LASTING EFFECTS? REFERRALS AND CAREER MOBILITY OF DEMOGRAPHIC GROUPS IN ORGANIZATIONS

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While prior research has suggested that network-based hiring in the form of referrals can lead to better career outcomes, few studies have tested whether such career advantages differ across demographic groups. Using archival data from a single organization for nearly 16,000 employees over an 11-year period, the authors examine the effect of hiring by referrals on the number of promotions employees receive and the differences in this effect across demographic groups. Drawing on theories of referral-based hiring, inequality, and career mobility, they argue that referral-based hiring provides unique promotion advantages for minorities compared to those hired without a referral. Consistent with this argument, they find that referrals are positively associated with promotions for one minority group, blacks, even after controlling for individual and regional labor market differences. The authors explore the possible mechanism for this finding, with initial evidence pointing to referrals providing a signal of quality for black employees. These results suggest refinement to prior research that attests that referral-based hiring disadvantages racial minorities.

Research in labor economics, management, and sociology indicates that network-based hiring (referrals) is a widespread organizational practice that leads to advantages for job seekers with social contacts (Granovetter 1981; Fernandez, Castilla, and Moore 2000; Bidwell, Briscoe, Fernandez-Mateo, and Sterling 2013; Obukhova and Lan 2013; Barbulescu 2015). On the supply side, networks serve as a main way in which individuals search and locate employment (Lin, Ensel and Vaughn 1981; Marsden and Hurlbert 1988; Wegner 1991). On the demand side, social networks affect how organizations select and screen applicants (Fernandez and Weinberg 1997; Petersen, Saporta, and Seidel 2000; Yakubovich and Lup 2006).

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Keywords: discrimination, internal labor markets, internal promotion, minority applicants, race

ILR Review, 70(1), January 2017, pp. 105–131
DOI: 10.1177/0019793916669507. © The Author(s) 2016
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To date, research on network-based hiring has focused primarily on initial labor market outcomes, such as interviews, job offers, or starting salaries (Petersen, Saporta, and Seidel 2000; Seidel, Polzer, and Stewart 2000; Torres and Huffman 2002). This approach makes sense given that the benefits to network-based hiring have been framed around short-term advantages, such as minimizing the firm's cost of recruitment or optimizing the search outcomes for the job seeker. Yet, we believe that pre-entry hiring methods—the "routes" through which individuals join organizations—could persist in their effect on individuals' careers post-entry. On one hand, network-based hiring in the form of referrals may lead to positive selection effects, because information is transferred between job seekers and referring employees. Referrals may allow individuals to better select into jobs (Jovanovic 1979; Montgomery 1991; Lazear 1999; Ioannides and Loury 2004; also see Zottoli and Wanous 2001 for review) and gain greater chances for upward mobility within organizations. On the other hand, network-based hiring may lead to positive treatment effects, whereby individuals hired through referrals receive social resources that help them assimilate into their jobs and organizations, which could allow for greater opportunities for upward mobility (Castilla 2005; Fernandez and Sosa 2005; Sterling 2015).

Although such linkages have been previously claimed, few empirical investigations specifically examine these relationships. Additionally, perhaps somewhat surprisingly, no studies to our knowledge have explicitly explored pre- and post-entry effects across demographic groups. Generally, pre-entry studies suggest that referral-based hiring may be an inequality-inducing practice (Marx and Leicht 1992; Reskin and Padavic 1994; Korenman and Turner 1996; Reskin, McBrier, and Kmec 1999; Elliott 2001; Moss and Tilly 2001; Smith 2005; Kalev, Dobbin, and Kelly 2006; Rubineau and Fernandez 2013). Specifically, these studies suggest because networks are segregated by gender and race, women and minorities may be less likely to have contacts in organizations and face disadvantages in the hiring process. Nonetheless, there may be reasons to suspect that referral-based hiring as an organizational practice is not universally detrimental to members of these demographic groups (see Fernandez and Greenberg 2013; Rubineau and Fernandez 2013), particularly when examined in relation to the mobility outcomes of employees once inside an organization.

In this article, we investigate the relationship between network referrals and post-entry career mobility. Building on prior literature that finds beneficial selection (Jovanovic 1979; Montgomery 1991; Lazear 1999; for review, see Zottoli and Wanous 2001) and treatment effects (Castilla 2005; Fernandez and Sosa 2005; Sterling 2015), we argue that referred employees realize improved upward mobility outcomes compared with those hired without a referral. We further consider the possibility that pre-entry networks and post-entry career advancement outcomes may matter more for members of some demographic groups. Specifically, we argue that women

and racial minorities may stand to uniquely benefit from network-based hiring because of the distinct advantages referrals provide, such as access to seemingly blocked intra-organizational networks and a positive signal of quality from associating with the referrer. As such, we expect that referrals will positively and differentially affect the upward mobility of women and racial minorities compared with men and whites.

We examine this question using personnel records on nearly 16,000 employees hired over an 11-year period, from 2003 to 2013. This large U.S.-based sales organization (hereafter *Sales Co.*) is well suited for our research purposes for a number of reasons. To begin, referrals are a fairly common route through which employees are hired, representing approximately 36% of all hires over the 11-year period. For the purposes of comparability, all employees in the organization start out in the same entry-level position regardless of the method of hire, receive the same training, and are subject to the same incentive structure. Furthermore, and important to a study on promotions, all employees advance through the same set of hierarchical levels and jobs within the organization.

The analysis indicates support consistent with our arguments on referral-based hiring providing a promotion advantage to one traditionally disadvantaged group—black employees. We explore various explanations for the observed association between referrals and promotions for blacks by taking advantage of detailed information about the employee's education level and performance evaluations, which proxy for employee quality, as well as geographic variance in office locations that might lead referrals to affect specific regional labor market advantages. In models controlling for quality and geographic location, we find the significance of referrals to the promotion outcomes of black employees remains. In a follow-on study we present initial results from an experimental vignette (Goldberg 1968) that provides insights into why network-based hiring may differentially affect black employees' post-entry career prospects.

Background and Theory

Referral-Based Hiring and Mobility

Approximately one-third to one-half of all jobs in the United States are found through social contacts (Granovetter 1995; Marsden and Gorman 2001), and studies of other national contexts reveal similar levels of importance for networks (e.g., Yakubovich 2005; Sharone 2014). Despite this prevalence, we know little about how employees who are hired through networks fare with respect to their careers post-entry. To date, most of the theoretical attention on referral-based hiring focuses on outcomes related to the initial entry process (Petersen et al. 2000; Seidel et al. 2000; Torres and Huffman 2002). One exception to this is literature linking referral-based hiring with employee turnover, which suggests a relationship exists between the pre-entry hiring method and individuals' post-entry intra-organizational

experiences (Mowday, Porter, and Steers 1982; Krackhardt and Porter 1985; Castilla 2005; Breaugh 2008; Holtom, Mitchell, Lee, and Eberly 2008).

