

CHAPTER 4

EDUCATION AND REFERRALS: PARALLEL MECHANISMS OF WHITE AND ASIAN HIRING ADVANTAGE IN A SILICON VALLEY HIGH TECHNOLOGY FIRM

Koji Chavez

ABSTRACT

Are White and Asian job applicants advantaged in access to professional jobs relative to Black and Latinx job applicants at the initial screening stage of the hiring process? And, are the mechanisms of advantage for White applicants different than the mechanisms for Asian applicants? In this chapter, the author proposes a theoretical framework of “parallel mechanisms” of White and Asian advantage during hiring screening – that White and Asian applicants are advantaged compared to Black and Latinx applicants, but that the mechanisms of advantage subtly differ. The author focuses specifically on mechanisms related to two important factors at the hiring interface: referrals and educational attainment. The author applies the concept of parallel mechanisms to a case study of software engineering hiring at a mid-sized high technology firm in Silicon Valley. The author finds that at this firm, White applicants are advantaged at initial screening relative to Black and Latinx applicants due to average racial differences in applicant characteristics – namely having a referral – as well as differences in treatment by recruiters. For Asian applicants,

Professional Work: Knowledge, Power and Social Inequalities
Research in the Sociology of Work, Volume 34, 83–113
Copyright © 2020 by Emerald Publishing Limited
All rights of reproduction in any form reserved
ISSN: 0277-2833/doi:10.1108/S0277-28332020000034008

average racial differences in possession of elite educational credentials, as well as racial differences in recruiter treatment, explain the racial disparity in callbacks. The author discusses the implications of parallel mechanisms of advantage for racial inequality in a multiracial context, and for organizational policy meant to address racial disparities during organizational hiring processes.

Keywords: Hiring; racial and ethnic inequality; referrals; educational credentials; high technology industry; labor markets

INTRODUCTION

In 2014, top Silicon Valley high technology companies published numbers on their racial and ethnic diversity after public outcry for more transparency, revealing that White and Asian workers were overrepresented in these firms relative to Black and Latinx workers. At Google, 61 and 30 percent of their US-based staff were White and Asian respectively, whereas only 5 percent were Black and Latinx (Bock, 2014). This initial wave of diversity reports highlights a general trend in professional employment that extends beyond the highly visible high technology companies in question: White and Asian overrepresentation in professional jobs and Black and Latinx underrepresentation (Bureau of Labor Statistics, 2019).

I focus on an important juncture of White and Asian overrepresentation, and Black and Latinx underrepresentation, in professional jobs: differential access to professional jobs through the organizational hiring process. I ask, are White and Asian job applicants advantaged in access to professional jobs relative to Black and Latinx job applicants at the initial screening stage of the hiring process? And, are the reasons for White advantage and Asian advantage at the initial screening stage different? While scholars have made significant headway in assessing mechanisms of White advantage in personnel decisions compared to Black and Latinx applicants and workers (e.g., hiring: Fernandez & Fernandez-Mateo, 2006; Petersen, Saporta, & Seidel, 2000; e.g., promotion: Smith, 2001; Wilson & Maume, 2013), they have not yet detailed a thorough account of Asian advantage. Yet, there are several reasons to broaden the analytical lens. Along with being overrepresented in many professions, the very notion of success and achievement has become more associated with “Asianness” than Whiteness in some contexts (Jiménez & Horowitz, 2013). Equally important, and as I will describe, there are theoretically driven reasons to suspect that the reasons for Asian and White advantage differ.

In this chapter, I develop the theoretical concept of *parallel mechanisms of advantage* – that White and Asian job applicants are advantaged at the point of hire compared to Black and Latinx applicants but for different reasons. I focus on two key factors at the hiring interface – elite educational credentials and referrals – and theorize how they contribute differently to a White advantage and to an Asian advantage. In brief, I theorize how average racial differences in referrals do a better job explaining the White advantage, how average racial differences in elite educational credentials do a better job explaining the Asian advantage, and how both elite educational credentials and referrals are related

to employer discrimination in favor of White and Asian applicants. I then turn to a case study of software engineering hiring at a mid-sized high technology firm in Silicon Valley, which I call InGen. Drawing on detailed quantitative data of InGen's applicant pool and hiring outcomes, I apply the theoretically motivated predictions of parallel mechanisms of advantage to racial differences in applicants' success at the initial callback stage of the hiring process.

This research makes three contributions. First, I expand the theoretical framework for understanding the reasons for White and Asian applicant advantage in hiring by elaborating how the mechanisms theoretically differ, further heeding the call to focus on mechanisms in addition to racial disparities (Reskin, 2003). I build on our understanding of elite education (Gaddis, 2015) and referrals (Petersen et al., 2000) as mechanisms of White advantage by theorizing how they are (or are not) mechanisms of Asian advantage. I extend existing theories regarding the role of elite educational credentials in employer racial discrimination (e.g., Smith, 2001) by introducing the moderating role of referrals. Second, I empirically demonstrate the extent to which parallel mechanisms of advantage occur in the hiring process of a single organization. Third, the case study research design provides an empirical contribution to the literature on racial inequality at the point of hire by showing where in the hiring process Black and Latinx workers face the largest hurdles: very few Black and Latinx workers enter InGen's applicant pool, and the few that do are measurably disadvantaged at the initial screening stage but not disadvantaged later in the process (e.g., in-person interview, hiring decision), although few make it that far. This highlights the low number of Black and Latinx workers who enter professional applicant pools as a fundamental problem when it comes to racial underrepresentation among hires.

I begin with the theoretical arguments for White and Asian applicant advantage relative to Black and Latinx applicants at the initial screening stage of professional hiring. The mechanisms of White advantage in screening selection reflect White structural advantages in educational attainment (Kao & Thompson, 2003) and higher representation in professional workplaces (Kanter, 1977). Mechanisms of Asian advantage are also predicated on higher educational attainment (Kao & Thompson, 2003), but not necessarily higher workplace representation since Asian workers, like Black and Latinx workers, are often numerical minorities at work. Discrimination-based mechanisms of both White and Asian advantage highlight employer reliance on racial stereotypes that reflect a racial hierarchy in which White and Asian applicants have generally higher perceived social status than Black and Latinx applicants (Song, 2004).

I conceptualize White applicant advantage and Asian applicant advantage in relation to the *combined group* of Black and Latinx applicants. While mechanisms of White and Asian advantage may subtly differ when the comparison is to Black or Latinx applicants, combining Black and Latinx applicants is justified given their similarities in educational attainment (Kao & Thompson, 2003), social network exclusion (Diprete, Gelman, McCormick, Teitler, & Zheng, 2011), and relative social status (Song, 2004), relative to White and Asian workers. This suggests that the hypothesized mechanisms of White and Asian advantage apply similarly in reference to Black and Latinx applicants. Combining Black and Latinx

applicants is also an empirical necessity: because Black and Latinx workers are vastly underrepresented in professional occupations, they have a small numerical presence among job applicants in the case study, making separate analyses unfeasible. Furthermore, given the small number of women among the Black and Latinx applicants in the case study, simultaneous race *and* gender comparisons between White, Asian, and Black and Latinx applicants are less statistically reliable. Therefore, I focus on racial comparisons, leaving theoretical development of gendered parallel mechanisms of White and Asian advantage to future research. Following this theoretical exercise, I turn to the InGen case study of software engineering hiring and present the results. I then discuss the implications of the findings for organizational hiring policies.

MECHANISMS OF WHITE AND ASIAN ADVANTAGE AT INITIAL HIRING SCREENING: THE ROLE OF EDUCATION AND REFERRALS

Scholars typically depict the screening stage of the hiring process as the initial interface between, on one hand, job applicants who bring with them human, social, and cultural capital, and on the other, employers who decide which job applicants to select (Tilly & Tilly, 1998). Thus, the mechanisms of White and Asian advantage relative to Black and Latinx applicants during initial hiring screening may be due to average racial differences in the applicant characteristics valued by employers, differences in how employers treat applicants based on applicant race, or both. I focus on elite educational credentials and referrals as two fundamental aspects of hiring that illuminate how the mechanisms of White advantage and Asian advantage – both those related to applicant characteristics and employers’ actions – differ.

Mechanisms of White Advantage

Average Racial Differences in Elite Educational Credentials

Employers value applicant educational credentials when screening job applicants during the hiring process (Bills, Di Stasio, & Gërkhani, 2017). In professional hiring, educational credentials, and in particular, educational credentials from high status educational institutions, play an outsized role in screening decisions. In these labor markets, employers use elite educational credentials as signals of applicants’ “intellectual horsepower,” polish, passion, and leadership potential, while judging those who do not have elite educational credentials as “moral failures” (Rivera, 2011, 2015). Audit correspondence studies support the idea that there is a substantial payoff to elite educational credentials in hiring for professional jobs compared to educational credentials from less selective institutions (e.g., Gaddis, 2015).

The importance employers place on elite educational credentials may disproportionately advantage White applicants relative to Black and Latinx applicants at the point of hire given racial disparities in educational attainment. In general, White individuals have higher college enrollment relative to Blacks and Latinxs,

and are much more likely to enroll in selective educational institutions (Baker, Klasik, & Reardon, 2018; Posselt, Jaquette, Bielby, & Bastedo, 2012). By some accounts, White students are more likely to enroll in highly selective educational institutions by a factor of five and three respectively compared to Black and Latinx students (Reardon, Baker, & Klasik, 2012). These racial dynamics in educational attainment suggest that at the point of hire, White applicants are more likely to possess elite educational credentials than Black and Latinx applicants, contributing to the racial disparity in initial recruiter callbacks. This leads to the following hypothesis:

H_{IED} : Average racial differences in possession of elite educational credentials contribute to the White applicant advantage in receiving an initial recruiter callback relative to Black and Latinx applicants.

