What Works to Connect Women to Digital Technology?
Evidence from India

Yale *Inclusion Economics*

Inclusion Economics India CENTRE

USCDornsife
Center for Economic
and Social Research

The Opportunity

Mobile Phones Reshaping The Economic Lives of The Poor...
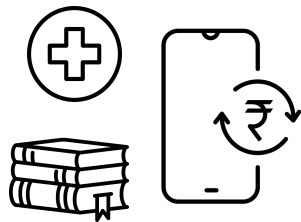
5.4+ billion people subscribed to a mobile service in 2022

4.4 billion people used mobile internet.[1]

Phones **facilitate access to information** and **improve market functioning**.[2]

Value-added services can **reduce poverty**, **improve educational**, **financial**, **and health** outcomes.[3]

[1] GSMA (2023), [2] Jensen (2007), Aker (2010), Jensen and Miller (2017), [3] Aker et al. (2012), Ksoll et al. (2014), Suri and Jack (2016), Cadena and Schoar (2011), Karlan et al. (2016), Zurovac et al. (2014)

...for the world's most marginalized women, a mobile phone doesn't just make their old life more convenient; it can help them build an entirely new life. That's because connectivity is a *solution* to marginalization.

- *Melinda French Gates*, 2019

Digital technologies facilitate opportunities across society and... can be great equalizers in terms of giving those who have access equal opportunity and availability to information, to education, to networks in a way that improves and empowers themselves, their families, their community, and all of society benefits.
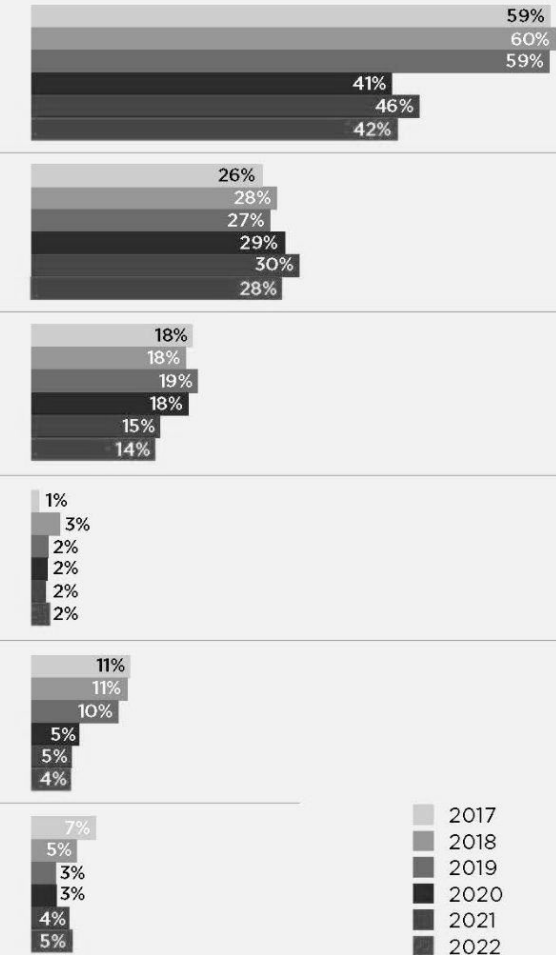
- *Kamala Harris*, 2023

The Challenge

Gender Gaps in South Asia + Africa are Large, Persistent
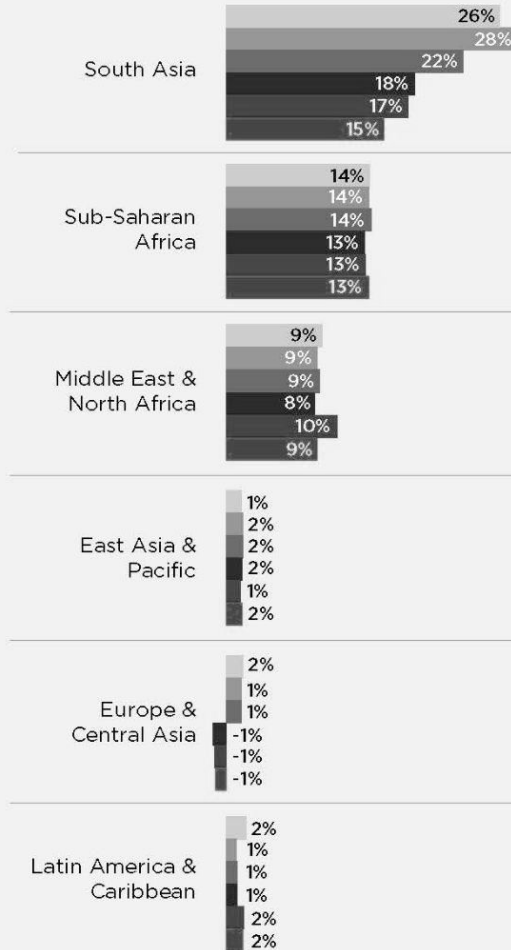
Source: GSMA (2023)