Broadly speaking, two theoretical explanations have been used to link pre-entry hiring method to turnover: selection and treatment. The basic intuition for each account and its effect on turnover is unique. On one hand, the selection account attests to the information benefits of network-based hiring through better employer and job-seeker selection (Jovanovic 1979; Montgomery 1991; Lazear 1999; Ioannides and Loury 2004). In labor markets, bilateral information asymmetry exists, meaning job applicants know more about their skills, abilities, and motivation than employers know, and concomitantly, employers know more about the organization, job demands, and culture than do applicants. In light of this, employees inside organizations serve as intermediaries that "stand in" for the lack of knowledge that exists on either side of the labor market. For this reason, referred applicants may be better able to select into jobs than those hired through formal hiring methods, while employers may be better able to select candidates when they are referred, leading to longer employee retention (Ullman 1966; Williams, Labig, and Stone 1993; Rivera 2015). On the other hand, the treatment account suggests that individuals hired with referrals receive direct help from their referrers post-entry, reducing turnover (Skolnik 1987). For example, Castilla (2005) found that those hired through referrals are less likely to exit, but only when the referrer remains in the organization, suggesting that direct interactions between new employees and their referrers are means of motivating employees to stay. Research by Sterling (2014) suggests employers may believe that those hired with friends in the organization have better retention outcomes because of the interactions employees have with the new recruits.

Although theory on selection and treatment has previously been directed toward understanding turnover, similar arguments may hold with respect to intra-organizational mobility. First, because of the effects of selection, individuals hired through referrals may be better matched to the organization or job and therefore may perform better (Gannon 1971; Montgomery 1991; Galenianos 2012, 2014; Pallais and Sands, forthcoming). They may be higher quality than those hired through formal methods (Williams et al. 1993; Fernandez and Greenberg 2013). In support of this, Burks, Cowgill, Hoffman, and Housman (2015) found that across multiple industries the performance of workers was higher for those hired through networks than through formal methods, citing evidence that this may be because of the higher quality of those referred (as measured by pre-job tests and interview scores).

Second, referred employees may perform better than non-referred employees because of treatment effects. Fernandez et al. (2000) found that employees referred to the organization are more socialized than those who enter without referrals, which may have downstream effects on employee performance. Castilla (2005) found that productivity is higher for referred newcomers when the referrer remains in the organization, suggesting that

interactions with referrers post-entry affect performance. In her recent study of elite professional service firms, Rivera (2015) detailed discussions of a hiring process in which consulting partners make promises of staffing referred applicants on their projects, ultimately providing referred employees different opportunities and resources once inside the firm. Finally, Pallais and Sands (forthcoming) found performance benefits to referrals when they work directly with their referrers.

Overall, existing theory on selection and treatment offers a number of reasons to expect that being referred positively affects an employee's subsequent upward mobility within that firm. Accordingly, we predict:

Hypothesis 1: Employees hired through referrals experience greater upward mobility outcomes post-entry than those hired through formal methods.

Referrals and Career Mobility of Women and Racial Minorities

Although the arguments above posit long-lived benefits of referrals, it is possible that these advantages erode over time and have negligible effects by the time promotions occur within organizations (Rosenbaum 1984). In internal labor markets, firms invest in the training and development of employees, with the intent that employees will develop firm-specific human capital (Becker 1975) and social capital within the organization (Burt 2000). All employees, including those hired without referrals, are expected to receive training and to be socialized. Accordingly, the initial benefits of being hired through referrals may dissipate. Consistent with this, some evidence suggests that selection and treatment-related effects of referrals may be short-lived (Castilla 2005: 1269–71). This outcome may occur because newcomers "catch up" to referred employees. Whatever initial advantages referrals provide, these may dissolve as other newcomers acclimate and form their own connections and become socialized within the organization.

One exception, however, may be the effect of referrals on members of demographically disadvantaged groups. Research indicates that women and racial minorities, particularly in white-collar jobs, are less likely to have social contacts in organizations prior to being hired (Reskin and McBrier 2000; Seidel et al. 2000; Beckman and Phillips 2005; Smith 2005). For women and racial minorities that do have contacts in place, entering through a referral may have more lasting effects. Within organizations, research suggests women and racial minorities may be less likely to receive economic and social rewards as well as the resources that reside in interpersonal networks (e.g., Burt 1998; Lucas 2003; Pager and Shepherd 2008; Gorman and Kmec 2009; Stainback, Tomaskovic-Devey, and Skaggs 2010). For this reason, women and racial minorities may differentially benefit from being referred compared with members of the majority.

One way this benefit may occur is by the referral providing crucial signals of quality for women and racial minorities from the onset of their employment (Spence 1973), positively influencing outcomes and evaluations of

these individuals post-entry. An individual's race and gender may provide visible signals that can trigger negative biases of lower quality, organizational commitment, and leadership potential that stunts advancement opportunities (Berger, Rosenholtz, and Zelditch 1980; Tomaskovic-Devey 1993; Bertrand and Hallock 2001; Castilla 2008; Pager and Shepherd 2008; Ridgeway 2014; Rider, Sterling, and Tan 2016). For women, being linked to a company insider may alleviate concerns about their potentially lower commitment to working because of the motherhood penalty (Becker 1985; Reskin and Padavic 1994; Budig and England 2001; Correll, Benard, and Paik 2007), or, may alleviate beliefs that feminine (communal) and leadership (agentic) characteristics are at odds (Eagly and Karau 2002; Cuddy, Fiske, and Glick 2004; Heilman and Okimoto 2007). For racial minorities, having an endorser inside the firm may assuage concerns about lower quality relative to whites (Bertrand and Mullainathan 2004; Castilla and Benard 2010) that often lead to fewer promotion opportunities (Dreher and Cox 2000; Elliott and Smith 2004).

Leveraging informal relationships to signal quality for traditionally disadvantaged employees has been observed in a variety of settings (Spence 1973; Ibarra 1997; Burt 1998; Hultin and Szulkin 1999). In a study of managers in a large electronics firm, Burt (1998) found networks with senior-ranking men assisted both women and junior-ranking men with earlier promotions. He found that the affiliation with senior-ranking men validated these employees as not only high quality but also worthy of advancement to an otherwise skeptical set of managers. While this endorsement association has been demonstrated primarily through relationships that originate once inside organizations, similar benefits could stem from relationships formed prior to entry. For example, Sterling (2015) found that pre-entry relationships affect the development of new employees' networks once inside a firm, and importantly, that such pre-entry relationships matter most when quality is uncertain. This finding suggests that women and racial minorities may benefit from having a referrer alleviate quality concerns that might linger within organizations and dampen promotion chances (Altonji and Pierret 2001; Tomaskovic-Devey, Thomas, and Johnson 2005). Moreover, commitment concerns that hamper women should be stymied if a connection to a referrer can signal the employee possesses cultural fit, a strong work ethic, or commitment to the organization (Turco 2010; Briscoe and Kellogg 2011; Rivera 2012; Quintana-Garcia and Elvira 2016). Consistent with this, Elliott and Smith (2004) found that network assistance is as important to women and racial minorities as it is to white men in terms of being promoted to managerial positions.

