

Evaluating Programs to Increase Women's Economic Empowerment: Research Design Questions

Kenyatta University Workshop #3

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Dr. Charity Troyer Moore

Yale University

Our Goals Today

- Clarify re: impact evaluation “hierarchies”
- Share more about the WEE-focused RCT introduced last week
- Through this discussion, cover considerations for research design decisions

Clarifying Re: Choosing an Evaluation Design

- Priority – Be able to make a causal claim
- “Easiest” design approach to this: Randomized Control Trial
- Other evaluation strategies allow you to make a causal claim, but you must understand whether your situation also meets design *assumptions* and the potential threats to “identification” of a causal claim – and often use more complicated analysis techniques

Approach	Data Used	Comparison Group	Threats
Randomized control trial	Pre and post (or simply post) data for both intervention and comparison groups	Randomly assigned	Spillovers, interference, contamination in control group
Statistical methods to estimate impact: Difference-in-difference, instrumental variables, synthetic controls, matching techniques, regression discontinuity	Pre and post data for both intervention and comparison group	Group not exposed to the intervention, not randomly assigned. Aim is to statistically create a valid comparison group.	Groups may look different on average or have different underlying time trends that are not well-controlled for in the approach
Pre-post	Pre and post data for intervention group only	No external comparison group	Factors other than the intervention influence the outcomes of interest

Anatomy of an RCT Focused on Women's Economic Empowerment

The Program: (MG)NREGA



- India's "Employment Guarantee"
- Established ~2007
- Every household → 100 days paid work annually
- Manual labor – ponds, ditches, roads, etc. – low wages
- Significant labor market opportunity for rural women
- 50 million households/year

The Problem

- Payments directly transferred to beneficiary- owned bank accounts
- Wage payments for all household members sent to bank account owned by male household head
- **Women have little-to-no wage control**

The Opportunity

- Central government supportive of female-friendly measures
 - Mandated electronic payments into bank accounts
- At the same time, state initiatives to increase financial inclusion in rural areas

The Partners

- Ministry of Rural Development
- State NREGA Commissioner and Panchayati Raj and Rural Development Department
- District leadership
- Two public sector banks
- Multiple kiosk banking companies



Madhya Pradesh

Panchayat & Rural Development Department

Research Questions

- Does financial inclusion alone empower women, encourage work under MGNREGA?
- Is additional training required for women to take advantage of access to formal financial services?
- Does giving women a financial use case through direct wage deposits increase further increase her financial engagement, economic activity, and broader empowerment?

