



RESEARCH



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Study Leverages Peer Effects to Encourage Adoption of Hygienic Latrines

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The spread of a technology often depends on “peer effects”—consumers aren’t willing to take a chance on a new product until their neighbors do. In a new study, Yale SOM’s Ahmed Mushfiq Mobarak and James Levinsohn investigated the use of targeted subsidies that leveraged peer effects to spark adoption of hygienic latrines, which reduce the spread of pathogens.

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By Roberta Kwok

Convincing people to adopt a new technology isn't as simple as demonstrating the benefits. Often, consumers' decisions depend on what their peers do. For example, farmers may not be willing to adopt a new tool until they see enough of their neighbors using it. And a fax machine isn't useful until enough people own fax machines to make them usable.

Sparking this peer effect—getting to the critical mass of users that will cause your product to catch on—is tricky. “How do you price these goods to induce other people to be able to get the benefits?” asks James Levinsohn, director of the Jackson Institute for Global Affairs and a professor of economics and management at Yale SOM.

Finding the right answer is critical when the technology could save lives in developing countries. Levinsohn and Ahmed Mushfiq Mobarak, a professor of management and economics at Yale SOM, recently co-authored two studies investigating the best strategies to induce people to use hygienic latrines. More than one billion people worldwide defecate in the open, causing serious health problems. For instance, about 525,000 children under the age of five die every year from diarrheal disease. Hygienic latrines offer a simple solution: they isolate waste and reduce the spread of pathogens. But convincing communities to adopt this technology has been difficult.

“It's not complicated, and yet it's not being used,” Levinsohn says. “The question is, why isn't it being used?”

The team's research suggests that offering subsidies for latrines encourages adoption. Just as importantly, these discounts have spillover benefits: when more people in a community start using latrines, it is more likely that others will follow suit.

But exactly how subsidies should be distributed requires careful consideration. The researchers found that it was more effective to give larger discounts to a smaller number of households or neighborhoods than to spread small subsidies more widely. And surprisingly, targeting villagers with more social connections wasn't the best approach. Instead, latrine adoption among poorer people may have bigger spillover effects—perhaps because it made others ashamed to continue defecating in the open.


“The behavior that we observe seems to be consistent with social shame as a driving factor,” 
Mobarak says.

Read the study: [“Demand Estimation with Strategic Complementarities: Sanitation in Bangladesh”](#)

In a 2015 study, Mobarak, Levinsohn, and Raymond Guiteras at North Carolina State University investigated various approaches to increase latrine use, collaborating with the NGOs WaterAid

investigated various approaches to increase latrine use, collaborating with the NGOs WaterAid Bangladesh and Village Education Resource Center (VERC), and the Bill and Melinda Gates Foundation Water, Sanitation and Hygiene Program. The team tried different strategies across 380 rural communities in Bangladesh. Some communities learned about health benefits of latrines, while others got easier access to latrine supplies and technical assistance. Another group received health education and also entered lotteries to win vouchers for latrine parts. And in a control group, nothing was changed.

The team found little benefit from education alone or improved access to supplies. But in neighborhoods with voucher lotteries, the number of households that had access to hygienic latrines was 14 percentage points higher than in control neighborhoods within a year. Latrines were adopted not just by voucher winners but also by neighbors who didn't receive subsidies. And voucher winners were more likely to get latrines in communities where a higher fraction of people won the lottery. "People's decisions are interlinked," Mobarak says.

Policymakers will get the biggest bang for their buck if they give subsidies to the poorest villagers. Those people are the most likely to need the discount, and once they get a latrine, neighbors are likely to follow. 

Choices could be driven by social norms; if everyone else is defecating in the open, people may not feel motivated to change their behavior. And a latrine may not seem worth the money if neighbors don't use one, since the latrine owner's water will still be contaminated. "You need the whole community," Levinsohn says.

It was clear that subsidies could help spark adoption of the technology. But how should they be distributed? And to whom? Would giving vouchers to certain members of the community—perhaps the most visible—create bigger spillover effects?

To find out, the researchers conducted another study. They created a model to simulate various subsidy distribution scenarios—for instance, whether it would be more effective to give \$12 vouchers to all households in a neighborhood, \$24 vouchers to one-half of households, or \$48 vouchers to one-quarter of households. The results suggest that the last option "produces the largest increase in latrine usage overall," Mobarak says. That's partly because people who get large discounts are more likely to use the latrine vouchers. Similarly, it's better to give bigger subsidies to a smaller fraction of neighborhoods than smaller subsidies to all neighborhoods.

The researchers then investigated which villagers should receive the vouchers to maximize uptake. Surprisingly, giving subsidies to the people who could be thought of as "opinion leaders" didn't yield

Surprisingly, giving subsidies to the people who could be thought of as “opinion leaders” didn’t yield a bigger spillover effect. In fact, it was smaller than if the team simply distributed subsidies randomly.

Mobarak reasons that people may be more likely to get latrines when they see lower-status community members doing so. If a villager realizes that his wife still defecates in the open while his family’s maid now uses a latrine, “that can be very shameful,” he says. “There’s little shame in continuing to openly defecate even when richer people switch to a sophisticated new technology, but it becomes more shameful for you or your spouse to continue to go out in the open when even the poorer households in the village switch to a new method that offers better privacy.”

The team also found that poorer people were more reactive to subsidies—that is, they were more likely to use a latrine voucher. And spillover effects were larger in denser neighborhoods.

Together, the two results suggest that policymakers will get the biggest bang for their buck if they give subsidies to the poorest villagers. Those people are the most likely to need the discount, and once they get a latrine, neighbors are likely to follow. “Social norms are going to change faster,” Mobarak says.



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