

How Do Labor Market Networks Work?

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Abstract

The informal seeking and sharing of job opportunity information via contacts are the dominant mechanisms for both the supply and demand sides of the labor market. Despite many decades of scholarly scrutiny, we have established little certainty about the mechanisms through which labor market networks operate. Much of this uncertainty results from single-perspective investigations of a fundamentally triadic process. Network-mediated job search is not merely a version of the classic two-way matching problem with some additional network factors but is rather a three-way matching problem with three distinct agentic decision makers: the job seeker, the job screener, and the social contact acting as a connector. This essay summarizes what is currently known about the operation and consequences of labor market networks, their mechanisms, and their contextual dependencies. We show how the perspective of a triad of actors presents new opportunities for resolving current contradictory empirical findings and areas of ongoing debate. Progress on this topic requires both careful causal research isolating mechanisms affecting a particular actor and integrative research on how these mechanisms interact among the triad of actors.

The informal seeking and sharing of job opportunity information via contacts are the dominant mechanisms for both the supply and demand sides of the labor market. The importance and prevalence of these processes have been well documented. Previous work has mostly focused on documenting the importance of labor market networks via their consequences. Surprisingly, few of these studies have clearly identified the mechanisms underlying labor market networks' operation or their contextual contingencies, and even fewer studies have done so with any degree of causal certainty. Causally identifying which mechanisms drive labor market networks and under what conditions they are active is vital to effectively manage or leverage these processes toward organizational or personal goals. For example, does the use of informal contacts in job search improve the likelihood of receiving a job offer? Do firms prefer referred applicants? Do referring employees generate

candidates that differ from the applicants generated by formal methods? What are the scope conditions for any such effects? There are a host of basic questions about how labor market networks work that still await conclusive answers. This essay summarizes what is currently known about the operation and consequences of labor market networks, their mechanisms, and their contextual dependencies. Rather than seeking to provide a comprehensive review (for recent reviews, see Castilla, Lan, & Rissing, 2013a, 2013b; Topa, 2011), this essay focuses on identifying the open questions that need to be answered in future research. Thus, the research cited and discussed here are drawn disproportionately from very recent scholarship providing insights into the causal processes involving labor market networks. To preview our conclusion, we suggest that a substantial challenge to past research in this area has been the multifaceted nature of the phenomenon. Researchers tend to limit their attention to a narrow subset of the job matching process, necessarily neglecting the effects of other components. Network-mediated job search is not merely a two-way matching problem with some additional network factors but is a three-way matching problem with three distinct agentic decision makers. Progress in this important field will depend on future research achieving two important goals. Research must first be designed to isolate these various features of network processes affecting each actor at the labor market interface. Second, the findings from this research must be integrated to reveal the collective operation of the three-actor system defining labor market networks.

THE THREE PLAYERS AND THEIR ROLES

The use of informal contacts in the job matching process requires a convergence in the actions of three players: the *connector* must provide job opportunity information to the job seeker, the job *seeker* must act on that information, and the job *screeener* must decide whether to extend a job offer to the job seeker.¹ These three players form a triad that is fundamental to the existence and operation of labor market networks. Job seekers work on the supply side, while job screeners work on the demand side of the labor market. Connectors may work on the supply side, the demand side, or as an intermediary between the two sides. Connectors who use their contacts to seek out job opportunities on behalf of a job seeker arguably operate on the supply side of the labor market. Connectors who are firm employees recruiting for their employer among their contacts arguably operate on the demand side. Some

1. Screening in organizations is often divided between initial evaluators (often performed by personnel in HR departments) and the hiring manager who makes the ultimate hiring decision. This arrangement introduces the possibility of actor disagreement (Fernandez, 2010). For simplicity, we set aside issues of possible misalignment.

connectors may act simply as information conduits, not working on anyone's behalf. Scholarly attention has not been equally divided across these three players. Studies examining the importance of networks for job seekers are numerous and span over a half-century, studies adopting the hiring firm's perspective have emerged over the past two decades, and studies explicitly examining the role of the connector are the most recent of all. In the next three sections, we summarize and synthesize the research findings on labor market networks from each of these perspectives.