Beyond this, having a connection to a referrer may provide women and racial minorities with a smoother onboarding process. Rivera (2015) discussed how having a champion during the recruiting process of professional services firms could help minorities find support and assimilate once inside. These initial stages are a sensitive period of time in an individual's career and may have lasting effects on one's organizational tenure (Stinchcombe

1965; Higgins 2005; Tilcsik 2014; and, see Marquis and Tilcsik 2013 for discussion). Having an early endorsement, therefore, may prove even more critical for a minority employee, signaling positive beliefs about that individual's quality and ultimately setting that individual on a more upwardly mobile path than an employee lacking such a referral.

For these reasons, we predict that women and racial minorities may benefit post-entry relatively more from referrals than will other employees. Accordingly, we predict:

Hypothesis 2: Women and racial minorities hired through referrals experience greater upward mobility outcomes post-entry than those from the same demographic groups hired through formal methods.

Data and Methods

Sample

We test our hypotheses using personnel data from *Sales Co.*, a large private employer with several offices throughout the United States and other regions in the world.[1] The setting is well suited for our research aims of studying career mobility within organizations. Although there are temporary and part-time positions at the firm, the majority of employees at *Sales Co.* start out in the *same* full-time job—an entry-level pre-management full-time position. This position has the same set of responsibilities, and employees are subject to the same incentive structure and hierarchical career ladder within the firm. Specifically, the starting position is "up or out" within the firm: those in the entry-level position will be promoted, or they will be asked to leave the firm. That said, no length of time is specified for when an employee must be promoted to a position with greater responsibilities. Promotions from the entry-level onward take place based on how the employee performs compared with his or her peers, making it similar to promotion contests in many internal labor markets (Doeringer and Piore 1985; Bidwell and Mollick 2015).

Another benefit of this data set is that the organization keeps detailed records of employees' status within the organization—current and previous job titles, promotions, and, if applicable, termination. These personnel files allow us to verify that all employees started out with the same job title and were subject to the same internal labor market structure in the firm.

The data include information on employees hired from 2003 to 2013 who worked in three sales regions in the United States. *Sales Co.* culls its pre-management employees from two main sources: referrals, which account for approximately 36% of the hires, and formal sources, such as on-campus recruiting and websites, which account for approximately 58% of the hires. The remaining hires were sourced largely through an internship program. Overall, we received records on 16,746 individuals who were

[1]The data were received after one of the authors provided a signed Non-Disclosure Agreement (NDA) to *Sales Co.*

hired from 2003 to 2014. Because we do not have a full year's worth of data for 2014, and none of those individuals were promoted, we do not include those hired during that year in our sample. We do not include interns, nor the small number of employees who were left-censored that were included in the data.[2] Our final data set then is based on records of 15,382 employees. The personnel records contain an entry for each time a recorded event—a promotion, termination, job-role change—occurred within the firm, adding up to 39,750 observation entries for the employees in our sample.

Sales Co. relies on an internal labor market strategy that follows a "promote from within" HR policy. This policy means that in addition to all employees starting out in the same pre-management position, they are also competing for jobs with employees who likewise began in this position. No lateral external hires occur at this firm. After the pre-management position, individuals can be promoted three more times with a title change. From there, employees may keep the same title but may be promoted to increased job responsibilities. The largest number of promotions any individual attained in the 11-year period under investigation here is nine; the average number of promotions attained was less than one (0.84).

In this sample, 38.6% of the employees are women, 55.5% are white, 18.2% are black, 16.2% are Hispanic, and 7.5% are Asian American. The remaining individuals (2.6%) belong to a category we call "other minority" to designate ethnic or minority groups not included above. The average age at hire is 25 years.

Modeling Strategy and Measures

Our dependent variable is *upward mobility* within the organization, measured as the number of promotions that employees experience during their tenure at the firm. In our sample, we note a large left-sided skew in the number of promotions; approximately 61% of employees hired had less than one promotion within the company. Additionally, 71.2% of the employees in the organization experienced turnover during our sampling frame.[3]

To account for this high proportion of zero promotions stemming from employee turnover, we use a zero-inflated Poisson model. Important for the nature of our data, this type of model allows the number of promotions to be generated by different processes across two stages. In the first stage, we model the likelihood of attaining a negative outcome (i.e., termination prior to first promotion). Our first-stage model is a logit model, which indicates the probability of employees attaining zero promotions during their

[2]Because we asked the firm for data on those hired beginning in 2003 (the earliest year the full data were available), very few observations are left-censored, that is, hired prior to 2003 when data are unavailable. These individuals are mainly interns whom we exclude from the analysis.

[3]The majority of turnovers in our sample are voluntary. In logit models, we found employee referrals had a negative and statistically significant impact on turnovers in general, consistent with prior literature. Referrals also had a negative and statistically significant effect on voluntary turnovers but did not have a statistically significant effect on involuntary turnovers.

tenure in the company. In the second stage, we model the number of promotions that an employee attains after accounting for the likelihood that they have a positive number, using the following equation:

$$P_i = \beta_0 + \beta_1 R_i + \gamma X_i + \varepsilon_i$$

P_i is the number of promotions that each employee receives; R_i is the hiring method; X_i is a vector of demographic variables, covariates, and interaction terms; and ε_i is the error term. Here we use a Poisson model because the mean and the variance in the number of promotions are similar (Greene 2003). The Vuong test indicates that a zero-inflated Poisson fits significantly better than a Poisson ($z = 30.45$, $\Pr > z = 0.000$).[4] Because there may be similarities in the local employment context, employee outcomes within a region may be correlated with one another (rather than independent of the context). To deal with autocorrelation, we cluster by the three general regions where hiring occurred.

In this organization, two types of promotion outcomes could be achieved. The majority of promotions are obtained when an employee has proved that he or she is competent to perform the set of tasks required for employees in the current position, and the manager deems him or her ready for increasing responsibility. This dependent variable, the *number of promotions*, is a count of the promotions employees have while at the firm. In rare instances, managers may elect to promote individuals early because they have proved more quickly than expected that they are competent to perform at a given level. This early promotion happened for 6.4% of the total promotions over the 11-year period, and so we additionally examine the *number of outstanding promotions* as a dependent variable in the models.

The independent variable for the first-stage model is the number of days employees could work for the organization during our period of observation, which we term *at-risk days*. This variable captures the likelihood that the number of promotions an employee receives is zero because of a short tenure in the organization. The number of at-risk days is found for employees by subtracting their start date from the last day the personnel records were provided (May 1, 2014).[5]

[4]We also considered hazard rate models, but aspects of our study led us to the above modeling approach. Namely, we are interested in understanding attainment in terms of overall promotion outcomes, not promotion rates, which supports the choice of count models. In this firm, while promotions were based on performance, they were also attained based on open positions, which were outside of the employee's direct control (White 1970; Sørensen and Tuma 1981). Thus, hazard models do not map directly onto our stated propositions, nor do they permit us to investigate longer-term mobility. That said, we did run hazard rate models, and our findings hold under most model specifications.

