



# It's Not Just Who You Know, It's How You Know Them

What role do referrals play in matching workers with firms?  
And what are the consequences?

## Benjamin Lester

Senior Economic Advisor and Economist  
FEDERAL RESERVE BANK OF PHILADELPHIA

*The views expressed in this article are not necessarily those of the Federal Reserve.*

Since (at least) the seminal work of Nobel laureates Peter Diamond, Dale Mortensen, and Christopher Pissarides, labor economists have been trying to understand how workers and firms find each other and form a “match.”<sup>1</sup> After all, this process determines which worker gets hired by which firm, how productive they are, how long the match lasts, and how much the worker gets paid. According to surveys of workers and firms, a *referral* is used somewhere in the hiring process in about half of all jobs.<sup>2</sup> Of course, a referral can take many forms, including a phone call to an employee at the hiring firm, a casual conversation with someone in the human resources department, or a formal letter of reference. Depending on the context, the person making the referral could be providing a variety of services: They could simply be connecting the worker and the firm; they could be sharing information about the candidate with the firm; they could be sharing information about the job with the worker; or they could be vouching for the worker should that worker get the job.

So, what do referrals do? And how does a worker's labor

market outcome change when using a referral? Importantly, the answers to these questions shed light on one important source of economic inequality—namely, inequality that arises from differences in labor income (that is, wages). In particular, some economists argue that referrals *exacerbate* wage inequality, because well-connected workers help each other find and retain high-paying jobs while less-connected workers struggle.<sup>3</sup> However, others argue that referrals are an important channel for low-income, low-skilled workers seeking a job—a “last resort” of sorts—and thus an important force for *ameliorating* economic inequality.<sup>4</sup>

In a recent paper, David Rivers of Western University, Giorgio Topa of the Federal Reserve Bank of New York, and I offer a new perspective on the role of job referrals in the hiring process and their effect on wage inequality. One of our key insights is that the effects of referrals become much clearer if you make two key distinctions in the data. First, it’s important to distinguish between different types of referrals: those from someone in the worker’s social network (a friend or relative), and those from a contact in the worker’s business or professional network. Second, it’s important to distinguish between different types of jobs, as measured by the skill requirements to perform the job.

After making these distinctions, we find that business referrals are used most frequently by highly productive workers to find high-paying, high-skill jobs. As a result, these types of referrals tend to increase inequality. Referrals from family and friends, alternatively, are used most frequently by workers in low-skill jobs who struggle to find work through other, more traditional channels. Hence, this type of referral tends to reduce income inequality.

## Finding Good Data

An important obstacle to understanding the effects of referrals on labor market outcomes has been the availability of good data. Few data sets contain detailed information about how a worker found their current job or how a firm found its current employees. Moreover, of the few data sets that do contain such information, most are drawn from a narrow range of demographics and occupations, which makes it difficult to draw general conclusions. Given these limitations, the literature has found mixed evidence regarding even basic facts, such as the characteristics of workers who use referrals most frequently or whether using a referral has a positive or negative impact on a worker’s starting wages.

For our research, Rivers, Topa, and I used the Job Search Survey, a supplement to the Survey of Consumer Expectations, which is administered by the Federal Reserve Bank of New York. The survey is unique in that the respondents are drawn from a representative sample of workers employed in differ-

ent industries, and the questions provide explicit information about how each employed worker found their current job. In particular, the survey asks whether the worker used a referral to find their current job and, if so, the worker’s relationship to the person who provided it.

Using the information contained in the Job Search Survey, we make two key distinctions that are crucial for understanding the role of referrals in the hiring process: We distinguish between

TABLE 1

### Skill Requirements Differ Greatly Across Occupations

The effects of referrals depend partly on these differences. The Nam–Powers–Boyd index across two-digit occupation codes