Today: Policies Designed to Address Distinct Barriers to Female Use

1

Ease **economic constraints** via **free distribution** of smartphones

+

2

Ease **skill constraints** via **digital capability training**

+

3

Work around **norms constraints** via a **gender-appropriate use case**

Context

Chhattisgarh

Multidimensional Poverty

30%
NFHS-4 (2015-16)

16%
NFHS-5 (2019-21)

Female Phone Ownership

31%
NFHS-4 (2015-16)

41%
NFHS-5 (2019-21)
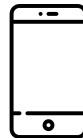
Female Labor Force Participation

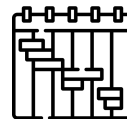**48%**
NFHS-4 (2015-16)

54%
NFHS-5 (2019-21)

Intervention 1: Project SKY

Free smartphones to female household heads
Micromax/Jio provided Bharat 2+

Timeline
August - September 2018
Distributed almost 3 million phones

Program Enhancements
Network expansion
Digital literacy training
Pre-loaded government apps

Photo credit: Inclusion Economics India Centre

Intervention 2: Woman-Centered Digital Capability Training

📞 Dialing

📱 Taking a photo

📞 Receiving Calls

📱 Internet voice search

✓ Engage women in small groups

Interactive practice

✓ Short duration

Focus on high-value skills

✓ Take-home brochure to reinforce learning

RCT + Short-Run SKY Event Study

Baseline survey randomization

Pre-SKY Distribution	Post-SKY Distribution
106 villages	106 villages

Compare outcomes in pre vs post distribution villages to assess short term (~2–3 week) effect of SKY

Intervention randomization

Village level randomization

Pure control	Any Treatment
32 villages	180 villages

Assess impact of training, use case in the usual way.

Endline 2.5+ years post intervention

Individual level randomization

Training only	Training + Use Case
25% eligible women	75% eligible women

Evaluating the Long-Run Impact of SKY: A Regression Discontinuity Approach

SKY Eligibility

- Eligible village: 1000+ population per 2011 Indian census

- All gram panchayats (GPs) with 1+ eligible village received program

Study Sample

- 13 of Chhattisgarh's 33 districts

- Focus on GPs with 2+ villages to maximize RD balance

- 684 GPs within +/- 99 of population cutoff

Survey Data

- 15 male, 15 female surveys: smartphone ownership, use, norms + downstream outcomes by gender

- 2-3 key informant surveys per GP: community-wide economic, health impacts

- ~5 years post SKY

Compare outcomes in GPs just above/below eligibility threshold to measure impact (Cattaneo 2023)