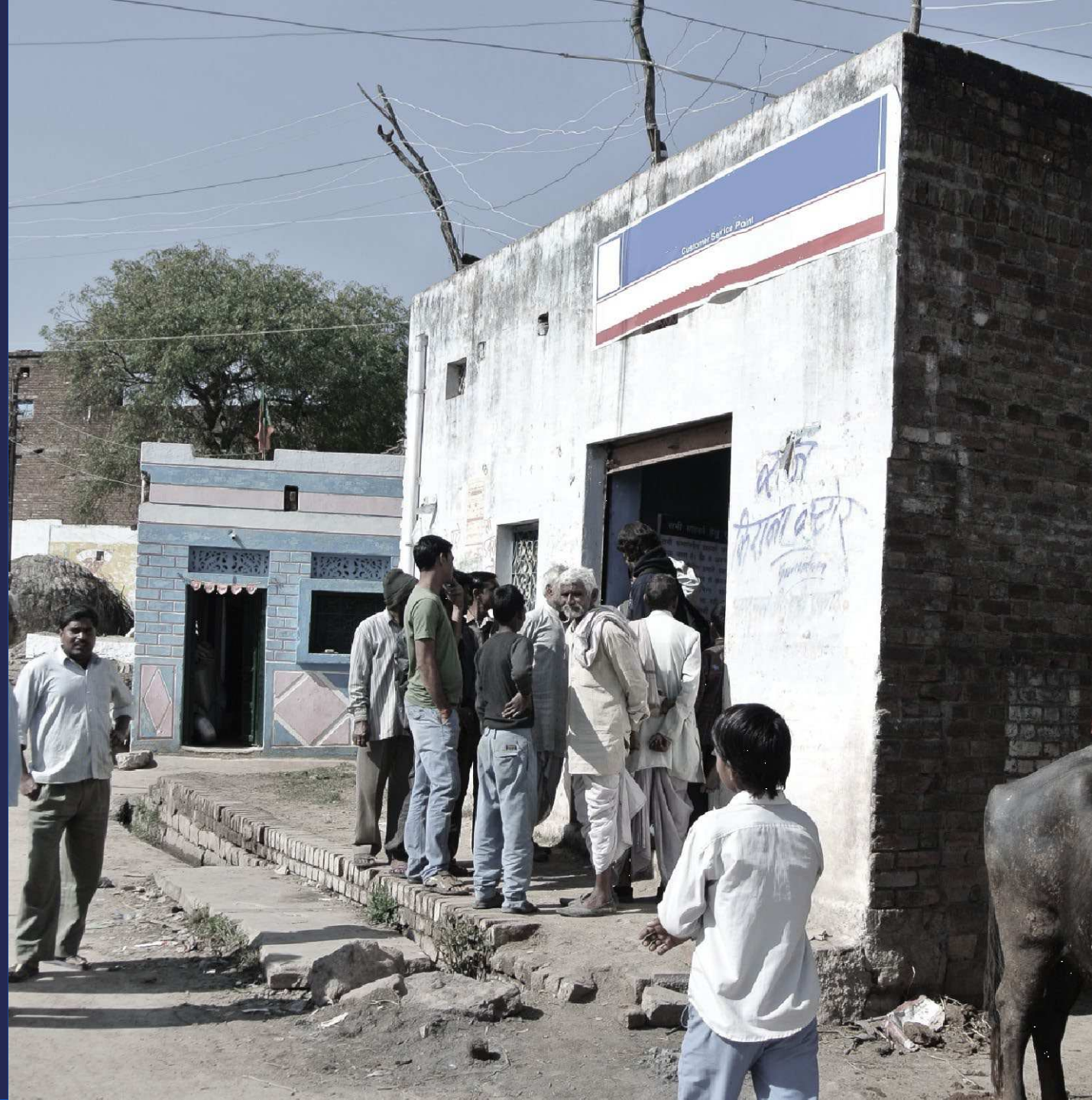
Intervention Design

Intervention 1

Offer Women

Village Bank

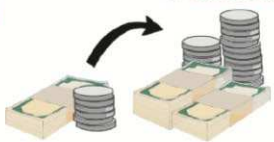
Accounts





राशी रोज़ रु 10
समय 18 साल
व्याज 4%

रु 100000



ज़रूरत पड़ने पर हरिया
बैंक में जमा सुरक्षित
पैसे निकाल सकता है



Intervention 2

Complement

Accounts with

Basic Training

Intervention 3

Sign Women Up for NREGA Direct Deposit

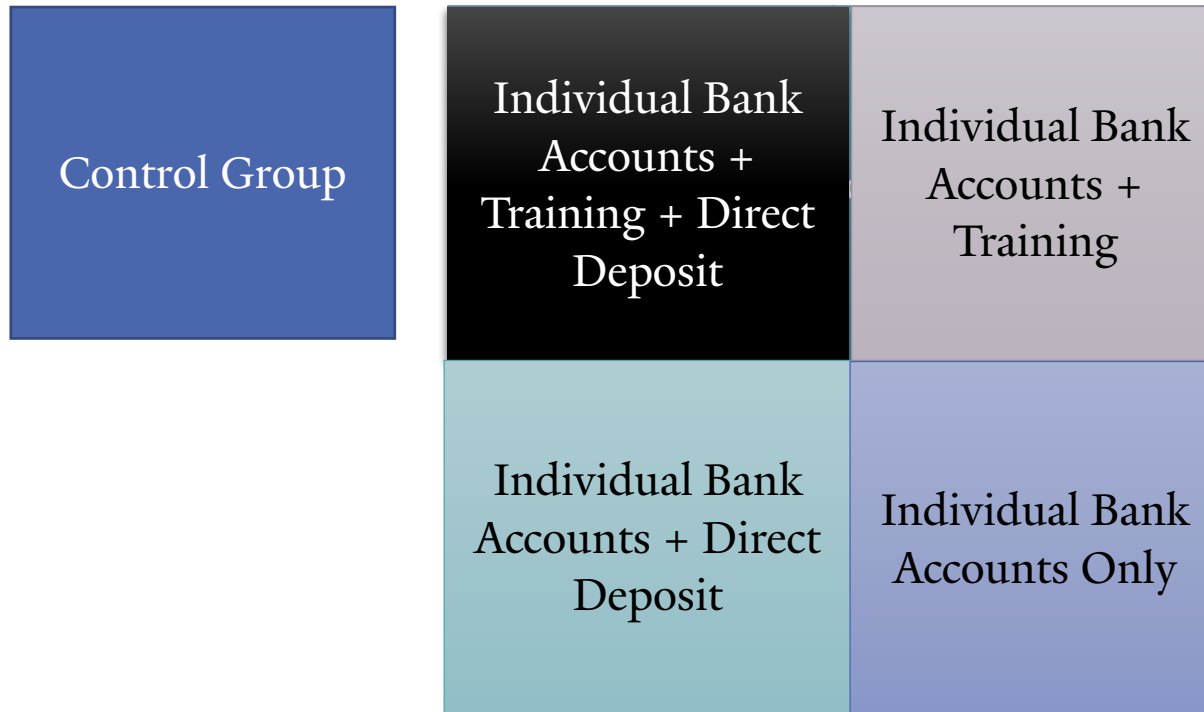
Submit paperwork to request new accounts get linked to women's wages in NREGA payment system