Occupation	NPB Index
Farming, Fishing, and Forestry Occupations (FARM)	10
Food Preparation and Serving Related Occupations (FOOD)	17
Building and Grounds Cleaning and Maintenance Occupations (BLDG)	17
Personal Care and Service Occupations (PERS)	27
Transportation and Material Moving Occupations (TRSP)	32
Production Occupations (PROD)	33
Construction and Extraction Occupations (CSTR)	34
Health Care Support Occupations (NURS)	39
Sales and Related Occupations (SLS)	43
Office and Administrative Support Occupations (ADMN)	47
Installation, Maintenance, and Repair Occupations (MNT)	47
Protective Service Occupations (PROT)	55
Arts, Design, Entertainment, Sports, and Media Occupations (ART)	64
Community and Social Service Occupations (SOC)	72
Education, Training, and Library Occupations (EDU)	75
Health Care Practitioners and Technical Occupations (DOC)	78
Business and Financial Operations Occupations (BUS)	81
Life, Physical, and Social Science Occupations (LIFE)	83
Management Occupations (MGT)	84
Architecture and Engineering Occupations (ENG)	86
Computer and Mathematical Occupations (COMP)	87
Legal Occupations (LEGL)	88

**Data Sources:** Calculated by Monica Boyd and Charles B. Nam from the 2010–2012 American Community Survey (ACS), Ruggles et. al. 2010

**Note:** The occupational classification is from the ACS Occupation Code (OCC) variable in the ACS. Scores are aggregated to 2-digit occupation level. See Monica and Nam (2015) for more details.

different types of jobs and different types of referrals.

To classify different types of jobs, we measured the skill content of each employed worker’s stated occupation using the Nam-Powers-Boyd (NPB) occupation index, which ranks occupations from 0 to 100 based on the earnings and educational attainment of workers in that occupation (Table 1).

To classify different types of referrals, we distinguished between workers who indicated they were referred by a friend or relative and workers who indicated they were referred by what we call a “business contact,” which could include a former coworker, supervisor, or business associate. We classified the remaining workers, who say they used another job-finding channel (such as the employer’s website, an online search engine, or a headhunter), as nonreferred.

frequently for high-skill jobs.<sup>5</sup> This suggests that referrals from friends and relatives and those from business contacts are qualitatively different.

We confirmed the importance of this difference by studying the relationship between each type of referral and subsequent labor market outcomes. We first examined the relationship between the use of a referral and workers’ wages. We found that employed workers who used a referral from a business contact to find their current job had, on average, about 15 percent higher starting wages than nonreferred workers, controlling for observable characteristics of the worker, the occupation, and the time period. In contrast, workers who used a referral from a friend or relative had, on average, about 5 percent lower starting wages than nonreferred workers. Then, we examined the relationship

FIGURE 1

### Referrals from Family and Friends Are More Associated with Low-Skill Jobs

Whereas referrals from business associates are more associated with high-skill jobs.

The relationship between the fraction of currently employed workers who used a referral and the position’s skill requirements (as measured by the Nam-Powers-Boyd index); the size of each dot is proportional to the number of individuals within each occupation



**Data Sources:** Nam-Powers-Boyd index: calculated by Monica Boyd and Charles B. Nam from the 2010–2012 American Community Survey (ACS), Ruggles et. al. 2010; currently employed workers who used a referral: author’s calculations based on data from the Survey of Consumer Expectations, Center for Microeconomic Data, Federal Reserve Bank of New York

It may seem obvious that these distinctions would be helpful for understanding the data. After all, the manager of a fast-food restaurant and the hiring manager at a tech firm presumably find referrals useful for different reasons. And, of course, a referral from your grandmother is very different from a referral from your former boss. However, previous researchers didn’t make these distinctions, in large part because of the data limitations described above.

### New Facts About Referrals

To start, we analyzed which type of referral is used most frequently in each type of occupation (Figure 1). Referrals from family and friends are used most frequently for low-skill jobs, while referrals from business contacts are used relatively more

between whether a worker used a referral—and, if so, what kind of referral they used—and their tenure at the job. We found that workers who found their current job through a business contact tended to leave the job more quickly, whereas workers who found their current job through a friend or relative stayed at the job for longer.

If using a referral from a business contact is associated with finding a good, high-paying job, why do these workers tend to leave that job quickly? Similarly, if using a referral from a friend or relative is associated with a low-paying job—even after controlling for the worker’s occupation—why do these workers stay longer? To answer these questions, we exploited a unique feature of the survey that allowed us to study the experiences of these workers after they found a job. In particular, the survey contains information about the arrival rate of new job offers

received by currently employed workers. We find that workers who found their current job through a referral from someone in their business network are subsequently offered jobs by other employers more often. However, we found that workers who found their current job through a referral from a friend or relative are subsequently offered jobs by other employers less often.