Average Racial Differences in Referrals

Employers commonly rely on employee referrals when making screening decisions during the hiring process (for a review, see Bills et al., 2017; Marsden & Gorman, 2001), and by some estimates, over a third of workers in the United States are connected to their current job through an employee referral (PayScale, 2018). Indeed, employers often *prefer* referred job applicants over those who directly apply without an employee connection (Burks, Cowgill, Hoffman, & Housman, 2015; Fernandez, Castilla, & Moore, 2000). There are many reasons for this preference: referred applicants may provide a richer applicant pool for employers to draw from; they may be higher quality than non-referred applicants because they are prescreened by and homophilous to current employees; they may have better and more timely information about the job opening, and employers may have better information about the applicant (Fernandez et al., 2000; also see Fernandez & Galperin, 2014).

A potential downside to reliance on employee referrals is that doing so may contribute to exclusion of racial minorities who are often numerical minorities in firms, resulting in what Kanter (1977, p. 48) refers to as “homosocial reproduction” of the organization’s workforce. In organizations dominated by White workers, reliance on employee referrals may result in fewer racial minorities getting hired given the typically high racial homophily in social networks (Reskin, McBrier, & Kmec, 1999; e.g., Petersen et al., 2000). Over time, homophily in employee referrals may result in the numerical workplace dominance of the favored group (Fernandez & Sosa, 2005). Some scholars stress that if the organization can manipulate the referral rate through incentives, employee referrals may instead be a way for organizations to *increase*, not decrease, the representation of racial minorities within the organization (Rubineau & Fernandez, 2013). Yet absent organizational incentives, research on racial differences in referrer behavior reinforces the relationship between the reliance on employee referrals and racial minority exclusion at the point of hire: even if there are racial minority referrers at the firm, they may be wary or unwilling to vouch for racial minority job seekers for fear of being stigmatized at work, and due to a general “defensive individualism” and distrust of others (S. S. Smith, 2005b; Smith & Young, 2017).¹

More generally, scholars have highlighted the fundamental role social networks play in connecting White workers to jobs, thus perpetuating White advantage in ways often invisible to White workers themselves (DiTomaso, 2013; Royster, 2003). Compared to Black and Latinx job seekers, White job seekers are embedded in relatively resource-rich social networks that are more likely to contain contacts who provide material help and useful information during the job hunt, who know someone at the companies to which the job seekers apply, and who will contact employers to vouch for the job applicant – in other words, refer (McDonald, 2011; McDonald, Lin, & Ao, 2009; Pedulla & Pager, 2019; Reskin et al., 1999; Royster, 2003). Thus, racial differences in applicants' social networks, coupled with the homosocial reproduction produced by employer reliance on employee referrals, suggests the following:

H_{IREa}: Average racial differences in employee referrals contribute to the White applicant advantage in receiving an initial recruiter callback relative to Black and Latinx applicants.

In addition to employee referrals, firms increasingly rely on referrals from contingency search firms to supplement their applicant pool, a trend that is particularly true in the high technology industry (Bonet, Cappelli, & Hamori, 2013; Coverdill & Finlay, 2017). Contingency search firms serve as “matchmakers” between job seekers and job openings, working with multiple client firms simultaneously, and – as the name suggests – only receiving payment if the client firm hires their referred applicants (Cepin, 2012; Coverdill & Finlay, 2017). Employers prefer applicants referred by contingency search firms compared to those who directly apply, one reason being that, similar to employee referrers, contingency search firms are conduits through which employers receive more in-depth and often informal information about the job applicant (Bonet et al., 2013; Coverdill & Finlay, 2017).

Employer reliance on contingency search firm referrals may contribute to a White advantage at the point of hire given the evidence that White workers tend to be overrepresented among search firm applicants compared to racial minorities (Bielby & Bielby, 1999; Dreher, Lee, & Clerkin, 2011; Judge, Cable, Boudreau, & Bretz, 1995). There are a variety of theoretical reasons for White overrepresentation among contingency search firm referrals: contingency search firms may rely on professional networks to find potential applicants that exclude racial minorities; in White-dominated industries, contingency search firms may be more likely to refer White applicants because they seem less risky, or because they are assumed to better fit in with the firm's existing workforce (Bonet et al., 2013; Coverdill & Finlay, 1998; Dreher et al., 2011). Unless client firms specifically request racial minority applicants, as is the case with “diversity” searches (Felix, 2012), there is good reason to think that employers' reliance on contingency search firm referrals contribute to a White advantage at the point of hire.

H_{IREb}: Average racial differences in contingency search firm referrals contribute to the White applicant advantage in receiving an initial recruiter callback relative to Blacks and Latinx applicants.

Differential Treatment by Employers

Differential employer treatment by applicant race may also contribute to a White advantage in screening decisions. Evidence from audit correspondence studies consistently supports the notion that employers discriminate in favor of White applicants and against Black and Latinx applicants at the point of hire, even when those applicants are of similar quality (for a review, see Quillian, Pager, Hexel, & Midtbøen, 2017). The strong evidence of employers' White preference, all else equal, suggests the following:

H_{2CP} : White applicants are more likely to receive an initial recruiter callback than Black and Latinx applicants, *ceteris paribus*.

Along with direct discrimination in favor of White applicants, employers may also treat applicant *characteristics* – in particular the possession of elite educational credentials – differently depending on applicant race. Following the particularistic manipulation hypothesis (R. A. Smith, 2005a; Smith, 2001; Wilson & Maume, 2013), employers screen applicants using informal criteria regarding intangible applicant qualities (i.e., character, work ethic, intelligence, etc.) and gain information about whether applicants have those qualities through informal social networks. Since White workers are often included in employers' informal social networks whereas Black and Latinx workers are often excluded, employers have less information on intangible characteristics of Black and Latinx applicants, resulting in two related processes: employers assume, based on racial stereotypes, that Black and Latinx applicants are less likely to possess those characteristics, and employers “are forced to rely more heavily on assessments of more observable and easy-to-measure criteria, including human capital credentials” such as elite educational credentials (Smith, 2001, p. 450). Following this argument, elite educational credentials should have a stronger effect on an initial callback for Black and Latinx applicants than for White applicants.

The particularistic manipulation hypothesis is vague about the mental calculation behind employers' relatively heavy reliance on elite educational credentials for Black and Latinx applicants compared to White applicants. Some insight, however, can be gained from a statistical discrimination perspective (Arrow, 1973; Fernandez & Greenberg, 2013).² Following a statistical discrimination argument, possession of elite educational credentials provides “cheap” (i.e., readily available) information to employers about intangible characteristics such as polish, passion, and leadership potential (Rivera, 2011, 2015). This information is thought to have a stronger effect on callbacks for Black and Latinx applicants for two reasons. First, since employers have less information via informal social networks about Black and Latinx intangible characteristics, elite educational credentials provide information about Black and Latinx applicants' intangible characteristics that might otherwise be redundant for White applicants. Second, elite educational credentials provide not only cheap but *better* information about applicants' intangible characteristics relative to racial stereotypes. If employers are statistically discriminating, they will supplant the former information with

the latter (Arrow, 1973). Since racial stereotypes depict Black and Latinx applicants as less likely than White applicants to possess the intangible characteristics employers value (Waldinger & Lichter, 2003), employers' reliance on the informational value of elite educational credentials over racial stereotypes will have a disproportionately positive effect for Black and Latinx applicants than for White applicants (Fernandez & Greenberg, 2013).

H_{2ED} : The effect of elite educational credentials on receiving an initial recruiter callback is weaker for White applicants than for Black and Latinx applicants, *ceteris paribus*.

The particularistic manipulation hypothesis does not explicitly take into consideration referrals, which likely play an important role in moderating the relationship between applicant race and elite educational credentials on receiving a callback. Employee referrals are a fundamental mechanism through which employers gain information about the applicants' intangible characteristics – indeed this is one reason why employers prefer referrals, as I describe above (Fernandez et al., 2000); employers value contingency search firm referrals for the same reason (Bonet et al., 2013; Coverdill & Finlay, 2017). When applicants are referred, employers likely have information about valued intangible characteristics; assuming employers gain similar information for referred applicants whether they are Black, Latinx, or White, there is little need for employers to rely more heavily on elite educational credentials for referred Black and Latinx applicants compared to referred White applicants since employers possess the relevant information about the applicants' intangible qualities for referred applicants regardless of race.

On the other hand, when applicants directly apply without any connection to employers, employers are in a similar bind to the one described under the particularistic manipulation hypothesis – they lack information about applicants' intangible characteristics, and will draw on racial stereotypes to fill in the information gaps resulting in a White advantage. Thus, it is among *applicants who directly apply*, in particular, that possession of elite educational credentials plays a more beneficial role for Black and Latinx applicants relative to White applicants: when directly applying applicants lack an elite educational credential, employers will rely on racial stereotypes to fill the informational gap, and thus favor White applicants relative to Black and Latinx applicants; when directly applying applicants possess an elite educational credential, employers will have “cheap” information about applicants' intangible characteristics, reducing reliance on racial stereotypes, and in turn, reducing racial discrimination. This dynamic suggests the following:

$H_{2ED|RE}$: The effect of an elite educational credential on receiving an initial recruiter callback is weaker for directly applying White applicants than for directly applying Black and Latinx applicants, whereas the effect of an elite educational credential does not differ among referred White, Black, and Latinx applicants.

*Parallel (But Different) Mechanisms of Asian Advantage**Average Racial Differences in Elite Educational Credentials*

I argue that Asian applicants may be advantaged relative to Black and Latinx applicants, but for different reasons. Given trends in educational outcomes, it is likely that racial disparity in educational attainment, specifically elite educational attainment, explains *even more* of the Asian advantage at the point of hire than it does the White advantage. In general, the Asian population outstrips the Black, Latinx, and White populations in most measures of educational attainment including college and postgraduate enrollment (Sakamoto, Goyette, & Kim, 2009). Asians are also overrepresented in highly selective educational institutions relative to other racial groups (Kim & Sakamoto, 2010; Xie & Goyette, 2003). As Reardon et al. (2012) explain, Asian students are almost 13 times more likely to enroll in highly selective colleges than Black students, almost seven times more likely than Hispanic students, and two and a half times more likely than White students. Asian representation at highly selective universities has increased over time while Black representation has decreased, and Latinx representation has remained static (Reardon et al., 2012). Given that employers value elite educational credentials when making screening decisions (Rivera, 2011), racial disparities in possession of elite educational credentials are likely to explain more of the subsequent racial disparity in initial screening decisions between Asian applicants and Black and Latinx applicants than between White applicants and Black and Latinx applicants. This leads to the following hypotheses:

H_{3EDa} : Average racial differences in possession of elite educational credentials contribute to the Asian applicant advantage in receiving an initial recruiter callback relative to Black and Latinx applicants.