Follow-up with local officials to ensure request processed

No change to wage deposits for any other household members

We wanted to understand complementary effects

- Cross-randomized design:





**Experimental
Context:
Gender and Work**

Study Context

	Mean	SD
Female's age	39.500	11.343
Male's age	43.199	13.165
Female's years of education	0.655	1.977
Male's years of education	3.787	3.936
Scheduled Caste	0.279	0.433
Scheduled Tribe	0.155	0.353
Had worked for NREGA (females only)	0.488	0.500
Household per capita income	1021.179	1571.415
Observations	1587	

Note: Source: Female Bank Accounts short-run data. Sample restricted to control group. Household income is top-coded at 99th percentile.

28.2% women report having a say in taking employment

Key Design Questions We Had to Address

- **Where** would we run the RCT?
- **Who** would be eligible to participate, and how would we identify potential participants?
- **At what level** would we randomize?
- **How** would we implement the intervention arms?
- **What data** would we collect to monitor implementation?
- **What data** would we collect to assess impact?
- **How** would we pay for all this?

Where would we run the RCT?

- **Strategic concerns**

- Focus on areas with *low* female empowerment (sex ratios, literacy rates)

- **Logistical concerns**

- Participants needed access to a functional local banking kiosk

→ 4 districts in rural Madhya Pradesh, 199 functional local banking points

Who would be eligible to participate, and how would we identify potential participants?

Married women...

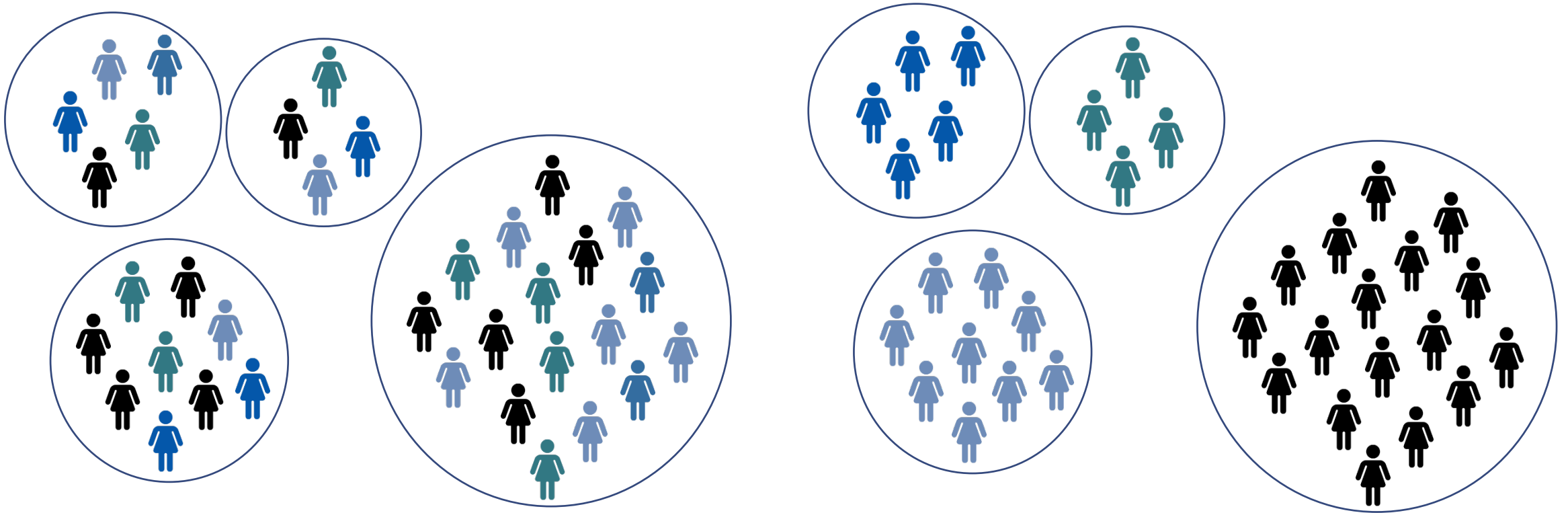
...in the 199 eligible communities in our study districts

