Public Health Insurance in Low- and Middle-Income Countries

BREAD/IGC Online Course on Social Protection in LMICs

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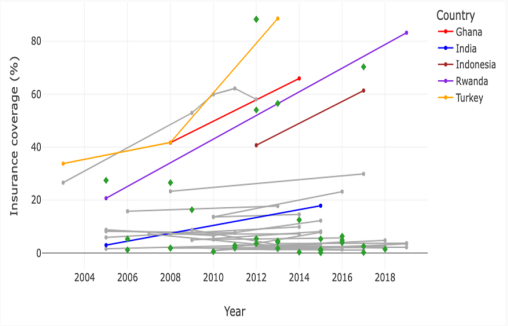
Massive Increase in health insurance schemes

- Around the world, governments have introduced "health insurance" schemes
  - With impressive improvements in share of population covered by such schemes in many countries
- Rwanda: 20% in 2005 to 83% by 2019
- Turkey: 28% in 1998 to 88% in 2013
- Indonesia: 40% in 2012 to 61% in 2017
- European countries: 60-70 years to expand from 10-20% at the turn of the 20th century to >75% in 1975



Source: Das, Jishnu, and Quy-Toan Do. "The prices in the crises: What we are learning from 20 years of health insurance in low-and middle-income countries." Journal of Economic Perspectives (2023).

Data source: DHS dataset for surveys from the year 2000 or later. Countries with only one datapoint represented using green diamond shape.

Rationale for health insurance in LMICs?

- Virtually all low-income countries have established network of public hospitals and clinics that provided heavily subsidized and tax-financed care.
- So why the new health insurance?
- Original idea
  - Despite free public sector, many people going to fee paying private sector
  - High Resulting OOP is inefficient: Welfare can be improved by shifting ex post OOP to ex ante insurance (no change in amount necessary!)
  - Resulting outcomes are inequitable, as private sector efficiency works through price
- Solution: Public health insurance?

Outline

Part 1: The Economics of Health Insurance

Part 2: Evidence from Low- and Middle-Income Countries

Part 1: The Economics of Health Insurance

How can health insurance improve people's lives?

Key concepts we'll explore:

- Risk aversion
- Adverse selection
- Market functioning and failures

Insight 1: Insurance vs. Subsidies

Key Insight

The benefits of insurance result from allowing people to spend their money **when they need it most**, not from lowering their overall health expenditures.

Insurance $\neq$ Subsidies or Cash Transfers

- Insurance redistributes spending *across states of the world*
- It smooths consumption when health shocks occur
- Does not necessarily reduce total expenditure
- Value comes from risk pooling and consumption smoothing

Understanding Risk Aversion

Why do people buy insurance?

Risk aversion: People prefer certainty over gambles with the same expected value

Example:

- Scenario A: Lose \$1,000 with certainty
- Scenario B: 10% chance of losing \$10,000, 90% chance of losing \$0
- Expected loss is the same (\$1,000), but most prefer Scenario A

$\Rightarrow$ Insurance allows people to pay a premium (certain small loss) to avoid catastrophic expenses (uncertain large loss)

Insight 2: Well-Functioning Insurance Markets

Key Insight

When insurance markets are "working," everyone who purchases insurance will benefit from it. How much they are willing to pay depends on their level of risk aversion.

Implications:

- Heterogeneity in willingness to pay is normal
- Younger people face a lower health risk
- For a given heatlh risk, more risk-averse individuals value insurance more highly
- Less at-risk and less risk-averse individuals may choose not to purchase
- Both outcomes can be efficient in a functioning market

Adverse Selection Problem

What happens when information is asymmetric?

Adverse Selection: When buyers know more about their risk than sellers do, high-risk individuals are more likely to purchase insurance *for a given premium amount*

The Problem:

1. High-risk people more likely to buy insurance
2. Insurers raise premiums to cover higher costs
3. Low-risk people drop out (too expensive for their risk)
4. Only high-risk pool remains, premiums increase further
5. Market may unravel entirely

Insight 3: Policy Solutions to Market Failures

Key Insight

If there are informational asymmetries in the market, some consumers will be excluded from the benefits of insurance due to adverse selection. This problem can be addressed by well-designed policy interventions.