This Project: Three Policies Designed to Address Gender Gaps

1 + **2** + **3**

Ease **economic constraints** via **free distribution** of smartphones

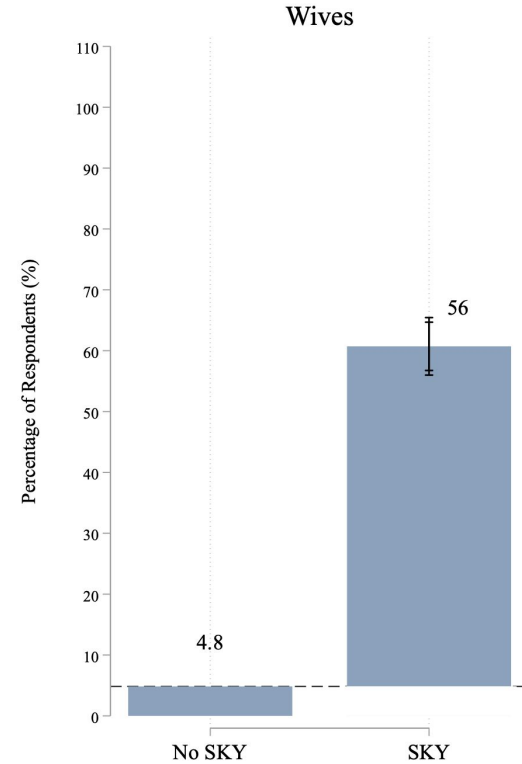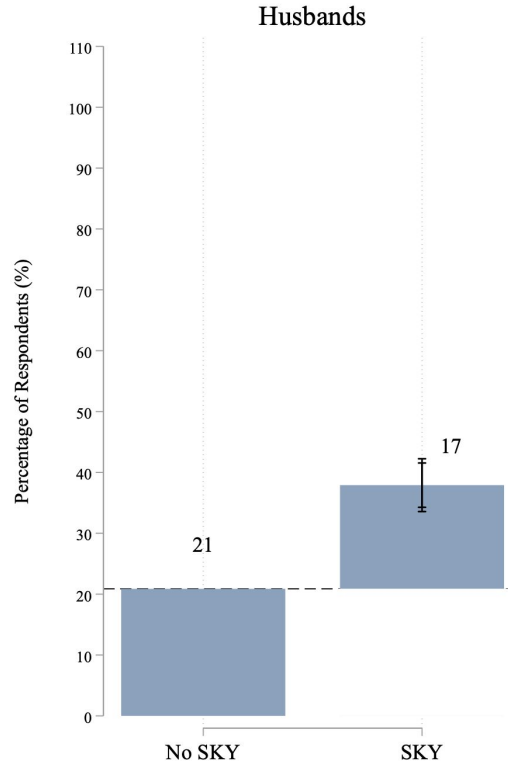Ease **skill constraints** via **digital capability training**
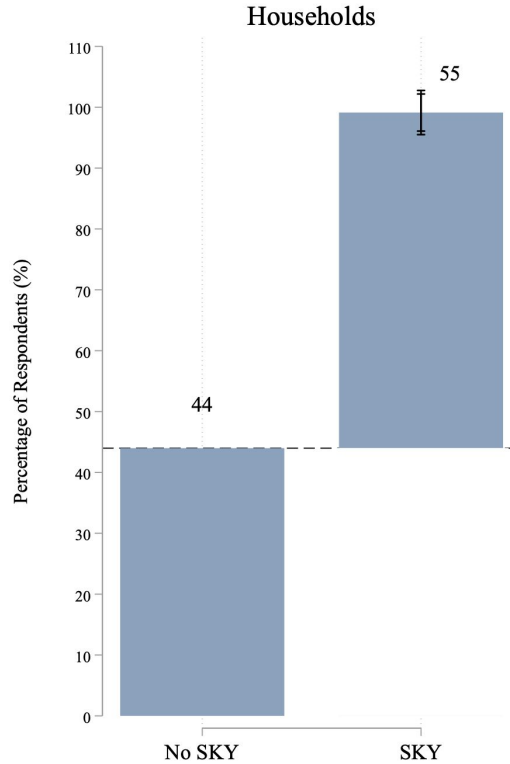
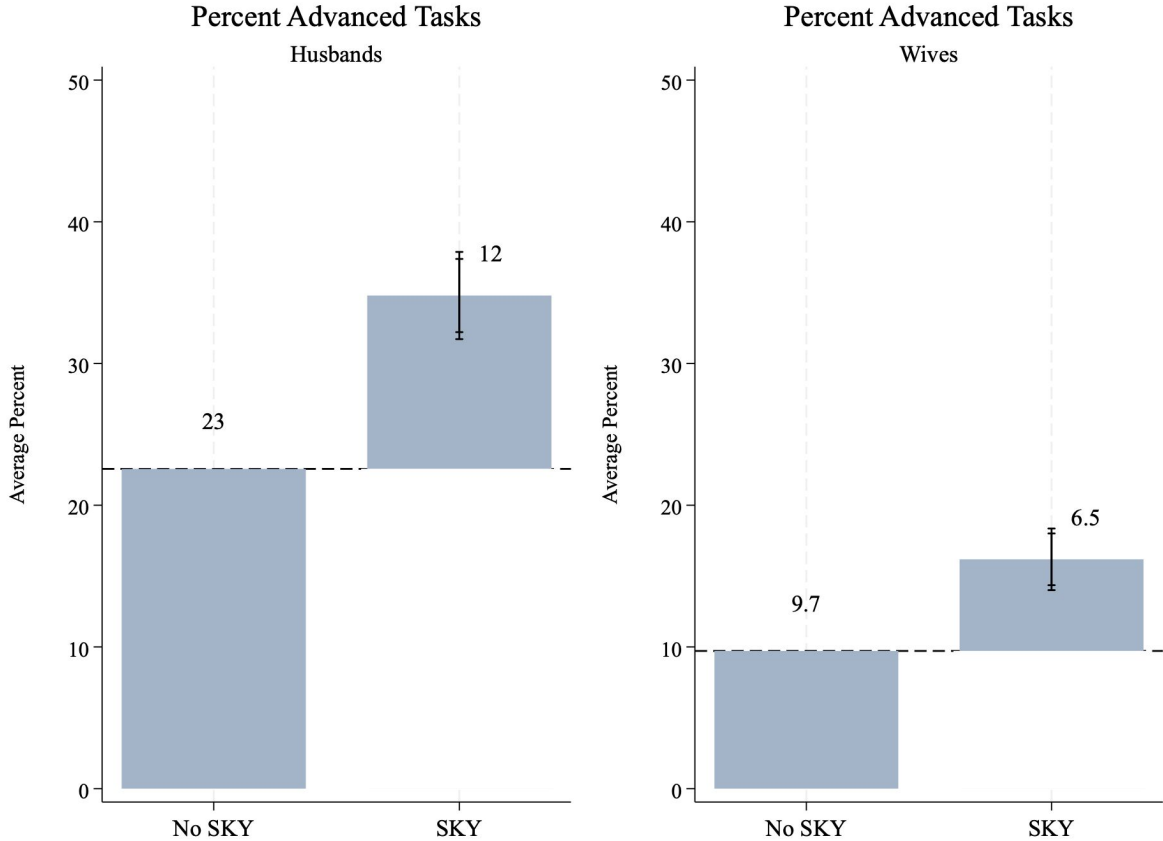Work around **norms constraints** via a **gender-targeted use case**