...without her own bank account

...where she or her husband had appeared in **NREGA administrative data** as a worker

Randomization Design

At what level would we randomize?



- Individual level → lead to externalities/spillovers on untreated women
- **Community level (clustered randomization)**

Randomly assigned treatment within *strata* (groups)

- Strata – mutually exclusive groups
- GPs (locations with) ...
 - Below/above median number of households with joint bank accounts linked to MGNREGS direct deposit
 - Below/above median percentage of individual MGNREGS accounts
 - Whether the GP was located in Sheopur district

[illegible]

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	Above median hh w/ direct deposit			Below median hh w/ direct deposit		
Above median % individual accounts	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
Below median % individual accounts	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP

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	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	Sheopur	Other districts		Sheopur	Other districts	

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	GP	GP	GP	GP	GP	GP
	GP	GP	GP	GP	GP	GP
	Sheopur	Other districts		Sheopur	Other districts	

Who would be eligible to participate, and how would we identify potential participants?

Identifying potential study participants:

- Conducted a very brief baseline *census*
- Contacted households using names and identifying information about the household, which we obtained through MGNREGA administrative data
- The census gave us a *survey sampling frame*, a comprehensive listing of the potential study participants.

Sampling

The *study* sample and the *survey* sample

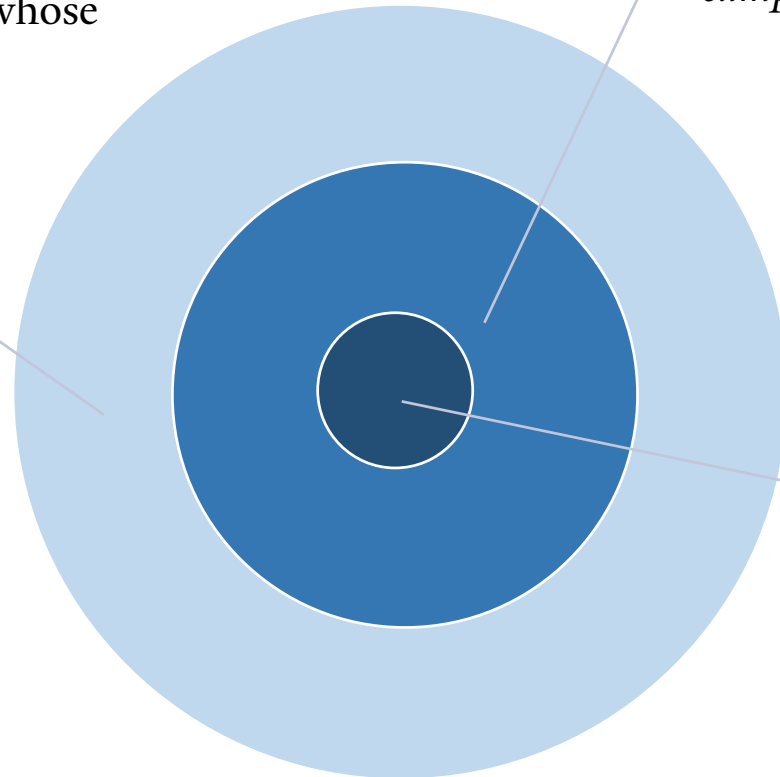
1. Identified all potential participants through the baseline census → these women were treated if they lived in treatment communities
2. But we had a limited budget and would face a trade off of surveying all eligible women and households, or fewer with longer surveys
3. How did we decide how many women would become part of our *survey* samples?