Policy Interventions:

- **Insurance mandates**: Require everyone to purchase coverage
- **Subsidized coverage**: Make insurance affordable for all
- **Tax-financed coverage**: Public provision or financing

These interventions can restore market functioning and expand access

Tax Financing: A Solution to Adverse Selection

- Most common in low- and middle-income countries
- **Key mechanism:** Government funds care through taxes rather than risk-based premiums
- Transforms insurance from risk-pooling to healthcare subsidization
- Taxes based on income, wealth, or other attributes—not health risk

How Tax-Financed Healthcare Works

Three major advantages:

1. **Fully finances care:** Tax revenue covers all expected healthcare costs
2. **Eliminates adverse selection:** Universal coverage without opt-in decisions or risk-based pricing—the risk pool cannot unravel
3. **Enables equitable access:** Everyone receives care; costs redistributed based on ability to pay rather than health status

Result: No one excluded due to private information about health risk

Equity Depends on Tax Design

Challenge: Wealthier individuals often consume more healthcare, even with universal access

Financing matters for equity:

- **Progressive income taxes:** Can achieve equity if subsidies don't disproportionately benefit the rich
- **Payroll taxes:** Less progressive, especially if capped or exclude informal workers
- **Indirect taxes (VAT, sales tax):** Often regressive—burden falls on lower-income households

Bottom line: Universal access $\neq$ equitable financing. Policymakers must examine how revenue is raised, who bears the burden, and who receives care.

Part 2: Evidence from Low- and Middle-Income Countries

Public Health Insurance Schemes:

Insurance + Subsidy

Dual Goals:

1. Financial protection against health shocks
2. Expanding access to quality healthcare

$\Rightarrow$ Not "pure" insurance—combines risk pooling with subsidization

What is the track record after two decades?

We'll examine evidence on three key dimensions:

1. Take-up and coverage
2. Financial protection
3. Health outcomes

Evidence Insight 1: Coverage Remains Limited

Finding

Public insurance programs are far from achieving universal coverage, but subsidizing premiums can increase enrollment.

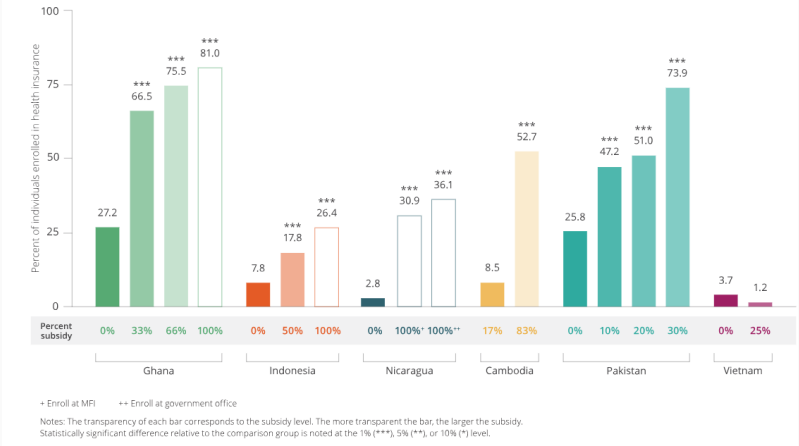
The Numbers (Hooley et al., 2022):

- Mean coverage across 100 LMICs: **31.1%**
- Low-income countries: 7.9%
- Lower-middle-income countries: 27.3%
- Upper-middle-income countries: 52.5%

Das and Do, 2023: 50% coverage across 62 countries (3.5B people), but wide variation and recent expansion

Do Subsidies Help? Evidence from RCTs

J-PAL Review Findings: Lowering premiums and user costs increases enrollment, but even *large subsidies* fall short of universal coverage



Evidence Insight 2: Limited Financial Protection

Finding

There is limited evidence of increased financial protection in the form of declining out-of-pocket expenditures (OOPE).

Evidence from 8 rigorous studies:

Significant reductions in OOPE are the *exception*, not the rule

Let's examine specific cases...

Where OOPE Reductions Were Found

Ghana (Powell-Jackson et al., 2014):

- RCT removing user fees $\rightarrow$ 30% reduction in household health spending

Mexico - Seguro Popular (King et al., 2009):

- 16% reduction in monthly OOPE (31% for low-asset households)
- Reduced catastrophic spending (not statistically significant)

Georgia (Bauhoff et al., 2011):

- Medical Insurance Program for the Poor $\rightarrow$ 50% reduction in mean OOPE in one region

China - NCMS (Gruber et al., 2023):

- *share* of medical expenditure borne out of pocket dropped by 29pp
- Level of OOPE: no significant change (but utilization rose 8.4pp)

Where OOPE Effects Were Limited or Absent

India - RSBY (Karan et al., 2017):

