or only a small degree (e.g., Kaas & Manger, 2012). To expand this research, we went beyond the measurement of discrimination to show when ethnic minorities are likely to receive a positive response for leadership positions. However, it is important to mention, that while the descriptive statistics show differences in the positive response rates for individualism and creativity/innovation/learning, the effects of individualism and creativity/innovation/learning

were non-significant in the linear probability models (Table 3), requiring future empirical research to clarify the role of both variables.

Finally, we contribute to research on leadership categorization theory (Lord & Maher, 1990, 1991). This research stream differentiates between two processes to explain ethnic discrimination in leadership: 1) recognition-based processing versus 2) inference-based processing. Recognition-based processing in the context of ethnic discrimination in leadership means that peoples' evaluation of leaders is related to their negative stereotypes against ethnic minorities (Carton & Rosette, 2011; Junker & Van Dick, 2014; Knight et al., 2003; Rosette & Livingston, 2012). Independently of their achievements, skills, and performance, they evaluate ethnic minorities as non-typical leaders. In contrast, inference-based processing would involve an evaluation of ethnic minority leaders based on their achievements, skills, and performance and not based on their cultural background (Carton & Rosette, 2011; Meindl & Ehrlich, 1987; Rosette & Livingston, 2012). Our findings provide strong support for the existence of a recognition-based process in the context of the recruitment of leadership positions. Despite using the same resumes for ethnic minority applicants and applicants with English names, ethnic minority applicants received significantly fewer responses for their leadership job applications. This shows that recruiters in Australia do not only evaluate the work experience, educational credentials, skills, and achievements of ethnic minority leaders. Their decision-making is also influenced by their stereotypes and general leadership prototypes, so that they prefer applicants with English names for leadership positions. We show the applicability of recognition-based processing in the recruitment context, which represents a new context for this research stream as prior research has been mostly conducted in the context of performance evaluations and promotions (Carton & Rosette, 2011; Cook & Glass, 2014; Knight et al., 2003).

Practical Contributions

Our study shows that a job applicant's name influences the likelihood of receiving a positive response from recruiters in Australia. To reduce ethnic discrimination in recruitment, organizations could use anonymous job applications, in which the applicants' names are hidden in the initial recruitment phase. This would take ethnicity out of the equation and would make the initial recruitment phase fairer (see for non-leadership jobs: Aslund & Skans, 2012).

Further, it might be important to improve the training of recruiters to reduce ethnic discrimination in the recruitment of leadership positions. This could help recruiters become aware of their culturally endorsed leadership prototypes. Relatedly, while many organizations have successfully implemented diversity practices that support the recruitment and promotion of female employees and leaders, many organizations neglect diversity practices for underrepresented groups such as ethnic minority employees and leaders (Schoen & Rost, 2021). Organizations should therefore think about adapting their diversity practices to increase the number of underrepresented groups in leadership positions.

Limitations and Avenues for Future Research

A limitation of resume studies is the focus on external applicants. However, some positions are only advertised internally. Future research could try to conduct experiments within organizations to analyze ethnic discrimination in the context of internal promotions. A potential limitation in our study is the lower number of leadership job applications as compared to non-leadership applications. Specifically, we had 9% of leadership positions in our sample. This ratio reflects the common ratio of leadership versus non-leadership positions in most OECD countries (OECD, 2018). In addition, leadership positions are not often advertised through job search websites, making it difficult to submit the same number of job applications for leadership positions. Nevertheless, we managed to submit 1,071 applications for leadership positions. This sample size allowed us to detect significant effects (see our results).

Resume studies have many advantages such as providing an accurate measurement of hiring discrimination (Riach & Rich, 2002; Wulff & Villadsen, 2020; Zschirnt & Ruedin, 2016), excluding the problem of social desirability and subjective perceptions (King et al., 2013), investigating discrimination in a real-work environment (Bertrand & Mullainathan, 2004), and keeping other variables constant (e.g., work experience, educational level, skills, competence, etc.) except the variable of interest like ethnicity or gender by just varying the names across resumes. Nevertheless, resume study research also has a few limitations. One limitation is that resume study research is mostly descriptive. Our study provides one theoretical explanation by showing that recruiters in Australia are less likely to consider ethnic minorities as leaders, because ethnic minorities experience more hiring discrimination for leadership than non-leadership positions in our study. Future research can build on this finding and conduct laboratory experiments to better understand the processes and mechanisms of ethnic discrimination. Further, resume studies focus on the first recruitment phase. This means we cannot measure discrimination at the next recruitment stages like job interviews and job offer outcomes (Quillian et al., 2020). Future research can therefore examine in the next recruitment stages by conducting an in-person audit study (Wells, 2013).

