

SOCIAL NETWORKS AND CAREERS*

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Abstract

Social networks affect a range of career outcomes including job search, promotion and wage determination. Networks also affect major career transitions, including entry into entrepreneurship and exit into retirement. Across a range of studies, individuals are found to use their networks to deal with two perennial problems they face in labor markets and organizations: the scarcity of information and the absence of trust. I review the literature with an eye towards understanding which features of a person's networks help them solve these problems at different career stages. I conclude by considering how the rising importance of information technology will affect the networks-career link moving forward.

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1 Introduction

People rely on their informal networks—of friends, acquaintances and relatives—throughout their careers. A person’s network helps them find a job, win a promotion, or become an entrepreneur. Thousands of articles across many disciplines explore this network–career link with the intention of understanding which features of networks are most important for a given career decision or milestone (see for example, Burt, 1992; Lin, 1999; Seibert, Kraimer & Liden, 2001). This literature has provided insight not only about how careers unfold, but also about fundamental aspects of human behavior, organizations and labor markets. In this essay, I review this prodigious literature and provide analysis of the central concerns animating scholarship on this topic.

To understand *how* networks matter, however, it is useful to consider *why* they matter at all. In reality, most organizations and labor markets are rife with frictions: limited information, distrust, and politics shape how workers and firms make important decisions. Job seekers, for example, rarely have perfect information about all the possible positions for which they qualify (e.g., Granovetter, 1974). Employers too lack all the necessary information about prospective applications (Spence, 1973; Zuckerman, Kim, Ukanwa & von Rittmann, 2003; Ferguson & Hasan, 2013). A solution to this problem is often a network connection. An existing employee, for instance, can alert a friend about the opportunity at her firm, and simultaneously assuage the doubts of a manager about her friend’s ability or trustworthiness (Burt & Knez, 1996). Networks thus offer a partial solution to the ubiquitous information and trust problems in labor markets and organizations. Networks make labor markets work.

At the same time, the ubiquity of networks and their multifaceted role in career development has led to various representations of the network concept. Scholars sometimes characterize a network by the strength of its constituent ties; the extent to which its structure is ‘bridging’ or ‘closed’; or whether a person has a referrer in the firm where she seeks work. Given the diversity of representations, I begin by out-

lining three popular measures of the network metaphor in research on careers, and describe how they proxy for the social mechanisms that help individuals deal with information and trust problems. The subsequent sections focus on describing how these representations are deployed, to study how networks affect career outcomes, including: 1) job search, (2) career development in organizations, and (3) transitions out of work or into entrepreneurship. Section 6 examines how information technology and the internet might reshape the well-established link between networks and careers. Finally, I conclude by summarizing key insights and proposing directions for future research.

2 Representing networks to study careers

Network representations of social life have been exceptionally useful in helping scholars understand how careers evolve (e.g., Borgatti & Halgin, 2011). Thousands of articles speak to how social relationships help people find jobs, develop creative ideas, get promoted, or earn more. A particular network representation, like all scientific models, accentuates some feature of reality while obscuring another. For example, focusing on the strength of network ties may conceal the broader structure or configuration of ties in a person’s network (Granovetter, 1973). In contrast, focusing primarily on network structure may suppress significant variation in tie strength or content, as well as the motivation and interest of the connected people. Each representation may reveal distinct mechanisms that affect career outcomes, but identifying all possible channels through which a network helps (or hurts) using a single metric is infeasible. As a result, scholars represent networks in numerous ways to capture these various mechanisms.

Among scholars who study careers, three kinds network representations are widely used. The first builds on the theory of “weak ties” (Granovetter, 1973). Weak tie theory views the strength of a relationship as a useful indicator of the structure of a person’s network but also the nature of information flows. The second kind of representation is more ‘structural.’ These representations build on the

work by Burt (1992), Freeman (1977), Bonacich (1987) and others who argue that the configuration of ties in a network affects career transitions and outcomes. The third representation focuses on quantifying the *resources* a person has access to through her ties (Lin, 1999). These network resources are often proxied by the occupational prestige or wages of a person's family, friends or acquaintances. Although many theoretical overlaps exist among these approaches, each representation provides a different lens through which to understand how people use networks to resolve information and trust problems.

2.1 Weak and Strong Ties

A typical trade-off people must make when building their network is deciding whether to build a few strong ties or many weak ones. According to Granovetter (1973), the strength of a tie depends on how regularly people interact, as well as their level of intimacy, trust, and reciprocity. The strength of a tie provides not only information about that specific relationship, but also about the larger social structure in which people are embedded.

Accordingly, a person with mostly strong ties is likely to be a member of a closed group where most individuals are connected to each other. A closed group is likely to engender mutual obligations, shared norms, and trust. Members of the group are also likely to exhibit a high degree of homogeneity in their values, ideas, and the information they possess. In contrast, a person's weak ties serve as bridges to more distant social circles. Because different network clusters often possess different information (e.g., about opportunities), weak ties are conduits for acquiring non-redundant information. Thus, an individual with many weak ties to diverse social groups will have access to more new information about opportunities than a person who has few of them. The job seeker with many weak ties should have an informational edge in their career.

