

## Weak Ties, Information Asymmetry and Job Search

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### 1- Introduction

Granovetter's (1973) strength of weak ties theory is one of the most influential theories in the social sciences<sup>5</sup>. Granovetter distinguishes between strong ties and weak ties and argues that weak ties are strong because they provide access to more diverse information than strong ties. In a follow up study, Granovetter (1977) demonstrates using empirical data from the Boston labor market that weak ties are particularly useful in helping people find a job, because they are more likely to move in different circles and thus have access to novel information. This makes weak ties more likely to provide us with information about job vacancies that would not have reached us through contacts with whom we have stronger ties. Since its publication, several studies have tested Granovetter's idea in different settings and expanded it to include a wider set of variables of the job-search success, such as wage increase and the likelihood of keeping the new job (see Kramarz & Skans, 2014; Gee et al. 2017a, 2017b).

However, the overall empirical support for Granovetter's theory is ambiguous. Some sociological and economic studies verify the Granovetter's thesis in terms of job search and matching on the job market (Marsden and Gorman 2001, Topa 2011, Castilla et al., 2013). Looking into the job search process, Zenou (2015) demonstrates theoretically the *meso-socioeconomic* implication of the Granovetter's approach on labor market indicating that strong ties represent a possible "unemployment trap" in which would remain some workers for whom weak ties would be lacking. In Russia, Yakubovich (2005) confirms empirically that workers are more likely to find a job through weak ties rather than strong ones, due to their easier access to

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<sup>5</sup> It has more than 47,000 citations recorded in Google Scholar.

novel or non-redundant information and their direct influence on the employer decision<sup>6</sup>. [1] Greenberg and Fernandez (2016) show that they are much more likely to accept offers from weak ties, as far as they see opportunities for greater potential with non-monetary offsets. Using in-depth interviews, Smith (2005, 2012) explains that referrals-holders are less likely to recommend their strong relations because they are too risky and produce a negative *reputational effect*<sup>7</sup>. With respect to job matching, Montgomery (1992) tends to show theoretically that the worker's salary increases depending on the proportion of weak links in his network. Some studies highlight the relevance of this positive correlation between weak ties and income (Tassier, 2006; Obukhova, 2012). Obukhova (2012) shows that the information obtained through weak ties increases the probability of receiving an offer with good remuneration, although strong relations are more motivated to help ego in these searches.

*A contrario*, Gee et al. (2017a) and Gee et al. (2017b) demonstrate in the United States then in 55 countries, that individuals are more likely to be helped by weak ties in the job search, because these relationships are numerically more important in their networks. However, the use of only one strong tie tends to increase significantly the probability of getting a job. Indeed, Grenberg and Fernandez (2017) confirm the result that the tie strength has a causal effect on the transmission of information. They demonstrate that intermediaries are more likely to transmit information about job offers to their close friends than to their more distant acquaintances. Many studies carried out in China since the 1990s are consistent with these results (Bian, 1997; Obukhova, 2012). In this particular context, some authors explain that this type of link promotes nepotism, thus facilitating access to high-paying jobs for those who use it (Bian et al., 2015, Tian and Lin, 2016, Obukhova and Zhang, 2017). Regarding job performance, other studies highlight that strong ties are positively correlated with income and job satisfaction in China (Cheung and Gui, 2006; Lu et al., 2013; Obukhova and Zhang, 2017). Due to the unavailability of weak ties and the high uncertainty faced by young workers about the recruitment process for the first job, some studies point out that they are more likely to get a job through strong ties than weak ones (Granovetter, 1983; Kramatz and Skans, 2015).

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<sup>6</sup> Assuming strong ties are more likely to be intermediaries, Yakubovitch (2005) explains that ego has indirect influence. In other words, within strong relations, ego can connect to the alter only through the intermediary.

<sup>7</sup> B recommends A to his employer C, but A does not have good abilities and he will be unproductive for C. Due to this mismatch, the reputation of B from C decreases.

Extent literature in economics and social network analysis provides two important distinctions that can help us understand why previous results are inconclusive. First, the literature on labor economics distinguishes between three information asymmetry problems that job seekers face (see Spence, 1973; Mortensen, 1986; Petrongolo and Pissarides, 2001): 1) identifying potential job opportunities, 2) distinguishing between “good” and “bad” opportunities, and 3) signaling themselves as “good” alternatives. However, existing studies examining the job search problem from a networks perspective assume that only one type of tie is sufficient to solve the three asymmetry problems, or they do not distinguish between the three types of information asymmetry. Second, the extent network literature has distinguished between (at least) two dimensions of ties: frequency and closeness. Frequency corresponds to the amount of time between interactions while closeness refers to the trust and emotional closeness that unites two individuals. However, studies of the networks of job seekers typically adopt a unidimensional perspective on ties strength (from weak to strong ties), where the criteria for strength are ambiguous and mostly driven by data availability.