An interesting avenue for future research is to test if the use of video resumes (Frasca & Edwards, 2017) reduces ethnic discrimination in recruitment. Video resumes would give applicants the possibility to present their communication and language skills, potentially reducing prejudices that recruiters could have about ethnic minorities. Future research could also integrate online social networks (Acquisti & Fong, 2020) and analyze if an applicant's physical appearance (Rich, 2018) influences hiring discrimination for leadership positions. Finally, our study was conducted in Australia, which has different ethnic groups than other countries. Therefore, it would be important to generalize our findings to other countries in which we also observe a lack of ethnic minority leaders.

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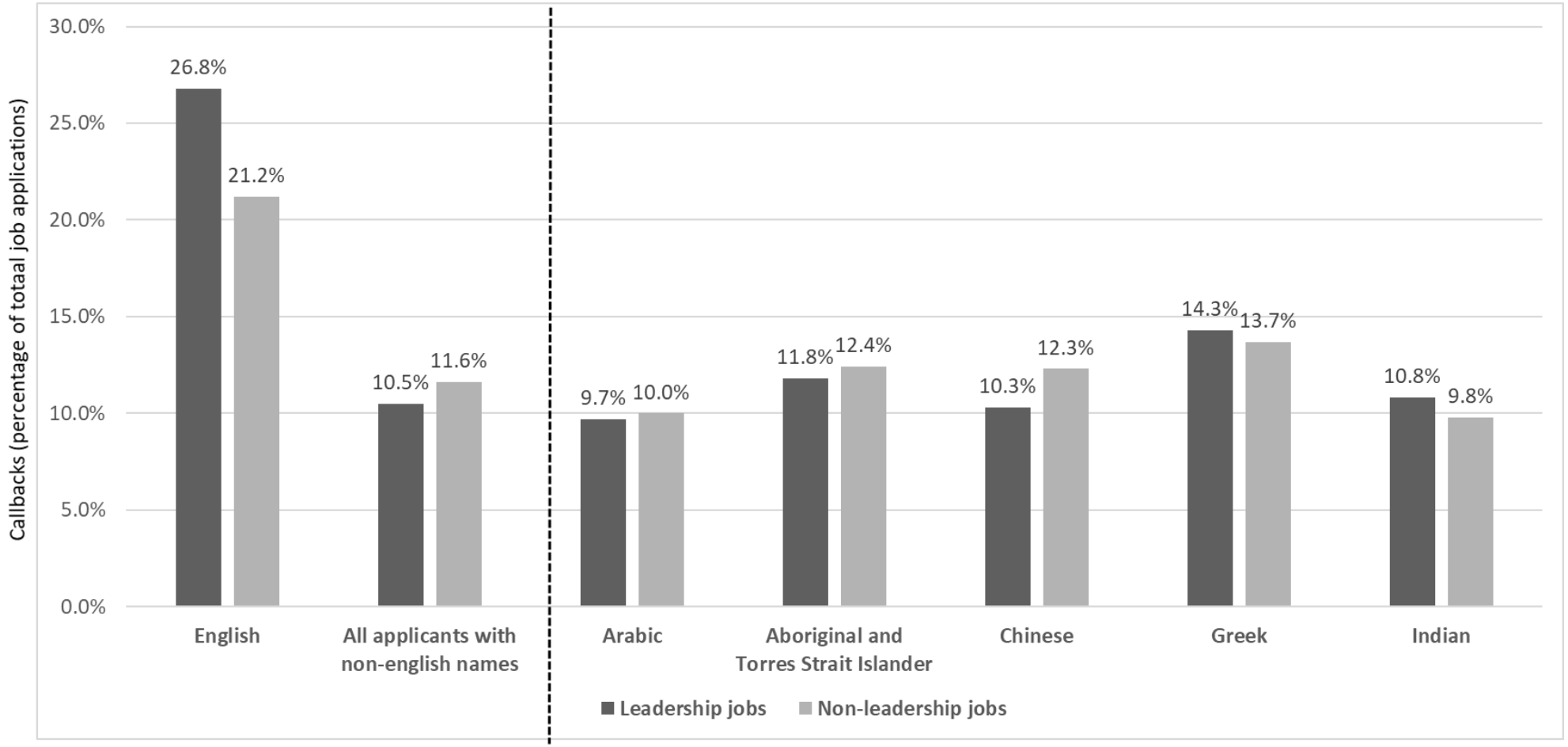
Figure 1. Percentage of positive responses for all leadership and non-leadership job applications.



