Motivating Agents to Spread Information: The Role of Explicit Incentives and Social Identity-Matching

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Motivation

- Research on public service delivery in developing countries has focused on supply-side problems
  - Absenteeism, red tape, corruption, inefficient judiciary, etc.
- The demand-side is relatively under-studied in poor countries
- Lack of awareness/information among beneficiaries is an important cause for failure of public service delivery
  - In India, awareness about the National Rural Employment Guarantee Scheme (NREGS) is low in some of the poorer states
  - Information costs also responsible for low take-up of welfare schemes in developed countries as well (Aizer 2007; Daponte et al 1999)
- What can be done to increase awareness/information of welfare schemes?

Summary

- In this paper, we study different channels of information delivery using a randomized field experiment in India
- Research questions:
  - Does recruiting and paying local women to spread information about a public health insurance programme increase knowledge and take-up?
  - Does the payment structure of agents (flat versus incentive pay) matter?
  - What role does social identity, as an alternative channel, play?
- Findings in brief:
  - Hiring agents has a positive impact on programme knowledge
  - This effect is driven entirely by agents on incentive-pay contracts
  - Higher knowledge is associated with higher programme enrolment
  - In addition to incentive pay, social identity matching between agent and beneficiary also improves knowledge

The Programme

- Our experiment is implemented in the context of a new public health insurance scheme called “Rashtriya Swasthya Bima Yojana” – henceforth RSBY
- Our setting – 2 districts in south Indian state of Karnataka: Bangalore Rural and Shimoga
- Scheme launched in Karnataka in Feb-March 2010
- Key features of programme:
  - Eligible households: Below-Poverty-Line (BPL)
  - Covers hospitalization expenses for 700 medical conditions
  - Annual expenditure cap of Rs 30,000 (630 USD) per eligible HH of five
  - Policy underwritten by insurance co. selected in state-wide tender
  - Policy premium subsidized by government
  - Beneficiary HH pays Rs. 30 (37p) as annual registration fee

The Programme

- Key features of programme (cont'd):
  - Cashless service at any participating ("empanelled") hospital using RSBY smartcard
  - Smartcards contain biometric information of all members of eligible HH
  - Cost of treatment reimbursed to hospital by insurance company based on fixed rates

Experimental design

- 151 randomly selected villages in Bangalore Rural and Shimoga
- First stage of randomization:
  - 112 villages assigned to **treatment** group – received an "agent"
  - 39 villages assigned to **control** group – did not receive an "agent"
  - Agent is local woman and member of a Self-Help Group (SHG)
  - Agent's task: spread information about RSBY among eligible households over a one-year period
- Second stage of randomization: All agents were paid to do the job, but experimental variation in contract structure
  - **Flat-pay**: Agents paid fixed Rs 400 every three months (38 villages)
  - **Incentive-pay**: Agents paid a fixed Rs 200, plus a bonus depending on the level of knowledge about RSBY amongst the eligible households in village, tested on a random sample (74 villages)

Experimental design

- Average pay designed to equal Rs 400 across both treatment groups
  - But some deviation in practice
  - The aim was to isolate the "incentive" effect of the contract structure from the "income effect" of the average payment size
- Payment structure revealed to agent *after* recruitment
  - Payment structure in a sealed envelope
  - The aim was to isolate the "incentive" effect of contract structure from potential "selection" effect
- No agent quit after being told about the payment structure
  - Four agents quit a few months later, due to pregnancy or migration
  - Those villages excluded from our analysis
  - Final number of villages in our sample is 147

Data

- 3 waves of 'mini-surveys' conducted post-intervention
- A random sample of eligible HH in our sample villages were interviewed in each wave
- A few months' gap between each wave
- Aim of the mini-surveys:
  - Administer knowledge test to beneficiary HH to determine level of knowledge about RSBY (also used to pay agent)
  - Measure enrolment into RSBY
  - Collect limited background information on households
- Each knowledge test consisted of 8 questions relating to RSBY
  - Each answer was recorded and later coded as being correct or incorrect
  - The number of correct answers gives each interviewed household a score 0-8
- Main outcome variable is the knowledge test z-scores, also look at enrolment

Empirical specification

- Basic specification:

$$Y_{hv} = \alpha_0 + \beta . \text{Treat}_v + \varepsilon_{hv}$$

- β captures overall effect of information-spreading agents
- All regressions are weighted least squares
  - Not all HHs are observed in every wave, but there is overlap
  - Weighted least squares assigns equal total weight to each HH
- Standard errors robust and clustered at village level
- Survey (wave) and taluk fixed effects included
  - Taluks are sub-district administrative divisions
  - 4 in Bangalore Rural, 7 in Shimoga

