Reducing procrastination with tailored incentives during polio vaccination drives in Pakistan

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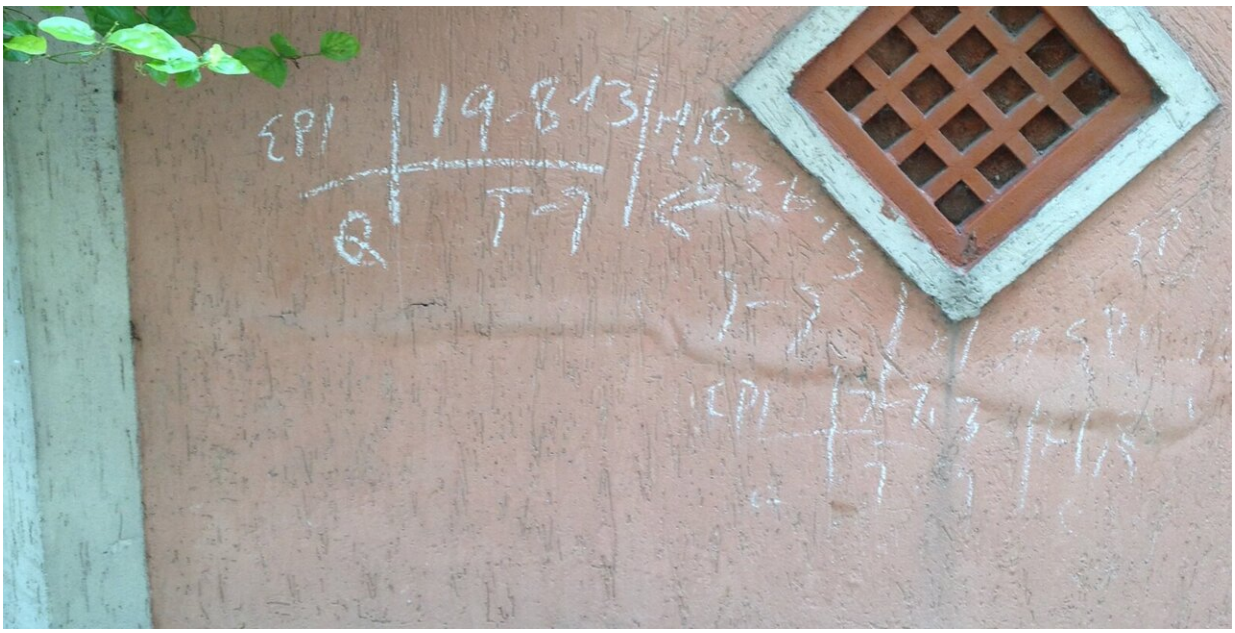

Credit: California Institute of Technology

If you have an assignment due in two weeks, do you work on it right then and there, or do you wait a week-and-a-half and rush to finish it the night before it's due?

If you're like many people (and the writer of this piece), you're going to

wait until last-minute panic sets in before you buckle down and get your work done.

Procrastination is common, and often it is even expected, but that does not mean it is completely harmless. In some situations, it can have a significant effect on productivity. For Caltech's Charlie Sprenger, professor of economics, procrastination is a problem that can be solved with the tools of his trade, and he has started in a place where its effects can be acute: health care.

In a paper published in the *Journal of the European Economic Association*, Sprenger and colleagues from UC San Diego, the London School of Economics, Germany's FAU Erlangen-Nuremberg, and the University of Pittsburgh show how they used economics principles to tackle the problem of procrastination during polio vaccination drives in Pakistan.

During those drives, health care workers are tasked with going out into neighborhoods and administering vaccinations to a set number of children over a two-day period. The system used to track those vaccinations was not exactly robust: The workers carried with them a piece of chalk and tallied the number of doses they administered on the outside walls of homes.

Eventually, Pakistani health authorities decided it could do better with a mobile phone app, which is where Sprenger and his colleagues came in. The app provided the authorities with better data—data that showed the workers were procrastinating. If a worker was expected to administer 200 doses in two days, they might do 50 the first day, and then rush to finish the remaining 150 on the second day, for example.

"That's the standard force of procrastination that most of us are familiar with when we're under deadline," Sprenger says. "We postpone the

unpleasant task of doing the work until close to the deadline and then have to rush and maybe don't provide the best work that we can, given our time constraints."

Because of the logistics of distributing vaccines and their need to be kept refrigerated, health authorities want them administered in a smooth (predictable and consistent) way. A last-minute rush is not ideal.

The researchers conducted interviews with the workers to get a better idea of how they wanted to perform their work—essentially how much work did they want to do on day one and on day two. Using those preferences, Sprenger and colleagues developed tailored incentives for some of the workers.

"You could think about various ways to implement this," Sprenger says. "You could say, 'Look, I'll pay you 10 cents per vaccine on day one and 5 cents per vaccine on day two. Doesn't that make you want to do your work earlier?' Or you could think about it differently, saying vaccines that you do on day one count for two times as much as vaccines that you do on day two."

By tailoring these kinds of incentives to individual workers based on their stated preferences, the research team showed that it was possible to reduce procrastination substantially. (They generate "behavior around 30% closer to the policy target of equal allocation," to be specific.)

That is a lesson that Sprenger says could be applied in many policy areas.

"It didn't need to be Pakistan, it didn't need to be government health workers. It could have been anything," he says. "This fits into a bigger agenda of using the tools of experimental economics to measure preferences and change incentive schemes based on those measurements in an individualized way."

As far as the app goes, Sprenger says the Pakistani government turned off the preference/incentives feature after the team completed its study, but the rest of the app is still in use, allowing Pakistan to monitor its vaccination efforts.

The paper describing the research is titled "Using Preference Estimates to Customize Incentives: An Application to Polio Vaccination Drives in Pakistan."

More information: James Andreoni et al, Using Preference Estimates to Customize Incentives: An Application to Polio Vaccination Drives in Pakistan, *Journal of the European Economic Association* (2022). DOI: 10.1093/jeea/jvac068

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