JOB SEEKERS

How do labor market networks work for job seekers? What are their effects, mechanisms, and contingencies? Does a job search including networks yield distinct outcomes compared to a job search excluding networks? Although there is broad scholarly consensus that network search is consequential for job seekers, there is disagreement regarding some of those consequences. Virtually all studies examining job search duration and receiving or accepting a job offer find that job seekers who use networks have shorter job searches (e.g., Cingano & Rosolia, 2012) and are more likely to receive or accept a job offer identified via networks (Fernandez & Greenberg, 2013; Obukhova & Lan, 2013). Tests of the effects of network search on wages show contradictory results. Some models suggest wage benefits to network job search (Montgomery, 1991), and a number of empirical studies buttress that finding (e.g., Hensvik & Nordström Skans, 2013). Other models suggest the opposite (Krug & Rebien, 2012), and those models find empirical support as well (Bentolila, Michelacci, & Suarez, 2010). Scholars have proposed industry-level (Kugler, 2003) or nation-level (Pellizzari, 2010) factors as contingencies to help resolve such contradictory findings. One of the earliest contingencies is identified by Granovetter (1973), that is, whether the nature of the job seekers' relationships with their contacts is consequential. Indeed, weaker ties tend to provide novel job opportunity information, and this novel information mediates the relationship between tie strength and the likelihood of getting a job via contacts (Yakubovich, 2005). More recently, examining within-individual variation from data on the multiple job searches of graduating MBAs Barbulescu (2014) found that while weak ties were more helpful for learning about job opportunities and getting invited for interviews, stronger ties were more helpful for converting interviews into offers (see note 1). Another recently described contingency is the difference between having contacts while engaging in a job search versus actively using those contacts in a job search. Many studies posited that having better social capital (measured in terms of social network opportunities for job search help) would be a reasonable proxy for mobilizing that capital in job searches.

But just as the marginal dollar remaining in a bank contributes little to marginal productivity, unmobilized social capital has little opportunity to assist a job seeker. Some studies finding positive social spillover effects consistent with a social capital effect inferred such an effect explicitly (e.g., Cingano & Rosolia, 2012) even though no network mobilization data were available. Other studies found social capital measures not to be associated with job search outcomes (Mouw, 2003). Helping to resolve this puzzle using data on multiple contemporaneous job searches, Obukhova and Lan (2013) found that social capital did not predict contact use, and only contact use was consequential in improving the chances of interviews and job offers. Many other contradictory empirical findings still have not been resolved. For example, does using networks in job search result in jobs that are better matches with the interests and abilities of the job seeker (Franzen & Hangartner, 2006) or worse matches (Bentolila *et al.*, 2010)? Similar debates continue about the job satisfaction, performance, and turnover effects of network job search. Even in areas of empirical agreement, mechanism questions remain. For example, why does network job search result in shorter job search durations? Using the framework recently proposed by Castilla *et al.* (2013a), contacts may provide resources to the job seeker (e.g., job information or advocacy), or signals about otherwise difficult-to-observe candidate traits to the hiring firm (e.g., productivity or similarity to current employees). Another possibility is that referrals change the temporal dynamics of the candidate evaluation process. For example, when confronted with a pool of applicants, employers may tend to respond to referrals first. This behavior alone could generate many of the apparent beneficial effects of network job search even absent any employer preferences for network applicants.

JOB SCREENERS: HIRING FIRMS

While the demand side of labor market networks has been understudied relative to the supply side, a host of studies find that employers prefer referral applicants (e.g., Fernandez, Castilla, & Moore, 2000; Petersen, Saporta, & Seidel, 2000). What are the mechanisms behind these preferences, and what is the quality of the evidence supporting those mechanisms?