[5]In addition to the at-risk days variable, we ran first-stage models with the maximum days worked as a predictor variable. We prefer to use at-risk days because the maximum days worked is likely endogenous, since employees can choose to terminate if they anticipate not receiving a promotion. That said, the results are consistent in all models with the maximum days worked variable.

The primary independent variable in the second-stage model is the dichotomous *referral* variable, equal to 1 if an employee was hired through a referral, otherwise 0. For every individual hired through a referral, an indication of such is made in the hiring record. To investigate the relative effect on referral-based hiring on different groups' promotions, we include interaction terms for the method of hire with demographic groups that have lower career mobility outcomes, as indicated in our models. These interaction terms indicate what, if any, within-group effect is associated with being routed through a referral at the point of hire as compared to being hired through a formal method.

Covariates

A number of covariates are included in the models that may affect the number of promotions an employee attains. Because employees all start at the same pre-management position and are expected to progress through the same career ladder, no variance is seen in jobs; thus, job-title controls are unnecessary. For gender, we include a *female* dichotomous variable. We also include the employee race or ethnicity *black, Hispanic, Asian America*, and *other minority* (*white* is the omitted category). Further, because age may affect advancement we control for the *age* of individuals (a continuous variable based on birth date). We show the full correlation table for all variables in Table 1.

Results

We first investigate the effects of hiring on the number of promotions. We run a first-stage logit model (with standard errors clustered by region) in which we regress at-risk days on the likelihood of receiving zero promotions and find that the at-risk days has the expected negative and statistically significant relationship ($p < 0.01$). In model 1 of Table 2, we then regress the number of promotions on demographic variables. Consistent with what we might expect based on prior research, women and blacks experience fewer promotions than do males and whites (the omitted categories), respectively ($p < 0.01$). No disadvantage is observed in the number of promotions for Hispanics, Asian Americans, or other minorities. Additionally, age at the point of hire has a negative relationship with the number of promotions, meaning older hires are less likely to be promoted. In model 2, we include the referral variable and find no effect from referrals on the number of promotions. The effect is negative, though not statistically significant. Thus, we find no support for Hypothesis 1 (H1).

Next we investigate Hypothesis 2 (H2)—there are positive intra-group effects of referrals on post-entry promotions for members of demographically disadvantaged groups. Since only women and blacks have a lower number of promotions than men and whites, respectively, these are the disadvantaged groups that H2 posits referrals will affect. We interact these

Table 1. Descriptive Statistics

Variable	*Mean*	*SD*	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
(1) Number of promotions	0.84	1.25	1.000									
(2) Number of outstanding promotions	0.06	0.32	0.275*	1.000								
(3) Employee referral	0.35	0.48	–0.025*	–0.014	1.000							
(4) Female	0.39	0.49	–0.038*	0.006	–0.037*	1.000						
(5) Black	0.18	0.39	–0.069*	–0.034*	0.036*	0.058*	1.000					
(6) Hispanic	0.16	0.37	0.009	0.016	0.007	–0.018*	–0.208*	1.000				
(7) Asian American	0.08	0.26	0.014	0.051*	–0.050*	0.009	–0.135*	–0.126*	1.000			
(8) Other minority	0.02	0.16	–0.037*	0.011	0.025*	0.019*	–0.075*	–0.070*	–0.045*	1.000		
(9) Age	25.0	3.6	–0.063*	–0.022*	0.007	–0.131*	0.104*	0.048*	–0.022*	–0.002	1.000	
(10) At-risk days	2329.8	1147.9	0.265*	0.041*	–0.090*	–0.005	–0.035*	–0.005	0.059*	–0.156*	–0.034*	1.000

Notes: $N = 15{,}382$. SD, standard deviation.
*$p < 0.05$.

Table 2. Effect of Referrals on Number of Post-Entry Promotions

Variable	*(1)*	*(2)*	*(3)*	*(4)*
Female	–0.101**	–0.102**	–0.102**	–0.101**
	(0.020)	(0.019)	(0.020)	(0.024)
Black	–0.164**	–0.163**	–0.209**	–0.163**
	(0.018)	(0.019)	(0.033)	(0.019)
Hispanic	0.037	0.037	0.038	0.037
	(0.044)	(0.044)	(0.044)	(0.044)
Asian	–0.001	–0.002	–0.004	–0.002
	(0.035)	(0.034)	(0.034)	(0.034)
Other minority	–0.075	–0.075	–0.074	–0.074
	(0.099)	(0.098)	(0.098)	(0.098)
Age	–0.020**	–0.020**	–0.0195**	–0.020**
	(0.005)	(0.005)	(0.005)	(0.005)
Employee referral		–0.015	–0.032	–0.014
		(0.026)	(0.026)	(0.035)
Black x Referral			0.116*	
			(0.047)	
Female x Referral				–0.004
				(0.033)
Constant	1.080**	1.083**	1.089**	1.083**
	(0.211)	(0.216)	(0.217)	(0.218)
Log pseudolikelihood	–18310.4	–18310.1	–18308.3	–18310.1
N	15,382	15,382	15,382	15,382

Notes: Standard errors in parentheses.
*$p < 0.05$; **$p < 0.01$; two-tailed tests.

demographic variables with referrals in models 3 and 4. We find support for the hypothesized relationship of referrals on promotions among black employees. The coefficient on the interaction variable is positive and statistically significant ($p < 0.05$). It indicates that blacks hired through referrals increase their number of promotions by a factor of 1.2 relative to blacks hired through other methods, holding all other factors constant.[6] In model 4, we find no support for our hypothesis among women. The interaction between referrals and the female dummy variable is negative and not statistically significant.

In models 1 through 4 in Table 3 we repeat these same regression analyses for outstanding promotions. As with the prior analysis of number of promotions, blacks were less likely to receive outstanding promotions than were whites (the omitted category). Hispanics were no different from whites in the number of outstanding promotions; Asian Americans and other minorities received more outstanding promotions than did whites. Somewhat counter to expectations and the previous models, the effect of being female on outstanding promotions is positive and statistically significant ($p < 0.05$). While surprising, this may give some indication that women in this firm are not disadvantaged universally, which is contrary to

[6]When we further reduce the sample to black and white employees only, the effect for blacks remains ($p < 0.05$).

