The Media or the Message?
Experimental evidence on mass media and modern contraception uptake in Burkina Faso

BREAD conference on the economics of Africa

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Motivation

• The geography of poverty is changing
  – By 2030, 85% of people living in extreme poverty will be living in Sub-Saharan Africa (World Bank, 2020)
  – Sub-Saharan Africa has the highest fertility rates in the world

• 25% of women aged 15-49 in SSA report unmet needs for contraception (Family Planning, 2020)
  – Need for cost-effective scalable ways to help them achieve the lower level of fertility they desire

• Can mass media increase contraception uptake in Africa?
  1. Should we expect the rise in access to mass media to increase contraception uptake?
     – Mass media has been associated with lower fertility and more liberal views (Jensen & Oster, 2009)
     – But it has also been used for ill (Yanagizawa-Drott, 2014)
  2. Can mass media be used to promote contraception?
     – Providing information can change behavior (Dupas 2011, Jensen 2010, Banerjee et al. 2019, Bursztyn et al. 2020)
     – Lack of evidence on the effect of mass media campaigns implemented in “real-world” conditions
This paper

Questions:
• What is the impact of increasing exposure to mass media on contraception uptake?
• What is the impact of an intensive family planning radio campaign implemented in « real-world » conditions?

Context: Community radios in rural Burkina Faso

Method: Two-level randomized experiment
• Individual level RCT: we varied exposure to mass media: 1500 women with no radio were given a radio
• Clustered level RCT: we varied mass media content
  – 8 (out of 16) local radio stations broadcasted an intensive 2.5 years family planning campaign

Main results:
• Giving radios in non-campaign areas had a negative effect on contraception use and on gender norms
• Large impact of the family planning campaign on modern contraception uptake (+20% or +6pp)
Contribution to the literature

• Exposure to media can change behavior, norms and preferences

• Information and mass media campaigns can change important behaviors

• Effective solutions to reduce unmet needs for contraception
  • Silva & Tenreyro (2017), Miller et al. (2020), Ashraf et al. (2014), Zakiyah et al. (2016)

Key contributions:
  – First paper to simultaneously randomize access to mass media and mass media content
  – Study the effect of mass media in “real-world” conditions in Africa
Outline

1. Context
2. Design and data
3. Results
4. Cost-effectiveness
Context: Burkina Faso

• Annual GDP per capita (ppp): $1,862

• Human development Index 2017: 183/189

• 19.2 million inhabitants in 2017

• Fertility rate: 6 births per woman (DHS 2010)

• 68% of households own a radio (DHS 2010)
Context: community radio stations in Burkina Faso

- Covering 6.5 million people (33% of the nat. pop.)
- Few people listen to national radio stations (in French)
- Broadcast in local languages
- Content:
  - Information shows
  - Sensitization programs on health and education
  - Debate and call-in shows
  - Religious programs

Broadcasting areas of 16 community radio stations
The radio campaign (implemented by Development Media International)

• The “Saturation +” approach
  – 10 radio spots per day (1.5min)
  – 3 Phone-in shows per week (2h)
  – In local languages
  – Informed by extensive formative research
  – 2.5 years of programming

• Designed to tackle potential barriers
  – Information on modern methods
  – Health and economic benefits of birth spacing
  – Gender norms, responsibility of men

• Represents 4% of total radio content and 20% of peak listening time
Design: Woman-level randomization

- 1500 women randomly selected to receive a radio among the 3000 without radio at baseline
Design: Radio station level randomization

- 16 radio stations, 8 randomly assigned to treatment group
  - Paired-randomization
- Study stations reach 6.5 million people (33% of the nat. pop.)
Program

Randomization
May 2016

Radio campaign in 8 radio stations
June 2016 - Dec 2018 (2.5 years)
Timeline and Data

Program

2015

2016

2017

2018

Radio campaign in 8 radio stations
June 2016 - Dec 2018 (2.5 years)

Randomization
May 2016

Distribution of 1,130 Radios
March - June 2017

Distribution of 1,130 Radios
March - June 2017
Program

Data Collection

Administrative data

Timeline and Data

Baseline survey
7,515 women
461 Clinics
Apr - Jun 2016

Endline survey
6,728 women (90%)
446 Clinics (97%)
Nov - Dec 2018

Randomization
May 2016

Radio campaign in 8 radio stations
June 2016 - Dec 2018 (2.5 years)