H_{3EDb} : Average racial differences in possession of elite educational credentials explain *more* of the Asian applicant advantage in receiving an initial recruiter callback than the White applicant advantage.

Average Racial Differences in Referrals

Employee referrals may play a diminished role in the Asian advantage relative to Black and Latinx applicants, at least in organizations dominated by White workers. In general, White people tend to have other White people in their social networks and few Black, Latinx, *or* Asian people. Strong racial homophily in White social networks exists whether those networks are of trusted individuals or simply of acquaintances (Diprete et al., 2011), the latter being more relevant if “weak ties” are important for connecting job applicants to job openings (Granovetter, 1973). To be sure, there is some evidence that cross-race ties between White and Asian individuals may be increasing over time (Smith, McPherson, & Smith-Lovin, 2014). Yet despite this caveat, the racial homophily of social networks suggests Asian applicants are disadvantaged in hiring screening decisions due to employers’ reliance on employee referrals when Asian workers are a numerical minority in the workplace. Indeed, in a study of hiring at a high technology firm,

Petersen et al. (2000) find that Black, Latinx, and Asian applicants are disadvantaged in the firm's hiring process compared to White applicants due to racial differences in employee referrals. Racial differences among job seeker characteristics also suggest a lack of Asian advantage from employee referrals, although the evidence is tenuous. Asian students and workers may be more socially isolated than their White counterparts at school and at work, suggesting that they have less access to job opportunities through referrals (Friedman & Krackhardt, 1997; Kao, Joyner, & Balistreri, 2019). If this is the case, Asian job seekers may be less likely to rely on social networks to find employment.³

Similar to employee referrals, referrals from contingency search firms may also play a diminished role in explaining an Asian advantage in hiring. As previously discussed, racial minorities – including Asians – tend to be underrepresented among contingency search firm referrals, especially in White-dominated firms or industries (Bielby & Bielby, 1999; Bonet et al., 2013; Dreher et al., 2011; Judge et al., 1995). Overall, this discussion suggests the following:

H_{3REa} : Racial differences in employee referrals do not contribute to the Asian applicant advantage in receiving an initial recruiter callback relative to Black and Latinx applicants.

H_{3REb} : Racial differences in contingency search firm referrals do not contribute to the Asian applicant advantage in receiving an initial recruiter callback relative to Black and Latinx applicants.

Differential Treatment by Employers

Just as employers discriminate in favor of White applicants relative to Black and Latinx applicants, so too is there theoretical justification to assume employers also discriminate in favor of Asian applicants. In terms of racial hierarchy, there is evidence that employers place Whites and Asians higher in social status than Blacks and Latinxs as reflected in employers' stronger preference for White and Asian workers compared to Black or Latinx workers when hiring for "good" jobs (Moss & Tilly, 2001; Waldinger & Lichter, 2003). In some contexts, such as in Silicon Valley's high technology industry, the top of the racial hierarchy has been flipped on its head: rather than "Whiteness" being associated with success and achievement, "Asianness" is instead (Jiménez & Horowitz, 2013). Racial stereotypes reflect perceived racial differences in social status: Asian people are perceived as more intelligent, industrious, and perseverant than Black and Latinx people, but equally relatable (Park, Martinez, Cobb, Park, & Wong, 2015). Finally, while there is ample evidence of a White advantage in initial screening decisions relative to Black and Latinx applicants (Quillian et al., 2017), there is far less evidence of a White advantage relative to Asian applicants (however, see Oreopoulos, 2011). Drawing from literature on the economic incorporation of Asian Americans (Sakamoto et al., 2009), there is little evidence of discrimination in favor White workers relative to Asian workers per se, at least in terms of wages (Kim & Sakamoto, 2010; Wang, Takei, & Sakamoto, 2017; Zeng & Xie,

2004). In brief, it is likely that at the initial callback stage employers discriminate *in favor* of White and Asian applicants in relation to Black and Latinx applicants.

H_{4CP} : Asians applicants are more likely to receive an initial recruiter callback than Black and Latinx applicants, *ceteris paribus*.

Similar to their treatment of White applicants, employers may treat the possession of an elite educational credential differently for Asian applicants than for Black and Latinx applicants. Recall the particularistic manipulation hypothesis suggests that employers, lacking information about the intangible characteristics of Black and Latinx applicants, assume Black and Latinx applicants lack valued intangible characteristics based on racial stereotypes (e.g., Smith, 2001). Since elite educational credentials give employers better, non-redundant information on Black and Latinx intangible characteristics compared to racial stereotypes, but redundant information for White applicants, the effect of elite educational credentials for Black and Latinx applicants is stronger than the effect for White applicants. In a parallel fashion, since racial stereotypes of applicant intangibles – intelligence, industriousness, perseverance, and so on – are net negative for Blacks and Latinxs relative to Asians (Park et al., 2015), the effect of elite educational credentials will be larger for Black and Latinx applicants than Asian applicants as well. This leads to the following hypothesis:

H_{4ED} : The effect of elite educational credentials on receiving an initial recruiter callback is weaker for Asian applicants than for Black and Latinx applicants, *ceteris paribus*.

Furthermore, and again in parallel to arguments for White advantage, the effect of elite education for Asian applicants may be weaker than the effect for Black and Latinx applicants, but specifically among applicants who directly apply. For applicants who directly apply, employers are in the situation described above: they rely more heavily on elite educational credentials for Black and Latinx applicants relative to Asian applicants. However, with a referral, employers have information on applicant intangibles (Fernandez et al., 2000), making racial differences in reliance on elite educational credentials unnecessary.

$H_{4ED|RE}$: The effect of an elite educational credential on receiving an initial recruiter callback is weaker for directly applying Asian applicants than for directly applying Black and Latinx applicants, whereas the effect of an elite educational credential does not differ for referred Asian, Black, and Latinx applicants.

Overall, the theoretical framework of parallel mechanisms suggests White applicants are advantaged relative to Black and Latinx applicants due to higher rates of elite educational credentials and referrals among applicants as well as discrimination in favor of White applicants by employers. In comparison, Asian applicants are advantaged to an even greater extent by higher rates of elite educational credentials among applicants, along with discrimination in favor of Asian

applicants by employers, but are not advantaged by higher rates of referrals. In the next section, I apply the hypotheses of parallel mechanisms to a case study of hiring at a single organization.

RESEARCH SETTING, DATA, AND ANALYTIC STRATEGY

InGen is located in California's Silicon Valley. As of 2014, 40.1 percent of Silicon Valley's working age population and 35.9 percent of Silicon Valley software engineers are non-Hispanic White. About 60.0 percent of Silicon Valley software engineers, but only 30.7 percent of the Silicon Valley working age population, are Asian. The Black and Latinx population is vastly underrepresented compared to both: 29.2 percent of Silicon Valley's working age population, but only 4.0 percent of its software engineers, are Black or Latinx which is far less than Black and Latinx representation among software engineers at the national level (9.1 percent, author's calculations 2014 American Community Survey five-year sample).

InGen was founded in this setting as part of a larger wave of web application companies rising from the dot-com crash in the early 2000s. InGen is a relatively successful company which hires a high volume of software engineers to keep up with its rapid growth and success. At the time of data collection in 2014, about a third of InGen's roughly one thousand employees were software engineers, 72 percent of whom were hired within the previous two years. Based on internally collected data, the InGen workforce was 62 percent White, 30 percent Asian, and 5 percent Black or Latinx, self-identified.

The data include all software engineering job applicants who InGen recruiters entered into InGen's job applicant tracking system from February 2010 to March 2013. InGen recorded whether applicants received an initial callback from recruiters, whether applicants passed from one hiring stage to another, applicant recruitment method, and applicant resumes in InGen's applicant tracking system. I supplement these data with data from publicly available online databases pertaining to applicant education and work history (e.g., LinkedIn).

Job applicants enter the InGen hiring process in two general ways. Most applicants enter InGen's hiring process through "active" recruitment in which InGen accepts job applicants from multiple sources and "calls back" some of these applicants. "Active" applicants include those who apply directly through InGen's website or via online job boards, those who are referred by current InGen employees, and those who are referred by contingency search firms. A minority of applicants come from "passive recruitment" in which InGen recruiters proactively make initial contact with applicants rather than applicants contacting InGen. I call these "non-searching" applicants – they are typically employed, highly skilled and experienced, and not necessarily searching for a new job (McDonald, 2005). There are 6,354 active applicants and 549 non-searching applicants for a total of 6,903. About 40 percent of the active applicants – 2,545 – receive an initial recruiter callback, and by definition all non-searching applicants receive an initial phone call from recruiters.⁴

Whether for an active applicant or for a non-searcher, the purpose of the initial call is to inform job applicants about the position, gather preliminary applicant information, and gauge the applicant's interest in InGen and in the position. Recruiters may reject applicants before the next hiring stage if the applicants are no longer interested in the position or if there is a clear mismatch between the applicants' skills, qualifications, or organizational culture. Applicants may also decide to exit the hiring process themselves after the initial screening.

In my sample, 2,159 applicants pass the initial recruiter screen and enter the technical phone screen. During the technical phone screen, InGen software engineers test applicants for basic coding and algorithm ability. There are 1,082 applicants who pass this technical screen and move on to the in-person interview stage where they undergo four to five one-hour, one-on-one technical interviews with InGen engineers. During each interview, the interviewer asks a technical question which applicants have about 45 minutes to work through and answer. Interviewers subjectively evaluate applicants based on their performance and decide whether to extend offers to the applicants. Two hundred and forty-eight job applicants who enter the in-person interview stage receive an offer. About half of job applicants who receive an offer – 129 – accept.