From the “universe” to the survey sample

Population of interest:

Rural women without bank accounts whose families had worked for MGNREGA

Study sample: All eligible study participants in selected study communities. These form our *survey sampling frame*.



Survey sample: Households that are selected to be contacted for follow-up survey data collection

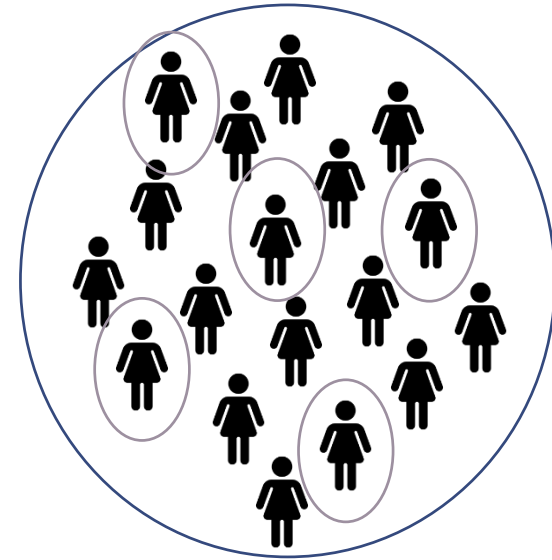
Your *study* sample can be the same as your *survey* sample, but it does not need to be.

How do you know *how many people* to survey?

- ***Use power calculations:*** Statistical analysis to determine how large your survey sample should be to ensure you have sufficient statistical precision to detect an impact of a particular size
 - Stated differently (Gertler et al.): “Power calculations provide an indication of the smallest sample (and lowest budget) with which it is possible to measure the impact of a program, that is, the smallest sample that will allow meaningful differences in outcomes between the treatment and comparison groups to be detected.”
- Power calculations help us explore trade-offs in “*type I*” errors (finding an impact when there really *isn't* one) and “*type II*” errors (failing to find a program impact when there really is one)
- ***Statistical power*** is the probability that we detect a significant program impact when it actually exists
- If interested in more related to power, can host a separate session

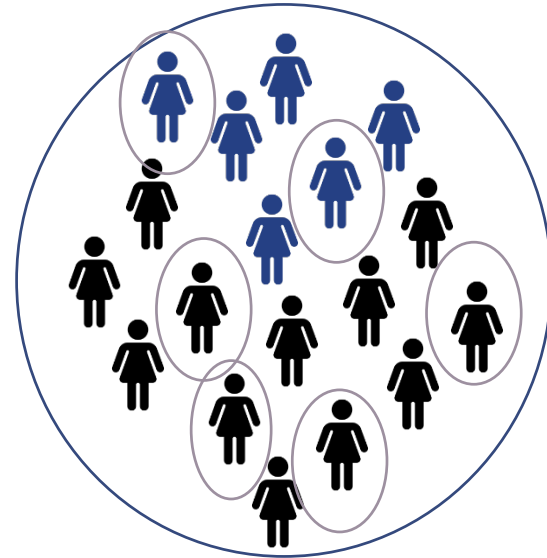
How do you know *who* to survey?

- Often use some form of *random sampling*
 - *Not the same* as random assignment to an intervention treatment arm
- Simplest version: simple random sample



How do you know *who* to survey?

- Randomly sample using other types of *probabilistic sampling*
 - Stratified random sampling (“blocking”)
 - Helps you ensure you have sufficient statistical precision within each group, or strata
 - e.g.: Can answer whether the program impacted women who had not previously worked for MGNREGA
 - Allows you to have greater statistical precision when looking across strata (for *heterogeneity analysis*)
 - e.g.: Did the program impact women who worked for MGNREGA before differently from others?