In this way, strong and weak ties solve different problems for a worker. Whereas weak ties help workers resolve dearth of information problems by affording access

to novel information about opportunities, strong ties may reduce an employer’s uncertainty about a job seeker’s ability or credibility.

2.2 Structural holes

The theory of weak ties is a theory of strength but also of structure. According to Burt (1992), however, research testing this theory is limited in that the structural properties of weak ties are implied in measurements, rather than explicitly modeled (Burt, 1992, pg. 21). In his classic text “Structural Holes: The Social Structure of Competition” Burt (1992) further extends the structural ideas underpinning the weak tie argument. To do so, he develops a representation of a brokering position in a network that captures whether a person has many bridging ties—ties that connect otherwise disconnected clusters.

A person’s network has many structural holes if that person’s contacts are not themselves connected to each other. The bridging position provides the individual access to timely information from a broader range of sources than a person whose network contacts are all linked. Thus, those who have bridging networks can more efficiently solve their information problems (e.g., learn about new opportunities faster). A trade-off implied in earlier versions of this theory was that brokers run the risk of losing trust because they do not belong to a single cohesive social group and thus their reputations are more uncertain. This lack of trust can, in some situations, become a liability if it is not effectively managed (Burt, 2015).

2.3 Network resources

Even if two people have similarly structured networks, their contacts could still differ in meaningful ways. Some contacts hold power in organizations, others have financial resources, while others still may have high levels of motivation to help because of shared affiliations and similar backgrounds. Ignoring the resources that contacts possess means obfuscating a vital source of value that individuals derive from their network.

Historically, work by Nan Lin and his colleagues developed theories and models that examined how the resources of a person’s contacts—represented by occupational prestige—affected career outcomes (e.g., Lin, 1999). More recently, the resources perspective has been revived by scholars studying the mechanisms through which referrals affect hiring at firms, or how the characteristics of school or workplace peers—e.g., their income, ability, or experiences—serve as resources during the career journey (e.g., Sacerdote, 2001). This approach excels in representing the actual content flowing through a single network connection and the coordinated action that can leverage a contact’s unique position or resource.

These three representations are ubiquitous in the literature. While each approach provides a different lens on the networks-career link, these are also intimately related. Weak ties and structural holes capture the importance of bridging ties in contexts where there are informational frictions. Network resources capture power and access, both of which have structural determinants. In the sections to follow, we will see how these three representations allow us to understand how people get ahead in their careers.

3 Finding work

Referrals account for one-third to one-half of all hires in the United States (Brown, Setren & Topa, 2016). For first jobs, estimates suggest that the referral share may be as high as 60% (Datcher, 1983; Pellizzari, 2010). These statistics underline the importance of networks in the job search process and also speak to the state of labor markets. Even today, labor markets are incredibly frictional. Imperfect information about workers and jobs make social relationships essential conduits for hard-to-acquire information for both parties. For a worker, having the *right* network helps them compete for jobs. Networks help applicants get their “foot in the door.” Companies too must leverage the networks of their workforce to find, filter, and retain the best workers.

Although the fact that networks matter in the labor market is now conventional

wisdom, there remains much debate about what types of networks are beneficial, for whom, and for what purpose. Below, I review several streams of research that have evaluated how strongly different network features affect the job search and subsequent wages.

3.1 Weak ties, Bridging, and Job Search

In empirical research on networks and the job search, the strength of the weak ties hypothesis serves as a useful starting point (Granovetter, 1973). The weak tie thesis rests on the following logic:

1. the world is highly clustered;
2. each cluster has information that is distinct from other clusters;
3. weak ties are more likely to link clusters than strong ties;
4. individuals with many weak ties have access to *novel* information;
5. novel information is advantageous in a job search.

Given this state of the world, Granovetter argues that individuals are more likely to get jobs through their weak ties (e.g., acquaintances) than through their strong ties. As the logic above suggests, this is not because friends and family are unwilling to help, but instead because they are not the individuals who can provide the applicant with new information about opportunities.

Despite the clarity of the weak tie argument, empirical tests of the theory's main prediction—that weak ties correlate with job success—have produced mixed results. In addition to Granovetter (1973), the work of Nan Lin and his colleagues has found the strongest support for the importance of weak ties (e.g., Lin, Vaughn & Ensel, 1981; Lin, Ensel & Vaughn, 1981). Lin et al. (1981), for instance, find in a sample of working males in New York that weak ties impact “achieved status” or the quality of jobs a worker can attain. Yakubovich (2005), in a later study, also finds that weak ties were particularly useful for providing novel information to job seekers in a

Russian labor market. Wegener (1991), Bridges & Villemez (1986), and Marsden & Hurlbert (1988) also find correlations between weak ties and success in finding jobs.

However, each of these studies also provides evidence that weak ties are neither uniformly beneficial, nor are they the sole causal force behind a person's success. In Lin et al. (1981), the authors find that weak ties appear to matter most for more experienced workers, and not for those at the entry level. Yakubovich (2005) also finds concurrent support for the value of strong ties. Strong ties can exert influence on employers through intermediaries. Wegener (1991) found that weak ties mattered because of their greater knowledge and influence, and not necessarily because they provided more information. On a related note, Bridges & Villemez (1986) and Marsden & Hurlbert (1988) find that weak tie effects dissipate after accounting for the characteristics of workers and their prior productivity.