In this paper, we argue that the ambiguity of the results found in the extent literature stems for a lack of clarity regarding which type of tie solves which information asymmetry problem. We propose that frequency and closeness solve different information asymmetry problems for the job seeker. The problem of finding opportunities (problem 1) is better solved by maximizing the information diversity that reaches the job seeker, and hence through variations in frequency of contact. By contrast, discerning opportunities and signaling one’s value (problems 2 and 3) are better solved through trusted intermediaries who can act in the job seeker’s best interest (i.e., closeness and trust). Consequently, job related outcomes (i.e., time to find employment, satisfaction with the employment and salary increase) depend on the match between the type of ties to alters that a job seeker uses to find employment and the information asymmetry problem that the job seeker is trying to solve. In contexts where problem 1 of information asymmetry is more important than problems 2 or 3, the frequency dimension of ties strength will play a more important role. By contrast, in contexts where problems 2 and 3 of information asymmetry are more important than problem 1, the closeness dimension of tie strength will be more instrumental.

We test our theory using an ego-networks survey of 1601 persons in Bogota Colombia that were employed at that time of the survey. This dataset comes from a random subsample of the GEIH, a household survey administered by the national statistics institute from Colombia, that is the source of the official information on unemployment. The Bogota chapter of the GEIH is designed to be representative of population of the city, so our dataset is a random sample of the city population. This is a great advantage as our results are about the job search in general in Bogotá, and not restricted to a particular subpopulation of it (i.e. high income or specific job sector). With the only restriction that our sample is not getting information from people that left the job market. To this sample we applied a network module on the social network that was used in the search for the current job. We have plenty of information on the social characteristics of the interviewed people that comes from the GEIH's questionnaire. The aim was to reconstruct the job searching process so we restricted the module to people that got their current job in the last 12 months<sup>8</sup>.

We use a name generator to collect information on the alters people contacted when searching for their current job, including measures of trust levels, interaction frequency, type of relationship (I.e. familiar, friend, job acquaintance, etc.) and other characteristics of the alters (age, relative income, etc.). We also collected information on the time spend searching for the job and the income and satisfaction levels of them.

The GEIH survey have abundant information on the job characteristics of the people. We also add two question to identify the sector and occupation that the interviewed people has on the current and in the previous job. This information is quite important as it allows to know if people change sector and/or occupation between the last job and the current one.

We claim that if we classify job changes, by comparing the previous and the current job in our sample, between people that remained in the same sector and occupation (A) and those that changed between them (B). In this way we have two different types of job search that differ in the type of information asymmetry that is most relevant. For those that remained in the same sector (A) and occupation we have a context in which the principal problem is finding opportunities (problems 2 and 3 are not really relevant). For those that have a change of sector and/or occupation (B) problems 2 and 3 are more relevant.

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<sup>8</sup> This time reference was due to the need to help with the individual's retrieval of this past period.

## 2- Theoretical development

The information asymmetry problems are the most salient aspects that distance job market functioning from the neoclassical framework, in which supply and demand forces operate perfectly. These problems affect several types of markets as well. The general idea is that information on the quality of goods and services is not free and it is not perfectly distributed in society—as in the neoclassical approach. Because of this, prices do not capture real scarcity, and market interactions do not harmonize everyone’s incentives, inhibiting market clearing. These problems are particularly acute in job markets because job quality is quite heterogeneous, hard to measure, and dependent on the collective environment. Therefore, in job markets, the information problems critically affect both supply and demand. In addition to social networks, Labor Market Intermediaries have been identified as mechanisms for solving some of these information problems.

At micro level, the consequences of the information asymmetries in the labor market are long periods of search, both for firms and job seekers—i.e. vacancies are open, and candidates apply actively finding a job—and workers allocated on jobs that do not satisfy them. The larger the information asymmetry problem, the more acute those consequences are—i.e. people take longer to find jobs that satisfy them. Our theory: match between ties and information asymmetry

Alters play a role transmitting information from employers to job seekers. However, the type of information they transmit depends on the tie characteristics. Moreover, the effect on the job-search outcome of a particular type of information shared by an alter depends on the information problem that dominates the search at the moment. Let us explore this in detail.

