

PRCI WEBINAR SERIES

USING MOBILE PHONES FOR SURVEY RESEARCH IN THE TIME OF COVID-19 LOCKDOWNS AND BEYOND

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Mobile phones as a research tool: Modes, pros & cons, and resources

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Why, What?

- Access to mobile phones – increasing, already high in many countries
- Use of smart phones vary by country, but is also growing rapidly
- This increased penetration of mobile phones offers an opportunity to use them as a research tool (for both data collection and information delivery)
 - Especially, in the current environment; but also beyond COVID-19 lockdowns
- In this presentation I share some of my experience and offer some thoughts on different modes in which mobile phones can be used as a research tool, their pros and cons, and available resources

Mobile phones as a research tool (now and beyond COVID-19)

- For data collection (surveys)
 - Can be used for rapid, higher frequency data collection
- For delivery of information (for research purpose)
 - As part of an ongoing study
 - To deliver encouragement treatments or behavior change messages
 - To maintain communication with subjects as part of a research design
 - And more...
 - Some of these ways of using phones can be randomized and used as IVs in the analysis

Modes of using mobile phones



SMS

Questions/information sent by SMS; responses received by SMS;

Requires only basic phone

Implementation: requires the use of special software or work with firms like GeoPoll to conduct such surveys



Telephone (CATI)

Similar to face-to-face interview, but over the phone;

Can be done with any type of phone

Implementation: can hire enumerators to conduct the survey, deliver the information or contract firms like GeoPoll



Interactive Voice Response (IVR) aka robo-calls

A pre-recorded automated phone survey in which the respondent responds vocally to questions or enters numerical responses using the keypad

Can be done with any type of phone

Implementation: requires the use of special software or work with firms



Internet access feature (Web surveys)

Survey designed on an online platform and link sent via text

Requires smart phone with data plan

Implementation: can be done by a research assistant or outsourced to a survey firm

Other ways of using mobile phones for research

- **Targeted trigger surveys**

- Respondents initiate a survey by texting or calling a number that is advertised through media or posted at key target locations

- **Chatbot**

- A computer program that uses artificial intelligence to interact with users through a messaging service in a way that is designed to seem like a conversation.

What we cannot do with mobile phones that we can with traditional face-to-face survey?

- Cannot conduct large, comprehensive household surveys
 - There is no substitute for doing face-to-face interview based surveys
- Cannot collect data/information that require physical measurements (like plot size, yield, anthropometrics, GPS) or interviewing multiple respondents from the same households
- Cannot conduct focus groups or group based experiments
- Cannot do surveys with questions/modules that are too complicated, time consuming, and require physical interactions or physically showing something to elicit responses
- Long term population wide (or representative of certain segments of the population) panel surveys

But...we can
do...

- Individual based surveys--ideally suited to collect:
 - Individual specific data—knowledge, perceptions, opinions, habits, practices, behavior (e.g., food consumption, purchase, expenditures, meals away from home) that we cannot collect in a HH survey (where typically one respondent represents the whole HH or him/herself)
- Relatively short surveys—the length can vary depending on the type of survey (SMS, CATI, IVR, or web), but generally around 20-40 questions
- More frequent surveys (depending on the purpose, can be done weekly, monthly, quarterly,...)
 - To understand trends and rapid changes in a dynamic setting (e.g., COVID-19, conflicts) or anticipated major events (e.g., elections)
- Population based cross-sectional panel surveys (ideally suited with increasing mobile phone penetration)

Pros and cons of different types of phone surveys

	SMS	CATI	IVR	Web
Pros				
High level of anonymity	X	X	X	X
High accessibility	X	X	X	X
Fast to deploy; scalable	X	X	X	X
Low cost (compared to face-to-face)	XXx	X	XX	XXX
Can be done with anyone who owns a phone		X	X	
Can be done with any type of phone	X	X	X	
Flexibility on types of questions				X
Cons				
Sample selection bias, concerns of representativeness	X	X	X	X
Respondents have to incur costs	X	X	X	X
Low response rate / completion rate	XX	X	XX	XX
160 character limit	X			
Literacy requirement	X			X
Requires knowhow on how to use the phone menu system; understand voice prompts/instructions			X	

- Overall, in quick-turnaround projects (not previously planned) that need to reach illiterate populations, CATI is the best choice
- But hybrid approaches are also possible

Where to get phone numbers?