Table 3. Effect of Referrals on Number of Outstanding Post-Entry Promotions

Variable	*(1)*	*(2)*	*(3)*	*(4)*
Female	0.076**	0.072*	0.066*	0.104
	(0.027)	(0.032)	(0.032)	(0.062)
Black	–0.329**	–0.323**	–0.543**	–0.320**
	(0.032)	(0.034)	(0.057)	(0.026)
Hispanic	0.277	0.273	0.270	0.275
	(0.169)	(0.171)	(0.173)	(0.171)
Asian	0.573**	0.567**	0.563**	0.566**
	(0.063)	(0.063)	(0.060)	(0.065)
Other minority	0.525**	0.518**	0.512**	0.523**
	(0.169)	(0.173)	(0.174)	(0.160)
Age	–0.026	–0.026	–0.026	–0.026
	(0.019)	(0.019)	(0.018)	(0.019)
Employee referral		–0.067	–0.141	–0.029
		(0.046)	(0.079)	(0.086)
Black x Referral			0.504**	
			(0.159)	
Female x Referral				–0.105
				(0.227)
Constant	0.180	0.203	0.209	0.181
	(0.429)	(0.442)	(0.441)	(0.442)
Log pseudolikelihood	–3372.4	–3372.0	–3369.8	–3371.9
N	15,382	15,382	15,382	15,382

Notes: Standard errors in parentheses.
*$p < 0.05$; **$p < 0.01$; two-tailed tests.

what appears to be the case for blacks. In model 2, we include the referrals variable. Once again we find no support for the direct effect of referrals: there is no significant effect of being routed through this hiring method on the number of outstanding promotions in the firm.

In models 3 and 4 in Table 3, we investigate the interaction effects. Similar to the prior models, our hypothesis holds for black employees but not for women. We find a positive and statistically significant effect of referrals on the number of outstanding promotions blacks receive ($p < 0.05$). The coefficient on the black-referral interaction indicates that the negative effect of being black on outstanding promotions can be substantially "negated" if one is hired through a referral. That is, blacks hired through a referral have similar promotion outcomes to whites hired without referrals.

In sum, the analyses indicate that blacks sustain disadvantages in post-entry promotions and that the route through which individuals are hired might have persistent effects on reducing this disparity. Black employees receive more promotions when hired through referrals than do black employees not routed through referrals. This effect is present in both types of promotions; however, the effects of referrals are most pronounced in models of outstanding promotions, where the disadvantages blacks sustain in promotions are almost fully remediated through referrals.

As stated previously, we do not find this effect for women, the other demographic group that appears disadvantaged in mobility outcomes in this

firm, at least in terms of overall promotion counts post-entry. One reason for this might be the nature of the jobs under study—the firm is in an industry where customer service is important and therefore women may be viewed as of similar quality as men (Schwepker 2003) because the job role is gender consistent (Barnett, Baron, and Stuart 2000; Barbulescu and Bidwell 2013). To determine whether there was something more systematic occurring for women, we further investigated the demographic characteristics of referrers for women as compared with the characteristics of referrers for men. Specifically, we obtained the pre-hire records—the applicant files—for one region of *Sales Co.* from 2009 to mid-2011. No employee-identifying information appears in the pre-hire data, so these records are not linkable to post-hire records. There were 723 applicants referred during this period of time. We use these records to examine the degree of gender homophily in referrals; that is, if female applicants were more likely to be referred by female employees than male applicants were likely to be referred by female employees. If this is the case, women's referrers might be viewed as less legitimate or lacking authority in the organization, which might explain the lack of a referral effect for women. We found no evidence that this was the case. Female applicants had a female referrer 41% of the time, and male applicants had a female referrer 38% of the time, a difference that is not statistically significant. That is, both men and women applicants were referred by women in the organization approximately 40% of the time and by men the remainder of the time.[7] Thus, at least one characteristic of the referrers (gender) does not seem to be driving the null effects for women.

Robustness Checks

We undertake a number of robustness checks to verify the validity of our findings that referrals have a positive relationship with the post-entry promotions of black employees. First, it is possible that unobserved heterogeneity in the quality of employees hired through referrals versus non-referrals is driving our effects. If this is the case for blacks, then the results we observed on the positive relationship with referrals could be because of higher quality blacks sourced into the firm through referrals versus blacks hired through formal means (e.g., Burks et al. 2015).

To examine this possibility, we obtained information on the education level for the majority of employees in our sample.[8] Most employees in the sample, 92%, had a college degree, 2% had a two-year degree, 2% had some college, and less than 1% attained a high school degree or did not finish high school. The remaining percentage had some graduate school education or an

[7]Additionally, we qualitatively examined the names of referrers to see if some groups had a more concentrated set of referrers (perhaps designated "advocates") and found no evidence that this is the case.

[8]Note that because we could not be provided with education information on all employees in the sample and because there is no verification that the data are missing-at-random (Allison and Waterman 2002), we include education controls as robustness checks rather than in the main models. The same is true for the performance data.

advanced degree. We include the education level variables: "not high school," "high school," "some college," "technical school," and "two-year" degree in model 1 of Table 4 ("college degree or above" is the omitted group).

Additionally, we obtained performance evaluations for employees at the firm. The number of performance evaluations in personnel files varied across employees, and *Sales Co.* indicated during our interviews that performance evaluations were not required to be recorded in the electronic database. Nonetheless, they were available for more than 13,000 employees in our sample. We include the employee's mean rating (on a 5-point scale) if they had more than one rating. There were 10.7% of employees who had a mean rating of 2 or less, 73.9% had a mean rating between 2 and 3, and the remaining had mean ratings more than 3.

In Table 4, models 1 and 4, we show the demographic variables with these additional proxies for quality. In terms of education level, the variables (not shown) have the expected sign and most are significant. Not obtaining a high school degree or having only a high school degree has a negative and significant effect on the number of promotions and outstanding promotions ($p < 0.01$). Having some college or a technical degree does not affect promotions. The sign on a two-year degree is positive and statistically significant ($p < 0.05$). The mean performance evaluations did not have an effect on the number of promotions or outstanding promotions, perhaps because of their lack of variation. With these additional variables in the models, the positive and statistically significant interaction for black and referral remains. Consistent with the prior models, no such interaction effect is observed for women.

Next, we consider the possibility that clustering at the three-region level leaves aspects of non-independence unaccounted for in the models. Namely, 692 offices are represented in the sample. To account for potential non-independence at the office level, we cluster by individual offices in models 2 and 5 for promotions and outstanding promotions, respectively. Clustering at the office level affects the standard errors but not the coefficients and does not alter the conclusions drawn about the influence of referrals on promotions for blacks. Finally, in models 3 and 6, we add year dummy variables for each cohort, and our findings remain.[9]

Exploratory Analyses: Mechanisms Leading to the Referral Effect

Overall, our results suggest that referrals have a positive relationship with post-entry promotions for one traditionally disadvantaged demographic group, blacks, the only group that had a negative association with both types of promotions studied. Pinpointing the mechanisms behind this relationship is beyond the scope of this present study; however, we do some exploratory analyses toward this end in an experimental vignette (see Goldberg 1968) designed to replicate aspects of the archival study. In the

[9]In analyses not shown, we also ran regressions with outliers removed; that is, the top 1% and 3% of the number of promotions among blacks. Doing so did not have a substantive effect on the results.