Measures

The dependent variable is whether the applicant *receive an initial "callback"* from InGen recruiters. The main independent variables are applicant race, possession of an elite educational credential, and recruitment method. I measure *applicant race* as a categorical variable consisting of Black/Latinx, White, and Asian categories. To identify Latinx applicants, I checked every applicant for signals of Latinx ethnicity, again drawing from information available on the applicants' resumes and on social media accounts including LinkedIn, Facebook, Google+, and GitHub. If there were signals of Latinx ethnicity such as a Hispanic surname (as determined by matching to a list of common Hispanic surnames according to the 2000 Census), membership in a Latinx organization, having Latinx immediate relatives, or explicitly self-identifying as Latinx, I categorized them as ethnically Latinx. I did not consider Spanish fluency alone a strong enough signal to categorize applicants as Latinx, as this skill is common regardless of ethnicity. Importantly, if I found signals of non-Latino ethnicity, particularly of Filipino, Spanish, or Portuguese ethnicity, I categorized the candidate appropriately.⁵ To identify Black applicants, I again checked every applicants' information on resumes and social media accounts, including organizational membership, explicit self-categorization, photos, and so on for signs of Black identity. While this method for identification is not ideal – there may be applicants who identify as Black but who show no signals in a resume or on social media – I argue that this method may be more accurate than relying on self-reported data which often suffers from non-response.

To identify racially Asian applicants, I matched applicant surnames and given names to name databases developed by Lauderdale and Kestenbaum (2002) and Shah et al. (2010). I cross-checked the assignment of Asian race against

information found on the applicants' social media accounts, including LinkedIn, Facebook, Google+, and GitHub. The remaining applicants I categorized as "White," and cross-checked the assignment against information on applicants' social media accounts.⁶

I measure applicant *possession of an elite educational credential* as a binary variable using InGen management's informal list of 66 "elite" national and international universities for computer science or related college majors. There is substantial overlap between this list and the top engineering universities ranked in the United States and World Report. I measure applicant *recruitment method* as a categorical variable: direct application, employee referral, contingency search firm referral, passive recruitment, or "other." The "other" category consists of applicants for whom there is no information regarding their recruitment method in InGen's applicant tracking system.

I control for applicant work history and gender in all multivariate analyses. I measure whether applicants have *work experience at a large and prestigious firm* as a binary variable based on InGen recruiters' informal list of "large and prestigious" firms (e.g., Google, Facebook). I measure whether applicants have *at least one promotion in a previous position* as a binary variable, and I capture applicant *total years of work experience* – not including internships, consultant work, or contract work – as a continuous variable. Employers value applicants' experience in prestigious firms, promotion history, and years of experience when making screening decisions (Rivera, 2015), so accounting for these measures in the models is important.⁷ Finally, I capture *applicant gender* as a binary variable (female = 1) based on matching applicant first names to a gender-propensity score derived from the Social Security Administration database of the first name and gender of all people born in the United States since 1960. I cross-checked applicant gender assignment against information on applicants' social media accounts. Applicant gender varies across by applicant race. Women constitute 8.9 percent of White applicants, 21.4 percent of Asian applicants, and 8.1 percent of Black or Latinx applicants.

Analytic Strategy

The analytic strategy is as follows. I first present applicant rates of selection at each stage of the InGen hiring process, with primary focus on racial disparities at the initial callback stage. I next present racial differences in applicant characteristics. To more rigorously test racial differences in likelihood of possessing an employee or contingency search firm referral, I present a multinomial logistic regression analysis of applicant recruitment method. I then test the hypotheses of White and Asian advantage based on average racial differences in applicant characteristics by conducting multivariate logistic regression analyses of recruiter callbacks. Model I accounts for applicant race and gender. Models II through IV independently build on Model I by including applicant work experience (Model II), applicant possession of an elite education credential (Model III), and applicant recruitment method (Model IV). Model V represents the full model which accounts for all independent and control variables.

If White advantage is caused by racial differences in elite educational credentials and referrals (H_{1ED} , H_{1RE}), accounting for elite educational credentials in Model III and for recruitment method in Model IV will each independently “explain” the White advantage in callbacks as indicated by a significant decrease in the effect of White applicant race relative to Model I. If the Asian advantage is due to racial differences in elite educational credentials (H_{3EDa}), accounting for elite educational credentials in Model III will “explain” the Asian advantage in callbacks as indicated by a significant decrease in the effect of Asian applicant race relative to Model I. I conduct difference-in-difference tests of significance to determine whether racial differences in elite educational credentials explains *more* of the Asian advantage than it does the White advantage (H_{3EDb}). Finally, if the Asian advantage is not due to racial differences in referrals (H_{3RE}), accounting for recruitment method in Model IV will not significantly reduce the effect of Asian applicant race on callbacks.

The above hypothesis testing requires comparison of effects across logistic regression models. Since there are many pitfalls when comparing effects on the log odds of receiving a callback (Karlson, Holm, & Breen, 2012), I conduct the analysis within a probability framework focusing on changes in the average marginal effects of applicant White and Asian race (relative to Black or Latinx) on the predicted probability of a callback. To allow for cross-model comparisons, I simultaneously estimate Models II, III, IV, and V each separately with Model I using seemingly unrelated estimation (SUEST) (Long & Mustillo, 2018; Mize, Doan, & Long, 2019).

I next test the discrimination-based hypotheses of White and Asian advantage. I test hypotheses regarding direct effects of White and Asian applicant race, all else equal (H_{2CP} , H_{4CP}) in the full model, Model V. I test hypotheses regarding racial differences in the effect of elite educational credentials (H_{2ED} , H_{4ED}) in an additional analysis in which I interact applicant race and possession of an elite educational credential. To test hypotheses regarding racial differences in the effect of elite educational credentials *moderated by referrals* ($H_{2ED|RE}$, $H_{4ED|RE}$), I conduct logistic regression analyses of receiving a callback separately for referred applicants and for applicants who directly apply. In both analyses I interact applicant race and possession of an elite educational credential. All analyses exclude White and Asian applicants who received education in a foreign country to better isolate racial effects.⁸

FINDINGS

White and Asian Advantage at InGen by Hiring Stage

White and Asian applicants are well represented in the hiring pipeline compared to Black and Latinx applicants. Of the 6,354 active job applicants from February 2010 to March 2013, 1,331 are White, 4,850 are Asian, 107 are Latinx and 66 are Black; while 716 White and 1,747 Asian active applicants receive a callback, only 50 Latinx and 32 Black active applicants receive a callback. Only eight of the 314 non-searching applicants are Latinx and only four are Black. Forty-five Latinx

Table 1. Percent of Applicants Entering a Given Hiring Stage Conditional on the Previous Stage, by Applicant Race.

	Local Technical Workforce ^a	Applicant Pool ^b	Recruiter Callback ^c	Technical Screen	In-Person Interview	Offer	Hire
Latinx or Black	0.4	3.5	47.4	80.9	53.1	23.5	75.0
White	2.4***	3.0 [†]	58.6*	76.3	57.7	32.6	58.7
Asian	3.9***	6.1***	55.3*	78.7	57.1	27.3	53.8
<i>N</i>	129,664 ^d	6,903	3,085	2,159	1,082	248	129

[†] $p < 0.10$; * $p < 0.05$; *** $p < 0.001$, compared to Black and Latinx applicants.

^aWorkers in the local technical workforce as a percentage of the working age population of the given group in Silicon Valley.

^bWorkers in the InGen applicant pool as a percentage of workers of the given group in the local technical workforce. The applicant pool includes all job applicants, both active and non-searching.

^cCallback calculations do not include non-searching applicants.

^dAuthor's calculations 2014 American Community Survey five-year sample.

and 27 Black applicants make it to the technical phone screen, and only 21 Latinx and 13 Black applicants make it to the in-person interview. Four Latinx and four Black applicants receive an offer, and all four Black applicants, but only two Latinx applicants, accept.

To understand White and Asian advantage by hiring stage, I turn to the percent of White and Asian applicants who enter each hiring stage conditional on the previous stage compared to Black and Latinx applicants, depicted in Table 1. I include information on Silicon Valley's technical workforce of software engineers which represents the "hiring stage" before InGen's applicant pool consisting of both "active" and "non-searching" applicants.⁹ White and Asian advantage occurs early in the hiring process: at the initial callback stage. A higher percentage of White and Asian active applicants receive a callback compared to Black and Latinx active applicants – 58.6 and 55.3 percent compared to 47.4 percent. There are no statistically significant differences in White or Asian success relative to Black and Latinx success after the callback stage, although the lack of significant difference may be due to the small number of Black and Latinx applicants who remain at later hiring stages.

Establishing Racial Differences in Education and Referrals

The first step in establishing mechanisms of White and Asian advantage is to determine the racial differences, if any, in job applicants' educational background and method of recruitment. I display descriptive statistics of these applicant characteristics in Table 2. I focus on active applicants, given that non-searching applicants who enter the applicant pool through passive recruitment are fundamentally different: they receive a call from recruiters by definition.¹⁰

The descriptive data provide preliminary support for parallel mechanisms of advantage based on average differences in applicant characteristics by race, with some nuances. To begin, racial differences between White applicants and Black and Latinx applicants provide the necessary, but not sufficient, conditions

to support H_{JREa} and H_{JREb} but not H_{IED} . White applicants are more likely to be referred by an InGen employee – 16.4 percent compared to 9.3 percent – and are less likely than Black and Latinx applicants to directly apply. White applicants are also more likely to enter the applicant pool by contingency search firm compared to Black and Latinx applicants, although the racial difference is only marginally significant. However, White applicants and Black and Latinx applicants are equally likely to possess elite educational credentials, suggesting that at InGen, White advantage is not due to racial differences in educational pedigree.

Racial differences between Asian applicants and Black and Latinx applicants provide the necessary, but not sufficient, conditions to support H_{3EDa} , H_{3EDb} , H_{3REa} and H_{3REb} . Asian applicants have significantly higher rates of elite educational credential possession than both Black and Latinx applicants ($p < 0.001$) and White applicants ($p < 0.001$). On the other hand, Asian applicants have similar recruitment patterns to Black and Latinx applicants, including in the percent of applicants who enter through an employee referral and who enter through a contingency search firm referral. Coupled together, these initial patterns suggest that racial differences in possession of elite educational credentials may explain the Asian advantage relative to Black and Latinx applicants, while racial differences in referrals may explain the White advantage.