Note. N (leadership jobs): English = 358; Arabic = 134; Aboriginal and Torres Strait Islander = 136; Chinese = 155; Greek = 140; Indian = 148; non-English = 713;

N (non-leadership jobs): English = 3736; Arabic = 1553; Aboriginal and Torres Strait Islander = 1562; Chinese = 1464; Greek = 1480; Indian = 1463; non-English = 7522.

Table 1. Selected names of job applicants.

Names	First Name (Male)	First Name (Female)	Last Name
English Names	David	Emily	Brown
Correct female names: 97%	Jack	Jennifer	Jones
Correct male names: 97%	Joshua	Jessica	Smith
Correct ethnicity: 97%	Matthew	Michelle	Thompson
SES female names: 2.61	Michael	Olivia	Williams
SES male names: 2.60	Peter	Susan	Wilson
Aboriginal and Torres Strait Islander Names	Minjarra	Killara	Karpeny
Correct female names: 88%	Jarrah	Maali	Kropinyeri
Correct male names: 72%	Waru	Jedda	Kulmateri
Correct ethnicity: 59%	Nullah	Kirra	Rigney
SES female names: 2.41	Ngarra	Kylie	Rankin
SES male names: 2.36	Monaro	Lowanna	Baalpulare
Chinese Names	Qiang	Chun	Cheung
Correct female names: 49%	Yong	Fang	Chen
Correct male names: 49%	Dali	Huiyan	Fan
Correct ethnicity: 92%	Jun	Meimei	Huang
SES female names: 2.72	Zhiqiang	Zhihong	Li
SES male names: 2.74	Mingyang	Yaling	Zhao
Indian Names	Ankit	Neha	Chugh
Correct female names: 86%	Amit	Ankita	Gupta
Correct male names: 78%	Vikram	Shilpa	Kulkarni
Correct ethnicity: 71%	Deepak	Rachna	Narang
SES female names: 2.51	Gopal	Pallavi	Patel
SES male names: 2.55	Neeraj	Rohini	Singh
Greek Names	Vassilis	Aphrodite	Kostopoulos
Correct female names: 82%	Christos	Athina	Giannopoulos
Correct male names: 91%	Dimitris	Anastasia	Papadopoulos
Correct ethnicity: 94%	Konstantinos	Konstantina	Nicolaides
SES female names: 2,55	Giorgos	Dimitra	Katsaros
SES male names: 2.57	Yianni	Myrto	Demopoulos
Arabic Names	Mohammed	Nour	Abdullah
Correct female names: 93%	Mustafa	Dima	Ahmad
Correct male names: 94%	Farid	Fatima	Al-Hashim
Correct ethnicity: 88%	Nasim	Nura	El-Hashem
SES female names: 2.39	Ibrahim	Rana	Hussain
SES male names: 2.40	Mahmoud	Samira	Hakim

Table 2. The influence of names and leadership on responses for job applications.

model	(1)	(2)	(3)	(4)	(5)
sample	leadership position	leadership position	all positions	all positions	all positions
Outcome	positive response	positive response	positive response	positive response	positive response
ethnic minority	-0.1404***		-0.0887***		-0.0841***
	(0.0188)		(0.0056)		(0.0091)
female	0.0561***	0.0631***	0.0383***	0.0389***	0.0424***
	(0.0176)	(0.0195)	(0.0052)	(0.0052)	(0.0112)
Greek		-0.1377***		-0.0781***	
		(0.0245)		(0.0084)	
Aboriginal/T.S.I.		-0.1687***		-0.1107***	
		(0.0291)		(0.0083)	
Chinese		-0.1404***		-0.0770***	
		(0.0306)		(0.0081)	
Indian		-0.1434***		-0.0682***	
		(0.0283)		(0.0081)	
Arabic		-0.1115***		-0.1089***	
		(0.0251)		(0.0081)	
leadership			0.0552**	0.0558**	0.0541*
			(0.0245)	(0.0245)	(0.0285)
leadership x ethnic minority			-0.0568***		-0.0678***
			(0.0194)		(0.0263)
leadership x Greek				-0.0683***	
				(0.0256)	
leadership x Aboriginal/T.S.I.				-0.0599**	
				(0.0283)	
leadership x Chinese				-0.0711**	
				(0.0306)	
leadership x Indian				-0.0677**	
				(0.0285)	
leadership x Arabic				-0.0190	
				(0.0258)	
leadership x female					0.0059
					(0.0429)
ethnic minority x female					-0.0086
					(0.0130)
leadership x minority x female					0.0184
					(0.0480)
Constant	0.2163***	0.2152***	0.1721***	0.1721***	0.1697***
	(0.0311)	(0.0314)	(0.0092)	(0.0092)	(0.0108)

