The Indian Health Insurance Experiments

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May 7, 2015

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 Arogayshri)
  - 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)