# Short Run: SKY Increases Access to Smartphones

Smartphone Ownership Among:

Short Run

SKY Increases Women's Smartphone Use, But Gender Gaps Grow

Percent Advanced Phone Tasks Performed

Percent Advanced Tasks
Husbands

Percent Advanced Tasks
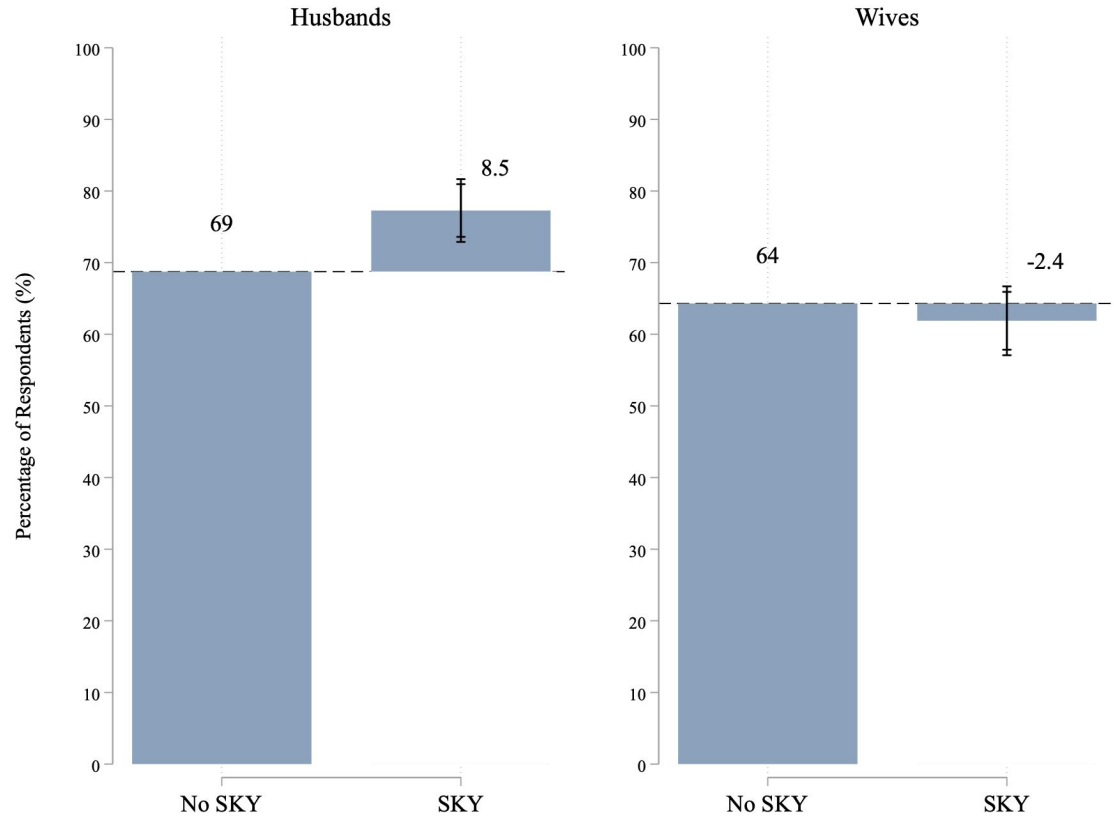Wives

Short Run
Phones Seen as More Appropriate