N	1039	1039	12025	12025	12025
R^2 (within)	0.123	0.129	0.059	0.063	0.059
R^2 (overall)	0.049	0.047	0.019	0.020	0.019

Notes. GLS random-effects regression with job advertisement as group variable. Robust standard errors in parentheses. All models control for layout and order (not shown). ***p<.01, **p<.05, *p<.1. Ethnic minority = 1 if job applicant has a non-English name, 0 otherwise. Female = 1 if job applicant is a female, 0 otherwise. Leadership = 1 if job advertisements is for a leadership position, 0 otherwise.

Table 3

Responses for leadership positions depending on customer contact, individualism, and creativity/innovation/learning

	English names		non-English names	
	no positive response	**positive response**	**no positive response**	**positive response**
no customer contact	75 (84.3%)	14 (15.7%)	156 (87.6%)	22 (12.4%)
customer contact	186 (69.4%)	82 (30.6%)	474 (88.9%)	59 (11.1%)
total	261 (73.1%)	93 (26.9%)	630 (88.6%)	81 (11.4%)
no individualism	116 (67.8%)	55 (32.2%)	294 (86.2%)	47 (13.8%)
individualism	143 (78.6%)	39 (21.4%)	328 (90.6%)	34 (9.4%)
total	259 (73.4%)	94 (26.6%)	622 (88.5%)	81 (11.5%)
no creativity/ innovation/ learning	205 (73.2%)	75 (26.8%)	498 (89.2%)	60 (10.8%)
creativity/ innovation/ learning	54 (74.0%)	19 (26.0%)	124 (85.5%)	21 (14.5%)
total	259 (73.4%)	94 (26.6%)	622 (88.5%)	81 (11.5%)

Note. The numbers represent absolute numbers and percentage within each moderator

Table 4. Moderators of ethnic discrimination in leadership positions.

model	(1)	(2)	(3)	(4)	(5)	(6)
sample	ethnic minorities	all	ethnic minorities	all	ethnic minorities	all
outcome	positive response	positive response	positive response	positive response	positive response	positive response
customer contact	-0.0175	0.1151**				
	(0.0378)	(0.0487)				
female	0.0665***	0.0486***	0.0668***	0.0552***	0.0660***	0.0529***
	(0.0201)	(0.0174)	(0.0202)	(0.0178)	(0.0201)	(0.0176)
ethnic minority		-0.0464		-0.1429***		-0.1496***
		(0.0288)		(0.0210)		(0.0274)
customer contact x ethnic minority		-0.1320***				
		(0.0367)				
creativity			0.0378	0.0141		
			(0.0403)	(0.0580)		
creativity x ethnic minority				0.0256		
				(0.0433)		
individualism					-0.0454	-0.0699
					(0.0303)	(0.0481)
individualism x ethnic minority						0.0222
						(0.0380)
constant	0.0614	0.1283***	0.0422	0.2165***	0.0719**	0.2581***
	(0.0399)	(0.0466)	(0.0286)	(0.0334)	(0.0303)	(0.0401)
N	700	1036	692	1024	692	1024

R^2 (within)	0.042	0.137	0.042	0.119	0.042	0.119
R^2 (overall)	0.018	0.056	0.019	0.049	0.021	0.052

Notes. GLS random-effects regression with job advertisement as group variable. Robust standard errors in parentheses. All models control for layout and order (not shown). ****p*<.01, ***p*<.05, **p*<.1. Models 1, 3, and 5 entail a sample of ethnic minority job applicants only. Ethnic minority = 1 if job applicant has a non-English name, 0 otherwise. Female = 1 if job applicant is a female, 0 otherwise. Leadership = 1 if job advertisements is for a leadership position, 0 otherwise. Customer contact = 1 if job entails customer contact, 0 otherwise. Creativity (individualism) = 1 if job emphasizes creativity (individualism), 0 otherwise. Individualism = 1 if job emphasizes individualism, 0 otherwise.