One question is whether job screeners have a simple preference for referral applicants versus nonreferral applicants. In a within-individual study leveraging data from a firm where individuals had applied for jobs multiple times sometimes as referral applicants and sometimes as nonreferral applicants, Fernandez and Galperin (2014) find a clear preference for referral applicants. Individuals first applying as nonreferral applicants and then later as referrals were more likely to be interviewed and offered jobs than individuals

who remained nonreferral applicants in subsequent job applications. In contrast, individuals who first applied as a referral applicant and then later as a nonreferral experienced significant *decreases* in their chances of interview and job offer.

Why might such a preference manifest? Consistent with Castilla *et al.*'s (2013a) framework, there are several signaling-related hypotheses for the observed preferences. Several empirical studies find referral applicants are more productive workers (Burks, Cowgill, Hoffman, & Housman, 2013; Castilla, 2005; Pinkston, 2012), suggesting referral status is a quality signal. Another common signaling explanation builds upon homophily—the tendency for individuals' social contacts to be similar to themselves along many dimensions. Because of homophily, current workers' referral applicants will be similar to their referrers—people whom the firm already has chosen to employ. Many scholars have suggested that homophily on characteristics important to the organization is a likely reason firms prefer referral applicants (Casella & Hanaki, 2008; Fernandez & Galperin, 2014; Hensvik & Nordström Skans, 2013). However, field evidence suggests that the belief that referrals provide benefit via homophily is contingent as some employers *avoid* referrals because they see it as leading to cliques that are hard to control (Bewley, 1999; Rees, Shultz, Hamilton, & Taylor, 1970). For these employers, the signal value of referring would be negative. Other signaling explanations do not rely on homophily. On the basis of results from their experimentally constructed labor markets using students, Gërxhani, Brandts, and Schram (2013) argue that the fact that another person has referred an applicant signals that the referral occupies a position in an informal information network characterized by higher levels of trustworthiness, and these trustworthiness effects would lead employers to prefer referrals. Lin, Zhang, Chen, Ao, and Song (2009) suggest that referral applicants signal a higher level of social capital than nonreferral applicants, arguing that this signal of social capital is likely to be correlated with the social skills that are necessary for certain types of jobs.

There are also numerous explanations for employers' preferences for referral applicants that do not involve signalling. Several studies identify performance and productivity benefits for the *referrer* when their referral is hired (Burks *et al.*, 2013; Yakubovich & Lup, 2006). Thus, even absent signals from referrers about referral quality, hiring referral applicants may boost productivity among current employees. In addition, recruiting via referrals is often less costly (Fernandez & Castilla, 2001), and it yields workers with lower turnover rates (Burks *et al.*, 2013; Castilla, 2005; Neckerman & Fernandez, 2003). Further, referral applicants are more likely than nonreferral applicants to become referrers (Fernandez & Fernandez-Mateo, 2006; Fernandez & Sosa, 2005). Preferring referral applicants may reflect an interest in encouraging

and investing in that more cost-effective mode of recruitment. Beyond the anticipation of future savings from referral hires, some scholars posit that the social ties with current employees entailed by the referring relationship confer additional cost, commitment, monitoring, or even performance benefits that are not available from nonreferral applicants (Burks *et al.*, 2013; Fernandez *et al.*, 2000; Sterling, 2014).

One notable recent experimental study provides strong empirical support for both signaling and nonsignaling explanations. Pallais and Sands (2014) conducted three experiments using an online labor market where subjects were paid employees—referrers, referrals, and nonreferrals—of three firms created by the research team. They found strong evidence of homophily: referral hires' performance was strongly associated with the performance of their referrers. They found strong evidence of quality signaling: controlling for all characteristics observable at application and hire, referral hires outperformed nonreferral hires not only at their initial jobs but also in later work for a second experimental firm. Finally, they also found strong referrer–referral relationship effects: when working on team tasks, teams pairing referrers and referrals outperformed teams with other pairing even when controlling for all individual characteristics.