The mixed evidence for weak ties suggests a possible worry about whether tie "weakness" correctly represents the property of networks that helps resolve information problems in labor markets. Burt (1992), in his seminal book on structural holes, argues that while weak tie theory gets the macrostructure of a network right (i.e., networks are highly clustered and connected by a few bridging ties), the theory incorrectly identifies the causal force leading to the informational value of networks. Bridging rather than strength, he argues, captures the value of a tie.

While the most influential work on structural holes studies intra-organizational processes, several recent studies find that network bridges are critical for labor market processes too. Eagle, Macy & Claxton (2010), in a large-scale study of networks and economic attainment, find a strong correlation between bridging ties and the economic well-being of individuals. Lancee (2010), in a study of immigrants in the Netherlands, also finds that bridging social capital, the type described by Burt (1992), has a substantial influence on both income and the ability to find work. Further, Lancee (2010) shows evidence that the benefits of bridges have more to do with information, as trust neither mediates the effect of bridging ties nor does it have independent value for finding a job in this context.

These findings suggest that while weak ties may indeed matter, only certain individuals can build networks with weak ties or perhaps leverage them fruitfully. Moreover, when the bridging nature of weak ties is specified more directly, there is stronger support for the information advantage mechanism posited by (Granovetter, 1973).

3.2 Strong ties and job search

While a theory of “strong ties” is less developed, recent empirical evidence for the benefits of strong ties in job search is surprisingly consistent. Recent work by Kim & Fernandez (2017) attempts to model the actual information transmission mechanism underlying network effects. They find that referrers are more likely to relay new information about jobs to close friends rather than to acquaintances. Networks are not impartial transmitters of information, and tie strength can increase the likelihood that information is shared.

At a more macro scale, Gee, Jones & Burke (2017) use data on over 6 million Facebook users to test the weak tie hypothesis. They find evidence that workers do indeed find jobs through their weak ties. However, this effect is modest compared to the value of strong ties. A strong tie is significantly more likely to help a worker find a job than a weak tie. The underlying cause of this differential is likely to be both increased motivation to help (e.g., Kim & Fernandez, 2017), and increased trust caused by the strong relationship.

Further support for the value of strong ties comes from a recent study of the Swedish labor market by Kramarz & Skans (2014). They find that young workers benefit more from strong ties in finding their first job. Like other studies of strong tie effects, their results appear to be driven by the fact that strong ties are willing to exert more influence *and* inspire trust when information is either weak or absent. In support of these mechanisms, they find that workers who benefit most from these strong ties are those that had poor academic performance. Influence and a willingness take a chance on an “unknown” quantity, not new information, appear

to reflect the value of networks.

In short, the value of weak ties for job search does not appear to be a universal law of labor markets. Weak ties do matter, but their value is contingent and contextual. While weak ties do solve information problems (e.g., Granovetter, 1973), work by many scholars suggests that weak ties cannot substitute for the influence of one’s contacts nor their willingness to vouch for an applicant (e.g., Bridges & Villemez, 1986; Wegener, 1991; Hasan & Bagde, 2013; Kim & Fernandez, 2017; Gee et al., 2017).

3.3 Resources and referrals

Theories of weak ties and structural holes emphasize the structural properties of social networks. In so doing, these models understate the differences among a person’s contacts or the *resources* they possess. The *social resources* tradition, pioneered by sociologist Nan Lin, attempts to directly assess how the resources held by a person’s contacts affect mobility (see, Lin, 1999). Not all contacts, even structurally equivalent ones, have the same power, access, assets or influence. As a result, substantial heterogeneity across contacts on these dimensions may affect the value of a network tie.

In early tests of the social resources theory, scholars used occupational status as a proxy for the resources a contact possessed. Higher status occupations—e.g., doctors, government officials, and professionals—in one’s network indicated a greater ability to get relevant information about opportunities, but also a greater ability to influence decision makers. Thus, having higher status contacts meant finding better jobs, faster. Early empirical tests found supporting evidence for this effect of contacts with higher status. The occupational prestige of contacts correlated with a range of economic outcomes in a range of national and occupational contexts (see, for a review, Lin, 1999).

However, a key challenge with empirical tests of this theory is the possible confounding of social resources with differences in the characteristics of job seekers or

employers. Furthermore, the value of a referral from a contact may be driven by considerations of both information and trust. Having contacts in powerful positions increases both the knowledge that an applicant has about the availability of a job and the strategies used for applying. Further, the referrer can provide information to the employer (e.g., about the quality of the applicant or their likelihood of persisting in a job) that may not be observable otherwise.