Percent of Time Agrees Married/Unmarried Women Can Use Phones

Husbands

Wives
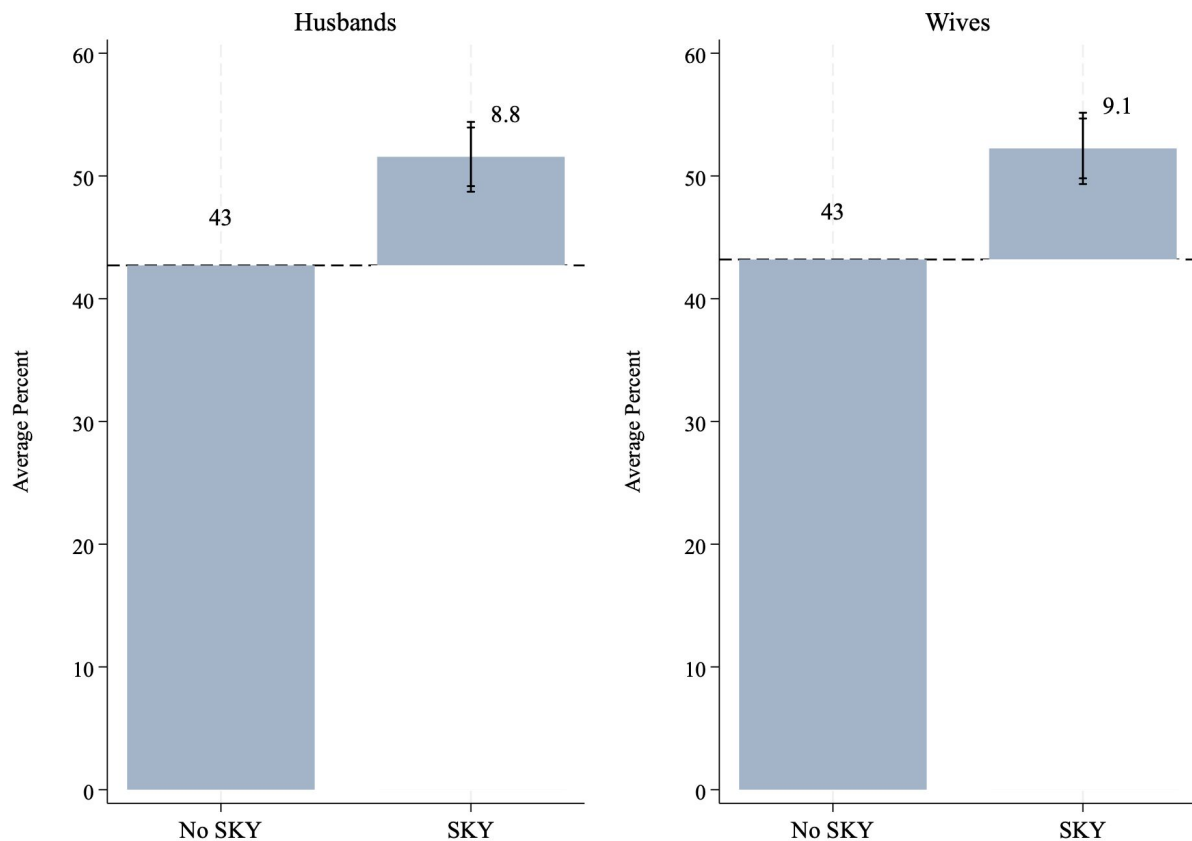
Short Run

Men Perceive Phones as Less Useful for Women

Agrees men have more use for phones than women do

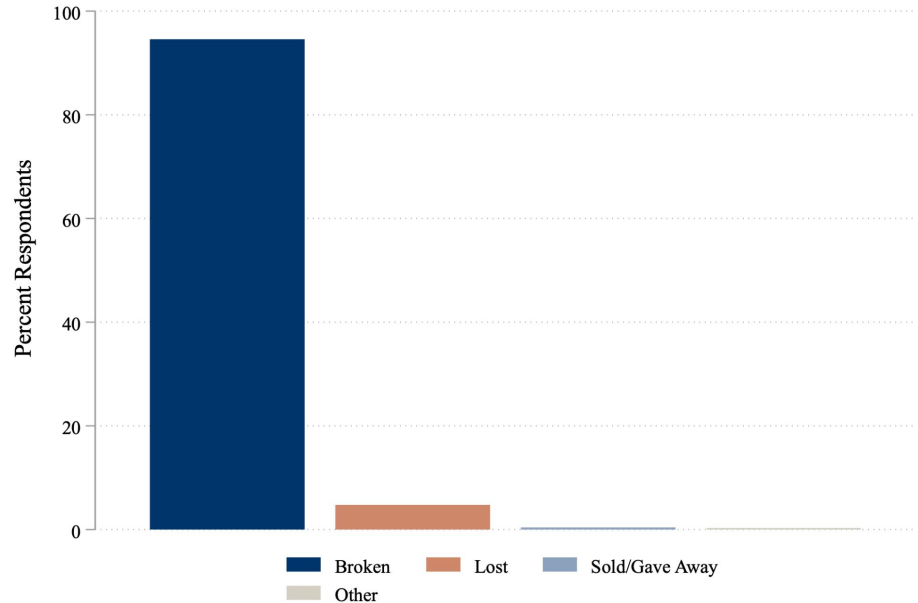# Contextualizing Long Run, Post SKY Impacts