- Nationally: No reduction in OOPE for the poor

India - Aarogyasri (Fan et al., 2012; Malani et al., 2024):

- Reduced inpatient OOPE, but no clear effect on catastrophic spending
- Heterogeneous effects across groups

Burkina Faso (Fink et al., 2013):

- No change in average OOPE
- 4pp reduction in probability of catastrophic expenditures

Cambodia (Levine et al., 2016):

- No reduction in average OOPE
- 20% reduction in likelihood of catastrophic OOPE

Interpreting OOPE Results: An Important Caveat

Null effects on OOPE $\neq$ Program failure

If insurance lowers costs of services, this may *induce more care*:

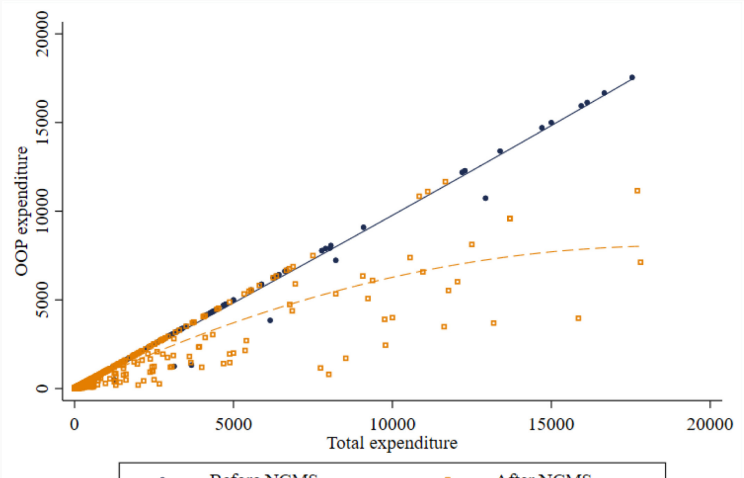
- Higher utilization (more visits, procedures)
- Substitution to higher-quality care
- Total OOPE unchanged, but **effective coverage** rises

Example: China's NCMS

- Utilization $\uparrow$ 8.4pp
- OOPE level unchanged
- But OOPE *share* $\downarrow$ 29pp $\rightarrow$ genuine financial protection

China's NCMS

Gruber et al., 2023: the NCMS program is clearly reducing the risk of extreme levels of OOP expenditure



Evidence Insight 3: Mixed Health Outcomes

Finding

Evidence suggests mixed results on health outcomes, despite higher utilization.

What we consistently see:

- Higher utilization of healthcare services
- Substitution toward higher-quality private facilities

What we don't consistently see:

- Improved health outcomes

Where Health Outcomes Did Not Improve

No detectable effects on health outcomes found in:

- **Mexico - Seguro Popular** (King et al., 2009)
- **Colombia** (Miller, Pinto, and Vera-Hernandez, 2013)
- **Ghana** (Powell-Jackson et al., 2014)
- **Burkina Faso** (Fink et al., 2013)
- **Cambodia** (Levine et al., 2016)

Despite higher utilization and facility substitution effects

Notable Exception: China's NCMS

China's New Cooperative Medical Scheme (Gruber et al., 2023)

Scale: 800 million rural Chinese enrolled (2003-2010)

- 62% of total population
- 88% of rural population

Health Outcomes:

- Mortality rate $\downarrow$ 19.3%
- Life expectancy $\uparrow$ 4.4 years
- Accounted for $>$75% of total life expectancy gain (2.5 years) during this period

Why the success? Massive scale, sustained investment, supply-side improvements

When Do Health Outcomes Improve?

Where evidence shows some health improvements:

Gains are correlated with:

1. **Increased preventive care**
   - Prenatal health visits
   - Early diagnoses
2. **Increased choice**
   - Patients opt for higher-quality facilities
   - Access to better providers

Sood and Wagner, 2018; Camacho and Conover, 2013; Balsa and Triunfo, 2021; Celhay et al., 2019

Why doesn't more care lead to better health?

Potential Explanations:

- **Quality of care:** More visits $\neq$ better treatment
- **Supply-side constraints:** Facilities lack capacity, equipment, drugs
- **Type of care:** Curative vs. preventive services
- **Targeting:** Who benefits from increased utilization?
- **Measurement:** Outcomes take time; studies may be underpowered

$\Rightarrow$ Insurance alone is insufficient—supply-side readiness is crucial

Why Have Results Been So Uneven?

Next: Prof. Radhika Jain