There are also interesting racial differences in work experience. White applicants have significantly more years of work experience outside of internship, consultant, or contract work, on average, than Black and Latinx applicants, perhaps reflecting a cumulative White advantage in procuring “regular” work (DiPrete & Eirich, 2006). Asian applicants have only one year less work experience, on average, than Black and Latinx applicants, but are 33 percent less likely to have a history of promotion, perhaps reflecting barriers to promotion Asian workers face (Takei & Sakamoto, 2008).

Table 2. Descriptive Statistics of Active Applicants by Applicant Race.

	Black or Latinx	White	Asian
Recruiter Callback	47.4	58.6**	55.3*
Educational Background			
Elite Educational Credential	50.9	56.9	66.5***
Work Experience			
Prestigious Firm Experience	18.5	18.5	22.9
Previously Promoted	27.8	22.7	18.6**
Years of Work Experience	5.9 (5.1)	7.8*** (6.8)	4.9* (4.7)
Recruitment Method		**	
Direct Application	68.8	54.5***	67.7
Employee Referral	9.3	16.4*	11.9
Contingency Search Firm	15.6	21.6†	15.4
Other	6.4	7.5	5.0
Female Applicant	8.7	8.3	19.1***
<i>N</i>	173	956	1,428

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$, compared to Black/Latinx applicants. Chi-squared test.
 † $p < 0.01$; ** $p < 0.001$, compared to Black/Latinx applicants. T-test.

Table 3. Multinomial Logistic Regression Model of Recruitment Method, Relative Risk Ratios Reported.

	A	B	C	D
	Passive Recruitment v. Direct Application	Employee Referral v. Direct Application	Recruitment Agency v. Direct Application	Unspecified Method v. Direct Application
Applicant Race (Ref: Black or Latinx)				
White	2.01* (0.67)	2.14** (0.61)	1.61* (0.39)	1.50 (0.51)
Asian	1.58 (0.52)	1.30 (0.37)	0.97 (0.23)	0.74 (0.25)
Work Experience				
Prestigious Firm Experience	2.31*** (0.32)	1.40* (0.20)	1.63*** (0.21)	2.05*** (0.38)
Experience (in years)	0.92* (0.04)	0.92* (0.04)	0.86*** (0.03)	0.87* (0.05)
Experience, sqrt (in years)	2.49*** (0.59)	1.98** (0.42)	3.19*** (0.63)	2.28** (0.70)
Previously Promoted	0.88 (0.14)	1.06 (0.16)	0.89 (0.12)	1.24 (0.25)
Educational Background				
Elite Educational Credential	5.44*** (0.96)	1.64*** (0.21)	3.35*** (0.44)	2.76*** (0.54)
Female Applicant	1.00 (0.18)	0.92 (0.16)	0.46*** (0.09)	0.64 (0.18)
<i>N</i>	314	343	453	154

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Note: $N = 2,871$ applicants. Robust standard errors reported. Asian main effects are significantly different from White main effects across models (Model A, $p < 0.10$; Model B, $p < 0.001$; Model C, $p < 0.001$; Model D, $p < 0.001$).

To more rigorously establish that White applicants are more likely than Black and Latinx applicants to be referred by an employee and by a contingency search firm, I conduct a multinomial logistic regression analysis on the log odds of entering the applicant pool via passive recruitment, employee referral, contingency search firm, or an unspecified recruitment method, compared to direct application. I account for applicant educational background and work experience described in Table 2, and use robust standard errors. The results are reported in relative risk ratios and displayed in Table 3.

Applicants who enter the applicant pool via passive recruitment, employee referral, and through a contingency firm are generally more likely to have an elite educational credential, and more likely to have worked in a large and prestigious firm, than applicants who directly apply. Years of work experience, but not history of promotion, is also associated with entering the applicant pool in ways other than direct application. The generally strong backgrounds of applicants entering the applicant pool via employee referral, passive recruitment, and contingency search firm is perhaps not surprisingly as they have already

endured a formal or informal selection screen by employee referrers (Fernandez et al., 2000), InGen recruiters, or a contingency search firm (Bonet et al., 2013). Interestingly, White applicants have a higher “risk” of being passively recruited rather than directly applying relative to Black, Latinx, and Asian applicants, all else equal.¹¹

Most important in this analysis is the relationship between applicant race and entering the applicant pool via employee referral or contingency search firm. The disparity in employee referrals between White applicants and Black and Latinx applicants holds after accounting for applicant educational background and work experience. As the results suggest, relative “risk” of an applicant being an employee referral rather than directly applying significantly increases by a factor of 2.1 if the applicant is White rather than Black or Latinx, all else equal. The disparity in contingency search firm referrals between White applicants and Black and Latinx applicants also holds in the multivariate analysis; the relative risk of being a contingency search firm referral, relative to direct application, increases by a factor of 1.6 if the applicant is White rather than Black or Latinx. Finally, White applicants are also more likely than Asian applicants to be referred by an employee or contingency search firm, rather than directly applying, given that the relevant non-significant Asian effects are significantly lower in magnitude than the relevant White effects (Table 3 Model B, $p < 0.001$; Table 3 Model C, $p < 0.001$).

Attribution of Racial Differences in Callbacks to Racial Differences in Education and Referrals

To demonstrate that racial differences in elite educational credentials and referrals “explain” racial disparities in callbacks, I conduct a multivariate logistic regression analyses of recruiter callbacks in which I account for applicant work experience, educational background, and recruitment method. Table 4 shows the results of the logistic regression models using robust standard errors, reported in odds ratios.

Without accounting for work experience, educational background, or recruitment method, both White and Asian applicants are significantly more likely to receive a callback than Black and Latinx applicants, all else equal. For White applicants, the odds of receiving a callback are 1.6 times higher; for Asian applicants, the odds are 1.4 times higher. While changes in estimated race effects across models are suggestive, I turn to a probability framework to more rigorously test whether the inclusion of applicant educational background or recruitment method explain racial differences in callbacks. Specifically, I highlight reductions in the average marginal effects of White and Asian applicant race, relative to Black and Latinx applicant race, across models with the inclusion of applicant educational background and recruitment method. Fig. 1 shows the average marginal effects of White and Asian applicant race, relative to Black or Latinx, on the predicted probability of receiving a callback across the five models.

The analysis of average marginal effects on the predicted probability of a callback provide strong evidence that racial differences elite educational credentials

Table 4. Simultaneously Estimated Nested Logistic Regression Models of Receiving a Callback, Odds Ratios Reported.

	Model I	Model II	Model III	Model IV	Model V
Applicant Race (Ref: Black or Latinx)					
White	1.57** (0.26)	1.65** (0.28)	1.52* (0.27)	1.30 (0.24)	1.29 (0.25)
Asian	1.43* (0.23)	1.41* (0.23)	1.11 (0.19)	1.51* (0.27)	1.14 (0.22)
Work Experience					
Prestigious Firm Experience		3.03*** (0.34)			2.53*** (0.34)
Experience (in years)		0.98 (0.02)			1.00 (0.03)
Experience, sqrt (in years)		1.08 (0.13)			0.96 (0.14)
Previously Promoted		1.28* (0.14)			1.24† (0.16)
Educational Background					
Elite Educational Credential			5.87*** (0.53)		5.25*** (0.53)
Recruitment Method (Ref: Direct Application)					
Employee Referral				4.03*** (0.53)	4.16*** (0.61)
Recruitment Agency				10.35*** (1.57)	8.97*** (1.49)
Other				15.09*** (4.32)	13.54*** (4.43)
Female Applicant	0.69** (0.08)	0.68** (0.08)	0.70** (0.08)	0.80† (0.10)	0.80 (0.11)

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: $N = 2,557$. Robust standard errors reported. Models II, III, IV, and V are separately and simultaneously estimated with Model I.

explain the callback differential between Asian applicants and Black and Latinx applicants. To begin, accounting for work experience in Model II does not significantly reduce the average marginal effect of White or Asian applicant race. However, accounting for elite educational credentials in Model III significantly reduces the average marginal effect of Asian applicant race from 8.9 percentage points in Model I to a not significant 2.2 percentage points ($p < 0.001$). This offers support for H_{3EDa} : racial differences in elite educational credentials explain the Asian advantage in callbacks. Moreover, racial differences in elite educational credentials explain *more* of the Asian advantage than the White advantage, supporting H_{3EDb} . The reduction in the average marginal effect of Asian applicant race when accounting for applicant elite educational credentials is significantly greater than the reduction in the average marginal effect of White applicant race (4.1 percentage points difference, $p < 0.001$). The average marginal effect of White applicant race does not reduce significantly from Model I to Model III, although the point estimate changes from 11.1 percentage points to 8.6 percentage points.

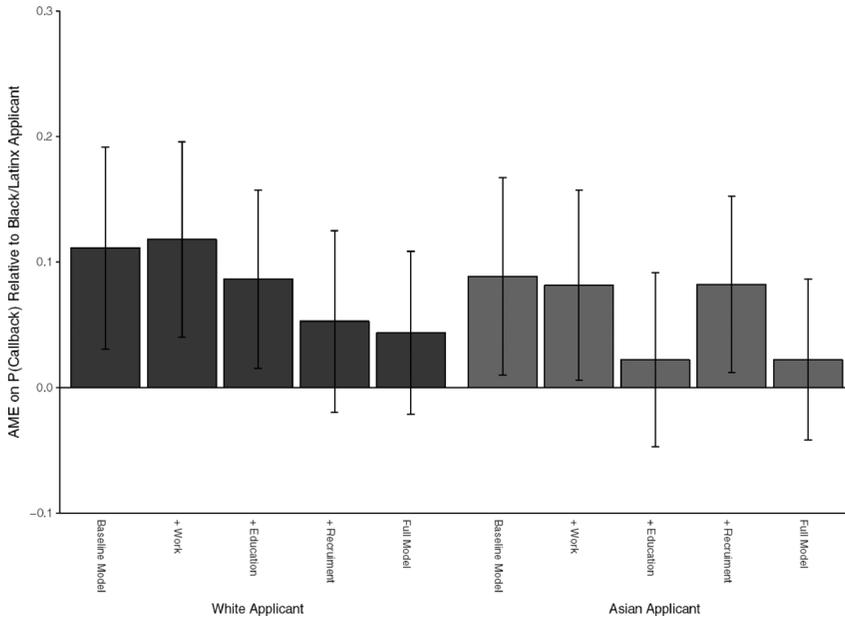


Fig. 1. Average Marginal Effects of White and Asian Applicant Race on Receiving a Callback Relative to Black or Latinx Applicant Race, Based on Logistic Regression Models in Table 4. Note: The reduction of the average marginal effect when accounting for applicant elite educational credentials for Asian in applicant race Model III is significantly greater than the reduction of the average marginal effect of White applicant race ($p < 0.01$). The reduction of the average marginal effect when accounting for applicant recruitment method of White applicant race in Model IV is significantly greater than the reduction of the average marginal effect of Asian applicant race ($p < 0.001$).

