

Why experiment?

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Key points for this lecture *

- ▶ What is a policy experiment?
- ▶ Who uses experiments?
- ▶ What are experiments good for (and not)?

Policy experiments

A method for:

- ▶ Putting beliefs about what works to the test
- ▶ Enabling policy decisions based on data

What is an experiment?

- ▶ Question: does engaging communities with service providers increase utilisation and health outcomes
- ▶ Why we care: accountability of service providers to end users
- ▶ Idea: if communities know what they should expect from clinics and can act on this information they can hold nurses to account and increase outcomes (like absenteeism, service, information, etc)

What is an experiment?

- ▶ Research partner: Three NGOs and MoH in Sierra Leone
- ▶ Intervention: community monitoring program
- ▶ Experimental design: 2 year program randomly assigned to clinics
- ▶ Outcome: clinic utilisation, satisfaction, health outcomes
- ▶ Results: more people coming to clinics, more satisfied and lower U5M
- ▶ And more likely to get rested during Ebola crisis

SOURCE: {Christensen et al (2021) Healthcare Delivery during Crises: Experimental Evidence from Sierra Leone's Ebola Outbreak, Quarterly Journal of Economics}

Why an experiment?

Random assignment → highly credible evidence that the change to messages at rallies led to a change in vote share

If politicians believe results → decide to change campaigns

Long history of the method

- ▶ Late 1700s, early 1800s: early double-blind experiments with comparison group (not randomized)
- ▶ 1920s: first randomized experiments in agriculture, education, and political science
- ▶ 1965: first clinical randomized trial (Streptomycin for TB)
- ▶ 2019: Nobel prize for popularizing randomized experiments in economics (Banerjee, Duflo, Kremer)

Widespread use

- ▶ Clinical trials required by regulators for vaccines, medicines, and treatments
- ▶ Political campaigns test mobilization and persuasion strategies
- ▶ Economic policies to combat poverty
- ▶ Tech companies test website features to find most lucrative (“lean startup”)
- ▶ Governments test policies in “nudge units”

Use in social science

Despite recent introduction in social science, big impacts already

- ▶ Proved long-held beliefs wrong
- ▶ Demonstrated practices that work in US don't work in Global South
- ▶ Proved new ideas right

Use in social science

Despite recent introduction in social science, big impacts already

- ▶ Led to scaling up good policies
- ▶ Led to discovery that policies do not scale well

Proving beliefs wrong I

- ▶ Belief: local democratic institutions improve delivery of development aid (CDD)
- ▶ Partner: International Rescue Committee, CARE
- ▶ Intervention: two years of democratic institutions and development program

Proving beliefs wrong I

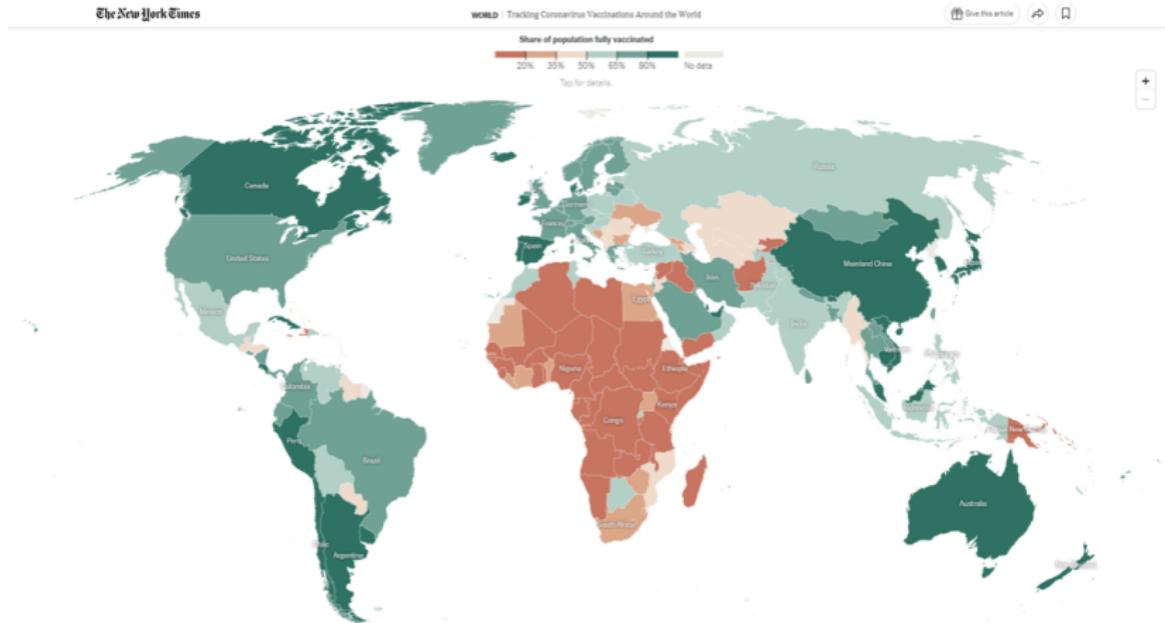
- ▶ Experimental design: randomly assign village clusters to treatment or not
 - ▶ Outcomes: corruption, government practices chosen after intervention
 - ▶ Result: no change (well, at least in the short run)
-
- ▶ **SOURCE:**
 - ▶ {Casey et al (2018) "Radical Decentralization: Does Community Driven Development Work?" Annual Review of Economics}
 - ▶ {Casey et al (2022) "Long Run Effects of Aid: Evidence versus Forecasts from Sierra Leone" Economic Journal}