First, from the job seeker point of view, the job search is a process of solving a set of three different information problems: 1) identifying potential job opportunities, 2) distinguishing between “good” and “bad” opportunities, and 3) signaling themselves as “good” candidates. Social connections might help solving those problems if they transmit certain type of information. For instance, if an alter shares information about job vacancies, she will be offering useful information for solving problem 1. Meanwhile, if an alter shares information on the attributes of the vacancy, describing if it appropriately suits the job seeker profile, she will be

giving useful information regarding the solution of problem 2. Finally, if an alter writes a recommendation letter on behalf of the job seeker for a vacancy, in which she describes the attributes of the candidate and her capacity to adapt to the vacancy, she will be helping to solve problem 3. The mechanisms for transmitting this type of information vary as well. While useful information for solving problem 1 can be transmitted by informal and immediate channels, such as chat messages or short comments during cheap talk; useful information for solving problems 2 and 3 imply activities more time consuming, such as personal conversations or writing letters. Table 2 summarizes these ideas.

Table 2. Useful information in job search

	Useful information	Mechanisms
<b>Problem 1:</b> Identifying potential job opportunities	News on vacancies available	Social media posts. Forwarded emails. Cheap talk.
<b>Problem 2:</b> Distinguishing between “good” and “bad” opportunities	Details on the application process. Attributes of the position. Features of the tasks to perform. Opinions on the convenience of the position for the job seeker career	Personal conversations (offering advice and training). Extensive emails. Phone calls
<b>Problem 3:</b> Signaling themselves as “good” alternatives	Opinions on the convenience of the job seeker for the firm. Details on the attributes of the candidate. Details on the alternatives that the candidate has and the probability of accepting an eventual offer.	Personal referrals. Direct help within the hiring firm (taking the hiring decision, doing the job interview, sharing the CV with a superior). Recommendation letters

Now, consider that certain types of interactions are more likely to provide certain type of information. Ties with different characteristics provide different information, which might be useful for solving different problems. In particular, highly trusted ties are expected to enable the deep interactions required for solving problems 2 and 3. On the one hand, they have the knowledge of the candidate that the firm does not (knowledge argument). On the other hand, they have the motivation to transmit that knowledge in an effective way (motivation argument). Meanwhile, highly frequent ties are expected to offer large amounts of tiny bits of information like news on vacancies. In that sense, frequent ties should help to solve problem 1. An structural concern might define the latter. If alters connected through frequent ties with ego are part of

similar social circles than ego's it is very likely that the information on vacancies they provide will have some degree of redundancy. However, if frequency is high enough, you should expect new information coming from these ties. Although we should get information with less novelty from a cohesive tie, we should receive novelty at a faster rate because the tie is stronger, the interaction more frequent<sup>9</sup>. Table 3 summarizes these ideas.

Table 3. Useful information in job search by tie strength

	<b>Trust</b>	<b>Frequency</b>
<b>Problem 1:</b> Identifying potential job opportunities	Not useful: They are deeply embedded in ego's social circle. Their capacity to offer information on new vacancies is fairly limited.	Useful: Even if they belong to similar social circles, they offer a larger set of information on relevant vacancies (there is higher refreshment rate)
<b>Problem 2:</b> Distinguishing between "good" and "bad" opportunities	Useful: They have better knowledge of the candidate; therefore, they can offer more accurate descriptions of the position and its fit to the candidate (knowledge argument)  Useful: They have more incentives to spend the time required to offer an accurate description of the position (motivation argument)	Not useful: No advantage beyond trust but it should not hurt either
<b>Problem 3:</b> Signaling themselves as "good" alternatives	Useful: They have better knowledge of the candidate; therefore, they can do a better job at signaling the candidate to the firm (knowledge argument)  Useful: They have more incentives to spend the time required to offer a credible signal of the candidate (motivation argument)	Not useful: No advantage beyond trust but it should hurt either

Finally, contextual variables determine which of the three problems dominates and, therefore, which type of connections are more profitable. A particular context in which we think that the differential effects of tie characteristics can be observed is in the distinction between radical and non-radical job change. When an individual looks a job in a sector or activity in which she has

<sup>9</sup> Notice that this is precisely the critique that Aral & Van Alstyne (2011) direct to the structural holes literature.

no experience, problems 2 and 3 are expected to be the most relevant obstacles for her. Thus, highly trusted ties are expected to play an important role in the job search process. Meanwhile, if an individual looks for a job in a sector or activity in which she has extensive experience problem 1 might be the most relevant. In this case, frequent interactions are expected to be more important.