In recent years, scholars have worked to understand the precise mechanisms linking social resources to career outcomes. This task is often undertaken by examining specific network transactions such as referrals. The seminal work by Roberto Fernandez and his colleagues (see, for recent discussion, Fernandez & Galperin, 2014) provides insights into the processes driving referral effects. The key findings in the literature support the resources view. Job seekers referred by existing employees are more likely to be hired (Petersen, Saporta & Seidel, 2000; Fernandez, Castilla & Moore, 2000; Fernandez & Fernandez-Mateo, 2006). However, the mechanisms driving this effect are varied. The strongest evidence suggests that much of the referral effect is driven by the ability to reduce the uncertainty that employers have about applicant quality (Burks, Cowgill, Hoffman & Housman, 2015; Pallais & Sands, 2016). For instance, Pallais & Sands (2016) show that referrers provide information about hard-to-observe worker quality not present on resumes.

However, not all referrers are created equal. High-performing referrers are substantially more influential than low-performing ones. Yakubovich & Lup (2006) find that referrals from high-performing workers are relied on more, presumably because the employer assumes (often correctly) that the applicants they refer are also likely to be high-performing. The referrer and network quality effects were apparent at a macro-scale as well. Cappellari & Tatsiramos (2015), using data from the British Household Panel Survey, show that having many contacts alone has little effect on upward mobility. However, after accounting for the resources held by contacts (e.g., being employed vs. unemployed) they find that individuals with many employed contacts experience substantial increases in wages.

3.4 Do networks lead to “good” jobs?

While network ties—whether weak or strong—have a demonstrable effect on finding a job, it remains unclear whether the acquired jobs are good ones. Standard theory on this issue suggests that informal ties convey better information about a candidate. More information about a candidate should reduce uncertainty about his/her quality, and thus should result in better matches between worker and employer. Since firms should pay more for better matches, the wages of workers should be higher.

A range of findings across many contexts has found supporting evidence for this claim. Kramarz & Skans (2014) find that workers who found jobs through strong ties have both higher initial wages, and greater persistence in a job. Brown et al. (2016) similarly find that referred candidates have higher wages than non-referrals. A host of additional studies also support this view (Granovetter, 1974; Simon & Warner, 1992; Marmaros & Sacerdote, 2002). On the other hand, as work by Antoninis (2006) shows, the impact of referrals on wages depends on how well the referrer knows the productivity of the applicant. They find, in a manufacturing setting, that wages increase if referring contacts have prior knowledge of the applicant’s productivity. Referrals by friends or others with little knowledge of an applicant’s productivity have no (or perhaps a negative) influence on wages. The value of referrals for earnings, it appears, depends fundamentally on whether the employer gains greater visibility into difficult-to-observe productivity.

3.5 Activation and network effects

A growing body of research on networks and careers suggests that “activation,” the active and possibly strategic use of networks by job seekers, moderates the impact of having beneficial networks. Obukhova & Lan (2013), for instance, find that having a contact alone does not predict success in a job search. Activating or using that contact is what matters. A study of low-income African American job seekers by Smith (2005) found that the ability to activate a social network tie is biased. Workers in her sample had many contacts that could help them find work. However, their

contacts, because of a fear of losing their own jobs, did not want to help. Thus, failed activation prevented some individuals from leveraging ostensibly useful connections. Finally, recent work by Smith, Menon & Thompson (2012) shows that the inability to activate networks may also have cognitive roots. They find, in both survey data and a laboratory study, that subjects from lower status backgrounds activated less-beneficial networks than those from high-status families. That is, low-status people activated fewer bridging connections in situations of threat (e.g., losing a job) and thus limited their ability to leverage their networks fully.

Together, these studies highlight a necessary scope condition about the value of networks. Benefiting from networks is a process, and thus even when people have valuable network ties, they might not be helpful if people cannot, or do not, activate them.

3.6 Gender, race and networks in job search

The results of the activation research suggest that not all people benefit from their networks (e.g., Smith, 2005). A growing body of evidence suggests that gender, race, and other personal characteristics moderate the value of social networks during a job search. Campbell (1988), in an early study of social networks, found that white-collar women had smaller and more occupationally narrow networks than male counterparts. This difference was even more significant for women with young children or those who had relocated because of their husband's job. Munch, McPherson & Smith-Lovin (1997) also find similar results showing women had smaller networks, especially if they had children. These differences in the structure of men and women's networks also appear to shape their career opportunities. In contrast, McDonald, Lin & Ao (2009) find that women and Latino job seekers were less likely to get jobs through casual conversations as compared to men. This gap in access to valuable information through networks increases with status. White male managers received substantially more leads through networks than minorities and women at any level.

Though there is a network discount to being a minority or female, some evidence suggests strategies for overcoming these constraints. Drentea (1998) finds that when women’s networks consist of mostly other females, their job outcomes are gender-typed and often result in lower wages. McDonald (2011) and Belliveau (2005) show that when women and minorities have networks with more white males, they can access higher quality job leads and thus jobs. This finding, restated in another way, suggests clustering of labor market networks based on gender and ethnicity. Bridging ties to white male networks increases access to job information that might not be as abundant in the closed networks of minorities and women. Finally, Merluzzi & Sterling (2017), in a recent study, found that that African Americans hired through networks have a smaller wage gap compared to those hired without referrals. They argue that referrals are more beneficial for African Americans because of the higher a priori uncertainty that employers have about their ability. By helping to reduce this uncertainty, referrals reduce the wage gap.