Proving beliefs wrong II

- ▶ Belief: engagement between police & citizens improves trust, lowers crime
- ▶ Partner: Police agencies in six countries
- ▶ Intervention: “community policing” (townhalls, beat patrols, etc.)
- ▶ Experimental design: randomly assign police beats to receive/not
- ▶ Outcomes: citizen trust in and cooperation with police, crime
- ▶ Result: no change in any main outcome

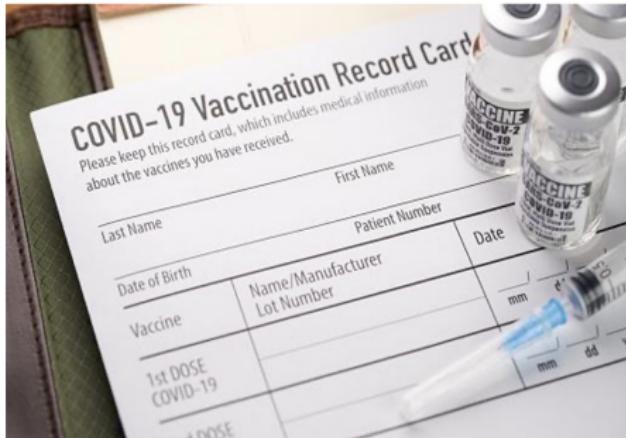
- ▶ See EGAP Metaketa project Community Policing
{<https://egap.org/our-work/the-metaketa-initiative/round4-community-policing/>}

Proving beliefs wrong III Example COVID Vaccine Uptake



Example COVID Vaccine Uptake

INTERNATIONAL SUPPLY CHAIN FAILURES



The high global demand for vaccines and limited supply benefited countries with payment capacity and geopolitical importance

Example COVID Vaccine Uptake

nature medicine

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COVID-19 vaccine acceptance and hesitancy in low- and middle-income countries

Julio S. Solis Arce, Shana S. Warren, Niccolò F. Meriggi, Alexandra Scacco, Nina McMurry, Maartje Voors, Georgiy Syunyaev, Aymen Abdul Malak, Samya Abouajdine, Opeyemi Adejo, Deborah Anjio, Alex Armand, Safer Asad, Martin Atyea, Britta Augsburg, Manisha Awasthi, Gloria Eden Ayesiga, Antonella Bancalari, Martina Björkman Nyqvist, Ekaterina Borissova, Constantin Manuel Bosancianu, Magarita Rosa Cabra García, Ali Cheema, Elliott Collins, Filippo Cuccaro, Ahsan Zia Farooqi, Tatheer Fatima, Mattie Fracchia, Mery Len Galindo Soria, Andrea Guariso, Ali Hasanain, Sofia Jaramillo, Selvi Kallion, Anthony Kamwesige, Arjun Kherel, Sarah Kreps, Madison Levine, Rebecca Litzman, Mohammad Malik, Gisele Maranjabati, Jean Léodomir Habarimana Mfura, Fatoma Monoh, Alberto Mucaque, Imamo Mussa, Jean Almo Nasibimana, Isaac Obara, María Juliana Otálora, Béchir Wendemi Ouldriego, Touba Bakary Pare, Melina R. Platas, Laura Polanco, Jaaverla Ashraf Qureshi, Mariam Raheem, Vasudha Ramakrishna, Ismail Rendré, Taimur Shah, Sarene Eyla Shaked, Jacob N. Shapiro, Jakob Svensson, Ahsan Tariq, Achille Mignondo Tchibozo, Hamid Ali Twanya, Bharatendu Trivedi, Corey Vernot, Pedro C. Vicente, Laurin B. Weissinger, Basit Zafar, Baobao Zhang, Dean Karlan, Michael Callen, Matthieu Teachout, Macartan Humphreys, Ahmed Mushfiq Mobarak & Saad B. Omer Show fewer authors

