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## 14.74 Foundations of Development Policy

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# Health

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## Introduction

- ▶ Today, we will talk about health from the point of view of social scientists: We will not talk about the efficacy of one treatment or another, but about health services and health behavior.
- ▶ We will start by discussing, in detail, health and health care in one specific region, to identify what seem to be the key problems.
- ▶ Motivated by this evidence, we will then discuss the research that has tried to address these key issues:
  - ▶ Fixing supply.
  - ▶ Demand for preventive health: low demand, high sensitivity to prices.
  - ▶ Why this low demand? What can be done to improve it?









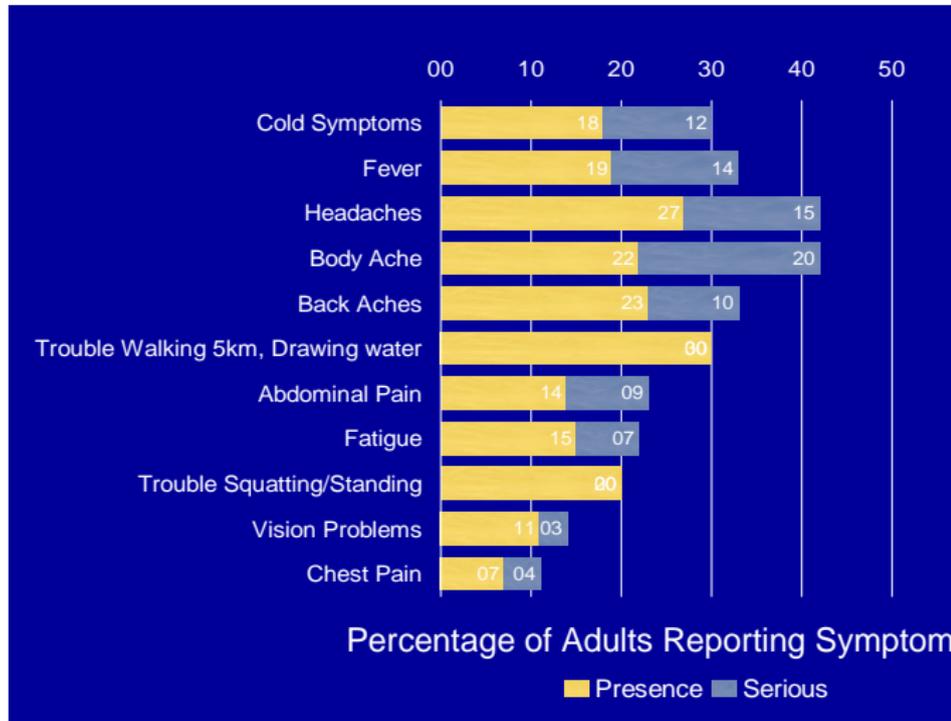






## Some Striking Facts about Health. Udaipur, Rajasthan, India

# An Ocean of Disease



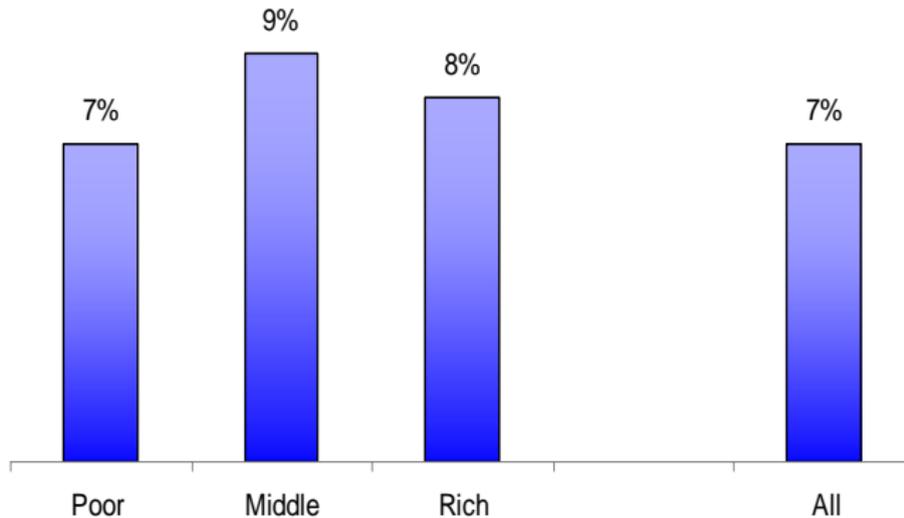


## Patterns of Demand for Health Care

- ▶ High share of budget is devoted to health, even by the poor
  - ▶ Figure
- ▶ On average, household visits are provided once every two months.
- ▶ Most health visits are to private “doctors.”
  - ▶ Figure
- ▶ In contrast to curative care, preventive care is very limited. E.g.,
  - ▶ Full immunization rate: less than 2% at baseline.