To summarize, our analysis reveals that referrals from business contacts are used more frequently at high-skill jobs; they are associated with higher starting wages; and they produce jobs with shorter tenures, on average, because workers who use a referral from a business contact often continue to receive outside offers after they start a job. In contrast, referrals from family and friends are used more frequently at low-skill jobs; they are associated with lower starting wages; and they produce jobs that last longer, on average, because workers who use a referral from a family member or friend tend to receive fewer outside offers from other employers.

## What Referrals Do

In the previous section, we described statistical relationships between the channel that workers use to find a job and their subsequent labor market outcomes. However, these relationships alone are not sufficient to identify the effect of referrals on workers' wages and tenure, or on economic inequality in the aggregate. Consider, for example, the positive relationship between the use of a business referral and a worker's starting wages. This relationship is consistent with at least *three* theories of referrals.

See *Theories of Referrals and Their Implications* ↓

First, some economists argue that a referral simply helps create a good match by communicating information about the worker to the firm and about the job to the worker. A second theory is that referrals are a way for firms to use their network of employees to find the best, most productive workers—that is, workers who are not just a good match for their vacancy but good at most jobs. Finally, some economists posit that being hired through a referral can help make any worker more productive—perhaps because the referrer serves as a mentor, or even because the new employee works extra hard to avoid

## Theories of Referrals and Their Implications

The literature provides different theories about the role of referrals in the hiring process and the subsequent effects of referrals on labor market outcomes.

One theory is that referrals simply help workers and firms find each other. More specifically, "matching frictions" make it difficult for workers to know enough about all the available jobs, and for firms to know enough about all the workers interested in their position. According to this theory, the primary role of referrals is to overcome these matching frictions by connecting workers with firms—that is, a referral could be nothing more than a current employee telling their firm, "I have a friend who is looking for work."

A second theory is based on the idea that it's often difficult to predict whether a worker and a firm will be a good match. Economists call this phenomenon "symmetric uncertainty," since both the worker and the firm are unsure about the prospects for an employment relationship. However, someone who knows both the firm and the worker might be able to determine whether it would be a good match. In this case, the referrer is not only making the connection but also sharing information with the worker and the firm. Thus, a referral can help overcome symmetric uncertainty.

Another theory of referrals is based on the concept of "asymmetric information." Economists typically believe that it's hard for firms to identify which workers will be highly productive. In this case, a referral from a trustworthy source—such as an employee at the hiring firm—is informative about a worker's productivity, and this helps the firm identify and hire more-productive workers.

According to a fourth theory, a referral can change a worker's behavior after they are hired. For example, in some jobs, workers are tempted to slack off after they are hired—a phenomenon economists call "moral hazard." However, when a worker is referred to the firm by, for example, a relative who would suffer embarrassment if the worker performed poorly, the worker may have extra incentive to work hard. Similarly, if a new hire is referred by a current employee who might serve as a particularly good colleague or mentor for the new hire, the referral could generate a highly productive relationship.

An additional theory posits that using informal networks to help someone get a job is a form of nepotism. That is, a referral is a request for a favor and, as a result, the worker gets a job they otherwise would not get.

These theories lead to very different predictions about the labor market outcomes of workers who use a referral. For example, if the primary role of referrals is to overcome matching frictions, workers hired through referrals should be no more productive than those hired through other channels. Hence, the wages and tenure of referred workers should be like those of the nonreferred.

However, if referrals are used to overcome symmetric uncertainty, asymmetric information, or moral hazard, then referred workers should be more productive—or a "better match"—and hence earn higher wages and stay in the position longer, on average. And if referrals are a form of nepotism, the predictions are exactly the opposite: Less qualified workers should be less productive, earn lower wages, and be quicker to leave the firm, either because they are fired or because they find a better match elsewhere.

embarrassing the person who provided the referral.

In our paper, we used an economic model to help us identify which of these theories are consistent with the relationships we found in the data. We find that referrals from business contacts and those from friends and family play very different roles in the match formation process; that is, to be consistent with the trends we see in the data, we have to apply *different theories* to these two types of referrals.