- Phone numbers can be sourced from previous surveys
 - Ideal for follow-up or new surveys with respondents with whom you have conducted face-to-face interviews
- From mobile subscribers list –
 - Ideal for population based surveys or where sampling frame is very broadly defined;
 - Requires working with firms that have access to such lists or have established panels from previous surveys (e.g., GeoPoll, World Gallup Poll, Pollfish, Qualtrics, etc.)
- For some targeted surveys, numbers can be accessed by working with collaborators, agencies, associations, organizations that maintain lists (e.g., membership, program participants, customers, clients)
- Use Random Digit Dialing method (for population based surveys)
- Asking respondents to share phone numbers of people they know that meet certain criteria or to forward the survey link to others (if web-based) (i.e., snowballing method)

Survey response rate and implications

- In general, survey response rates for numbers sourced from previous surveys or from collaborators list > response rates from subscribers list or RDD.
- Practical implication:
 - One has to dial x times more numbers to reach the target sample size in surveys based on subscribers list or RDD. But reaching the target sample size within a defined sampling frame is feasible (because the frame is LARGE).
 - On the other hand, in surveys based on phone numbers from previous surveys, the 'sampling frame' to reach the target sample size is limited. So even if the response rate is higher, the actual sample size of completed surveys will at most be equal to the response rate (which is likely to be around 60-70%)

Legal and ethical considerations

- Mobile phone surveys need to go through the same IRB review process and adhere to the same ethical principles as traditional surveys
- But phone surveys face some additional challenges
 - Researchers should be cognizant of government regulations regarding legality of contacting someone by text or phone without their consent
 - Ethical issue of payment for survey participation
 - Unlike traditional surveys, respondents in phone survey will incur cost (airtime, data)
 - As a good practice researchers incentivize them by paying them airtime credit
 - But IRBs may view such offer of payment as **causing or unduly influencing** an individual to participate in research (which he/she would not have done, absence of such incentive)

Examples of major ongoing/planned efforts and publicly available data/resources

Surveys (not exhaustive) (focused on food system and livelihood impacts)

- Across country efforts
 - WFP-(mVAM) (with Geopoll; different methods)
 - The World Bank, FAO (with national statistical offices; numbers from past surveys; RDD)
 - PRCI Innovation Lab (with Geopoll; lists from past surveys)
- Some country examples
 - India (Centre for Sustainable Agriculture, Public Health Foundation of India, and Harvard T.H. Chan School of Public Health; IDInsight)
 - Myanmar (IFPRI/MSU MAPSA project) (a mix of in-house & outsourcing method)
 - Ethiopia & Bangladesh (IFPRI-Cornell)

Public registries, questionnaire repositories, datasets (not exhaustive)

- IPA's [RECOVR research hub](#)
- World Pandemic Research Network (WPRN)—[searchable global directory](#)
- Harvard Dataverse – [COVID-19 Data Collection](#)
- Geopoll's [COVID-19 response survey in SSA](#)

Gender Considerations in Phone Surveys

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Photo Credit: Melissa Cooperman, IFPRI