Some Striking Facts about Health. Udaipur, Rajasthan, India

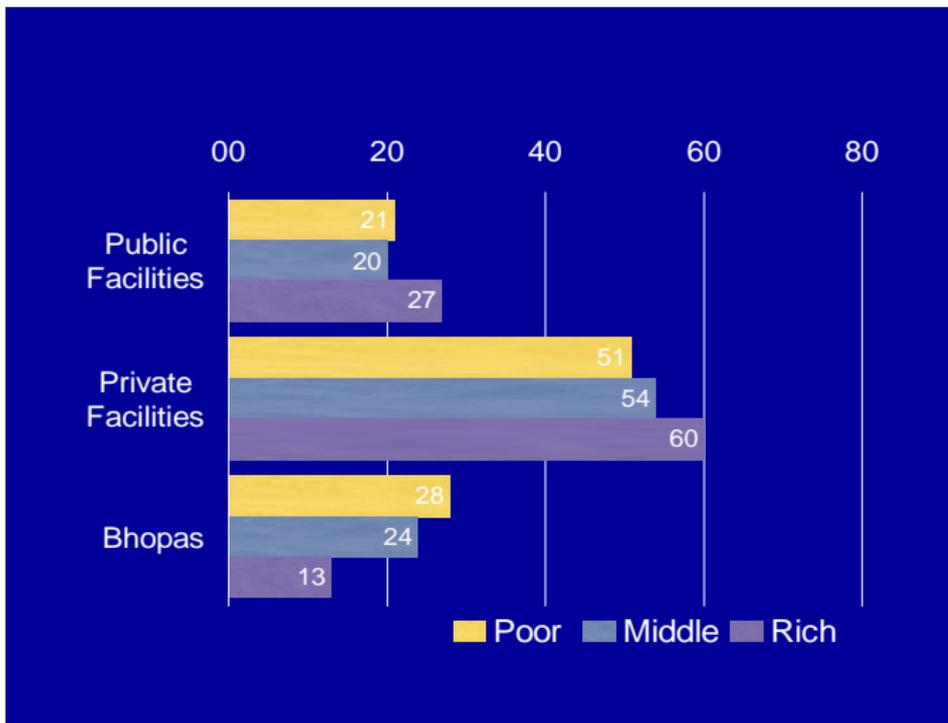
# Share of Budget Devoted to Health





Some Striking Facts about Health. Udaipur, Rajasthan, India

# Share of Visits to Different Facilities



## Pattern of Supply of Health Care: The Private Sector

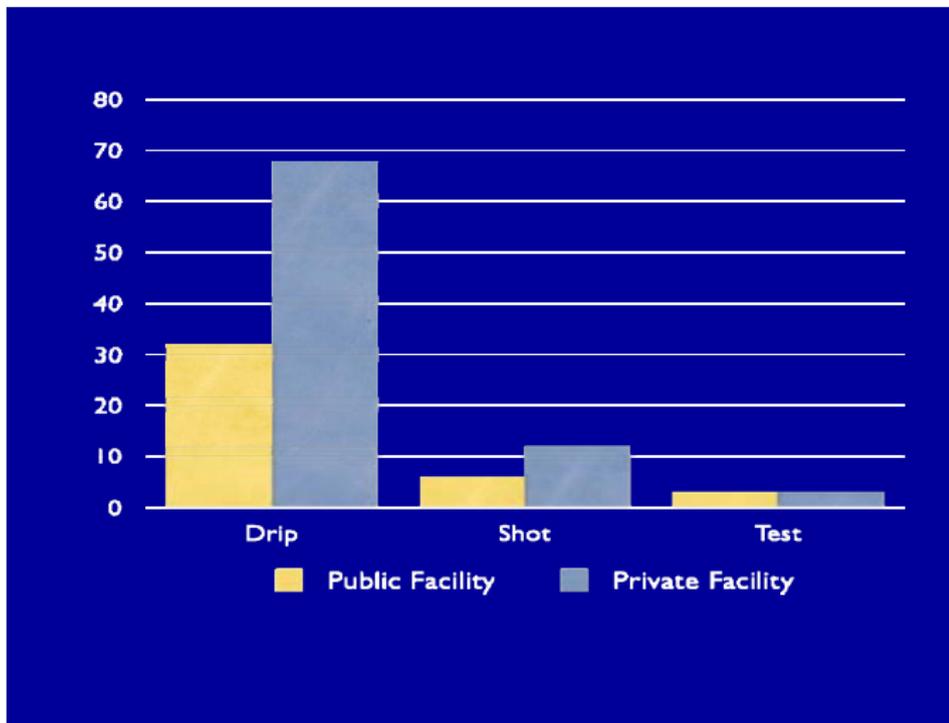
- ▶ The Private Sector:
  - ▶ Completely un-regulated, terrible quality. ▶ Qualifications
  - ▶ Treatments that emphasize antibiotics and drips, not tests. ▶ Treatments





Some Striking Facts about Health. Udaipur, Rajasthan, India

# Treatment in Private Facilities



## Pattern of Supply of Health Care: The Public Sector

- ▶ The public sector:
- ▶ On paper, the “ideal” system for a developing country.
  - ▶ A 3-tiered system of public health facilities:
    - ▶ One sub-center for 3,000 people (3,600 in our data), close (within 2 km in Udaipur), a nurse provides preventive care and referral, free treatment;
    - ▶ One primary health center for 50,000 people (48,000 in our data); and
    - ▶ Community health centers and district hospitals for bad cases.
- ▶ In practice:
  - ▶ Dismal physical state of facilities. [▶ Picture](#)
  - ▶ Absenteeism: 54% absence rate (weekly measures over a year), not only Udaipur. [▶ Picture](#)
  - ▶ Treatments: less antibiotics but no more tests.
  - ▶ Multiple missions for the nurses:
    - ▶ Undo their credibility (e.g., sterilization campaigns).
    - ▶ Leads them to completely give up on discharging any of these duties.



Some Striking Facts about Health. Udaipur, Rajasthan, India

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Some Striking Facts

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Fixing Supply?

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Low Demand for Preventive Care

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Why Is Demand Low?

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Conclusion

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Some Striking Facts about Health. Udaipur, Rajasthan, India

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## The Interactions between Supply and Demand

- ▶ People are less likely to use public facilities when nurses are often absent.
- ▶ Two possible explanations:
  - ▶ Patients are discouraged by high absence rate.
  - ▶ Nurses are discouraged by low demand.
- ▶ Both of these phenomena could be present simultaneously.







## Results

- ▶ Early on, large impact: Nurses are sensitive to incentives.
- ▶ However, as time goes on, attendance declines in monitored group (and increases in the other group).
- ▶ At the end, attendance on Monday is higher in the non-monitored group.
- ▶ What happened?
  - ▶ Key is the nurse register indicating reason for absences.
  - ▶ Absence became “exempted days” (and “broken machines”).