In "Treatment" GPs

59%

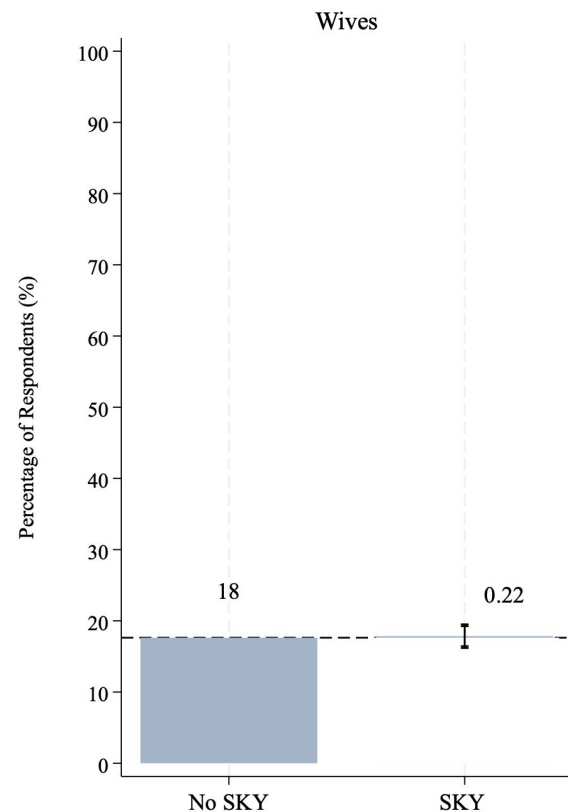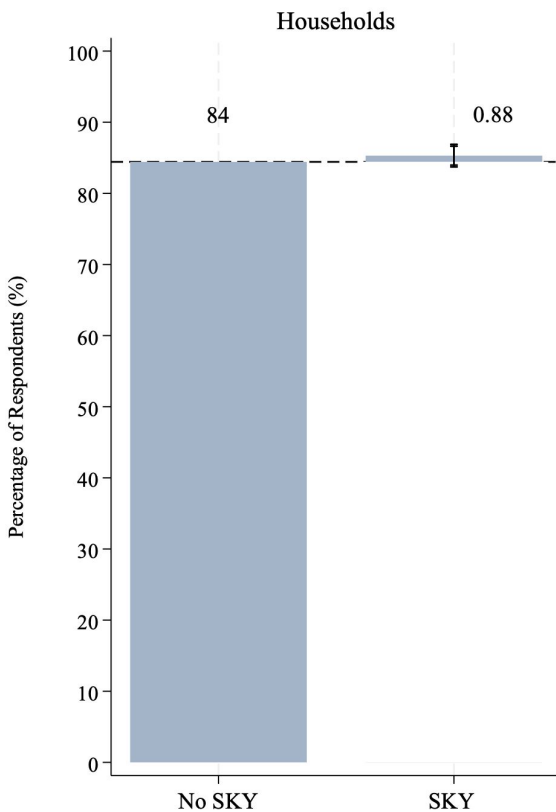reported receiving a phone from SKY

10%

of recipients still have SKY phone in house

What Happened to SKY Phones?