Table 5. Further moderators of ethnic discrimination in leadership positions.

model	(1)	(2)	(3)	(4)
sample	leadership positions	leadership positions	leadership positions	leadership positions
diversity statement	-0.1335**			
	(0.0627)			
ethnic minority	-0.1474***	-0.1551***	-0.1239***	-0.1057***
	(0.0201)	(0.0302)	(0.0233)	(0.0389)
diversity statement x ethnic minority	0.0717			
	(0.0438)			
female	0.0544***	0.0683**	0.0686**	0.0564***
	(0.0176)	(0.0280)	(0.0317)	(0.0188)
revenue		-0.0302***		
		(0.0074)		
revenue x ethnic minority		0.0170***		
		(0.0061)		
employees			0.0002	
			(0.0005)	
employees x ethnic minority			-0.0001	
			(0.0004)	
medium skill level				0.1155
				(0.0724)
high skill level				0.0636
				(0.0575)
medium skill level x ethnic minority				-0.0714
				(0.0592)
high skill level x ethnic minority				-0.0370
				(0.0499)
Constant	0.2323***	0.2191***	0.1908**	0.1589***
	(0.0328)	(0.0485)	(0.0840)	(0.0512)
N	1039	431	380	1036
R^2 (within)	0.125	0.133	0.146	0.126
R^2 (overall)	0.055	0.071	0.067	0.054

Notes. GLS random-effects regression with job advertisement as group variable. Robust standard errors in parentheses. All models control for layout and order (not shown). ***p<.01, **p<.05, *p<.1. All models entail sample leadership position only. Ethnic minority = 1 if job applicant has a non-English name, 0 otherwise. Female = 1 if job applicant is a female, 0 otherwise. Skill level has three levels: low, medium, and high.

Experimental Procedures

Six common names were selected for the different ethnic groups based on the internet websites forebears.io and behindthename.com, prior research, and feedback from ethnic group members. Examples of names are Waru Kulmateri and Lowanna Karpeny (Aboriginal and Torres Strait Islander names), Mahmoud Al-Hashim and Fatima Ahmad (Arabic names), Mingyang Sun and Zhihong Huang (Chinese names), Jennifer Brown and Peter Smith (English names), Giorgos Papadopoulos and Athina Demopoulos (Greek names), or Ankit Singh and Rachna Patel (Indian names) (Table 1). We used six names for each occupation and varied the names between occupations. As many recruiters would not be able to recognize an Aboriginal and Torres Strait Islander name, this resume also included a membership to an Aboriginal and Torres Strait Islander organization under the section Social Activities/Hobbies/Volunteering. To not bias the measurement of hiring discrimination, we also included similar social activities and hobbies in the other resumes.

We created 72 resumes, 54 cover letters (our preparations indicated that cover letters are less common for waitstaff, construction laborers, and cleaning jobs in Australia), 72 email accounts, and 72 voicemails for all 72 fictious job applicants. For the voicemail message, we used the automated message provided by the voice messaging service. For every occupation, the resumes of the six fictitious job candidates were very similar in terms of education level, years of work experience, and skills. We used addresses of suburbs with a similar reputation close to the city center. Nevertheless, we also switched the names on the resumes and cover letters after 100 job applications to control for the layout and content of the resumes. While switching the resumes, we also changed the addresses and employer names depending on the city in which the job was advertised.

Appendix B. Descriptive Statistics and Correlations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Ethnicity (0=English names, 1=non-English names)	.67	.47													
2. Positive response	.15	.36	-.13**												
3. Leadership position	.09	.28	0.00	0.02											
4. Customer contact	.61	.49	0.00	.06**	.08**										
5. Individualism	.38	.49	0.00	-.03**	.09**	.11**									
6. Creativity/learning/innovation	.19	.39	0.00	-0.01	0.01	.13**	.23**								
7. Gender (0=male, 1=female)	.51	.50	-.09**	.06**	-.03**	.04**	-.06**	-.02**							
8. Order of submission	1.99	.82	.09**	-0.01	0.00	0.00	0.01	0.00	.02*						
9. Leadership * ethnicity	.06	.23	.17**	-.02*	.80**	.07**	.07**	0.01	0.00	.02*					
10. Gender * ethnicity	.32	.47	.49**	-.04**	0.01	0.00	-0.02	-.02*	.67**	.10**	.10**				
11. Gender * ethnicity * leadership	.03	.17	.12**	0.00	.57**	.04**	.05**	0.00	.17**	0.02	.71**	.25**			
12. Ethnicity * customer contact	.41	.49	.59**	-.05**	.05**	.66**	.07**	.09**	-06**	.05**	.17**	.28**	.11**		
13. Ethnicity * individualism	.25	.44	.41**	-.07**	.06**	.08**	.74**	.17**	-05**	.03**	.15**	.18**	.10**	.32**	
14. Ethnicity * creativity/learning/ innovation	.13	.33	.27**	-.04**	0.01	.10**	.18**	.79**	-05**	.02*	.06**	.11**	.03**	.26**	.31**

Note. N = 12,142. **$p < 0.01$. *$p < 0.05$.