Nature Medicine (2021) | Cite this article



Covid-19 vaccine acceptance is higher in every LMIC studied (average 80%), compared to USA or Russia



Childhood vaccine acceptance is very high in most low and middle income countries



Healthcare workers are the most trusted source of guidance on vaccine uptake in most LMICs.

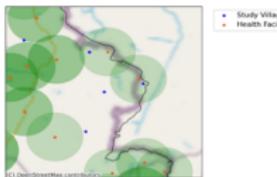
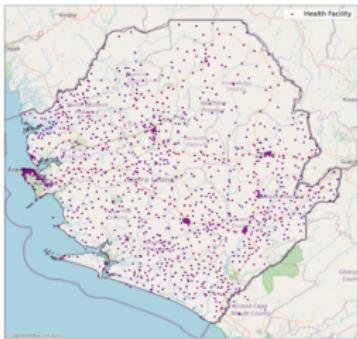
Example COVID Vaccine Uptake

LAST-MILE DELIVERY CHALLENGES

In Sierra Leone, it takes (on average) **3 hours** to get to a vaccination center each way, and it costs **6.5 USD** each trip



Example COVID Vaccine Uptake



Meriggi et al (2023) Solving Last-Mile Delivery Challenges is Critical to Increase COVID-19 Vaccine Uptake: A Cluster Randomized Controlled Trial