Table 4. Robustness Checks on the Effect of Referrals

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Variable	*Number of promotions*			*Number of outstanding promotions*		
Female	–0.087**	–0.087**	–0.105**	0.111*	0.111	0.115
	(0.024)	(0.026)	(0.025)	(0.055)	(0.079)	(0.080)
Black	–0.206**	–0.206**	–0.218**	–0.555**	–0.555**	–0.521**
	(0.034)	(0.046)	(0.045)	(0.027)	(0.149)	(0.143)
Hispanic	0.047	0.047†	0.033	0.344*	0.344**	0.332**
	(0.047)	(0.028)	(0.028)	(0.149)	(0.112)	(0.121)
Asian	–0.001	–0.001	–0.0350	0.562**	0.562**	0.572**
	(0.035)	(0.036)	(0.036)	(0.065)	(0.120)	(0.111)
Other minority	–0.080	–0.080	0.061	0.511**	0.511**	0.510**
	(0.087)	(0.081)	(0.079)	(0.118)	(0.182)	(0.158)
Age	–0.017**	–0.017**	–0.019**	–0.018	–0.018	–0.025*
	(0.005)	(0.003)	(0.003)	(0.017)	(0.012)	(0.011)
Employee referral	–0.026	–0.026	–0.037	–0.051	–0.051	–0.121
	(0.034)	(0.028)	(0.027)	(0.102)	(0.115)	(0.111)
Black x Referral	0.109*	0.109†	0.118*	0.563**	0.563*	0.516*
	(0.043)	(0.061)	(0.060)	(0.115)	(0.227)	(0.224)
Female x Referral	–0.022	–0.022	0.015	–0.171	–0.171	–0.131
	(0.040)	(0.044)	(0.043)	(0.201)	(0.142)	(0.135)
Constant	1.091**	1.091**	–1.278**	–0.562	–0.562	–1.321**
	(0.319)	(0.104)	(0.151)	(0.792)	(0.434)	(0.413)
Mean rating	Yes	Yes	No	Yes	Yes	No
Educational level	Yes	Yes	No	Yes	Yes	No
Cohort year intervals	No	No	Yes	No	No	Yes
Clustering	Region	Office	Office	Region	Office	Office
N	13,381	13,381	15,382	13,381	13,381	15,382
Log pseudolikelihood	–17266.7	–17266.7	–17930.1	–3205.1	–3205.1	–3342.9

Notes: Standard errors in parentheses.
**$p < 0.01$; *$p < 0.05$; †$p < 0.10$; two-tailed tests.

experiment, fictionalized employee files are randomly assigned to participants who are asked to evaluate the employee for a first promotion or, alternatively, to recommend termination and provide reasons for making the decision. Although the results are only preliminary because of a limited sample size (20 per condition, 4 conditions), they prove informative in suggesting possible mechanisms related to our field study.

We conducted the Institutional Review Board (IRB)–approved experimental survey in graduate business school classes of a U.S. university that targeted two cohorts of 62 executive MBA graduate students and one cohort of 37 part-time MBA graduate students. The sample comprised individuals representative of students enrolled in the programs and the school. We purposefully sampled graduate students as it allowed us to capture a range of respondents with prior managerial experience representative of those familiar with making promotion and termination decisions. The response rate was high, with 52 executive MBA respondents of the 54 attending classes those days (96%) and 37 of the 44 (84%) part-time MBA students (sample = 89).

We asked participants to complete a seven-page, hard-copy survey booklet in class, where they read a vignette about a fictional Fortune 500 U.S. firm, *ABC Co.*, that was modeled on *Sales Co.* in our field data (materials not shown, but available). Participants were told to picture themselves as the manager responsible for all promotion and termination decisions for employees at a branch of *ABC Co.* The survey then provided information on a fictional employee who had worked at *ABC Co.* for one year, including a hiring report that consisted of a few sentences (either that the employee was "referred to us by an employee in the company" or, "came to us through an on-campus recruiter") along with a one-page résumé from this employee, which was submitted at the time that he initially applied for the job. In addition to the hiring method variation, we manipulated employee race. Akin to prior research (Bertrand and Mullainathan 2004), we changed the employee's name (Calvin or Connor, same surname Johnson, for the black and white employees, respectively). We selected these names based on public census data indicating they were most commonly associated with black and white racial identities (Johnson was neutral). Following Tilcsik (2011), we also altered one line on the resume to indicate race: under leadership experience we listed membership in the National Association of Black Accountants (NABA) for the black employee, whereas for the white employee we listed Institute of Management Accountants.[10]

We held employee quality constant (low) in all conditions, describing the employee as ranking in the 25th percentile compared with other employees at the same job rank and having a 2.95/4.0 college GPA. Statistics were provided that showed that employees who ranked in this percentile were promoted 50% of the time and terminated 50% of the time so that participants

[10]We confirmed the manipulations worked using a series of inference questions at the end of the survey. Post-survey analysis validated that participants were more likely ($p < 0.001$) to infer that Calvin was black and that Connor was white and the hiring condition through a referral/other method correctly ($p < 0.001$).

could equally argue to promote or terminate in their responses. The survey concluded with questions on the participant, such as demographic background and work experience. Beyond the hiring method and race manipulations, all materials were identical.

In all, we had four condition assignments (2 x 2 design): black male hired by referral (n = 20), black male hired by on-campus interview (n = 23), white male hired by referral (n = 23), and white male hired by on-campus interview (n = 23). Each participant was randomly assigned to one of the four conditions. One author administered all surveys in person in the classrooms.[11]

The survey captured promotion or termination decisions through a few questions that asked the participant to use a 5-point Likert scale to indicate the likelihood of promoting the employee, the likelihood of terminating the employee, assessment of the employee's suitability for promotion, and also asked the participant to make an overall recommendation to promote or to terminate the employee to replicate an "up or out" HR policy akin to our field study.