Changes in average marginal effects between models also suggest that racial differences in employee referrals and contingency search firm referrals account for the White applicant advantage relative to Black and Latinx applicants, supporting H_{1REa} and H_{1REb} . Specifically, accounting for recruitment method produces a significant change in the average marginal effect of White applicant race, from 11.1 percentage points to a not significant 5.3 percentage points ($p < 0.01$). On the other hand, accounting for recruitment method does not significantly reduce the average marginal effect for Asian applicants. This offers support to H_{3REa} and H_{3REb} – racial differences in referral do not contribute to an Asian advantage in callbacks. The difference between the significant reduction in the average marginal effect for White applicants after accounting for recruitment method and the non-significant reduction for Asian applicants – 5.2 percentage points – is itself significant ($p < 0.001$).

In brief, the analysis provides evidence that average racial difference in referrals – both employee referrals and contingency search firm referrals – is a mechanism of White advantage, while average racial difference in elite education

is a mechanism of Asian advantage. As shown in the full model, the average marginal effects of White and Asian applicant race are reduced to non-significance after accounting for these factors.

Differences in Recruiter Treatment by Applicant Race

White and Asian advantage during the callback stage may also be due to differential treatment by recruiters. I first tackle discrimination-based hypotheses related to a White advantage. I find no support for H_{2CP} – that White applicants are more likely to receive an initial recruiter callback than Black or Latinx applicants, all else equal – given the non-significant White effect in Table 4, Model V. I also find no support for H_{2ED} – that the effect of elite educational credentials is weaker for White applicants – given the non-significant interaction of White applicant race and elite educational credentials (Table 5).

More subtly, recruiters may take race into consideration under certain conditions, specifically by valuing elite educational credentials less for White applicants than for Black and Latinx applicants when applicants do not possess a referral ($H_{2ED|RE}$). Table 6 shows the separate logistic regression analyses of callbacks for referred applicants and applicants who directly apply.¹² Both analyses include interactions of applicant race and possession of elite educational credentials. Focusing on applicants who directly apply, the marginally significant interaction

Table 5. Logistic Regression Model of Receiving a Callback with Applicant Educational Background Interacted with Applicant Race, Odds Ratios Reported.

Applicant Race (Ref: Black or Latinx)	
White	1.81*
	(0.51)
Asian	1.44
	(0.41)
Educational Background	
Elite Educational Credential	8.51***
	(3.22)
White × Elite Educational Credential	0.54
	(0.22)
Asian × Elite Educational Credential	0.64
	(0.26)
Recruitment Method (Ref: Direct Application)	
Employee Referral	4.11***
	(0.60)
Recruitment Agency	8.93***
	(1.49)
Other	13.34***
	(4.39)

* $p < 0.05$; *** $p < 0.001$

Note: $N = 2,557$. Robust standard errors reported. Applicant work experience and gender are accounted for in the model, but not displayed due to space constraints.

of White applicant race and possessing an elite educational credential suggests that the effect of elite educational credentials on receiving a callback is less for White applicants than for Black and Latinx applicants. For White applicants who directly apply, an elite educational credential increases the odds of receiving a callback by a factor of 5.6; for Black and Latinx applicants who directly apply, the odds increase by a factor of 13.4. This, coupled with the marginally significant White main effect, means that among those who directly apply White applicants are advantaged but only when applicants lack an elite educational credential. On the other hand, there is no evidence of differential recruiter treatment by race among referred applicants. Thus, the analysis provides some evidence of a subtle difference in employer treatment of White applicants vis-à-vis Black and Latinx applicants, supporting H_{2EDIRE} . Translated to predicted probabilities (Table 7), White applicants only have a higher probability of receiving a callback than Black and Latinx applicants among applicant who directly apply without an elite educational credential (21.2 percent compared to 12.8 percent), a 8.4 percentage point higher probability of a callback compared to similarly situated Black and Latinx applicants ($p < 0.10$).

Table 6. Logistic Regression Models of Receiving a Callback with Applicant Educational Background Interacted with Applicant Race, Referred Applicants and Applicants Who Directly Applied Analyzed Separately, Odds Ratios Reported.

	Directly Applied	Employee or Contingency Firm Referred
Applicant Race (Ref: Black or Latinx)		
White	1.90 [†] (0.71)	1.84 (1.13)
Asian	1.78 (0.65)	1.45 (0.91)
Educational Background		
Elite Educational Credential	13.45*** (6.07)	6.24* (4.69)
White × Elite Educational Credential	0.42 [†] (0.21)	0.87 (0.70)
Asian × Elite Educational Credential	0.40 [†] (0.19)	0.94 (0.76)
<i>N</i>	1,607	796

[†] $p < 0.10$; * $p < 0.05$; *** $p < 0.001$

Note: Robust standard errors reported. Applicant work experience and gender are accounted for in both models, but not displayed due to space constraints. In both models, there is no significant difference between the main effects of White and Asian applicant race, nor between the interaction effects of White and Asian applicant race with elite educational credentials. In the analysis of applicants who directly applied, the main effect of White applicant race, the interaction of elite educational credentials and White applicant race, and the interaction of elite educational credentials and Asian applicant race are all significant at the $\alpha = 0.05$ level when using a one-tailed test; the main effect of Asian applicant race is marginally significant. A one-tailed test of significance would be justified given the theoretical argument that elite educational credentials have a smaller magnitude effect (rather than simply a different effect) on callbacks for White and Asian applicants relative to Black and Latinx applicants.

Table 7. Predicted Probability of a Recruiter Callback, Based on Logistic Regression Models in Table 6.

	Black or Latinx	White	Asian
Directly Applied			
Elite Educational Credential	0.63	0.58	0.55
No Elite Educational Credential	0.13	0.21 [†]	0.20 [†]
Employee or Contingency Firm Referred			
Elite Educational Credential	0.85	0.90	0.89
No Elite Educational Credential	0.49	0.63	0.58

[†] $p < 0.10$, compared to Black/Latinx applicants.

Note: All predicted probabilities are significantly greater than zero ($p < 0.001$). Among applicants who directly apply without an elite educational credential, the differences in the predicted probability of a callback between Black and Latinxs applicants and both (a) White applicants and (b) Asian applicants are significant at the $\alpha = 0.05$ level when using a one-tailed test.

Finally, does differential recruiter treatment contribute to the Asian advantage in callbacks? As shown in Table 4 Model V, I find no support for a direct effect of Asian applicant race in relation to Black and Latinx applicants, all else equal (H_{4CP}). Based on results from Table 5, there is no evidence that the effect of elite educational credentials differs for Asian applicants compared to Black and Latinx applicants (H_{4ED}). However, I do find some evidence that the effect of elite educational credentials is weaker for Asian applicants relative to Black and Latinx applicants *among applicants who directly apply*, thus supporting $H_{4ED|RE}$. As shown in Table 6, the effect of elite education is not significantly different by applicant race among referred applicants. But among applicants who directly apply, the Asian payoff to elite educational credentials is less than the payoff for Black and Latinx applicants, given the marginally significant interaction of Asian applicant race and possession of an elite educational credential: for Asian applicants, the possession of an elite educational credential increases the odds of a callback by a factor of 5.3 while for Black and Latinx applicants the odds increase by a factor of 13.4. This pattern of recruiter treatment of Asian applicants mimics the pattern of recruiter treatment of White applicants, given that the race main effects and interaction effects with elite educational credentials are not significantly different for White and Asian applicants. Translated to a predicted probability framework (Table 7), when applicants directly apply without an elite educational credential, Asian applicants enjoy a 7.4 percentage point advantaged relative to similarly situated Black and Latinx applicants ($p < 0.10$).

DISCUSSION AND CONCLUSION

I began with two questions: are White and Asian applicants advantaged at the initial screening stage of the professional hiring process relative to Black and Latinx applicants? And do the mechanisms of advantage for White and Asian applicants differ? I develop a theoretically driven rationale to not only expect White and

Asian applicants to be advantaged at the initial screening stage of hiring when compared to Black and Latinx applicants, but that they are advantaged for different reasons. The findings from the InGen case study generally support the theoretically derived hypotheses of parallel mechanisms of disadvantage. For White applicants, average racial differences in referrals – both employee referrals and contingency search firm referrals – contribute to a White advantage in recruiter callbacks. Surprisingly, and against predictions, racial difference in elite education is not a mechanism of White advantage – there are no differences in possession of elite educational credentials among White, Black, and Latinx job applicants. Average racial differences in applicant characteristics also contribute to the Asian advantage in callbacks, but in subtly different ways. Racial difference in the possession of elite educational credentials contributes more to an Asian advantage in callbacks, but a racial difference in referrals is not a contributing factor.

I also find nuanced evidence that differential treatment by recruiters contributes to both the White and Asian advantage in callbacks. When applicants directly apply, and thus recruiters do not have important information about applicants' intangible characteristics, recruiters rely more heavily on elite educational credentials for Black and Latinx applicants relative to White applicants and Asian applicants given relatively unfavorable Black and Latinx stereotypes. This means recruiters treat White and Asian applicants who directly apply similarly to Black and Latinx applicants who directly apply when those applicants also possess an elite educational credential; however, recruiters discriminate *in favor* of White and Asian applicants among those who directly apply without an elite educational credential.