## Political Commitment to a Monitoring System is Key

- ▶ Contrast between these results and results on teacher incentives (where absence went down from 40% to 20% and stayed down):
  - ▶ An example of the difficulty to scale up.
  - ▶ Seva Mandir was committed to implementing the system for teachers.
  - ▶ But the public health system was not committed to implementing it, despite commitment at the top.
  - ▶ Among all contradicting demands, nurses try to figure out what is really important and what is not. In the treatment groups, they learned that the commitment to Monday presence was not a real priority.

## Demand for Health and Political Commitment

- ▶ How could the bureaucracy get away with not implementing its own rules?
- ▶ One possible answer: No political will because there is no demand for incremental changes in public health care.
- ▶ One symptom: Even during the six months where attendance was higher in treatment group, usage of the facility remained very low:
  - ▶ On average, 0.74 clients seen in treatment facility when facility is open.
  - ▶ On average 0.81, clients seen in control facility when facility is open.
- ▶ It is possible that a system imposed from the top without any grassroots demand cannot be sustained.

## Power to the People: Improvement in Health through Grassroot Mobilization

- ▶ An interesting contrast is provided by an experiment in Uganda.
- ▶ Problems are very similar (e.g., absence rate in health center: 47%)
- ▶ Instead of a top down approach, they involved the community in monitoring the providers.
- ▶ Intervention started with a household survey to collect data on experience with public health facilities.
- ▶ Then, community organizations facilitated three meetings: a community meeting, a meeting at the health center, and an interface meeting.
- ▶ The outcome of these meetings was an action plan on how to improve the situation, and how the community members would monitor the facilities.

## Power to the People: Results

Results: [▶ Figure](#)

- ▶ Community became more involved in monitoring health workers.
- ▶ Health workers were more present.
- ▶ Health utilization improved in some respects.
- ▶ Health outcomes improved.



## Why This Lack of Demand?

There could be two reasons for lack of increase in the use of public facilities even when they are improved:

- ▶ Villagers do not trust that changes will persist (rightly).
- ▶ The underlying demand for care provided in public facilities (preventive/no antibiotics) is relatively low (compared to care provided by private doctors).
- ▶ To investigate the second reason, we look at the effect of an improvement in supply on the take-up of preventive care.



## Results

- ▶ Improvement in immunization rates
  - ▶ Fraction of children fully immunized increased. [▶ Figure](#)
- ▶ However, increase was larger for first immunization; mothers less likely to come back for the following shots. [▶ Figure](#)
- ▶ 88% of children do not remain immunized despite very low cost.
- ▶ Note that results from Uganda intervention were similar: increase in the first immunization received, but





## Preventive Care: The Demand Problem

- ▶ Low utilization of cheap health saving medical interventions
  - ▶ In India: Only a quarter of mothers breast-fed the child within an hour of birth and the average extent of exclusive breastfeeding was only 2 months (WHO recommends breastfeeding within an hour of birth, and to exclusively breastfeed for 6 months).
  - ▶ Fraction of children receiving deworming medicine dropped from 78% to 59% when parents had to sign a form.
- ▶ Very high price-elasticity for those services, both for positive prices, and negative prices.
  - ▶ Positive prices (even small) discourage use: [▶ Figure](#)
    - ▶ Bed-nets (Kenya, Uganda, Madagascar)
    - ▶ Deworming (Kenya)
    - ▶ Chlorine (Kenya, Zambia)
  - ▶ Small rewards greatly encourage use:
    - ▶ Immunization (India, several African countries) [▶ Details](#)
    - ▶ Learning HIV-Aids Status (Malawi) [▶ Details](#)







## The Impact of Small Incentives on Immunization

- ▶ In some immunized camps, Seva Mandir offered one kilogram of lentils to mothers who took their children to be immunization, and a set of plates for completed immunization.
- ▶ A very small reward would not convince people who are strongly against immunization.
- ▶ Large impact on full immunization, especially on getting more than one of the needed shots.