The two types of signaling mechanisms described suggest contingencies as to when referral applicants may or may not be preferred. First, given that being referred can provide important worker quality signals to the employer, then in settings where worker quality is completely observable, then referral applicants would have no signaling advantages over nonreferral applicants [see Chua's (2011) study of the state-sector labor market of Singapore]. Second, given the strength and consistency of homophily effects, it would be understandable if the quality of the referrer affects the employer's preference for referral applicants. In their study of an electronically mediated contract labor market, Yakubovich and Lup (2006) find precisely this outcome. While referred applicants from higher performing employees received significantly more favorable outcomes than nonreferral applicants, referral applicants from lower performing employees received significantly less favorable outcomes than nonreferral applicants. This homophily contingency, however, has more to do with the referrer than the job screener. In the discussion of their experiment, Pallais and Sands (2014) describe the mechanism yielding the enduring work performance premium from referral hires versus nonreferral hires as "selection." The actor doing the selecting, the agent for this mechanism's operation, is the referrer. That is, the referrer is aware of otherwise unavailable quality and productivity information—not wholly explained by homophily—and chooses to refer in part based on that information. In this way, the referrer is a prescreener acting in a manner that is likely to benefit the hiring firm. This filtering behavior is not a behavior

or choice of the hiring firm, and prompts us to turn our attention to the least-studied actor in the triad of labor market network actors—the person connecting the job seeker to the hiring firm—the connector.

JOB CONNECTORS

In addition to the job seeker and job screener, a third role is played by actors providing the intermediary connection between the supply and demand sides of the labor market. While our focus here is on network accounts in which individual actors play the role of network connectors, this function can also be served by organizations working as labor market brokers (Fernandez-Mateo, 2007). Connectors are defined by what they do: sharing job opportunity information with job seekers within their networks. It is the connector's sharing of job information that turns a job seeker into a network job seeker. How do labor market networks work for these job connectors?

Specifically with respect to employee referrals, there is evidence that worker ability is related to the likelihood of engaging in referring. Hensvik and Nordström Skans (2013) find high-ability/high-aptitude workers to be overrepresented among employee referrers. Moreover, these connectors are not passive conduits for job opportunity information (Marin, 2012; Smith, 2005), but are rather agentic decision makers whose behaviors and choices directly influence labor market dynamics. In general, referrers see the performance and success of their referrals as a reflection upon themselves in the eyes of their employer; such reputation effects are likely to be much weaker for nonemployee referrals. Smith (2005, 2010) examines the referring behaviors of racial/ethnic minorities in high-poverty urban areas and finds employed workers with job opportunity information are quite concerned with the reputational impacts of their referrals, and thus are highly selective in deciding with whom among their personal contacts they will share the information. Recent research showing employers engage in shared wage punishment of referrers and referrals (Heath, 2013) suggests that such reputational concerns are justified. In Beaman and Magruder's (2012) experiment in the Kolkata labor market for experiment subjects, subjects generated other subjects via referring and under a variety of manipulated scenarios. They found that referrers are aware of their contacts' likely productivity, and will select referral applicants on this worker quality dimension only if the incentives are constructed such that the referral's performance affects the referrer directly. When referral hires' behaviors have no impact on the referrers' work outcomes, the referrers are likely to refer close friends and family without selecting on worker quality. To the extent that connectors selectively share job opportunity information, they also explicitly filter their contacts to select on additional productivity-associated characteristics that

may not be otherwise apparent to the employer. Thus, through the act of sharing information, connectors implicitly provide some of the signaling benefits valued by employers (Fernandez *et al.*, 2000; Pallais & Sands, 2014). This raises the intriguing possibility that firms can affect their labor market outcomes by influencing the behavior of their referring employees.