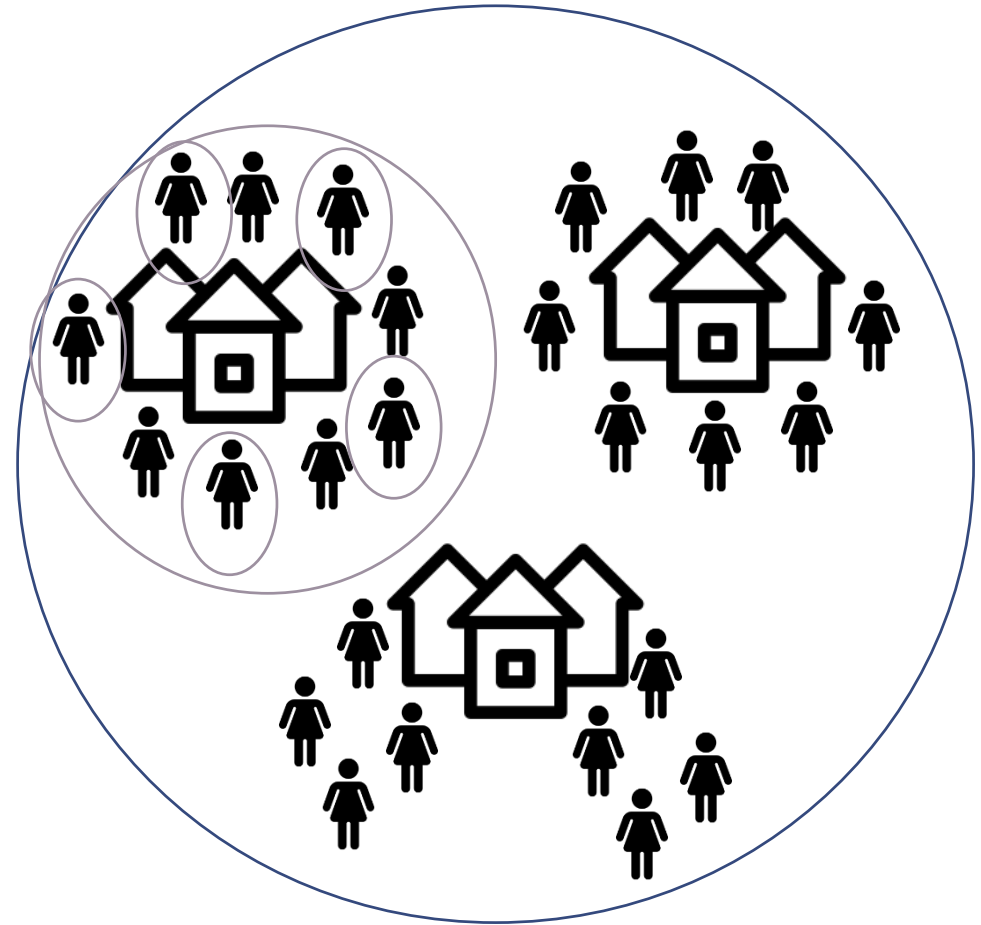
= Women who have worked
for MGNREGA



= Women who have never
worked for MGNREGA

How do you know *who* to survey?

- Randomly sample using other types of *probabilistic sampling*
- *Clustered* sampling: select specific groups of respondents to survey
 - *Example:* Survey all (or some) women from specific neighborhoods in a community
- *Benefits:* Reduces cost of surveying
- *Drawbacks:* If responses within a cluster are correlated, we learn less no information per additional survey.



Important Sidenote

- Note that your *study design* can include stratification (strata) and/or clustering
 - Strata: Randomize within mutually exclusive groups
 - Clustering: Randomize at the cluster level – eligible sample within the cluster all has the same treatment status
- Your *survey sample* can also include stratification (strata) and/or clustering
 - Strata: Randomly select certain survey sample within mutually exclusive groups – sometimes the same as your randomization strata, but does not need to be
 - Clustering: Survey everyone in specific sample clusters – typically *not* the same as the study design clusters and is instead at a lower level
- Strata tends to be a decision related to statistical concerns; clustering tends to deal with logistics: budget, feasibility, etc.