Distribution of 1,130 Radios
March - June 2017

Monthly clinic data on contraceptive distribution: 838 clinics x 45 months
Apr 2015 - Dec 2018
Baseline use of modern contraception

- Using a modern contraceptive method: 23%
- Implants: 11%
- Injectables: 8%
- Pills: 2%
- Other modern method: 1%
- Unmet needs for contraception: 46%
Empirical strategy

• Impact of radio distribution using survey data:
  \[ Y_{i,t=1} = a + b_1 \text{Radio}_i + X'_i + \epsilon_{it} \]

  \( X'_i \) : vector of strata fixed effects
  \( \epsilon_{it} \) : error term clustered at the household-level

• Impact of the radio campaign using survey data:
  \[ Y_{i,t=1} = \alpha + \beta_1 \text{Treat}_i + X'_i + \epsilon_{it} \]

  \( \epsilon_{it} \) : error term clustered at the radio station level
  P-values calculated using wild bootstrap procedure (Cameron et al., 2008)
First Stage: Radio Listenership

- **Radio listenership (all women)**
  - 55% of women have a radio
  - They spend 2h listening to radio per week on average
  - Similar in campaign and non-campaign areas

- **Radio distribution (women with no radio at baseline)**
  - Radio ownership ↑ from 32% to 66%
  - Weekly time spend listening to the radio ↑ from 1.3 to 3 hours
  - Similar in campaign and non-campaign areas
Impact on modern contraception prevalence rate (mCPR)

Endline survey data December 2018.
Impact on modern contraception prevalence rate (mCPR)

![Bar chart showing impact of radio distribution by location.](chart)

Endline survey data December 2018.
Impact on modern contraception prevalence rate (mCPR)

Impact of Radio Distribution by Location

-5.2 pp  
p = 0.039

+5.9 pp  
p = 0.030

Impact of Radio Campaign

+5.9 pp  
p = 0.046

+7.6 pp  
p = 0.007

Share of women using modern contraception

No radio  32.7%  33.1%  29.5%  29.1%
Radio  27.5%  39.0%  35.5%  36.7%

Noncampaign areas  (N=1,473)  Campaign areas  (N=1,378)  All women  (N=6,728)  Women with a radio at baseline  (N=3,877)

Endline survey data December 2018.
Mechanisms

• Why does exposure to local radio stations have a negative impact in non-campaign areas?
  – Negative impact on gender norms
  – Qualitative evidence that many phone-in shows promote conservative views

• Why did the information campaign work?
  – Large impact on contraceptive knowledge (↓ misinformation on side effects)
  – Better attitudes toward contraception
  – No impact on fertility preferences

• Heterogeneity of information campaign impact
  – Larger impact among women using contraception at baseline (many are using it inconsistently)
  – Larger impact among women with more knowledge and positive views on family planning

• Impact of the campaign on other key outcomes (on which we are underpowered)
  – 10% reduction in fertility
  – 30% increase on a standardized index of self-assessed well-being
Cost effectiveness

Pilot program (8 radio stations)
- Population reached: 630k women (15-49)
- Extra women using contraception: 37k
- Annual cost per extra women: $47

Nationwide scale-up (38 radio stations)
- Pop reached: 3.8 million women (15-49)
- Extra women using contraception: 225k
- Annual cost per extra women: $8
- Key assumption: same impact than in pilot areas

Alternative approaches:
- Integrating FP and HIV services in Kenya (Shade et al. 2013): $65 per new user
- Integrating FP and immunization services in Rwanda (Dulli et al. 2016): $32 per new user
- Comprehensive com. campaign (incl. in-person interactions) in Zambia and Guinea: $30 per new user
Conclusion

• Increasing exposure to community radio stations had negative effects on contraception use and gender norms in this context

• Large impact of an intensive radio campaign on modern contraception uptake (+20% or +6pp)
  – Information is still a barrier (especially on side effects)
  – Positive impact on self-declared well-being and reduction in fertility
  – Larger impact on women closer to the adoption margin or who are using contraception inconsistently
  – Media campaigns promoting modern contraception can be cost-effective
    – $8 annually per additional woman using contraception (nationwide scale-up)
Annexes
Contraception Knowledge: impact on misinformation