We have previously suggested that referrers are the missing link to a more complete understanding of labor market network dynamics (Rubineau & Fernandez, 2013). Firms commonly offer referral bonuses as an attempt to influence referring behavior, and as shown in Beaman and Magruder's (2012) Kolkata experiment, referrer behavior is sensitive to different referring incentives. The more recent set of studies examining referrer behaviors and outcomes consistently find that after their referral applicant is hired, referrers are less likely to leave the firm (Burks *et al.*, 2013). In addition, the performance effects of referral hires on their referrers remain strong (Burks *et al.*, 2013; Castilla, 2005).

Looking forward, numerous questions remain about how connectors influence job matching. Past research suggests that the presence and quality of additional assistance depends importantly on the nature of the relationship the referrer has with the job seeker. Unlike Granovetter's Strength of Weak Ties for job seekers, referrers appear to provide more assistance to those job seekers with whom they are more *strongly* tied (Marin, 2012), and having a strongly tied referrer was more strongly associated with getting job offers. Other questions remain as to the role of the connector. The research discussed suggests that providing incentives to refer leads the connector to actively seek out candidates. But does this lead the connector to draw on their existing stock of contacts—likely strong ties—or is this accomplished by seeking out new contacts that are likely to be weaker ties? Ongoing research being conducted by Fernandez uses survey vignettes in an experimental set up to address this question. Other research by Lin *et al.* (2009) suggests that the connector's key point of influence is to be found in relationships with screeners and hiring managers. Finally, a promising direction for future research on connectors is to look at the effect of referring on workplace composition (Trimble & Kmec, 2011). Fernandez and colleagues (Fernandez & Fernandez-Mateo, 2006; Fernandez & Sosa, 2005) and other researchers (e.g., Beaman *et al.*, 2013) find strong evidence of demographic homophily between referrers and their referrals. While past understandings of homophily suggest that this is likely to reinforce workplace gender or racial segregation, more recent research by Rubineau and Fernandez (2014) identify the conditions under which recruitment via employee referrals *desegregates*. Moreover, they argue that firm policies can create these conditions by managing referrer behaviors. To the extent that the firm can incentive the underrepresented group to refer more than the

overrepresented group, referring can increase the rate at which referring desegregates. Recent empirical work supports this view. In their experimental study of referring in Malawi, Beaman, Keleher, and Magruder (2013) find job segregation to be more sensitive to referring rates than to homophily.

CONVERGENCE AMONG THE PLAYERS

Earlier, we have focused upon each of the actors within the labor market network triad. In reality, all three of these actors work together interdependently at the labor market interface. Focusing on a single player and setting aside the effects of the other two players necessarily obscures many dynamics. Some of the puzzles regarding findings from the perspective of a single actor can be readily resolved by considering the dynamic interactions with other actors. Given three actors, there are three pairs of actors that could be considered together, and one full triad. The job seeker and the job screener pair is the traditional focus of labor market research. Explicit consideration of the interactions with an agentic connector is needed to move our understanding of labor market networks forward.

CONNECTORS AND SEEKERS

One area of debate is the absence of a consistent effect of individual social capital measures on job search outcomes (Mouw, 2003). The using versus having solution (Obukhova & Lan, 2013) likely represents only part of the explanation. After all, it is reasonable to think that having more social capital makes it easier to use social capital. The other part of the explanation may be in recognizing that the agency of the connector plays a key role in creating a network job search. Connectors may not only be selective among their job-seeking contacts in sharing job opportunity information, but may actually induce contacts who are not active job seekers to apply for a particular position (Kmec, McDonald, & Trimble, 2010). Research also shows that individuals referred to a job opportunity by a social contact feel some social obligation to apply for the job (Sterling, 2014).