Long Run
High Levels Household, Low Levels Female Smartphone Ownership

Smartphone Ownership

Households

84   0.88

Wives

18   0.22

Long Run

No Sustained Impact on Women's Phone Use, Associated Norms

Gender gaps in use indices

20 p.p. gender gap in basic use

26 p.p. gender gap in advanced use

Phone use among married women _inappropriate_

♀ **42%**

♂ **47%**

Men have more use for a phone than women do

73%

78%

This Project: Three Policies Designed to Address Gender Gaps

1 + **2** + **3**

Ease **economic constraints** via **free distribution** of smartphones

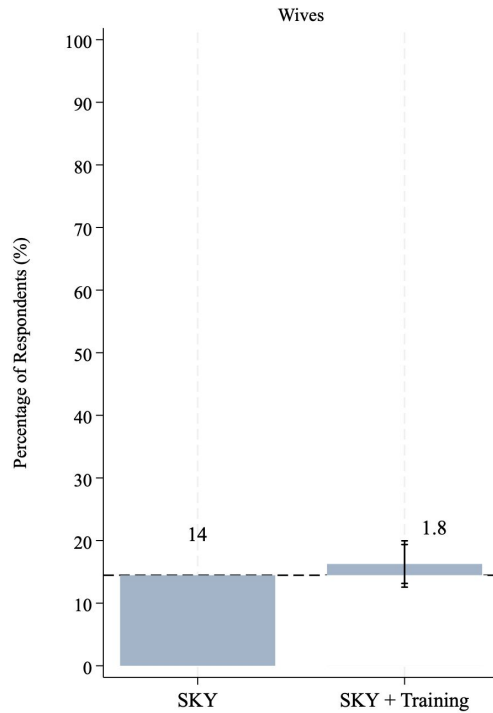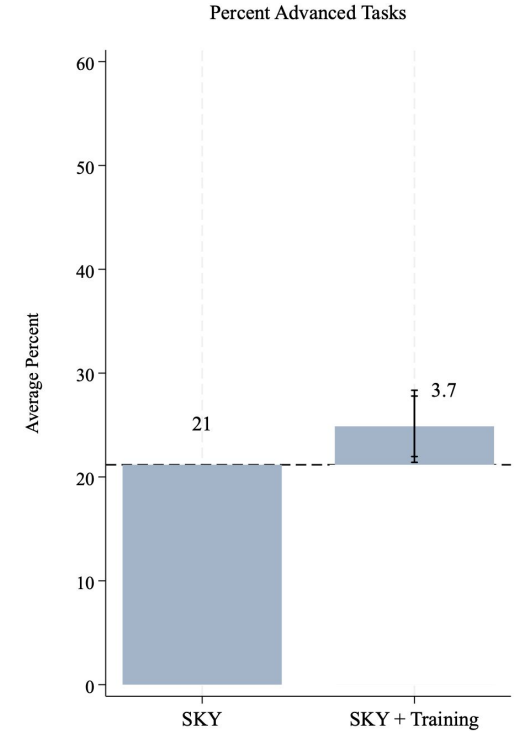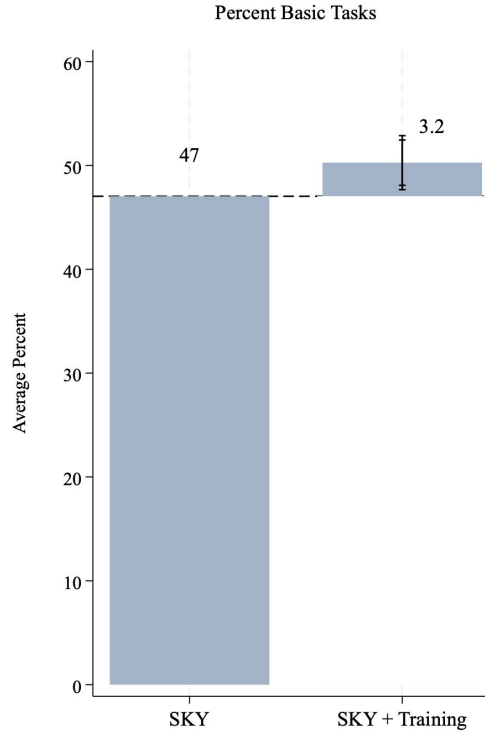Ease **skill constraints** via **digital capability training**