## The Impacts of Small Incentives on Learning HIV-Aids Status

- ▶ A study by Rebecca Thornton (Malawi)
- ▶ Voluntary Counselling and Testing (VCT) is seen as a cornerstone in the fight against HIV (Mozambique: 55% of all HIV-Aids expenditures were for VCT).
- ▶ Yet, few people know their status: It is often assumed that psychological and social barriers are very strong.
- ▶ As part of a survey, over 2,812 respondents were tested for HIV-AIDS.
- ▶ A few weeks later, they could pick up their results if they wanted to (in a tent set up in the village).

## Experimental Design

Two elements were randomized:

- ▶ At the end of the interview, respondents drew a bottlecap with a number, with an indication of a small thank you voucher (between 0 and 3 dollars) for picking up their tests.
- ▶ The location of the tent was also randomized within the village ( ▶ close or ▶ far ).
- ▶ Results suggest that fear or stigma may not explain the low take up rate of VCT.

Some Striking Facts

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Why Is Demand Low?

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oooooooooooooooooooo

Conclusion

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Low Demand for Preventive Care

Close...

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# ...and Far

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## Time Inconsistent Preferences

- ▶ Today, cost of immunizing the child is time taken, child discomfort, potential side effects.
- ▶ Benefits are in the future (at some unknown time).
- ▶ Human beings think of the present and the future differently (O'Donoghue and Rabin, Laibson).
  - ▶ In the present, we are impulsive: Costs incurred today appear very large relative to benefits.
  - ▶ In the future, we are more rational: Costs to be incurred next month appear small relative to benefits.
  - ▶ We have a tendency to postpone small costs to a future period.
  - ▶ But when the future comes, it is now the present, and the costs again seem large.

## Time Inconsistent Preferences and Preventive Care

- ▶ This could explain why getting an immunization is always postponed until next month while people are willing to spend large sums of money on a dubious curative care treatment for the same disease for their child.
- ▶ In this case, a small benefit that offset the small cost and is obtained today (e.g. a bag of lentils) can convince parents to take the step today.
- ▶ In most developed countries, there is a compulsory schedule of immunization: it plays the same role.
- ▶ In this world, subsidy, incentives, making some behavior compulsory, can be justified for two reasons:
  - ▶ Externalities: They convince us to undertake behavior that have positive spillovers on others.
  - ▶ “Internalities”: They help us undertake behavior that are optimal from our own point of view.

## The Role of Commitment Devices

- ▶ If time inconsistency is the main problem, there can be other ways to help individuals in taking the right steps:
  - ▶ “Nudging,” in the words of Richard Thaler and Cass Sunstein: Marketing techniques used to stir individuals to a choice that would be right from their rational’s self point of view (e.g. “good” default choices).
  - ▶ Helping them to commit in advance to behave in a certain way in the future: commitment devices.

## Smoking: The Role of Commitment Devices

- ▶ Smoking is a public health epidemic in developing countries.
- ▶ Self-aware individuals with time inconsistent preferences may want to commit to stop smoking.
- ▶ A microcredit bank in the Philippines proposed the CARES program, a commitment contract to smokers:
  - ▶ They open a (interest free) savings account.
  - ▶ They make regular deposits in the account.
  - ▶ After 6 months, they have to pass a surprise smoking test.
  - ▶ If they fail the test, they forfeit their money.
- ▶ No one would take this product if they were not looking to force themselves to stop smoking.
- ▶ The CARES program was evaluated by Dean Karlan and Jon Zinman.

## The Impact of the CARES Program

- ▶ CARES randomly offered to 781 out of 2000 smokers (randomly selected). 83 out of 781 (11%) accepted to take up the program.
- ▶ After 6 months, everyone performs a smoking test.
- ▶ Smoking cessation rates:
  - ▶ 11% in the treatment group (*all* those offered CARES)
  - ▶ 8% in the control group
- ▶ 29 out of 83 who took CARES stopped smoking (35%). But note that we cannot compare those who took up CARES and those who did not: Those who took-up may be those who are the most (or the least!) likely to stop smoking.
- ▶ Impact of being *offered* CARES: 3 percentage points.
- ▶ If we assume that being offered CARES has no effect on those who do not take it up, these extra 3% are due to the 11% of people who took up the program. Effect of the program:  $\frac{0.03}{0.11}$ : 30%.