How would we implement the intervention arms?

- With support from partners, but lots of internal oversight and support

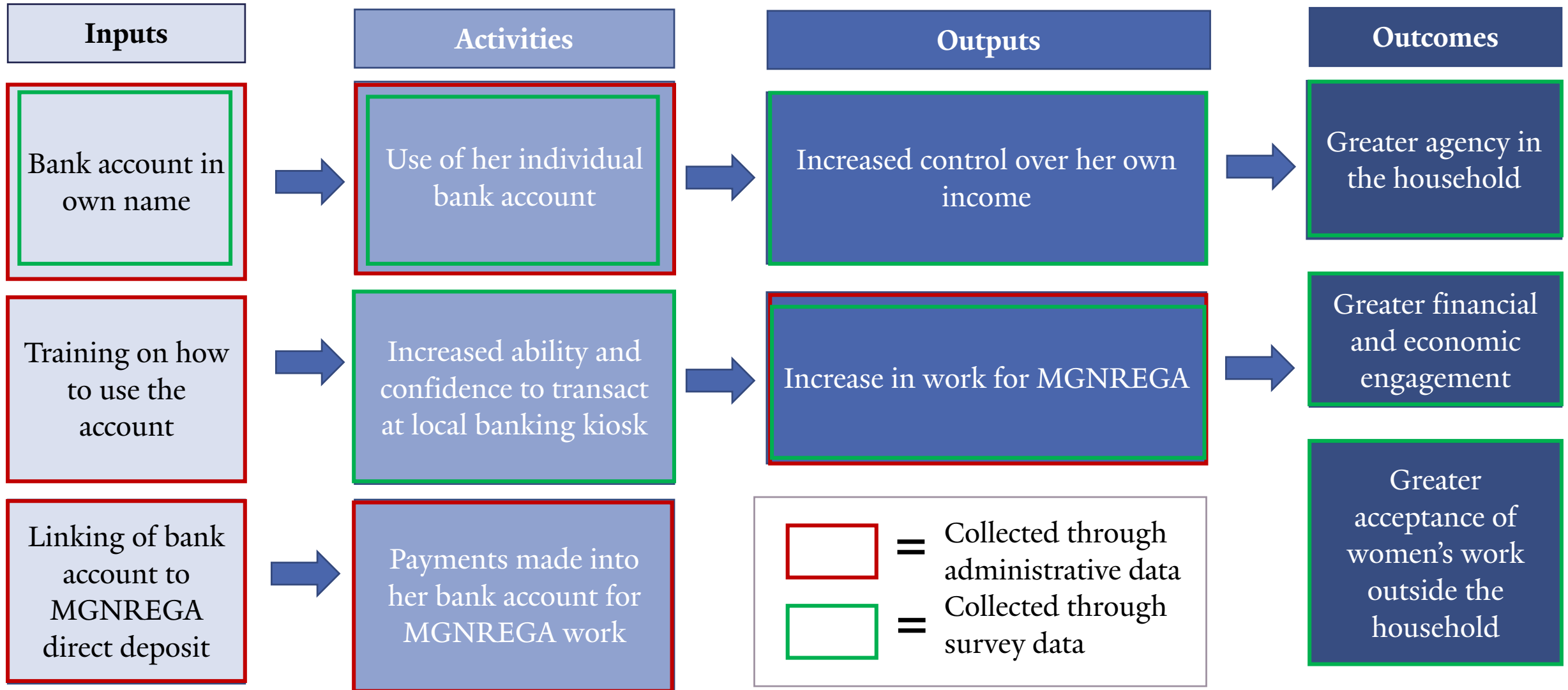
What data would we collect to monitor implementation?