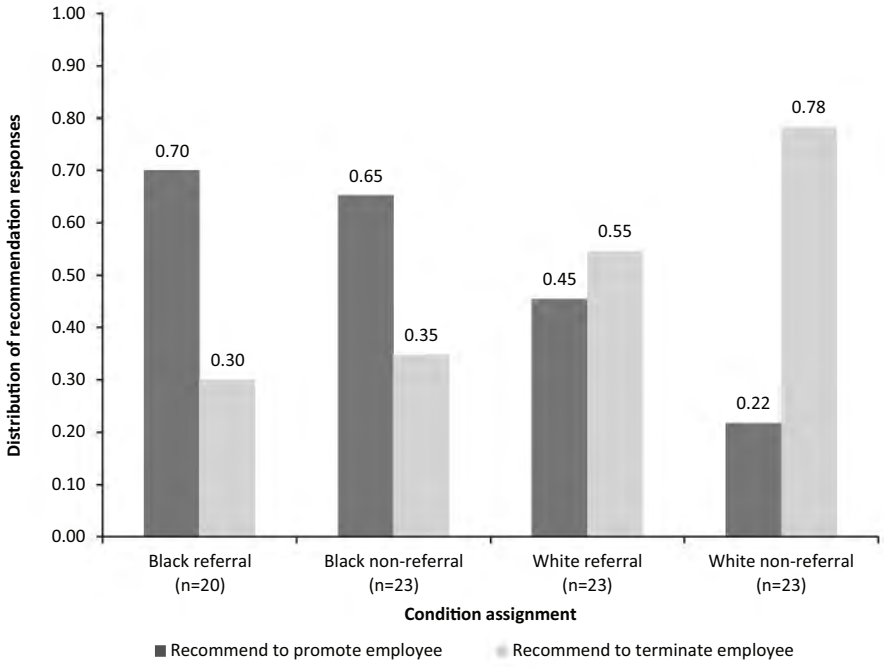
Figures 1A and 1B show participant's mean ratings across condition assignment. Figure 1A shows the distribution of recommendations to promote versus to terminate the employee by condition assignment. The pattern is consistent directionally with our results from the archival study. Specifically, it shows that participants assigned to the black–referral condition had the highest distribution of promotion recommendations (70% promote compared to 30% terminate). Next was black–non-referral, which was 65% in favor of promotion compared to 35% in favor of termination (not statistically different from black–referral, $\chi^2(1) = 0.11$, $p = 0.74$). Those assigned to the white–referral condition had a 45%–55% split in favor of termination (a marginally significant difference from the black–referral condition, $\chi^2(1) = 2.58$, $p = 0.11$). Without a referral, the split was 22 to 78% in favor of termination for white employees (statistically different from black–referral, $\chi^2(1) = 10.10$, $p = 0.001$).

Figure 1B compares participant mean ratings (+ /– one standard deviation) of likelihood to terminate the employee. The lowest mean rating of likelihood to terminate was for black-referral (M = 2.70, SD = 0.98). Participants assigned to the black–referral condition also statistically differed from those assigned to white–non-referral in mean promotion likelihood ($t = 3.76$, $p = 0.001$) and termination likelihood ($t = 3.03$, $p = 0.004$).[12] Interestingly, no condition statistically differed from another in the mean rating of suitability for promotion. Thus, participants deemed all candidates

[11]To validate random survey assignment, we ran a logistic regression predicting the likelihood of being assigned to each of the conditions based on participant characteristics (e.g., age, gender, race, marital status, work experience). No characteristic predicted the likelihood of completing a survey for any of the four conditions.

[12]Notably, black–non-referral also differed in mean ratings with white–non-referral in promotion likelihood (t =1.97, $p = 0.06$) and termination likelihood ($t = -2.54$, $p = 0.02$). Black–referral and black–non-referral did not statistically differ from each other in promotion likelihood ($t = -0.58$, $p = 0.57$) or termination likelihood (–0.40, $p = 0.69$). We were somewhat surprised at the pro-black effect we uncovered, suggesting a potential social desirability bias among the business school graduate students we surveyed.

Figure 1A. Distribution of Participant Recommendation to Promote or Terminate Employee by Condition Assignment



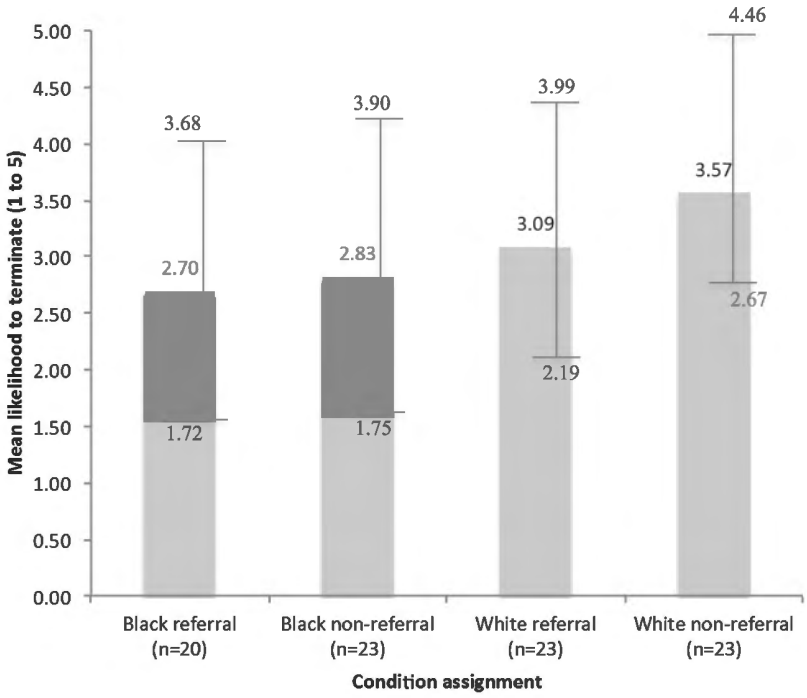
equally suitable, yet, still differed in their recommendations to promote or to terminate across conditions.

To qualitatively explore if participants used different logics in their explanations across conditions, we examined the participants' explanations for their evaluations. One recurring theme we observed was that in some cases, participants relied directly on the hard data about the employee, such as the percentile ranking to justify their recommendation (such as "Because 25th percentile is not sufficient to be promoted" or, "Low percentile ranking, low GPA . . ."). We also qualitatively observed evidence that having a referral might matter for the salience or weighting of hard data by the participant. As one participant in the non-referral condition explained: "If he is performing in the 25%, I would want to see a lot of information or know him personally (or through a trusted source recommendation) to bring him on."

To assess this systematically, we had one author and two independent raters (one male, one female, both native English speakers with work experience, unaware of our hypotheses) evaluate the text responses.[13] From this, we first created an indicator variable that captured if the participant "mentioned the 25th percentile" in their explanation, which equaled 1 if two out

[13]A kappa statistic showed "in substantial agreement" across the dimensions for all raters (mean across rating = 0.72, $p < 0.001$) (Viera and Garrett 2005; see Barbulescu and Bidwell 2013 for similar approach). Eighty-one text explanations were evaluated in all, as 8 participants did not provide a written explanation (BM–referral $n = 19$; BM–non-referral $n = 21$; WM–referral $n = 21$; WM–non-referral $n = 20$).