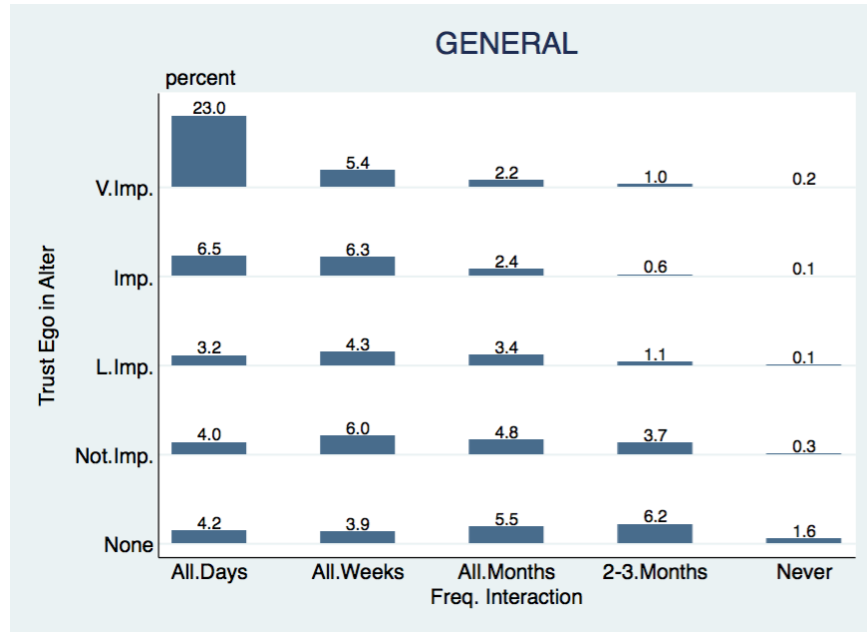
### **3- Empirical Results**

From the sample of people that was reached to answer the GEIH survey, we selected a sample of all that have in the last 12 months found a new job. We reach them again and gave them a (+/-) 30 minutes questionnaire that deal with the quality of their new job, and their actions while looking for a job, just before getting into their current job. From this survey we got a characterization of the people they contacted/contacted them in the job search process. Also, a question about their current and last occupation description was included. It was an open question that was instructed to be filled in the following way: “*charge*” in a “*type of business*” (examples: secretary in a job factory, teacher in a secondary school, driver for a hotel, etc.), this question was then coded by DANE personal that is specialized to transform this questions in two variables “occupation” and “sector of activity”. These variables are coded following international standards.

Notice that we are making the point that part of the problem with the mixed results in the literature if by taking different measures of tie strength, the next graph show the distribution of the answer to two questions. Frequency: “How often did you meet this persons when you were in the process of looking for a job?” that varies from 1 (almost every day) to 5 (only one or twice in a six month period). And Trust: “What kind of problems would you discuss with this persons at the time of looking for a job?” that varies from 1 (the most important and sensible ones) to 5 (none). The next figure present the results. It is clear that both variables are correlated but at the same time that they are not signaling the same underlying mechanism. Is this differences between the variables that we will be exploiting in our empirical tests.



Figure 1 Relative Frequency of Trust and Frequency in our Sample.



Notice that the key aspect of our theory is that different type of relations are good for different purposes. So how effective they are will depend on the characteristics of the job searching process. We claim that jobs that do have a change in both the sector and occupation from the last held job correspond to job search process that have, in general, a higher proportion of the problems that we have characterized as 2 and 3. If this is true, and if our theory is correct, we should see quite different effects of having used during the job search alter relationships that have relative higher frequency and trust levels.

We create a variable that identifies those individuals that have a change in sector and occupation between their last an current job (*Change*). And we test, if the effects of a higher *Frequency* and *Trust* have any differential effect on two different measures of job quality (*Y*): salary increase, self-reported job satisfaction; and one measure of the easiness of the job search: time of search.

We asked them their current and last job income. Their Satisfaction with their current job, the reasons for their job change (“*What was the reasons for ending their last job?*”), and the time expended looking for the current job. These questions were used to build our measures of job quality.

