The Indian Health Insurance Experiments

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India’s challenges

• India’s economic growth has not improved the health of all Indians
  • E.g., Infant mortality rate is 47/1,000 births, maternal mortality rate is 200/100,000 births (WB 2011)

• Supply
  • 10% fewer public hospitals and 50% fewer clinics than needed (2005) (Datar, Mukherji, Sood 2007)
  • 43-47% of children in villages with no health facility (Datar, Mukherji, Sood 2007)
  • Large transportation barriers remain
India’s challenges

• Medical price inflation of 10%+ per annum in some areas (Nagpal)
• Financing is an important part of the problem
  • Poorly developed (urban and rural) credit markets for the poor
  • 25% of untreated ailments are due to financial constraints (NSS Report 2004)
  • > 75% of India’s health expenditures are out of pocket (Berman et al. 2010)
  • Medical expenses push 63.2 million Indians into poverty every year (Berman et al. 2010)
India’s shift in strategy

• Traditionally, India relied on supply side solutions (government hospitals, training)

• As demand outstripped public supply, India turned to demand side subsidies
  • State schemes (Yeshasvini, Vajpayee Arogyashri)
  • Janani Suraksha Yojana (2005)
  • Rashtriya Swasthya Bima Yojana (2008)

• New Modi government has expressed an interest in universal coverage
Possible platform: RSBY

• Eligibility: BPL (central govt floor, bottom quartile or 300m)
  • Available in > 2/3 of all districts
  • Enrollment of 30m hhds (150m lives) by 2012!

• Coverage: Treatment at empanelled, secondary hospitals
  • Rs. 30 annual registration fee only
  • No deductible, co-pay
  • Annual hhds cap: Rs. 30,000
  • Cashless through biometric ‘Smart Card’

• Funding: most states 75% central, 25% state
  • Above floor, states pay 100%
  • Prices determined by government charge-list
Salient policy questions

• Impact of existing RSBY?
  • RSBY suffers low uptake among eligible, low utilization given uptake

• Impact of expanding RSBY eligibility?
  • Include APL
  • How much to subsidize insurance and how?

• Impact of expanding RSBY coverage?
  • Physician, diagnostics, medicines, tertiary care
Indian Health Insurance Experiment I

• Policy objectives
  • What is the hhd-level impact of expanding RSBY coverage to APL?
  • How much should the govt subsidize RSBY purchase and how?
  • What are the costs of RSBY?
• Academic objective: separate pure value of insurance and income effect of premium subsidies
• Randomize ~11000 hhds in Karnataka to receive insurance with varying degrees of financial support and observe them for two years
  • Additional 150 hhds asked about willingness to pay for RSBY
  • ~11000 hhds x 2 years = 22,000 hhd years = ~110,000 life years
Collaborative Project

• Primary investigators: Anup Malani (U. Chicago) and Ramanan Laxminarayan (Public Health Foundation of India)

• Implementation with and support of RSBY-New Delhi: Rajeev Sadanandan, (Labour Ministry), Nishant Jain (GIZ), Henna Dhawan (GIZ)

• Collaboration with RSBY-KA and insurance companies
  • Sri K.R. Naranjan (Labor Commissioner), Narasimha Murthy (CEO) and Shantveer Patil
  • Ins Cos and TPAs in Gulbarga and Mysore Districts

• Data collection by Centre for Microfinance (IFMR): Sharon Buteau, Anup Roy, Parul Agrawal, Tanay Balantrapu, and Arpita Khanna

• Design and analysis input from US and UK-based researchers: Cynthia Kinnan (Northwestern), Gabriella Conti (UCL), Alessandra Voena and Anuj Shah (U. Chicago), Kosuke Imai (Princeton), Stefan Ecks (Edinburgh), Vani Kulkarni (Yale)

• Cornerstone funding from DFID, U. Chicago (Law, MacLean, BFI, Neubauer)
Design of the Field Experiment - Overview

• Sample: APL hhds not currently eligible for RSBY in Karnataka
  • Gulbarga District in North, Mysore District in South
  • Reside < 25km from empanelled hospital

• Four arms in study

• Randomized allocation

• Observe outcomes for two years

• Powered to detect 25% change in hospitalization rates across arms, by year (5% sig, 80% power)
Sample definition and size

- Public distribution system (PDS) assigns hhds to BPL, APL lists
  - Ideally by asset level, used for providing subsidized commodities
- RSBY covers BPL hhds
- Sample: APL hhds who...
  - Reside in Gulbarga District in North, Mysore District in South
  - Reside < 25km from empanelled hospital
    - 25 and 39 empanelled hospitals in Gulbarga and Mysore, resp.
- Start with 12,000 consented hhds
  - Randomly select 150 for a baseline WTP module (then excluded from study)
  - Up to 11,400 participate in main study
- Powered to detect 25% change in hospitalization rates across arms, by year (5% sig, 80% power)
  - 2% hospitalization rate in KA prior to study
  - Sample size also accounts for a 10% attrition after baseline
Main study arms and treatment effects