3.7 Context and network effects

The studies described above use data from a range of labor market contexts. These contexts vary based on the status of jobs people are seeking, local or national cultures, and the different levels of economic inequality in these contexts. Growing evidence comparing the effect of networks in different labor market contexts suggests that *how* networks matter depend on *what* problems workers must overcome to find work. Bian (1997), for example, finds that Chinese job seekers use both strong and weak ties to find jobs. However, strong ties appear to result in more fruitful outcomes—easier job searches and higher wages—than weak ties. The power of strong ties derives from their ability to influence key decision makers and from a higher deficit of trust than of information. That is, although information problems may exist in this labor market (e.g., workers know little about opportunities), getting a “foot in the door” requires a willingness on the part of a contact to influence the key decision maker and vouch for the quality of the applicant. Work by Sharone

(2014) finds cultural and contextual differences in network effects. He finds that Americans are more likely to rely on weak ties compared to Israelis based in Israel. Israelis in America, however, rely on weak ties to find work just like other Americans. The use of weak ties is not merely culturally determined, but may have antecedents based on different features of labor markets.

A paper by Gee, Jones, Fariss, Burke & Fowler (2017) provides some further insight into when weak ties may matter more than strong ties. They find that the use of weak ties depends on the level of inequality in a country. Strong ties matter more in countries with more inequality. On the other hand, a more equitable income distribution results in greater reliance on weak ties. One possibility is that in countries with well-developed labor market institutions, trust is more abundant than information. In another study comparing network effects in different types of labor markets, Pellizzari (2010) finds that the wage effect of using personal contacts in a job search depends on the efficiency of the formal labor market. When labor markets have few frictions, firms can find high-quality workers through formal channels. Since networks do not appear to solve the severe trust or information problems in these markets, employers will be more “picky” with workers hired through personal contacts. Thus, workers hired through networks in well-functioning markets will face a higher selection threshold than in broken markets and therefore will be of higher quality.

In summary, the research on networks and job search has led to three central insights. First, networks appear to be critical during the job search process. The majority of individuals find jobs through personal contacts. Second, while there is some support for the importance of weak ties in a job search, most of the findings are somewhat nuanced. Relying purely on weak ties appears to be a weak strategy—the value of these ties depends on context, the quality of the candidate, and scale. Strong ties that also serve as bridges appear to matter more. Finally, the research suggests that referrals, particularly from high-performing contacts that can vouch for a candidate, can be the crucial difference in finding a good job.

4 Networks and organizational careers

Social networks are equally crucial for workers in firms. Like labor markets, organizations have their internal frictions. These imperfections make networks relevant to career success. In large organizations the “holes” between different divisions, product lines, or levels of the hierarchy are opportunities that can be seized by entrepreneurial employees (Burt, 1992). Employees solving these organizational problems can create value for the firm and themselves. Lincoln & Miller (1979) highlighted the importance of networks to organizational behavior. In an early study of intra-organizational networks, they delineated two types of network ties present in organizational contexts—primary and instrumental—and their antecedents. These network ties were used for personal, task, and political purposes. While each type of tie served different functions, intra-organizational ties affected employees and organizations in important ways.

Beyond the observation that networks exist in organizations, scholars have developed theories of how different network structures lead to career advancement within firms. Like the prior literature on labor markets, organizational networks research also builds on theories of weak ties and structural holes (Granovetter, 1973; Burt, 1992). Unlike in this research, however, organizational scholars were able to push network theory forward in many important respects. Rather than relying on proxy measures of structure—such as the number of weak or strong ties—analysts could, for the first time, capture nuanced structural features of organizational networks. These included the ability to measure centrality in the overall network of the firm, as well as the ability to capture different types of ties such as friendship, advice, or trust. Moreover, the ability to measure specific individual traits—roles, personality, and knowledge—allowed organizational scholars to understand more clearly the mechanisms driving network effects.

4.1 Structural holes inside firms

How do networks help people get ahead at work? Much research suggests that a key input to workplace productivity is information, particularly novel information that allows a worker to develop new ideas, solve difficult problems, or seize new opportunities. Moreover, access to novel information allows individuals to develop skill in translating ideas across boundaries, serving as a valuable intermediary, and creating new knowledge at the intersection of different domains (e.g., Burt, 2004). A vast body of research has found that networks—particularly those with many bridging connections—are especially useful in helping workers acquire novel and diverse information (e.g., Burt, 1992, 2004). Burt (2004), for example, finds that individuals with many structural holes in their network are evaluated better by their managers, receive promotions earlier, and are better compensated relative to their peers. Wu (2013) also finds support for the structural holes theory using data on information technology professionals. Individuals who span structural holes have greater information diversity and, as a consequence, higher productivity. Rodan & Galunic (2004) also find information diversity to be an important mechanism driving the relationship between network structure and performance. On the whole, structural holes appear to improve the performance of workers and thus improve their career outcomes (e.g., Seibert et al., 2001; Cross & Cummings, 2004; Mizruchi, Stearns & Fleischer, 2011).