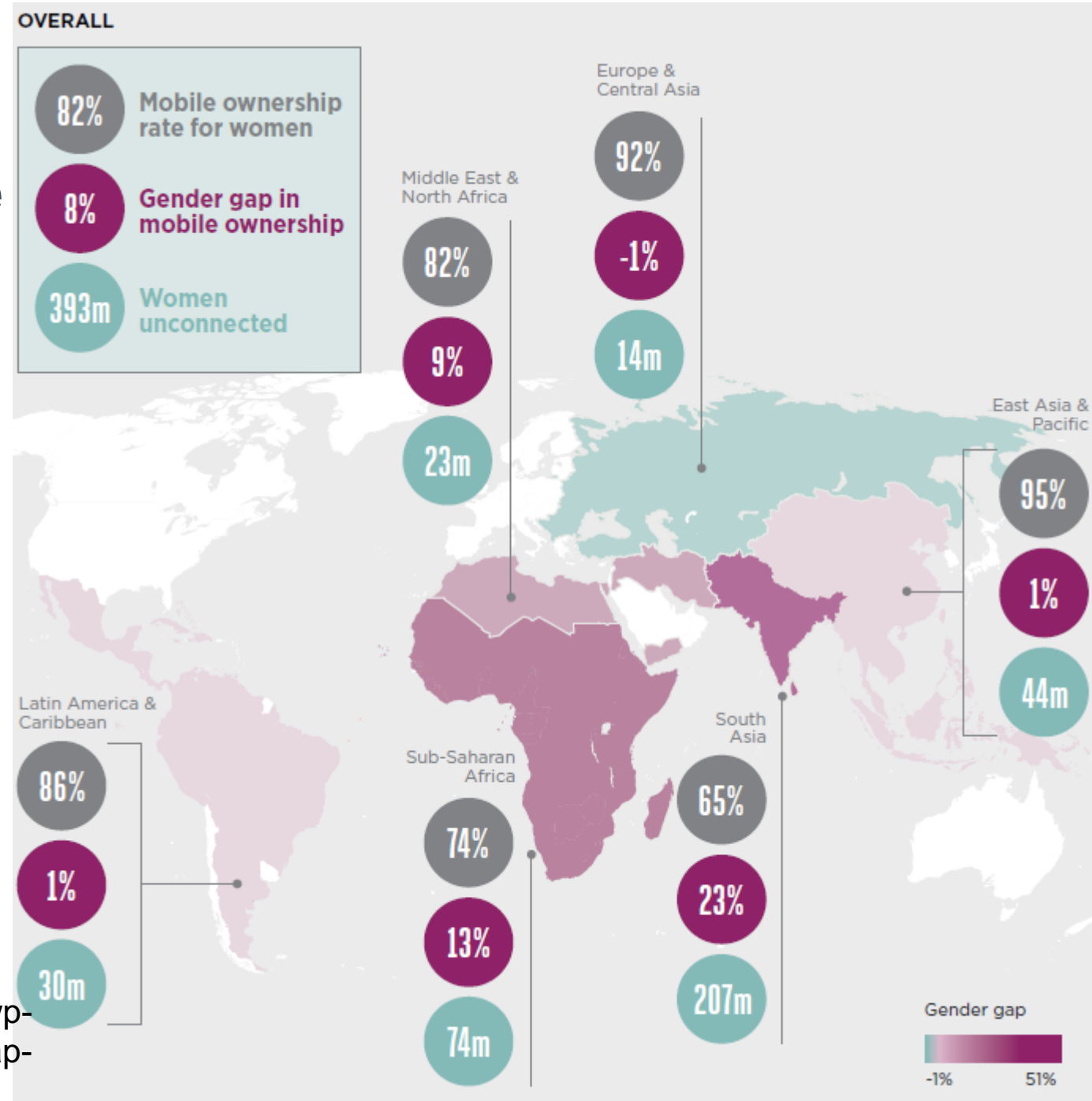
Why (and how) to consider gender in phone surveys

- For all the reasons you would consider gender in other surveys
 - Different experiences (e.g. of COVID-19, of income loss, etc.)
 - Different knowledge, opinions, areas of expertise
- Additional gender considerations for phone surveys
 - Sampling bias
 - Ability to respond to different types of surveys
- Strategies to address gender challenges

Gender gaps in mobile phone ownership and data use

Systematic bias: older, poorer, women less likely to have phones

Even bigger gaps in mobile data access (for online surveys)



Source: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/02/GSMA-The-Mobile-Gender-Gap-Report-2020.pdf>

Differential ability to respond to different types of surveys

- Privacy
 - Can respondent be alone when answering?
 - Required to use speakerphone?
 - How to identify, note the restrictions without putting respondent in jeopardy
- Time
 - Finding convenient (less inconvenient) times to call—may differ for men, women
 - Limits on length of calls
- Literacy
 - Women's lower literacy potential limitation (bias) in SMS, online surveys