- RSBY has two components (insurance + premium subsidies)
  - Separate policies with different impacts
- Four arms in study
  - A: Free RSBY insurance (no R. 30 registration fee)
  - B: Unconditional cash transfer (premium) + RSBY option
  - C: RSBY option
  - D: Nothing
- We can assess impact of
  - Unsubsidized RSBY v. no intervention (C – D)
  - Subsidized RSBY v. no intervention (A – D)
  - Subsidized RSBY v. unsubsidized RSBY (A – C)
  - A (budget-neutral) cash transfer v. no intervention (B – C)
- If income effects zero, can also treat each arm (A, B, C) as instrument for insurance
Treatment assignment

• Uneven allocation
  • Globally, arm A gets 2/5 of sample, remaining arms get 1/5 each
  • ~2250 per arm (except free RSBY, which has ~4500)

• Stage 1: Randomize villages to different allocations
  • Subject to global allocation
  • Block by village size, 5 village-level allocations within blocks
  • Test for spillover effects of formal insurance on informal insurance, credit markets

• Stage 2: Within village, randomize hhds to arms
  • Form “neighborhoods” of 10 based on Mahalanobis matching on major sickness, home size, education and age of head of hhd
  • Randomized to arms based within “neighborhoods” based on village level allocation

• Key personnel: K. Imai, A. Malani, assistance from C. Zhang, K. Jiang, S. Rao
Outcome measurement and duration

- Two main instruments
  - Annual household surveys: at baseline, midline
  - On-going post-health event surveys (periodically phone hhds, ask about major sickness, and follow-up survey about utilization if sickness): as endline
- Administrative claims data from insurance companies
- Observe outcomes for two years post intervention
Primary outcomes: Health Care & Finances

• Without HI, hhds pay OOP or forego care
  • OOP means loans, saving, asset sales (Kruk, Goldmann, & Galea, 2009)
  • If these are too costly, forego care
  • Formal insurance may crowd out informal insurance (Townsend)

• HI (risk pooling) reduces the cost of financing health care (Van de ven & Ellis 2000)
  • Holding user’s price of care constant, HI may improve smoothing
  • HI reduces price of care on the margin, which may increase utilization and have an income effect

• We measure
  • Health care utilization
  • Income, assets, consumption

• Key personnel: A. Malani, C. Kinnan, R. Laxminarayan,
Outcome: Health and health-related behavior

• Additional utilization may improve health
• Availability of HI financing may change behavior
  • Increase risk taking (Cutler & Zeckhauser, 2000)
  • Reduce fatalistic behavior
• We measure:
  • Self-reported health and health behavior
  • Anthropometric outcomes (from 3 members of the hhd)
  • We hope to add biomarkers 12 months after baseline
• Key personnel: G. Conti, A. Voena, A. Malani,
Outcome: Cognitive Capacity

• Economic shocks compromise cognitive capacity, leading to poorer decision-making (Shah et al. 2012)
  • Possible mechanism behind poverty traps

• Health shocks may have similar impacts on cognitive capacity
  • Perhaps mediated by high cost of care
    • Insurance might buffer these effects
  • Perhaps mediated by stress

• We measure cognitive capacity of hhd head with and without shocks, across arms, and (hopefully) stress

• Key personnel: A. Shah, A. Malani
Outcome: Intra-household allocation

- Men often control finances, thus cash transfers (Braido et al. 2012)
- Women often are better aware of health needs
- Might the allocation of benefits from health insurance favor women/children more than cash?
- We measure who utilizes health care, other resources in households
- Key personnel: A. Voena, G. Conti, A. Malani
Outcome: Willingness to pay for RSBY

• At what price should govt “sell” RSBY?
• What is the demand curve for RSBY coverage among APL hhds?
• Measure WTP with incented WTP exercise
  • Becker-De Groot-Marshak (1964) mechanism (mimics auction against unknown bidder)
• Estimate impact of time, insurance, sickness on WTP by measuring WTP on at baseline and endline
  • At baseline: Extrapolate from 150 baseline WTP sample to main sample by conducting unincented WTP on both samples
  • At endline: Incented BDM on all hhds
• Key personnel: A. Malani, C. Kinnan
Outcome: Valuation of health, insurance

• RSBY has experienced low uptake, utilization given uptake. Why?
  • Lack of information. Ins cos lack incentive to facilitate utilization.
  • Low valuation for insurance. Why? Low price, informal insurance, or something deeper?

• Brought aboard two medical anthropologists to conduct open-ended focus group interviews to ask:
  • Value of health to wellbeing
  • Value of Western health care to health
  • Understanding of insurance

• Looking to see if price affects uptake (groups B-C)
• Key personnel: S. Ecks, V. Kulkarni, ISEC
Timeline

• Jun-13: Eligible household census/listing
• Aug-13 to Jan-14: Baseline, WTP for 150 hhds
• Mar to Jun 15: Treatment assignment, RSBY enrollment
• Jul to Sept 16: Annual and WTP survey (12 month post enrollment)
• Jul 16 to May 17: On-going post-health event surveys (12-24 month post enrollment)
• Optional: WTP survey at 24 months, Biomarker survey at 18 months
Sister IHIE projects

• Indian HIE II: Impact of Expanding Coverage
  • Impact of private plan with physician, diagnostic coverage (Jul-17)

• India HIE III: Health Insurance v. Access to Credit
  • Impact of RSBY, 0% health credit line, 24% health credit line, no treatment (Jul-17)