Effect of information-spreading agents

	(1) Knowledge	(2) Knowledge	(3) Knowledge
Agent in village	0.173***	0.185***	
	(0.0642)	(0.0571)	
Flat-pay Agent in village			0.0740
			(0.0918)
Incentive-pay Agent in village			0.242***
			(0.0567)
Survey wave fixed effects	No	Yes	Yes
Taluk fixed effects	No	Yes	Yes
Observations	5650	5650	5650
t-test: flat=incentivised (p-value)			0.0677

Effect of information-spreading agents

- HHs in villages with agent (treatment group) scored, on average, 0.17 standard deviations higher compared to those in control villages.
- This impact is only observed for HHs (and stronger) in those villages where the agent was on an incentive-pay contract linked to knowledge provision
- HHs living in villages with flat-pay agents did not perform significantly better than those in control villages
- This finding is consistent with the theoretical prediction that since the flat pay agents were paid a constant amount irrespective of outcome, they were not incentivized to exert effort
- Results robust to controlling for survey and taluk fixed effects

Effect of information-spreading agents, Shimoga

	(1) Knowledge	(2) Knowledge	(3) Knowledge
Agent in village	0.208**	0.190**	
	(0.0817)	(0.0739)	
Flat-pay agent in village			-0.0225
			(0.122)
Incentive-pay agent in village			0.312***
			(0.0670)
Survey wave fixed effects	No	Yes	Yes
Taluk fixed effects	No	Yes	Yes
Observations	2888	2888	2888
t-test: flat=incentivised (p-value)			0.00928

Impact on Enrolment

- Does improved knowledge about programme translate into higher enrolment?
- OLS regression of enrolment on knowledge would lead to biased estimates
  - Unobserved heterogeneity at the HH level
  - Reverse causality
- Random assignment of our incentive-pay treatment used as an instrument variable for knowledge
- Villages with flat-pay agents and pure control villages clubbed together to form comparison group

Knowledge and Enrolment: IV estimates

	(1) Enrolled (OLS)	(2) Enrolled (Reduced form)	(3) Knowledge (First stage)	(4) Enrolled (IV)
Knowledge	0.207***			0.395***
	(0.00907)			(0.131)
Incentive-pay Agent in village		0.0806**	0.204***	
		(0.0361)	(0.0615)	
Survey wave fixed effects	Yes	Yes	Yes	Yes
Taluk fixed effects	Yes	Yes	Yes	Yes
Observations	5650	5650	5650	5650

Knowledge improves Enrolment

- Improved knowledge about programme associated with increased enrolment in our sample

Incentives and Social Identity

- Recent literature suggests the importance of social identification effect on take-up of insurance products (Cole et al 2010)
- Thus, we compare the effect of providing incentive pay to that of matching the agent and beneficiary household on social identity
- Limited HH background information for a subset of our sample
- Hence we focus on caste identity defined in terms of SC/ST status
- Within-treatment group analysis in order to control for agent characteristics in levels

Incentives and Social Identity-matching

	(1) Knowledge	(2) Knowledge	(3) Knowledge	(4) Knowledge
Incentive-pay Agent in village	0.176**	0.175**	0.193*	0.165*
	(0.0888)	(0.0876)	(0.101)	(0.0903)
Agent is SC/ST	-0.108	-0.133	-0.132	-0.180**
	(0.0912)	(0.0903)	(0.0902)	(0.0845)
HH is SC/ST	-0.0436	0.0591	0.0585	0.0667
	(0.0500)	(0.0548)	(0.0550)	(0.0476)
HH SC/ST status matches that of agent		0.212***	0.230**	0.215**
		(0.0561)	(0.0920)	(0.0868)
Agent is incentivised *HH SC/ST status matches that of agent			-0.0272	0.00250
			(0.103)	(0.0970)
Survey wave fixed effects	Yes	Yes	Yes	Yes
Taluk fixed effect	Yes	Yes	Yes	Yes
Agent controls	No	No	No	Yes
Observations	2756	2756	2756	2756

Incentives and Social Identity-matching

- Social matching plays a role in information dissemination
- Knowledge scores are higher for households that share same **caste** identity as agent
  - Social proximity reduces cost of communicating information (Fisman, Paravisini and Vig, 2011)
  - Social proximity engenders trust (Cole, 2010)
- Our experiment does not enable us to disentangle these effects
- Social matching and incentive pay have independent effects on knowledge dissemination
- Interaction of two insignificant, implying effects of matching and incentive pay additive rather than reinforcing
- Cannot reject the equality of the two coefficients

Conclusion

- The demand side is under-studied in public service delivery
  - Lack of information in the target population often key reason for low take-up of welfare programmes
- Recruiting local agents to spread information can make a difference to beneficiaries' knowledge about a scheme
- Agents with monetary incentives do better at this
- …but social identity also matters. Knowledge levels are higher for households who are similar to their agents in terms of caste identity
- Improved knowledge also leads to higher take-up of welfare programmes