CONNECTORS AND SCREENERS

Just as connectors may create seekers, screeners—in the form of firm policies—may create connectors. That is, the firm has some control over whether and which employees learn about a job opportunity within the firm. Identifying firm policies that could encourage particular employees to engage in referring would create an important and powerful tool. Managing referring behavior could have benefits in addition to the desegregating

effects discussed earlier. Upon engaging in referring, the referrer demonstrates higher performance and lower turnover. Although the speculative explanation for this effect focuses on the social tie with the referral hire, this effect could also be understood in terms of the referrer's relationship with the firm. In referring, the referrer is acting as a volunteer recruiter. The referrer uses her own time to talk-up the firm to her contacts. Field evidence reported in Fernandez and Galperin (2014) supports the idea that screeners recognize this effort and are more likely to grant interviews to referrals out of courtesy to the referring employee. But there might be consequences for the referring employee as well. Festinger's theory of cognitive dissonance (1957) would suggest that taking this action would likely improve the referrer's view of and feelings toward the firm. This increased affective commitment to the firm could contribute to the observed performance and turnover effects of referring. To the extent that a dissonance mechanism contributes to these effects, then larger monetary referral bonuses may decrease the performance and turnover benefits of referring.

THE FULL TRIAD

One of the areas of mixed results regarding referral applicants is which job search outcomes are consistently associated with network job searches. Wages may be higher or lower than nonreferral applicants, or nonmonetary outcomes may be associated with network job search. Consider the differing behaviors of referrers depending on the incentive structure they face. Although referrers tend to be aware of work-relevant characteristics, they are likely to ignore these characteristics and refer on the basis of friendship and family ties. They will only attend to these quality characteristics and refer on the basis of likely worker quality when the incentives are structured for them to do so. Because it is the hiring firm that commonly creates the incentive structure for referring, variations across firms' incentive structures for referring could generate confusing and contradictory returns to referral applicants.

The triad perspective offers another alternative explanation for the varied wage premium finding. Much of the cost-effectiveness of the network mode of recruiting comes from the behaviors of the referrers. These referrer-generated savings may contribute to the sometimes-observed wage benefits of network job seekers. The savings from connectors' prescreening of applicants, from referrers' productivity and turnover benefits from referring, and from bypassing formal recruitment costs all accrue to the hiring firm. In this case, the sometimes-observed wage bonus from screeners to referral hires may be an efficiency wage (e.g., Kugler, 2003) rather than wage benefits accruing from having a higher network-dependent reservation

wage (Montgomery, 1991). Then contextual factors reducing a firm's savings from referral recruitment would be expected to reduce the apparent wage benefits of network job search. Considering the three players together yields an additional explanation for screeners' apparent preferences for referral applicants. Earlier, we also indicated that referrers could induce non-job-seekers to apply for a particular job. Non-search applicants are both disproportionately currently employed and disproportionately referral applicants. These factors interact with screeners' preferences. Job screeners prefer currently employed workers to currently unemployed individuals (Kroft, Lange, & Notowidigdo, 2013). Because of this, differences in the proportion of currently employed versus nonemployed workers among the job applicants may also contribute to the observed general preference for referral applicants.

CONCLUSION

Despite many decades of scholarly scrutiny, there is little certainty about the mechanisms through which labor market networks operate. Much of this uncertainty results from single-perspective investigations of a fundamentally triadic process. The mechanics of a pulley system has multiple elements: pulley, rope, mass, anchor, and force agent. The dynamics of the system cannot be understood by examining the pulley in isolation and setting aside its interdependencies with the other elements. Yet this reductionist approach is commonly applied to more complex and interdependent social systems such as labor market networks. The triad of actors defining a network job search are each of the agentic decision makers. The effects of network search on job seekers is not independent of the behavioral patterns and choices of job connectors or the preferences of job screeners. The actions of the job connector, although likely patterned, introduce complexities that cannot be captured in a two-way matching process. If future research into labor market networks is to inform strategies and policies at the firm or personal levels, mechanisms affecting the behavior of any one actor need to be integrated with the mechanisms affecting the other two.

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