According to our model, whether a worker uses a business referral is highly sensitive to that worker's underlying productivity. This could be the case if, for example, a business contact is willing to recommend an applicant only if they know the applicant is productive and hard working. Hence, our analysis suggests that referrals from business contacts support the theory that a referral's primary role is to help firms screen applicants and find the best workers. In the parlance of economic theory, business referrals help resolve *asymmetric information*.

Alternatively, referrals from friends and relatives seem to create good matches for all types of workers. This could be the case if, for example, a worker's friend knows which skills they have and helps them find a job that requires those skills. Or it could be the case that a worker's friend or family member agrees to help them find a job, but only with the expectation (explicit or implicit) that the worker shows up on time and works hard. Thus, in the language of economic models, our findings suggest that referrals from family and friends more closely support the theory that referrals overcome *symmetric uncertainty* or *moral hazard*.

## Implications for Inequality

Without a consensus on how referrals are used in the hiring process, economists also disagree about the effect of referrals on inequality. Naturally, this makes it hard to formulate policy advice. For example, nepotism laws that prohibit workers from referring a family member could either exacerbate or ameliorate income inequality.<sup>6</sup> Our results suggest that the relationship between referrals and inequality depends on the type of referral and the type of job.

On the one hand, referrals from business contacts are used most frequently at high-paying, high-skill jobs and by highly productive workers. According to our model-generated counterfactuals, these workers may use a business referral to generate offers, but they also frequently find opportunities through other, formal channels. Hence, though business referrals help form good matches, they contribute to earnings inequality by helping well-paid workers increase their wages even further.

Referrals from family and friends, on the other hand, are quite different. They are used more frequently at low-paying, low-skill jobs and by workers who struggle to generate offers through other channels. In other words, these referrals are often a worker's last resort. Therefore, referrals from friends and relatives, like referrals from business contacts, help form good matches—albeit through a different mechanism. However, unlike referrals from business contacts, they tend to ameliorate earnings inequality by helping workers at the bottom of the wage distribution find a job with decent wages.

## Conclusion

Why do some workers find jobs quickly while others struggle? Why do similar workers get paid different wages? What determines how long a worker stays in their job? To answer these fundamental questions, labor economists seek to better understand the process that connects a worker with a firm.

In surveys of workers and firms, a referral is often cited as an ingredient in this process. However, the precise role of referrals and the implications for labor market outcomes have been unclear, in part because of data limitations. Our recent research uses a new survey to show that the role of a referral—and its effect on workers' wages and tenure—becomes clear once we distinguish between different types of referrals, and how each type of referral is used to find different types of jobs.

Our new insights could help rationalize a variety of puzzling facts about the labor market. For example, economists often struggle to understand why certain workers don't leave their hometowns in search of better work prospects. Our findings suggest a reason: Workers who depend on family and friends to find jobs are understandably reluctant to leave this network behind. 

## Notes

**1** Diamond, Mortensen, and Pissarides were awarded the 2010 Nobel Memorial Prize in Economic Sciences for their work on markets with search frictions, of which the labor market is a prime example. See, for example, Diamond (1971, 1982), Pissarides (1985), and Mortensen and Pissarides (1994).

**2** Topa (2011) provides an extensive review of the prevalence of referrals in surveys of both workers and firms. Most surveys of job seekers find between 50 and 60 percent of workers report having used a referral to find their current job. Surveys of firms also indicate widespread use of referrals or word of mouth: Those results vary from just under 40 percent to significantly more than 50 percent.

**3** See, for example, Calvo-Armengol and Jackson (2004), who developed a theoretical model to explain how referrals through networks can exacerbate inequality. Of course, there are other important sources of economic inequality, including those that arise from differences in *capital* income, but these are beyond the scope of our focus on labor markets.

**4** See Loury (2006) for a more detailed discussion of the role of referrals as a last resort for certain workers.

**5** In the paper, we use regression analysis to confirm that the trends in Figure 1 are statistically significant, even after controlling for observable characteristics of the worker, along with time and region fixed effects.

**6** A deeper question is whether there is “too much” inequality and, if so, whether it's wise for policymakers to address this issue with policies that affect the matching process or with policies that redistribute income after matches have been formed. We focus here on the relationship between referrals and inequality, without taking a stand on this (admittedly important) question.

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