While research shows that bridging ties results in an informational advantage, what do employees do with this information? In recent years, research has been able to identify the mechanisms that link this informational advantage to creative outcomes. Burt (2004) finds that managers who span structural holes have better quality ideas that are less likely to be dismissed by their superiors. Shalley & Perry-Smith (2008) also find that individuals with diverse personal ties outside their team improve their creativity and that of their team. Baer (2010) similarly finds that employees with large networks and many weak ties are more creative than others. However, there may be a limit to how valuable this new information is.

Increasingly, scholars have found that the relationship between weak or bridging ties is not monotonic. Zhou, Shin, Brass, Choi & Zhang (2009), for example, find a curvilinear relationship between the number of weak ties and creativity: both low and high numbers of weak ties appear to hurt rather than help creativity. Cattani & Ferriani (2008) also find that intermediate positions between strong and weak ties appear to be ideal for creativity.

Weak and bridging ties in organizations, much like in labor markets, may serve different purposes in those organizations. McFadyen, Semadeni & Cannella Jr (2009) find that a combination of strong but disconnected ties help R & D personnel come up with good ideas. Hansen (1999) found that weak and strong ties are valuable for sharing different types of information. Weak ties are useful in transferring simple pieces of knowledge. Strong ties help with complex knowledge. Fleming, Mingo & Chen (2007) find that while brokers are indeed better at generating ideas, these ideas do not diffuse as quickly nor are they used as frequently by others.

4.2 Beyond information: trust and reputation

While the evidence on the value of bridging ties is rather consistent, many studies indicate that trust within organizational networks matters for careers. In their classic study, Podolny & Baron (1997) highlighted a critical aspect of networks that prior research often overlooked: the content of network ties. They find a distinction between the types of network ties people have in the workplace. Whereas spanning holes in information networks led to career advancement, being a broker in networks with identity-heavy ties (e.g., role expectations) hurt advancement. Brokering across identity-laden relationships may be harmful because trust is developed in tightly connected and closed networks with heavy reinforcement of roles, identities, and expectations Coleman (1988). Being connected to individuals who do not trust each other, *or* have different expectations, increases stress and role conflict (Podolny & Baron, 1997).

There are several strategies for minimizing the harmful effects of this trade-off.

First, overcoming this trade-off may mean strategically building networks that have both features—e.g., by understanding whether networks are information or identity typed (Podolny & Baron, 1997). Second, as Wong & Boh (2010) suggest, an individual could develop strong relationships with advisers who are disconnected from each other. This strategy may enhance one’s reputation and help spread it further, but its successful application may hinge on the ability to build and maintain strong one-on-one ties with advisers. A third strategy is to understand which matters more—information or trust—in the organizational or national context where one works. As Xiao & Tsui (2007) show in a study of Chinese organizations, closed, rather than open, networks enhanced career outcomes because of differences in expectations based on cultural norms. Burt & Merluzzi (2016) proposes the fourth strategy. They argue that individuals who oscillate between closed and open networks performed the best because they built a trustworthy reputation and were able to leverage it to gather new information and build bridging ties. Finally, the work of Goldberg, Srivastava, Manian, Monroe & Potts (2016) suggests that workers may be able to manage the trust problems inherent in spanning structural holes by “fitting in” culturally—e.g., speaking the same language as other organizational members.

4.3 Workplace satisfaction

For most people, getting promoted or earning more is just one dimension of how they measure career success. When reflecting on their careers, individuals also evaluate their work subjectively by assessing how satisfied they are. Research by several scholars highlights an important link between workplace networks and feelings of satisfaction. Recent work by Hauser (2015) shows that trusting other employees and the organization itself affects attitudes about fairness, job satisfaction, and commitment. In a national survey of workplace satisfaction in Spain, Requena (2002) finds that relationships at work, even more than worker and company characteristics, predict happiness and satisfaction. Flap & Völker (2001), in a study of network content and workplace satisfaction, find that expressive and instrumental ties predict differ-

ent dimensions of satisfaction. They find that instrumental ties improve satisfaction with the job, income, and workplace opportunities. Closed networks, on the other hand, lead to greater satisfaction with the social dimensions of work. People also appear to enjoy building relationships at work. Both building and maintaining internal and external networks has been found to impact salary and career satisfaction (e.g., Wolff & Moser, 2009). Having stable relationships at work is especially important during times of crisis (Lange, 2015).

4.4 Individual differences

Network theories have traditionally de-emphasized individual differences (e.g., in personality or ability) over structural ones. However, scholars are increasingly finding individual-level contingencies in the ability to leverage networks at work. These differences both affect our understanding of the mechanisms driving network effects, and alter guidance about how networks matter for career success. The now classic study by Mehra, Kilduff & Brass (2001) provides some guidance about which workers can pull off a structural holes strategy. They find that individuals who are high self-monitors (e.g., can regulate their social behavior to correspond to the situation) are better able to build networks rich in structural holes. Self-monitors can be different people in different situations and thus connect with diverse others (see also Sasovova, Mehra, Borgatti & Schippers, 2010). Burt (2012) also finds evidence of a network-related personality—e.g., people who can more naturally build brokering networks. Indeed, in a rich meta-analysis of the networks and personality literature, Fang, Landis, Zhang, Anderson, Shaw & Kilduff (2015) convincingly show that personality appears to condition how individuals can fruitfully build and leverage their networks.