Example COVID Vaccine Uptake

Step 1

Meet with Community Leaders



Example COVID Vaccine Uptake

Step 2

Socialize the idea of vaccines in front of all community residents



Example COVID Vaccine Uptake

Step 3

Bring
vaccines and
nurses to
these
remote
communities



Example COVID Vaccine Uptake

Access can
be costly
and
difficult



Example COVID Vaccine Uptake

Step 4

Requires both
vaccine
administration
and
registration
infrastructure



Example COVID Vaccine Uptake

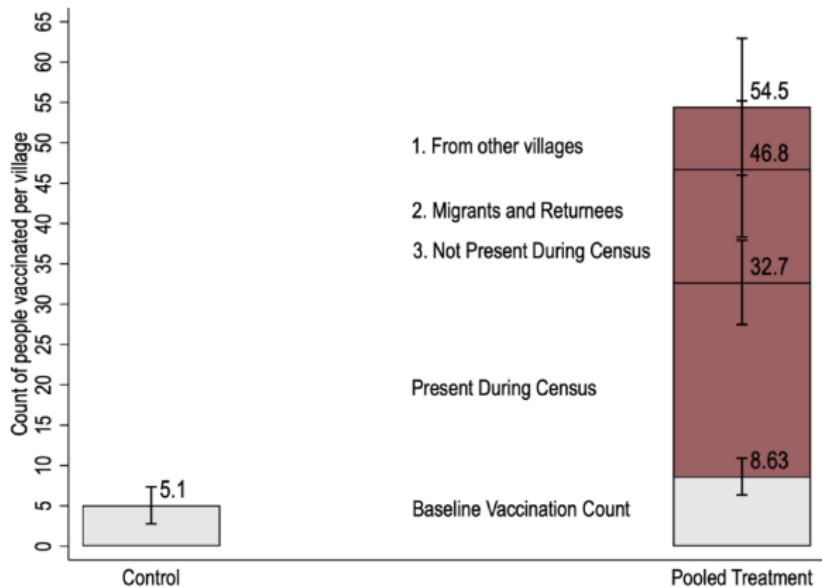
Step 4

**Set up
temporary
vaccine
clinic for
next 48
hours**



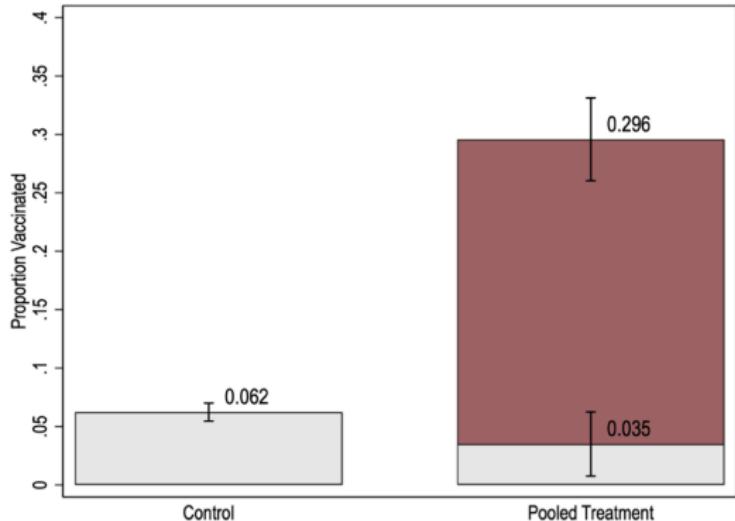
Example COVID Vaccine Uptake

Treatment
Effect on
Number of
People
Vaccinated
per Village



Example COVID Vaccine Uptake

Treatment
Effect on
Village
Vaccination
rate: 24%p



Example COVID Vaccine Uptake

Policy impact?



SSRC
@ssrc_org

3. Interventions that support taking time off from work, securing childcare, and/or securing transportation to vaccination sites:

7:04 PM · Mar 21, 2023 · 110 Views

The screenshot shows a Twitter thread from the account @ssrc_org. The tweet is dated March 21, 2023, at 7:04 PM, and has 110 views. It features the SSRC logo and the handle @ssrc_org. The tweet content discusses intervention designs in the #MercuryProject research framework, mentioning key problems and a link to ssrc.org/programs/the-m... The thread includes a reply from the same user, also dated March 21, 2023, at 7:04 PM, with 110 views. This reply links to assets.researchsquare.com/rs-20619... and lists several names: @mushfiq_econ, @nmeriggi, Voors, @mads_levine, Ramakrishna, Kangbai, Rozelle, Tyler, and @cundy2110. It also includes a link to 3f.jstor.org/stable/48510247. The reply has 1 like, 1 retweet, 1 reply, and 158 views.

SSRC @ssrc_org · Mar 21
Each intervention design in the [#MercuryProject](#) research framework addresses a key problem:
ssrc.org/programs/the-m...

SSRC @ssrc_org · Mar 21
3e. assets.researchsquare.com/rs-20619...

(@mushfiq_econ, @nmeriggi, Voors, @mads_levine, Ramakrishna, Kangbai, Rozelle, Tyler, @cundy2110)

3f. jstor.org/stable/48510247

(Ofstead, Sherman, Wetzel, Langley, Mueller, Ward, Ritter, @drgregpo)

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Proving beliefs right

- ▶ Belief: conditional cash transfers change behavior, improve welfare
- ▶ Implementing agency: Mexico public health ministry
- ▶ Intervention: cash to mothers conditioned on children attending school, going to health clinics (Progresa)
- ▶ Experimental design: first phase of rollout randomly assigned to communities
- ▶ Outcomes: poverty, school attendance, health
- ▶ Result: improvements in every outcome

Proving beliefs right

Incomplete list of places with CCTs following the Progresa study:

Argentina, Bangladesh, Brazil, Cambodia, Chile, Colombia, Egypt, Guatemala, Honduras, Indonesia, Jamaica, Mexico, Nicaragua, Panama, Peru, Philippines, Turkey, US

Scaling up successes

- ▶ Belief: deworming medication affects only patient's health
- ▶ Intervention: deworm all children in a community at once
- ▶ Experimental design: randomly assign communities to receive/not mass deworming
- ▶ Outcomes: health, but also school attendance
- ▶ Results: effects much larger than believed; cost effective way to improve school attendance, health, even after 20 years

- ▶ {Hamory et al (2021) Twenty-year economic impacts of deworming, PNAS}

Limitations to experiments

Some questions don't need an experiment

- ▶ Does smoking cause poor health?
- ▶ Do parachutes help when you jump out of a plane?

Limitations to experiments

Some questions shouldn't have an experiment

- ▶ Does changing the interest rate affect inflation?
- ▶ What is the poverty rate?

Important role for descriptive research, qualitative investigation

Why experiments

Put beliefs about effects of policies to the test

What policies works?

→ let's find out