This study contributes to our theoretical knowledge of mechanisms of advantage during hiring screening by expanding the analytical lens to include both the Asian and White populations. Previous studies have focused on how educational attainment and referrals contribute to the advantage of White applicants relative to Black and Latinx applicants at the point of hire (Bills et al., 2017; Kao & Thompson, 2003; Petersen et al., 2000), yet how and whether educational attainment and referrals play a role in Asian advantage had been, until now, undertheorized. I propose theoretical mechanisms of White and Asian advantage that reflect their respective structural advantages, or similarities, to the Black and Latinx populations in educational attainment (Kao & Thompson, 2003) and workforce representation and exclusion from social networks (Diprete et al., 2011; Kanter, 1977). I also propose mechanisms related to employer discrimination, and in doing so, build off previous work (e.g., Smith, 2001) to advance our theoretical knowledge as to the role of elite educational credentials and referrals in employer discrimination in favor of White and Asian job applicants. I generally find support for parallel mechanisms of advantage based on evidence from the InGen case study.

The more nuanced understanding of White and Asian advantage suggests organizational policy meant to reduce Black and Latinx *disadvantage* during hiring screening should be equally as nuanced. First, organizations should focus on diversifying employee referrals by, for example, incentivizing employees to refer Black and Latinx applicants. Such policies could theoretically reduce the

racial disparities in referrals completely (Rubineau & Fernandez, 2013), and indeed such policies are already being advocated for by industry experts (Frank, 2018), and adopted by firms (Zakrzewski, 2015). In recognition of the reasons for the Asian applicant advantage over Black and Latinx applicants, organizations might focus on reducing firms' reliance on elite educational credentials as an initial screening device for all applicants, either by expanding the firms' definition of elite educational institutions or finding alternative signals of applicant quality less associated with Black and Latinx disadvantage. Employers in Silicon Valley in particular, as well as those in other industries where heavy screening on elite educational credentials is common (Rivera, 2011), should think seriously about how their definition of "elite" schooling might be expanded to be more inclusive while still being an effective screening tool. Organizations should also monitor screening decisions, particularly to determine if recruiters place higher standards on Black and Latinx applicants when they directly apply to an organization.

Finally, this study makes an important empirical contribution by placing White and Asian hiring advantage in context. While White and Asian applicants are advantaged in early screening stages of hiring, it is clear that the dearth of Black and Latinx applicants in the InGen applicant pool, and in the technical workforce more generally, is a greater concern by orders of magnitude. Case in point, the lack of significant racial disparities in hiring outcomes later in the hiring process may be because so few Black and Latinx applicants make it that far. Thus, the empirical realities of Black and Latinx underrepresentation put the above policy recommendations regarding screening practices in perspective. In addition to those nuanced policies, organizations should enact practices such as targeted recruitment and advertising to Black and Latinx workers and students, which InGen currently does not do, to augment the number of Black and Latinx applicants in the applicant pool in general. In short, policy should focus on where White and Asian advantage occurs and thus where policy could have the most impact – at the initial screening and recruitment stages – before focusing on the in-person interview or hiring decision, hiring stages that few Black and Latinx applicants ever see. More broadly, systemic action throughout the educational pipeline seems necessary to address the larger "supply" problem.

There are opportunities for future research to build on the theoretical framework of parallel mechanisms of advantage. First, the case study research design allows for deep examination of parallel mechanisms of advantage at one organization with the accompanying downside of an inherent lack of generalizability. Thus, future research can build on the findings by expanding the theoretical framework of parallel mechanisms of advantage across organizations to determine the extent to which organizational factors moderate the theoretical mechanisms outlined in this chapter. Second, InGen receives so few Black and Latinx applicants that separate analyses for Black and Latinx applicants are not possible, and even when combined, anything more than descriptive analyses is not possible at later hiring stages. In a similar vein, InGen receives few female applicants, particularly Black and Latinx female applicants, preventing a deep comparison of racial differences by applicant gender. While lack of female and

Black and Latinx representation is a limitation here, there is an opportunity for future researchers to expand on the notion of parallel mechanisms of advantage by theorizing how such mechanisms depend on applicant gender as well as how such mechanisms subtly differ whether the comparison is to Black or Latinx applicants.

As professional workplaces become more racially diverse, the old theoretical orientation toward a White advantage relative to Black and Latinx job applicants may be in need of rethinking. In this chapter, I theoretically develop the concept of parallel mechanisms of White *and* Asian advantage relative to Black and Latinx applicants, and apply the resulting hypotheses regarding average racial differences among applicants and differences in recruiter treatment to a case study of software engineering hiring. The findings suggest both White and Asian applicants are indeed advantaged during hiring screening compared to Black and Latinx applicants, but for different reasons, which can inform not only theory regarding a racial advantage at the point of hire, but also organizational policy to combat it.

NOTES

1. The reluctance of potential referrers to vouch for job applicants may be more applicable to Black job seekers than Latinx job seekers (e.g., Smith, 2010).

2. Smith (2001, p. 450) notes that statistical discrimination is foundational to the particularistic manipulation hypothesis.

3. Asian immigrants, rather than being socially isolated, may rely on social networks to find employment and to avoid white majority firms in favor of firms run by co-ethnics (e.g., Shih, 2006). However, this line of research specifically focuses on Asian immigrants.

4. For non-searching applicants, I only have information on those who received an initial phone call; I lack information on non-searching applicants who recruiters emailed, “pinged” on LinkedIn, or otherwise considered, but did not talk to.

5. If an applicant spoke Portuguese, I only categorized as Latinx if other signals indicated he or she was Brazilian.

6. I assigned every applicant a racial category. I was able to match 89 applicants to InGen records of current employees. InGen had previously collected self-reported race and ethnicity information for 43 of these current employees. Racial coding matched for 40 of 43 (93 percent) employees.

7. I do not treat work experience variables as independent variables because (a) focusing on applicant education and referral simplifies the theoretical argument and (b) it is theoretically unclear *ex-ante* how work experience contributes to a White advantage at the point of hire, or how work experience contributes differently (or similarly) to an Asian advantage.

8. Supplemental analysis in which Asian applicants are broken down by Asian ethnicity is available by request.

9. Racial differences in InGen applicant pool entry rates are only suggestive, given that the pool of workers is likely greater than Silicon Valley’s software engineering workforce. While most applicants appear to be in the local labor market based on previous work experience, InGen receives applications from across the United States.

10. See Appendix for description of non-searching applicants.

11. The non-significant Asian effect on passive recruitment versus direct application is significantly lower in magnitude than the relevant White effect ($p < 0.10$).

12. The findings are substantively the same when restricting the definition of “referred” to employee-referred only.

REFERENCES

- Arrow, K. J. (1973). The theory of discrimination. In O. Ashenfelter & A. Rees (Eds.), *Discrimination in labor markets*. Princeton, NJ: Princeton University Press.
- Baker, R., Klasik, D., & Reardon, S. F. (2018). Race and stratification in college enrollment over time. *AERA Open*, 4(1), 1–28.
- Bielby, W. T., & Bielby, D. D. (1999). Organizational mediation of project-based labor markets: Talent agencies and the careers of screenwriters. *American Sociological Review*, 64(1), 64–85.
- Bills, D., Di Stasio, V., & Gërkhani, K. (2017). The demand side of hiring: Employers in the labor market. *Annual Review of Sociology*, 43, 291–310.
- Bock, L. (2014). Getting to Work on Diversity at Google. *Google Official Blog*. Retrieved from <https://googleblog.blogspot.com/2014/05/getting-to-work-on-diversity-at-google.html>. Accessed on June 18, 2018.
- Bonet, R., Cappelli, P., & Hamori, M. (2013). Labor market intermediaries and the new paradigm for human resources. *The Academy of Management Annals*, 7(1), 341–392.
- Bureau of Labor Statistics. (2019). Employed persons by detailed occupation, sex, race, and hispanic or Latino Ethnicity. Retrieved from <https://www.bls.gov/cps/cpsaat11.htm>. Accessed on January 1, 2020.
- Burks, S. V., Cowgill, B., Hoffman, M., & Housman, M. (2015). The value of hiring through employee referrals. *The Quarterly Journal of Economics*, 805–839.
- Cepin, G. C. (2012). Choose wisely when hiring a search firm to recruit for key positions. *CPA Practice Management Forum*, 8(10), 8–11.
- Coverdill, J. E., & Finlay, W. (1998). Fit and skill in employee selection: Insights from a study of headhunters. *Qualitative Sociology*, 21(2), 105–127.
- Coverdill, J. E., & Finlay, W. (2017). *High tech and high touch: Headhunting, technology, and economic transformation*. Ithaca, NY: Cornell/ILR Press.
- DiPrete, T. A., & Eirich, G. M. (2006). Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments. *Annual Review of Sociology*, 32(1), 271–297.
- Diprete, T. A., Gelman, A., McCormick, T., Teitler, J., & Zheng, T. (2011). Segregation in social networks based on acquaintanceship and trust. *American Journal of Sociology*, 116(4), 1234–83.
- DiTomaso, N. (2013). *The American non-dilemma: Racial inequality without racism*. New York, NY: The Russell Sage Foundation.
- Dreher, G. F., Lee, J. Y., & Clerkin, T. A. (2011). Mobility and cash compensation: The moderating effects of gender, race, and executive search firms. *Journal of Management*, 37(3), 651–681.
- Felix, P. M. (2012). Advancing board diversity: Search firms can do more. *Directors & Boards*, 36(5), 27–29.
- Fernandez, R. M., Castilla, E. J., & Moore, P. (2000). Social capital at work: Networks and employment at a phone center. *American Journal of Sociology*, 105(5), 1288–1356.
- Fernandez, R. M., & Fernandez-Mateo, I. (2006). Networks, race, and hiring. *American Sociological Review*, 71(1), 42–71.
- Fernandez, R. M., & Galperin, R. V. (2014). The causal status of social capital in labor markets. *Research in the Sociology of Organizations*, 40(2014), 445–462.
- Fernandez, R. M., & Greenberg, J. (2013). Race, network hiring, and statistical discrimination. In S. McDonald (Ed.), *Research in the sociology of work* (Vol. 24, pp. 81–102) Bingley, United Kingdom: Emerald Group Publishing Limited.
- Fernandez, R. M., & Sosa, M. L. (2005). Gendering the job: Networks and recruitment at a call center. *American Journal of Sociology*, 111(3), 859–904.
- Frank, L. (2018). How to use employee referrals without giving up workplace diversity. *Harvard Business Review*. Retrieved from <https://hbr.org/2018/03/how-to-use-employee-referrals-without-giving-up-workplace-diversity>. Accessed on June 20, 2018.
- Friedman, R. A., & Krackhardt, D. (1997). Social capital and career mobility: A structural theory of lower returns to education for Asian Employees. *Journal of Applied Behavioral Science*, 33(3), 316–334.
- Gaddis, S. M. (2015). Discrimination in the credential society: An audit study of race and college selectivity in the labor market. *Social Forces*, 93(4), 1451–1459.

- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Jiménez, T. R., & Horowitz, A. L. (2013). When White is just alright: How immigrants redefine achievement and reconfigure the ethnoracial hierarchy. *American Sociological Review*, 78(5), 849–871.
- Judge, T. A., Cable, D. M., Boudreau, J. W., & Bretz, R. D. (1995). An empirical investigation of the predictors of executive career success. *Personnel Psychology*, 48(3), 485–519.
- Kanter, R. M. (1977). *Men and women of the corporation*. New York, NY: Basic Books.
- Kao, G., Joyner, K., & Balistreri, K. S. (2019). *The company we keep: Interracial friendship and romantic relationships from adolescence to adulthood*. New York, NY: Russell Sage Foundation.
- Kao, G., & Thompson, J. S. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology*, 29(1), 417–442.
- Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using Logit and Probit: A new method. *Sociological Methodology*, 42(1), 286–313.
- Kim, C., & Sakamoto, A. (2010). Have Asian American men achieved labor market parity with white men? *American Sociological Review*, 75, 934–957.
- Lauderdale, D. S., & Kestenbaum, B. (2002). Mortality rates of elderly Asian American populations based on medicare and social security data. *Demography*, 39(3), 529–540.
- Long, S. J., & Mustillo, S. A. (2018). Using predictions to compare groups in regression models for binary outcomes. *Sociological Methods & Research*, 1–37 <https://doi.org/10.1177/0049124118799374>.
- Marsden, P. V., & Gorman, E. H. (2001). *Social networks, job changes, and recruitment*. New York, NY: Kluwer Academic Press/Plenum Publishers.
- McDonald, S. (2005). Patterns of informal job matching across the life course: Entry-level, reentry-level, and elite non-searching. *Sociological Inquiry*, 75(3), 403–28.
- McDonald, S. (2011). What's in the 'Old Boys' network? Accessing social capital in gendered and racialized networks. *Social Networks*, 33(4), 317–330.
- McDonald, S., Lin, N., & Ao, D. (2009). Networks of opportunity: Gender, race, and job leads. *Social Problems*, 56(3), 385–402.
- Mize, T. D., Doan, L., & Long, J. S. (2019). A general framework for comparing marginal effects across models using seemingly unrelated estimation. *Sociological Methodology*, 49(1), 152–189.
- Moss, P., & Tilly, C. (2001). *Stories employers tell: Race, skill, and hiring in America*. New York, NY: Russell Sage Foundation.
- Oreopoulos, P. (2011). Why do skilled immigrants struggle in the labor market?: A field experiment with six thousand resumes. *American Economic Journal: Economic Policy*, 3(4), 148–171.
- Park, J. Z., Martinez, B. C., Cobb, R., Park, J. J., & Wong, E. R. (2015). Exceptional outgroup stereotypes and white racial inequality attitudes toward Asian Americans. *Social Psychology Quarterly*, 78(4), 399–411.
- PayScale. (2018). The impact of job referrals: Effects on pay, engagement, diversity. Retrieved from <https://www.payscale.com/data/job-referrals>. Accessed on January 1, 2020.
- Pedulla, D. S., & Pager, D. (2019). Race and networks in the job search process. *American Sociological Review*, 84(6), 983–1012.
- Petersen, T., Saporta, I., & Seidel, M. D. L. (2000). Offering a job: Meritocracy and social networks. *American Journal of Sociology*, 106(3), 763–816.
- Posselt, J. R., Jaquette, O., Bielby, R., & Bastedo, M. N. (2012). Access without equity: Longitudinal analyses of institutional stratification by race and ethnicity, 1972–2004. *American Educational Research Journal*, 49(6), 1074–1111.
- Quillian, L., Pager, D., Hexel, O., & Midtbøen, A. H. (2017). Meta-analysis of field experiments shows no change in racial discrimination in hiring over time. *Proceedings of the National Academy of Sciences*, 114(41), 10870–10875.
- Reardon, S. F., Baker, R., & Klasik, D. (2012). *Race, income, and enrollment patterns in highly selective colleges, 1982–2004*. Stanford, CA: Center for Education Policy Analysis, Stanford University.
- Reskin, B. F. (2003). Including mechanisms in our models of ascriptive inequality: 2002 presidential address. *American Sociological Review*, 68(1), 1–21.
- Reskin, B. F., McBrier, D. B., & Kmec, J. A. (1999). The determinants and consequences of workplace sex and race composition. *Annual Review of Sociology*, 25(1), 335–361.

- Rivera, L. A. (2011). Ivies, extracurriculars, and exclusion: Elite employers' use of educational credentials. *Research in Social Stratification and Mobility*, 29(1), 71–90.
- Rivera, L. A. (2015). *Pedigree: How elite students get elite jobs*. Princeton, NJ: Princeton University Press.
- Royster, D. A. (2003). *Race and the invisible hand: How white networks exclude black men from blue-collar jobs*. Berkeley, CA: University of California Press.
- Rubineau, B., & Fernandez, R. M. (2013). Missing links: Referrer behavior and job segregation. *Management Science*, 59(11), 2470–2489.
- Sakamoto, A., Goyette, K. A., & Kim, C. (2009). Socioeconomic attainments of Asian Americans. *Annual Review of Sociology*, 35, 255–76.
- Shah, B. R., Chiu, M., Amin, S., Ramani, M., Sadry, S., & Tu, J. V. (2010). Surname lists to identify South Asian and Chinese ethnicity from secondary data in Ontario, Canada: A validation study. *BMC Medical Research Methodology*, 10(42), 1–8.
- Shih, J. (2006). Circumventing discrimination: Gender and ethnic strategies in Silicon Valley. *Gender and Society*, 20, 117–206.
- Smith, R. A. (2001). Particularism in control over monetary resources at work: An analysis of racioethnic differences in the authority outcomes of Black, White, and Latino Men. *Work and Occupations*, 28(4), 447–468.
- Smith, R. A. (2005a). Do the determinants of promotion differ for White Men versus women and minorities? An exploration of intersectionalism through sponsored and contest mobility processes. *American Behavioral Scientist*, 48, 1157–1181.
- Smith, S. S. (2005b). 'Don't Put My Name on It': Social capital activation and job-finding assistance among the Black Urban Poor. *American Journal of Sociology*, 111(1), 1–57.
- Smith, S. S. (2010). A test of sincerity: How Black and Latino Service workers make decisions about making referrals. *Annals of the American Academy of Political and Social Science*, 629(1), 30–52.
- Smith, J. A., McPherson, M., & Smith-Lovin, L. (2014). Social distance in the United States: Sex, race, religion, age, and education homophily among confidants, 1985 to 2004. *American Sociological Review*, 79(3), 432–456.
- Smith, S. S., & Young, K. A. (2017). Want, need, fit: The cultural logics of job-matching assistance. *Work and Occupations*, 44(2), 171–209.
- Song, M. (2004). Introduction: Who's at the bottom? Examining claims about racial hierarchy. *Ethnic and Racial Studies*, 27(6), 859–877.
- Takei, I., & Sakamoto, A. (2008). Do college-educated, native-born Asian Americans face a glass ceiling in obtaining managerial authority. *Asian American Policy Review*, 17, 73–86.
- Tilly, C., & Tilly, C. (1998). *Work under capitalism*. Boulder, CO: Westview Press.
- Waldinger, R. D., & Lichter, M. I. (2003). *How the other half works: Immigration and the social organization of labor*. Berkeley, CA: University of California Press.
- Wang, S. X., Takei, I., & Sakamoto, A. (2017). Do Asian Americans face labor market discrimination? Accounting for the cost of living among native-born men and women. *Socius: Sociological Research for a Dynamic World*, 3, 1–14.
- Wilson, G., & Maume, D. (2013). Men's race-based mobility into management: Analyses at the Blue Collar and White Collar Job Levels. *Research in Social Stratification and Mobility*, 33(1), 1–12.
- Xie, Y., & Goyette, K. (2003). Social mobility and the educational choices of Asian Americans. *Social Science Research*, 32(3), 467–98.
- Zakrzewski, C. (2015). Intel Doubles Up on Hiring Women and Minorities. *Wall Street Journal*.
- Zeng, Z., & Xie, Y. (2004). Asian-Americans' earnings disadvantage reexamined: The role of place of education. *American Journal of Sociology*, 109(5), 1075–1108.

APPENDIX

Descriptive Statistics of the Non-Searching Applicants by Applicant Race.

	Black or Latinx	White	Asian
Recruiter Callback	100.0	99.2	98.3
Educational Background			
Elite Educational Credential	66.7	81.3	89.9
Work Experience			
Prestigious Firm Experience	41.7	35.8	35.8
Previously Promoted	25.0	24.4	21.2
Years of Work Experience	6.8	9.5	6.9
	5.2	7.9	5.4
Female Applicant	0.0	13.0	19.0
<i>N</i>	12	123	179

Note: I do not conduct significance tests by race among non-searching applicants given the small numbers.

