

Who gets the job referral? Evidence from a social networks experiment

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Motivation

- Social networks are important in labor markets
 - Around half of jobs in U.S. found through informal channels
 - 44% of employed sample in India report getting someone a job
 - Quantity and quality of network members influence labor market outcomes
 - May spread information & help screen
- We know very little about **who** networks allocate jobs to
 - large gap between detailed theory and "black-box" empirics
 - simply observing that networks matter tells us little about who benefits/loses from this fact
 - Very, very little evidence on how networks choose who benefits from a new job opportunity

Employee Incentive Problem

- Focus on screening story (Montgomery 1991)
 - Assortative matching within networks
 - Or, with heterogeneity in ability within network
 - Requires ability to screen; proper incentives
- Complicated incentives among social relationships
 - Repeated game; mutual insurance
 - Altruism and other-regarding preferences (Foster and Rosenzweig 2001)
 - Therefore good reason to think employees will not always choose the “best” person from the firm’s perspective
- Externalities to network hires
 - Heterogeneity in on-the-job relationships influences productivity (e.g. Mas and Moretti 2009, Bandiera et al 2005, 2007, 2009a, b)
 - May also be suboptimal for society: may generate inequality ((Calvo-Armengol and Jackson 2004; Magruder 2010)

Overview

- This study we are interested in:
 - Are some (or all) workers able to identify good matches among their network members?
 - Do financial incentives induce employees to change their optimal choice for a referral?
 - Do financial incentives affect the relationships that people bring in?
 - Do they affect the productivity of referrals?
- To look at these questions, we ran a laboratory experiment in the field in peri-urban Kolkata
- Basic idea: we use recruitment into the laboratory
 - Laboratory participation is fundamentally a day labor job
 - Multiple-round experiment allows participants to make referrals
 - Can observe actual referral choices under randomized incentives
- Combine lab setting with out-of-laboratory behavior

Experimental Design: Round 1

- Initial individuals offered a fixed wage (Rs 135 or \$3) for about 2 hours of time in the lab
 - Recruitment done door to door at every 3rd house
 - Average daily income of individuals in sample is about Rs 110
- They complete a survey and then randomly assigned to one of two tasks: cognitive (puzzles) or effort (peanuts in a bag)
 - Focus on cognitive task today
- After receiving their pay, they are offered a finder's fee of at least a specified amount to bring in someone "who would be good at the task they did"

Experimental Design: Round 1

- Finder's fee was also randomized in the following way:

	Cognitive Task	Effort Task
Performance Pay	Low: 60-80 Rs	Low
	High: 60-110 Rs	
Fixed Payment	Very Low: 60 Rs	
	Low: 80 Rs	Low
	High: 110 Rs	

Experimental Design: Round 2

- Referrals and the initial participants (OPs) who brought them come to lab:
 - Those in performance pay treatments informed that they will be paid the maximum of the range they were told
 - Were concerned about side payments
 - Referrals complete the survey
 - Referrals perform both cognitive and effort tasks
 - OPs complete interim survey: expected performance of referral

Details on Tasks: Cognitive

- Asked to help design a “quilt”
- Given different colored squares, asked to arrange in a pattern
- Observe: whether correct answer, total time to correct answer and # of incorrect attempts
- Normalize these data into a z-score
- Used 2 (randomly selected across days) sets of puzzles to minimize cheating

Randomization and Data

- Randomization worked, for the most part
- Few notes on sample:
 - Young sample: average age is around 30; 34% between 17 and 25
 - Few HH heads: only 33%
 - Almost all literate
 - Basically, HHs sending their adult (employed, primary-earner) sons to participate

Analysis Outline

Paper presents a model which suggests three predictions:

- Participation sensitivity
 - Groups with more info should respond to perf pay by returning more frequently
- Fixed Fee sensitivity
 - Fixed fees should not affect referral choice
 - Empirically, no differences across fixed fee groups
- Tradeoffs between social and professional incentives
 - OPs should respond to performance incentives by bringing in more distant relations
 - If OPs have info, may respond to performance incentives by bringing in better workers

Participation in Round 2

- 70% of OPs return with a referral
- 2 ways to view participation in Round 2
 - as a test of the model - groups with higher expected payment should be more likely to return to the lab
 - groups with more information in performance payment treatments
 - Empirically, high ability, high incentivized OPs are more likely to return with a referral than others
 - interesting for employers if different contracting schemes elicit different types of referrals.
 - As a bias in exploring later specifications

Participation in Round 2

- Main approach: heckman twostep selection model
- Exclusion restriction: daily rainfall
 - Each OP given 3 day window to return with referral
 - We use the number of days it rained, 0 to 3, during that window as the exclusion restriction
 - Results also robust to more flexible functional form specifications

- OPs trade off social incentives (altruism, informal insurance) and employer incentives
- For both reasons, we anticipate relatives serve a different function in network than more socially distant individuals such as coworkers
 - Relatives give many more gifts to OPs - 35% of gifts come from relatives vs. 2% from workers

→ Therefore if tradeoffs were important, would expect to see more coworkers and fewer relatives brought in in response to performance pay

We find that all OPs bring in more 8 percentage points more coworkers and 7 percentage points fewer relatives

- • 50% swing in fraction of coworkers and relatives

However, no average increase in performance

	Referral Cognitive Ability Task Performance					
	Selection Model			OLS: Full Sample		
	(1)	(2)	(3)	(4)	(5)	(6)
OP Cognitive Test Score * High Perf Pay			0.370 **			0.346 ***
			(0.159)			(0.128)
OP Cognitive Test Score * Low Perf Pay			0.065			0.037
			(0.138)			(0.133)
OP Cognitive Test Score		0.152 **	0.036		0.123 **	0.027
		(0.071)	(0.079)		(0.057)	(0.075)
OP Treatment: High Perf Pay	-0.135	-0.107	-0.084	-0.072	-0.045	-0.004
	(0.157)	(0.151)	(0.131)	(0.126)	(0.126)	(0.127)
OP Treatment: Low Perf Pay	0.068	0.077	0.078	0.014	0.019	0.013
	(0.172)	(0.164)	(0.144)	(0.136)	(0.136)	(0.135)
N	562	562	562	562	562	562
Mean of Dep Var for Excluded Group	-0.068			-0.539		
SD	1.166			1.320		
Chi ² statistic: joint test of rainfall variables	12.743	13.449	13.056			
Mills: Coefficient	1.356	1.301	1.123			
Mills: SE	0.561	0.514	0.432			
N Censored Obs	155	155	155			

Interpretation: Puzzle Performance

- Results \Rightarrow high ability workers have ability to screen network members if given proper incentives
- While all OPs respond to incentives by shifting type of referral, only high ability OPs bring in referrals who actually perform better
- This would be consistent if low ability OPs were not able to predict the performance of their referrals
- Also consistent with differential return rate for high ability OPs in Performance pay treatments
- Empirically, one more piece of evidence: we asked OPs to predict referral performance
 - predictions strongly correlated for high ability OPs
 - predictions uncorrelated for low ability OPs

Conclusion

- Job networks appear ubiquitous: attempt to look inside black box of networks
- Using lab experiment with out-of-lab behavior, we find:
 - Individuals offered performance pay contract more likely to recruit coworkers and less likely to recruit relatives
 - High ability individuals recruit high ability referrals who are also reliable when incentivized
- Provides evidence that networks - at least high ability members - can exploit information about peers' capabilities
- Also suggests that individuals in networks are responsive to incentives (network incentives not binding)
 - Important for firm
 - May also be important for other policy contexts where you spread information or goods through a network