Figure 1B. Mean Participant Rating (+ /– SD) of Likelihood to Terminate Employee by Condition Assignment



Notes: 1 = not at all likely to; 5 = highly likely.

of the three raters agreed on this, 0 otherwise (36% of the responses were coded as mentioning percentile ranking). We found that participants evaluating black employees were statistically more likely ($\chi^2(1) = 4.70$, $p = 0.03$) to mention percentile ranking in their explanations (M = 0.48, SD = 0.51) than those evaluating white employees (M = 0.24, SD = 0.43). Further, participants assigned to the referral hiring method condition were statistically less likely ($\chi^2(1) = 4.01$, $p = 0.05$) to mention percentile ranking in their explanations (M = 0.25, SD = 0.44) than those evaluating employees who were hired without a referral (M = 0.46, SD = 0.50). Comparing those assigned to black–referral versus black–non-referral further revealed that those assigned to black–non-referral were statistically more likely to use percentile ranking in their explanations (M = 0.67, SD = 0.48 compared to black–referral: M = 0.26, SD = 0.45, $\chi^2(1) = 6.51$, $p = 0.01$).[14] Thus, even

[14]Running a logistic regression on the odds of using "percentile ranking" in the explanation revealed that participants were 2.9 times more likely to use this when evaluating black employees versus white employees; participants were 2.6 times more likely to use it when evaluating employees without a referral versus with a referral; and participants were 6.6 times more likely to use it when evaluating black–non-referrals versus white employees, which reduced to 1.1 times more likely when evaluating black–referrals versus white employees. Similar analyses on participants citing low GPA in their explanation showed consistent, but not significant ($p = 0.15$), differences between black–referrals and black–non-referrals.

though the distribution of the recommendations to promote or terminate did not statistically differ from one another, the reasons for making these recommendations did, with participants less apt to weight hard data such as percentile rankings when the black employees had referrals to vouch for their quality or ability.

Although more robust analysis is needed to conclusively pinpoint the precise mechanism, the experiment was informative in showing the logics used to justify mobility decisions on the first job move of identically qualified employees who varied only by race and hiring method. Specifically, we found participants more apt to use hard data to assess employee quality when evaluating black employees compared with white employees but were less likely to do so for employees who were hired by a referral rather than by formal methods. This difference in the use of hard data further appeared between explanations of participants evaluating black employees with and without a referral. This result is consistent with aforementioned explanations of signaling as a source of the advantage referrals may provide when referrals may vouch for a traditionally disadvantaged employee by minimizing attention to perceived lower quality (i.e., low percentile ranking) and moving them forward along the career path inside a firm. The fact that this trend emerged with minor manipulations is encouraging for continued research on the topic.

Concluding Remarks

This study is the first to our knowledge to investigate the effect of hiring method on upward mobility outcomes within organizations and how this effect differs across demographic groups. Results of a field study of a single organization over an 11-year period indicate that referral-based hiring has a positive relationship with upward mobility within organizations, but that these effects are limited to certain demographic groups. Specifically, we do not find evidence of a positive, main effect of referrals on upward mobility for all individuals. Rather, we find that for one demographic group—black employees—referrals are associated with improved upward mobility outcomes. Some exploratory evidence indicates this outcome may stem from positive signaling that blacks receive when hired through referrals that may persist after they enter the firm.

Notably, we did not find the same referral effect for promotions for women. Although this study cannot precisely determine the reason behind this observed non-effect, we did ascertain that women did not sustain disadvantages in all promotion pursuits, nor were there systematic differences in the referrals that women received compared to male employees based on the gender of the referrer. It could be that in the context we studied—a sales organization in a customer service role—women are not perceived as role inconsistent or less able as compared to men. Certainly studies have shown professions and job functions to be gendered, or to be perceived as

such (e.g., England 1992; Barnett et al. 2000; Cohen and Huffman 2003; Barbulescu and Bidwell 2013). It may also be that the referral is more critical for women once they are inside the firm compared to a pre-entry affiliation. Knowing that possible sources of potentially blocked upward mobility differs for women (i.e., work commitment, leadership potential) compared to blacks (i.e., quality, ability), it may be that a pre-entry referral is poorly timed and would instead be of benefit after women enter the firm and reach an age when work–life balance becomes salient (Briscoe and Kellogg 2011). Thus, the advocate may be able to attest to the woman's commitment or leadership ability based on observed work in the firm at that time. By contrast, if blacks face bias about their quality, these employees may benefit more from a pre-entry affiliation because it signals quality from the start. Thus, the pre-entry timing of the affiliation through a referral may be more advantageous since it could stem from more pervasive bias, rather than bias that is triggered by an event (i.e., getting married or having children). This finding makes analyses of other contexts, affiliations, and the timing of such affiliations important for future research.

Additionally, we have taken care not to claim we definitively show that having a social contact has a causal effect on the promotion chances for blacks. A key reason is that social contacts are not randomly assigned in the field study, and we cannot disentangle their non-randomness from factors unobservable to us as researchers. That said, the body of evidence presented here—from the availability of fine-grained data that permitted proxies for quality to the qualitative and quantitative findings from the follow-on experiment—coheres with referrals having a meaningful impact on the promotions of blacks. Future research might be able to test this more systematically in a field experiment, and it would be encouraging to see work toward this end.

This study makes a number of contributions to research on inequality within organizations, labor markets, and networks as well as to policies that could reduce such inequality. Prior studies largely point to the inequality-inducing aspects of referral-based hiring within organizations (Korenman and Turner 1996; Reskin et al. 1999). Our study suggests refinements to this thesis, given the disproportionate effects referrals have on the outcomes of group members that might otherwise sustain disadvantages in upward mobility pursuits. More pointedly, while prior studies largely lead to the conclusion that referral-based hiring should be *reduced* to address inequality between groups, we find evidence counter to this claim, especially when considering post-entry career outcomes for some demographic groups (Fernandez and Greenberg 2013). This finding aligns with other recent work that suggests referrals need not have disparate effects across groups (e.g., Rubineau and Fernandez 2013).

Our findings are also particularly important in light of the fact that careers are multifaceted. Primary attention to the influence of referrals on the initial hiring stage misses the effects of referrals on upward mobility

within organizations, affecting the economic and social rewards that employees receive after entering the firm. Additionally, studies on upward mobility in organizations almost unilaterally view networks formed within organizations as the primary social structures affecting upward mobility (Burt 2000; Brass, Galaskiewicz, Greves, and Tsai 2004). This study sheds light on the importance of networks that exist between individuals prior to entry and adds insights into why such networks have persistent effects.

Finally, this study has implications for HR professionals and other practitioners. On the one hand, practitioners may be motivated to reduce network-based hiring because of the possibility that it reduces the probability of members of certain demographic groups to be hired. On the other hand, this study suggests this policy of avoiding network-based hiring has downsides, given the importance of networks for some groups post-entry. This insight may be especially true in light of the fact naturally occurring relationships in the form of referrals may not be easily replicated through other means such as mentors (e.g. Kalev, Dobbin, and Kelly 2006; Sterling 2015).

In closing, it has long been stated that organizations play a fundamental role in generating inequality in industrialized countries (Baron 1984; Sørensen 2007; Stainback, Tomaskovic-Devey, and Skaggs 2010). Here our findings are consistent with the idea that organizations may utilize leveling practices at the point of hire that have disproportionate effects on members of demographic groups. That is, it appears networks at entry cast a long shadow post-entry. Future research should continue to examine how networks at the point of hire generate or reduce opportunities for demographic groups within organizations.

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