In addition to personality, scholars have also tried to understand how demographic characteristics—namely race and gender—affect network advantage. Research, for instance, has found that women in organizations are not less centrality in a firm’s network than men after controlling for tenure and role (e.g., Ibarra, 1992).

However, further research showed that the returns to networking might be lower for women and minorities. Burt (1998) found that female brokers did not benefit from structural holes in the same way as their male colleagues. Women’s lack of legitimacy in the organization impeded their ability to leverage bridging ties. For them to benefit from brokering networks, they must ‘borrow’ the social capital of more established members of the organization Burt (1998). Forret & Dougherty (2004) found that while networking was beneficial for careers *on average*, the same activities were much less helpful for women than for men. McGuire (2002) similarly found that women and minority employees received less help from network members than their majority male counterparts. Consequently, individual differences appear to predict not only who builds better networks, but also the expected returns from their network.

4.5 Networking and network building

While a person’s network position is partly exogenous to their background and strategies (e.g., Hasan & Bagde, 2015), important differences exist in both the costs and returns to networking for individuals. Recent evidence suggests that most individuals can actively build better networks. Wolff & Moser (2010) find that building and using network ties frequently was related to better long-term career outcomes. Huang (2016) finds that maintaining contacts and engaging in professional activities increased promotability.

Despite the potential benefits of networking, many people are averse to it. Ingram & Morris (2007) in a detailed study of networking behavior at an Executive MBA event found that most individuals gravitate towards people whom they know. In this setting, the ‘networkers’ rarely introduced themselves to new people. The unwillingness to network appears to constrain people’s career progression (Casciaro, Gino & Kouchaki, 2016).

How does one improve networking behaviors? In a recent essay, Kuwabara, Hildebrand & Zou (2016) build on the theories of fixed and growth mindsets (see, Dweck,

2006) to develop a motivational theory of networking. They argue that individuals who believe that networking is a “fixed” ability do not network. Individuals with “growth” theories of networking exert more considerable effort to build new ties. Context also affects how people network. Organizational policies incentivize some networking behaviors over others. Bandiera, Barankay & Rasul (2009) find that when workers do not earn bonuses, they network more with their friends at work. When the company offers a bonus, workers build connections to high-performers. Incentives appear to shape network structures.

5 Making the transition

Careers are not just about moving up in organizations, but also about moving on and trying new things. In these decisions too, social networks play an essential role.

Social attachment at work significantly predicts who will leave a job (Krackhardt & Porter, 1985). People hired through referrals, for instance, are more likely to stick with a job than those hired through purely formal means (e.g., Fernandez et al., 2000). Having friends at work, for example, creates embeddedness. Mitchell, Holtom, Lee, Sablinski & Erez (2001) find that workers who have high levels of job embeddedness—which they describe as links to other individuals and perceptions of fit—are less likely to leave. In a large-scale study of banks and a large hospitality company, Felps, Mitchell, Hekman, Lee, Holtom & Harman (2009) found that it was not just the embeddedness of an employee that predicted their turnover. Co-workers and their career search behaviors predicted the decision of an individual to leave their job as well.

Social networks are also important sources of information about new opportunities. Co-workers, for instance, have been shown to affect an individual’s decision to become an entrepreneur. Nanda & Sørensen (2010) found that having peers who were previously entrepreneurs increased an employee’s likelihood of becoming an entrepreneur. This effect was particularly noticeable for employees working in smaller firms who ostensibly had more interaction with their peers. Lerner &

Malmendier (2013) also found peer effects on the entrepreneurial entry decision. However, their results suggest that peers may also provide insights into the likelihood of entrepreneurial success. They find that interacting with failed entrepreneurs decreases the overall rate of entrepreneurial entry, but improves the quality of the ventures that eventually form. Kacperczyk (2013) also finds evidence of social influence in the entrepreneurial entry decision. This influence is particularly strong among people who have similar backgrounds.

Finally, the decision to retire is also subject to social influence. Duflo & Saez (2002, 2003) find, for instance, that knowing about how much co-workers save for retirement substantially impacts a worker's savings. Co-workers affect both the retirement planning process and the timing of retirement. Chalmers, Johnson & Reuter (2014), in a large-scale study of public employees in Oregon, find that workers are more likely to retire in the same month as their co-workers in the same division, suggesting the same kind of contagion process found by Felps et al. (2009).

6 Information technology, networks, and careers

Any discussion of careers today must consider the role of information technology. The Internet has led to a significant change in how people find jobs, move between jobs, and even gather information that is relevant to their jobs. In an early analysis of how job boards such as Monster.com would affect the labor market, Autor (2001) argued that increases in information about both workers and firms might not result in the efficiency gains predicted by standard economic theory. That is, more information would not automatically lead to less reliance on informal means, such as referrals, for finding work.