Work around **norms constraints** via a **gender-targeted use case**

Training Increased Women's Phone Use
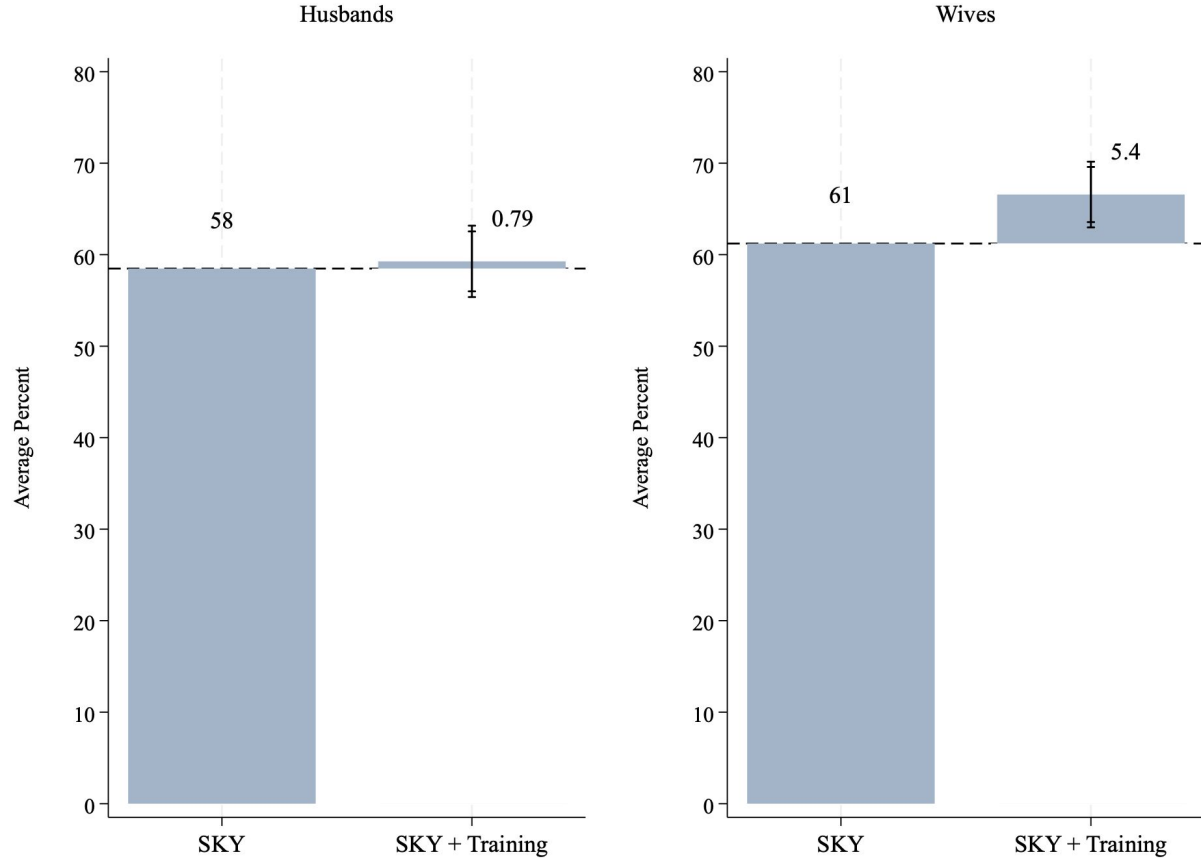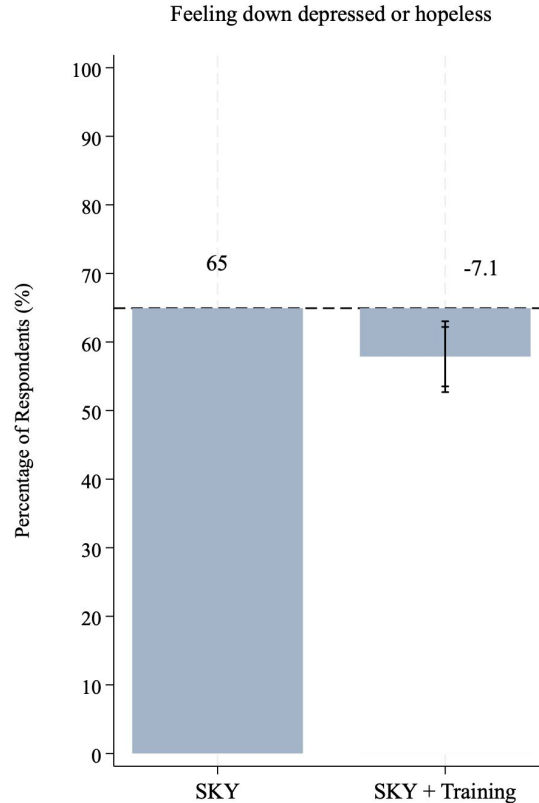
Phone Ownership
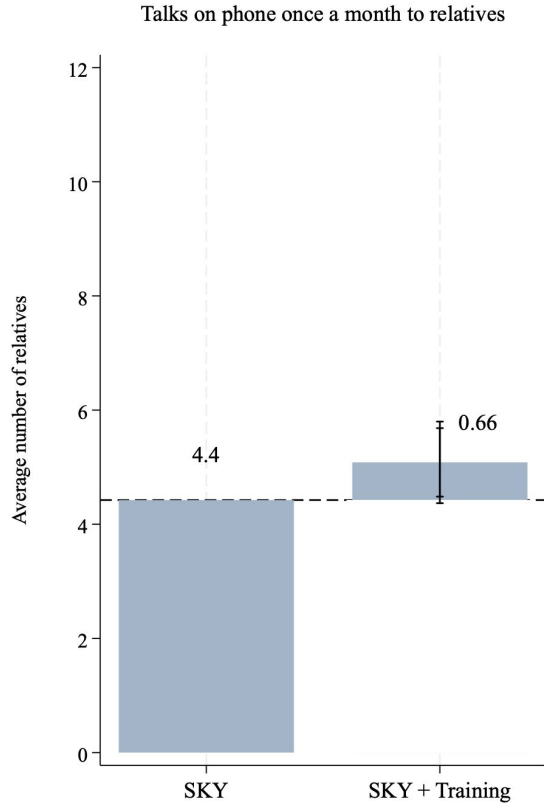

Phone Usage

Training Liberalized Women's, But Not Men's Views on Mobile Use

Percent of Time Agrees Married/Unmarried Women Can Use Phones

Training Increased Social Connectedness and Improved Mental Health

Talks on phone once a month to relatives

Feeling down depressed or hopeless

Hypothesis

Stronger social connections

Better mental health

Conclusion + Policy Lessons

- Free distribution provided a short-run boost, but impacts fade out in long run
  - <u>Hypothesis</u>: quick depreciation + no sticky change in norms
  - TBD: Heterogeneity

- Investing in women's digital capabilities yields lasting benefits
  - Extends to basic and advanced use
  - Points to intra-household barriers to learning

- Limited knock-on benefits from a (popular!) gender intentional use case

Image source: Inclusion Economics India Centre