Potential ways to deal with gender challenges

- Build on existing surveys where contact, rapport is established
- Contact through trusted women's groups
- Use female enumerators
- Cautions against sensitive questions, especially re. domestic violence
- Word questions so that answers would not reveal much to those who overhear
- Check use of speakerphone (indicator of disempowerment?) and omit sensitive sections if others can hear questions

Gender implications of COVID-19

- Direct impacts:
 - Has anyone in the hh been sick in the last 7 days?
 - Loss of income due to Covid-19?
- WASH environment (resilience capacity)
- Loss of control over income (bargaining power)
- Changes in migration of hh members and remittances
- Assets, savings, borrowing, direct transfers (coping measures)
- Change in labor allocation, increase in care burden (coping measures/outcomes)
- Changes in mobility to buy food, seek medical care, fetch water/fuelwood etc., (coping measures/outcomes)
- Food insecurity, changes in dietary diversity (coping measures/outcomes)
- Conflict—work together to solve problems, fear of partner (outcomes)

Thinking about Sample Bias in Computer-Aided Telephone Interviews

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Introduction: The problem

- We want to survey a representative sample in order to make inferences about a larger population.
- However, “simply” calling a random set of telephone numbers may not produce a representative sample.
- I discuss sources of sample bias in Computer-Aided Telephone Interviews and techniques to address these
- These techniques are aimed at “household” or “key informant” surveys; Ruth Meinzen-Dick will discuss issues specific to gender



Six Sources of Bias

1. Not everyone has a phone
2. Some phone owners may no longer have a valid number
3. The phone is not working because it is not charged or because the owner has not made payments to keep the phone and number functional
4. The call is not answered because of:
 - (a) network connectivity issues;
 - (b) it is not convenient for respondents to answer the phone (eg time of day effects); or
 - (c) respondents do not answer a number that they do not recognize
5. The call is answered but the respondent declines to take part
6. The call is answered but the respondent ends the call before the interview is completed



Six Sources of Bias

1. Not everyone has a phone (**undersample poor, remote households (hh)**)
2. Some phone owners may no longer have a valid number (**undersample poor, remote hh**)
3. Phone not working (**undersample poor, remote hh**)
4. The call is not answered because of:
 - (a) network connectivity issues; (**undersample remote hh**)
 - (b) inconvenient to answer; (**bias not clear**)
 - (c) respondents do not answer a number that they do not recognize (**bias not clear**)
5. Respondent declines to take part (**undersample younger, better-off hh**)
6. Call answered but respondent ends call early (**undersample better-off hh**)



Addressing sample bias (1): Sources 1, 2 and 3

- You are contacting respondents for the first time
- You want to make it “representative” (eg poor/not poor)
- You have access to a recent survey with data on poverty status and variables strongly correlated with poverty (eg quality of housing stock)

- Include these variables in your survey
- Construct post-survey weights so that distribution of variables in your sample approximates distribution of variables in underlying population
- Where these variables are strongly correlated with poverty status, you will approximate the poor/not poor distribution



Addressing sample bias (2): Sources 1, 2 and 3

- You are following up from a recent survey where you know poverty status (eg 50% poor; 50% not-poor).
- You want to make it “representative” (eg poor/not poor), interviewing 100 hh in total
- For poor households:
 - Assign each a random number and . Rank these random numbers from lowest to highest. Select 50 households with the lowest numbers and attempt to interview these households; Remaining households go on a “reserve” list. If you cannot interview a household, go to the first household on the reserve list, successively contacting from the lowest to highest random number.
- For non-poor households, use the same process.
- Provided you do not exhaust all households in the reserve lists, this yields a sample with the same proportion of poor(not poor) households as the previous survey



Addressing sample bias (1): Sources 4, 5 and 6

- Think through protocols for contacting respondents:
 - Number of rings before hanging up
 - Number of attempts to reach (in our Bangladesh and Ethiopia work, we have set these to five contacts)
 - Ensure contacts are attempted at different times of day (eg we have at least two in the morning and at least two in the afternoon/evening)You are contacting respondents for the first time
- Match language skills of enumerators to languages of respondents
- Keep questionnaire short (15 minutes)





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