The general model is described in the following way:

$$Y = \varphi + \alpha_1 \text{Frequency} + \gamma_1 \text{Trust} + \delta_1 \text{Change} + \vartheta_1 \text{Frequency} * \text{Change} + \theta_1 \text{Trust} * \text{Change} + \bar{X}_i \bar{\beta}_i + e_i$$

The  $\alpha_1$  coefficient will give us the effect of frequency on job quality for the individuals that do not have a radical job change, and the  $\vartheta_1$  will be the effect when there is a radical job change. The  $\gamma_1$  coefficient will give us the effect of trust on job quality for the individuals that do not have a radical job change, and the  $\theta_1$  will be the effect when there is a radical job change. Table 1, presents our main results.

**Table 1. Effects of Frequency and Trust on Job Quality Indicators by different types of Job Search**

	Salary Difference (proportion)	Job Satisfaction	Search time
Alter's Frequency ( $\alpha_1$ )	+0.134 (0.21)	+0.106 (0.09) *	-0.374 (0.00) ***
Alter's Trust ( $\gamma_1$ )	-0.178 (0.03) **	-0.017 (0.94)	+0.142 (0.04) **
Change of Sector and Occupation	- 0.271 (0.46)	-0.106 (0.03) **	-1.216 (0.00) ***
Alter's Frequency * Change ( $\vartheta_1$ )	-0.186 (0.21)	-0.142 (0.09) *	+0.599 (0.00) ***
Alter's Trust * Change ( $\theta_1$ )	+0.227 (0.05) **	+0.181 (0.01) **	-0.170 (0.07) *
Salary base (previous job)	-9.23e-08 (0.00) ***	-1.16e-09 (0.95)	+1.94e-08 (0.41)
Age	+0.008 (0.05) **	+0.002 (0.47)	-0.001 (0.66)
Schooling years	+0.019 (0.15)	+0.011 (0.15)	+0.003 (0.79)
Sex	0.122 (0.10) *	+0.002 (0.97)	0.122 (0.10) *
N	455	478	436
R squared	0.06	0.02	0.02
Type of Regression	OLS	OLS	Posisson

Because of these differences between these two types of search, and given our theory, we should expect that there are differential effects on job outcomes by the use of different types of ties. In fact, we find that higher frequency ties have a positive effect on job quality for same sector and occupation changes, and that higher trust have a positive effect for change sector/occupation changes. These results are in clear agreement with our exposed theory of the role of weak and strong ties in job search. We also find that higher trust ties have a detrimental effect on job quality for the same sector and occupation changes.

When reading these results notice that we effects are highly coherent between them. Notice that the changes of signs for the time of search dependent variable, goes along with the fact that a higher value of it, reports a less efficient search.

#### **4- Conclusions**

The work from Granovetter was foundational. While his general proposal of weak ties signaled in the right direction, the mixed evidence that has been acquired in different settings imply a need to refine it and make distinctions that begin from his proposal but go further. An approach that could give us new knowledge in the nature and workings of social networks in our society. In this paper we claim that by understanding the informational problems related with the job search process, we can understand how different qualities of social networks ties are useful to solve this problems.

## References

- Autor, David H. (2008). The economics of labor market intermediation: an analytic framework (No. w14348). National Bureau of Economic Research.
- Granovetter, M. S. (1977). The strength of weak ties. In *American Journal of Sociology*, 78:6, 1360-1380.
- Gee, L. K., Jones, J., & Burke, M. (2017). Social Networks and labor markets: How strong ties relate to job finding on Facebook's social network. *Journal of Labor Economics*, 35(2), 485-518.
- Gee, L. K., Jones, J. J., Fariss, C. J., Burke, M., & Fowler, J. H. (2017). The paradox of weak ties in 55 countries. *Journal of Economic Behavior & Organization*, 133, 362-372.
- Goel, D., & Lang, K. (2016). Social ties and the job search of recent immigrants. IZA working paper, No. 9942.
- Kramarz, F., & Skans, O. N. (2014). When strong ties are strong: Networks and youth labour market entry. *Review of Economic Studies*, 81(3), 1164-1200.
- Mortensen, D. T. (1986). Job search and labor market analysis. *Handbook of labor economics*, 2:849-919.
- Petrongolo, B. and Pissarides, C. A. (2001). Looking into the black box: A survey of the matching function. *Journal of Economic literature*, 39(2):390{431.
- Spence, M. (1973). Job market signaling. *The quarterly journal of Economics*, 87(3):355{374.