Before Internet-enabled job boards were created, a job opening may receive a handful of applications. Learning about available jobs was harder back then, as was the cost of applying for a job. Today, an opening posted online will receive thousands of applications from around the country, if not the world. The significant increase in the availability of information about workers and jobs potentially shifts

the role of networks—from conduits of difficult-to-find information to signaling and sorting mechanisms. Consider an employer looking to hire a new data scientist. A posting, if reasonable in its requirements and remuneration, will receive hundreds, potentially thousands, of applications.

On the backend, an algorithm will filter out profiles that do not meet a minimum bar. Next, a recruiter will go through several hundred applications, most of which may have credible signals of skill—e.g., a prestigious degree, a high Kaggle rank, a respectable GitHub profile, and evidence of high-quality prior work. Given the sheer volume of applicants, how will the firm choose among these observationally similar applicants?

Evidence suggests that firms will resolve this problem by seeking out information about an applicant’s intangible qualities: their social skill, reliability, fit, creativity, grit, trustworthiness, and so on. This information is much more likely to be acquired through social means. Referrals, and particularly those from strong ties, for example, are likely to become increasingly important when there is information overload. Strong ties are also likely to help employers and employees resolve trust problems. Garg & Telang (2017) study this question in a sample of unemployed job seekers on LinkedIn, the largest professional social network. They find that while strong ties help workers generate job leads, interviews and offers, weak ties are ineffective online.

Large-scale studies also support the value of strong ties in today’s information-rich environment (e.g., Gee et al., 2017), as does more micro-level research by Aral & Van Alstyne (2011), who show that weak ties—because they are low bandwidth—are not good at helping to transmit new information, especially when the environment is changing rapidly. Strong ties are much better conduits of information in such situations and are more trustworthy sources as well.

Firms and recruiters are also leveraging online networks more strategically to hire workers. Platforms such as LinkedIn provide recruiters with easy access to information about an often difficult-to-observe population of potential applicants:

people with jobs that are not actively looking. Employed workers can “leave their resume on the table” without the social taboo that often comes with actively looking for new opportunities when currently employed. The greater availability of this information, combined with the ability to search through network connections, has made it easier for both applicants and employers to navigate the strong tie networks that connect them.

Finally, just as online information may be beneficial for some workers because of the ease with which firms can find them, it can also hurt others. Increasingly, evidence suggests that online profiles are used to screen out applicants based their social network profiles. Manant, Pajak & Soulié (2014) found that employers use online profiles to screen applicants. Acquisti & Fong (2015) show that the availability of this information is used to discriminate, particularly against some non-majority candidates such as LGBTs or Muslims. Thus, the increasing availability of information about people online makes it even more critical for individuals to use their relationships to compete effectively for jobs.

7 Discussion

This chapter reviewed the literature linking social networks and career outcomes. One clear insight from this vast body of work is that networks are a crucial mechanism through which individuals advance in their careers. Aside from a handful of studies that find no significant network effects on careers (e.g., Mouw, 2003), most studies have found that networks matter for advancement. However, the empirical evidence suggests that answering the question of *how* networks matter is more complicated. Weak ties, strong ties, closed and open networks matter differently depending on a person’s background as well as their context. In developing a network strategy for career advancement, an employee must account for a range of contingencies that may alter their pay-offs.

Consider weak ties. While some early research supported weak tie theory, much of the later research has found that strong ties may matter as much, if not more.

Strong ties and not weak ties help resolve trust problems that are widespread in labor markets (Gee et al., 2017). Strong ties are particularly relevant in two types of contexts. First, they matter more when information is abundant, and therefore weak ties provide less novel information. Second, strong ties matter when there is a high level of inequality, and favoritism helps people get a foot in the door. In these situations, trust is the coin of the realm.

Inside organizations, networks rich in structural holes are beneficial to employees looking to get ahead (Burt, 1992). A substantial set of findings show that *on average*, individuals who are network brokers are indeed more likely to advance in their career. Brokers get higher performance evaluations, get promoted faster, and earn higher wages. The brokering strategy, however, has its limits. To reap the benefits of brokerage, individuals should have legitimacy and a reputation, characteristics that some organizational members may lack (Burt, 1998). For these individuals, leveraging structural holes means building legitimacy and trust first. Context matters too, and local norms are essential to consider when developing a network strategy for advancement (Xiao & Tsui, 2007).

Another set of findings from this research demonstrates that the content of network ties shapes the value of network positions. In the job search, the resources held by a network contact can provide as much information about their ability to help as their centrality does (Lin, 1999). Similarly, in organizations, the nature of network content—e.g., whether a tie conveys information or whether it conveys identity—may alter the value a person derives from being a broker. That is, being a broker in the *wrong* network may hurt rather than help career success.

In conclusion, the primary goal of this review was to analyze the literature on social networks and careers. Findings across a range of studies, in many contexts, and conducted by scholars with diverse disciplinary orientations, provide convincing evidence of the power of social networks to explain career outcomes and development. Perhaps one of the most striking findings is how dependent network effects are on individual differences and social and economic contexts. Moving forward,

scholars should focus on understanding how these factors—individuals, networks, and contexts—interact to produce career success.

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