Using Social Networks to Spread Word-of-Mouth Information Campaigns in Rural India

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Sector(s): Finance

Location: Karnataka, India

Sample: 521 villages in Haryana and 213 villages in Karnataka

Target group: Rural population Adults

Outcome of interest: Communicable diseases Social service delivery

Intervention type: Digital and mobile Information Nudges and reminders Social networks Preventive health

AEA RCT registration number: AEARCTR-0001770

Research Papers: Using Gossips to Spread Information: Theory and Evidence from Two Randomized Co..., Changes in Social Network Structure in Response to Exposure to Formal Credit Ma...

Partner organization(s): Government of Haryana

Policymakers and businesses often rely on key individuals to spread new information to a community. However, obtaining the network data required to identify them can be time-consuming and expensive. In this study, researchers conducted two randomized evaluations in India in which they identified effective individuals for information sharing ("gossips") through word-of-mouth. They found that information was disseminated more widely when shared by individuals nominated by others in their community, rather than village elders or randomly-selected individuals.

Policy issue

Organizations and individuals can use social networks to disseminate information through word-of-mouth, community organizations, social media, or other peer-to-peer interactions. This is often used as a communications tool in public health, public safety, and politics, among other fields. Understanding how this information exchange takes place in social networks is critical to designing effective information campaigns.

When politicians, policymakers, businesses, or others are seeking to spread new information within a community, they may rely on key informants, or “seeds,” who are members of that community to share the news. However, it is not clear from existing research how to identify which seeds will be most effective.

Context of the evaluation

Past research shows that community members with special status, like leaders, influential people, geographically-centralized people, or even those with many friends, may not be the most effective information seeds.[1], People who are central according to a set of specific measures obtained from social network data tend to be most successful in spreading information—but collecting data on those measures in order to identify such people can be costly and time consuming.[2] How can organizations identify individuals in a network, easily and cheaply, who can be seeded with important information for wider diffusion?

In this study, researchers conducted two randomized evaluations in India to explore the impacts of asking community members to suggest who would be the best individuals for spreading information. While asking people may seem obvious, this is not a strategy that is commonly employed by organizations: they may use geographic data, rely on the judgement of a single extension officer (usually not from the village), or conduct expensive and time-consuming network mapping.

In **Karnataka, India**, where one of the evaluations described in this paper took place, villagers were seeded with information about a phone-based raffle in which they could win prizes.

In **Haryana, India**, where the other evaluation took place, J-PAL is collaborating with the Government of Haryana on a series of initiatives designed to improve immunization rates. In this study, individuals were seeded with information about upcoming monthly vaccination camps and were asked to spread that information within their communities to improve immunization rates.



Two women talking to each other in India.

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Details of the intervention

The first randomized evaluation was conducted in 213 villages in **Karnataka**. Villages were randomly assigned to one of three groups:

- Gossips: In 71 villages, 15 randomly selected households in each village were asked to nominate people who would be good at diffusing information. Three to five nominees were then randomly selected from the nominations and seeded with information about the raffle.
- Elders: In 71 villages, three to five elders—traditionally respected social and political leaders—were seeded with information.
- Comparison: In 71 villages, no nominations were elicited. Three to five households were selected at random to be seeded with information, with the head of household serving as the seed.

Each seed was asked to spread information to villagers about a phone-based raffle. Villagers could call a free number for a chance to win a cell phone. If they did not win a cell phone, they were guaranteed to win a small amount of cash. Researchers tested the effectiveness of seeds in spreading information by assessing how many villagers called the raffle phone number.

The second randomized evaluation was conducted in 517 villages in **Haryana**. Villages were randomly assigned to one of four groups:

- Gossips: In a random subset of villages, 17 randomly selected households in each village were asked to nominate people who would be good at diffusing information. The six top nominees were asked to be program ambassadors and seeded with information about the immunization camps.
- Trust: In a random subset of villages, 17 randomly selected households in each village were asked to nominate people who are generally trusted by the villagers. The six top nominees were asked to be ambassadors and seeded with information.
- Trust and Gossips: In a random subset of villages, 17 randomly selected households in each village were asked to identify those who met both requirements—good at diffusing information *and* trusted. The six top nominees were asked to be ambassadors and seeded with information.
- Comparison: In a random subset of villages, six randomly selected heads of household in each village were asked to be ambassadors and seeded with information.

Most seeds (78-83 percent) agreed to participate in the study; every village had several active seeds. Seeds received two monthly phone-based reminders (one text and one phone call) reminding them to spread information about the monthly immunization camps.

In addition, J-PAL carried out several cross-randomized interventions designed to increase the demand for immunization. In some randomly selected villages, small incentives for immunization were offered. In others, households received personalized SMS messages reminding them of the next vaccine that their child was due for.

Researchers measured the impact of different types of seeds on immunization rates, which were tracked via a tablet-based e-Health application developed by J-PAL and the researchers.

Results and policy lessons

Karnataka: Results suggest that information about the raffle spread more widely when it was seeded to people nominated by villagers as being well-suited to spread information ("gossips") than randomly selected people or village elders. Villages with at least one gossip seed saw an average of 65 percent more calls to the raffle phone number compared to villages with no gossips serving as seeds (9.6 calls compared to 5.8).

Haryana: Results are consistent with those in Karnataka. In villages with "gossip" seeds, an average of 23 children attended each monthly immunization camp, an increase of 27 percent compared to villages with random seeds. Researchers found that this increase held for all types of vaccines. These results were stable over the 13-month period in which the study took place.

Villages with “trust” seeds and “trust and gossip” seeds saw no clear differences in immunization rates compared to villages with random seeds.

Further, SMS messages reminding parents of their child’s next vaccine, tested in a cross-randomized design, did not lead to greater attendance at camps compared to seeding information with gossips.

Policy implications

These results indicate that individuals nominated by others in the community as gossips were much more effective at diffusing a simple piece of information than other individuals, even village elders; and providing information to many more households through SMS messages did not significantly lead to more information diffusion across a village.

This suggests that community members’ simple observations can provide valuable lessons about their complex social systems, and that policymakers who are interested in diffusing information across a population can utilize this inexpensive and direct method to identify highly-central agents.

This approach can be used in a variety of contexts—on its own or combined with other data. This method may be more cost-effective than alternatives frequently used by policymakers, such as communicating with village leaders/elders or sending messages through SMS or mail to large groups of households.

Use of results

Based on the results of the study, the government of Haryana is exploring how to incorporate the identification of gossips to build parental demand for vaccination into its routine immunization program. The researchers and the J-PAL South Asia policy team are collaborating with the health department to develop options which can be scaled through the government’s new mobile health infrastructure.

Banerjee, Abhijit, Arun G. Chandrasekhar, Esther Duflo, and Matthew O. Jackson. "Gossip: Identifying Central Individuals in a Social Network." NBER Working Paper 20422, August 2014.

1. Banerjee, A., A. Chandrasekhar, E. Duflo, and M. O. Jackson. 2013.“The Diffusion of Microfinance,” *Science* 341, DOI: 10.1126/science.1236498; and Beaman, L., BenYishay, A., Magruder, J., et al. 2018. “Can Network Theory based Targeting Increase Technology Adoption?” National Bureau of Economic Research.
2. Banerjee, A., A. Chandrasekhar, E. Duflo, and M. O. Jackson. 2013. “The Diffusion of Microfinance,” *Science* 341, DOI: 10.1126/science.1236498.