- Data on account opening
- Data on training attendance in each community
- Data on linking of bank accounts: when started, completed, successful, etc.
 - Unique ids for each sample woman, household, community
- Survey data from banking kiosk operators (to understand whether banking points were functional)
- Community surveys of local leaders (“sarpanch” survey)

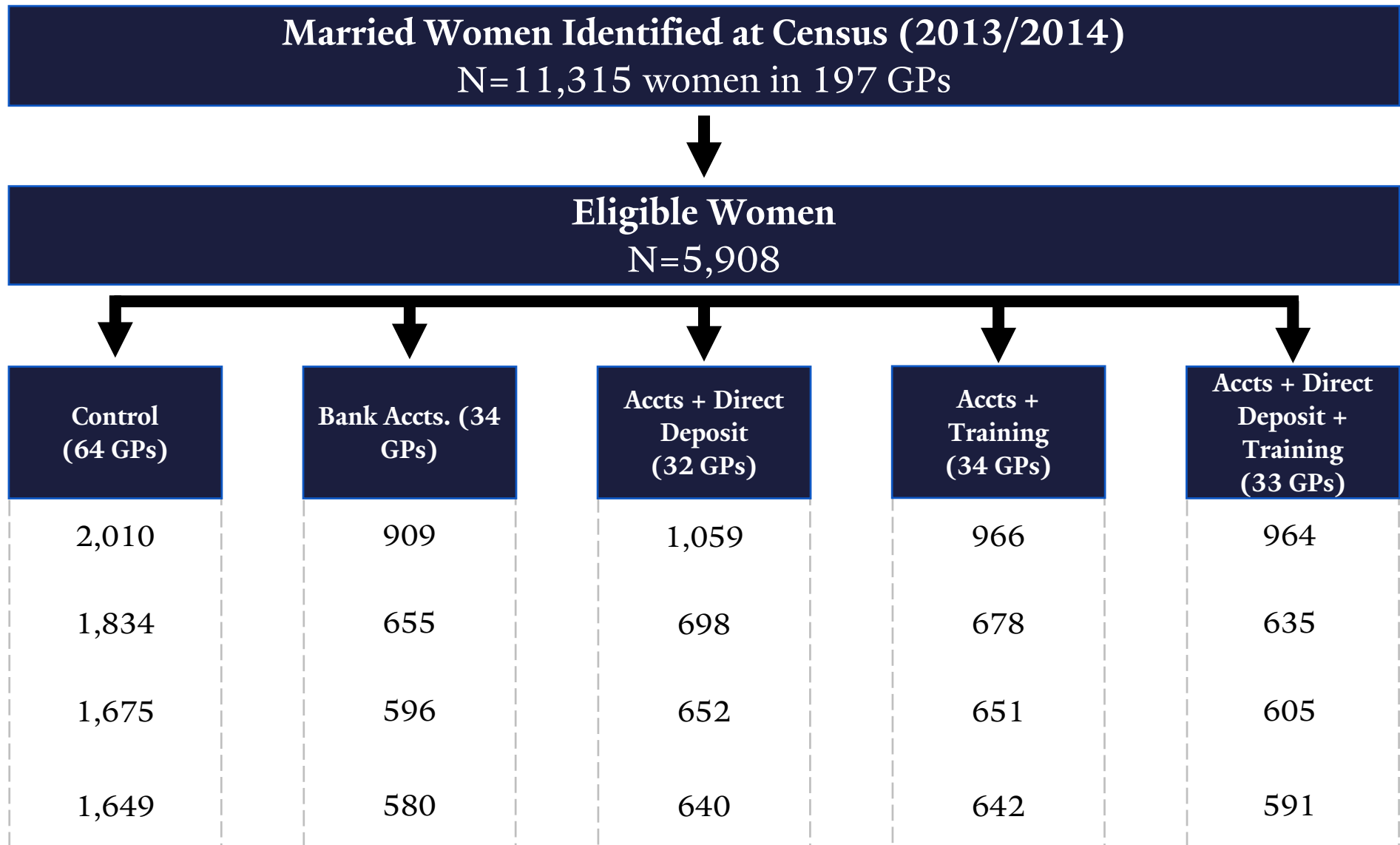
What data would we collect to assess impact?

- Bank administrative data
- MGNREGA administrative data
- Survey data
 - Baseline census
 - Midline survey
 - Endline survey

Our Theory of Change and Data Collection



Putting It All Together



Roadmap for Future Sessions

Session #4 (May 7):
Measuring Women's Economic
Empowerment, and Designing Good
Measures

Session #5 (May 14):
Data Systems to Ensure High-Quality
Data Collection and Interventions

Session #6 (May 21):
Learning from a Female Mobile Phone
Study:
Collecting Data Through the Pandemic,
Surveying Women

Session #7 (May 28):
Up to You!