## The Perception of Benefits

- ▶ Thus, there is evidence that time inconsistency plays a role.
- ▶ However, constantly postponing preventive care, if we are fully aware of its benefits, requires to be both time inconsistent and very naive.
- ▶ Maybe the low demand and the high sensitivity to prices for preventive care, and the high demand and high willingness to pay for curative care comes from the fact that we tend to:
  - ▶ Underestimate the benefits of preventive care.
  - ▶ Overestimate the benefits of curative care.
- ▶ Learning about health is difficult:
  - ▶ For curative care: Since most diseases are self-limiting, any cure is going to appear effective. When a “doctor” gives one shot of antibiotic against the flu, we may think he cured the flu, and we will go back to this doctor.
  - ▶ For preventive care: It *prevents* a disease from happening, so the disease is not observed: no immediate link is drawn between immunization and not getting sick.

## Learning about Preventive Health

1. Well targeted information is useful, general incantations are not.
2. Education as a health policy.
3. We can learn by doing, and we can learn from others.

## HIV-AIDS Prevention: Risk Avoidance or Risk Reduction

- ▶ In the effort to prevent HIV-AIDs, the youth are considered to be a “window of opportunity.” Youth were targets of prevention efforts in many countries that have been relatively successful at curbing the spread of HIV-AIDs (e.g. Uganda)
- ▶ Government response in Kenya: HIV-AIDS education in school
  - ▶ As in many countries, the curriculum is a product of a consensus: UNICEF, churches.
  - ▶ Based on ABCD Message (Abstain, Be Faithful, use a Condom... or you Die).
  - ▶ Public health discourse: choice between emphasizing risk *avoidance* (promote the message that AIDs is everywhere, abstinence is the only 100% safe behavior) vs risk *reduction* (avoid the most risky situation).
  - ▶ ABCD is a risk avoidance message.

## Risk Avoidance or Risk Reduction: An Evaluation in Kenya

- ▶ Collaborative project: Government of Kenya, ICS (an NGO), and E. Duflo, P. Dupas, M. Kremer, S. Sinei.
- ▶ The curriculum is, in principle, in place everywhere, but teachers do not teach it (fear of stigma, lack of comfort, etc.).
- ▶ Government has a few trainers for teachers, but program is being phased in progressively: evaluation possible.
- ▶ ICS organized training by Government Trainers of 3 teachers in 183 schools, randomly selected out of 370, in official curriculum. ICS follows with health clubs.

## Risk Avoidance or Risk Reduction: An Evaluation in Kenya

- ▶ In 35 trained schools, and 36 untrained schools, ICS organized an extra program, centered on risk reduction: the “Sugar Daddy” program.
  - ▶ Many adolescents girls have relationships with older adults (“Sugar Daddies”).
  - ▶ Cross generational sex is associated with transmission of epidemics: Rate of infection of girls age 15 to 19 is 5 times that of boys.
  - ▶ Intervention showed rate of infection of older men, younger men, younger women.
  - ▶ And showed a UNICEF video against sugar daddies “Sarah, the Trap” .





## Results: Sugar Daddy

- ▶ Decrease in sexual activity with older partners; increase with younger partners, but condom protected.
- ▶ Large decrease in pregnancy rate, especially with older partners.
  - ▶ **Results**
  - ▶ Pregnancy rates after one year dropped by 30% (from 5.4% to 3.7%).
  - ▶ Pregnancy rates with older partners dropped by 67% (from 2.4% to 0.79%).



## Education as a Health Policy: One Example

- ▶ In half the trained schools, and half the untrained schools, ICS provided school uniforms in grade 6 (in 2003) and grade 8 (in 2005). [▶ Figure](#)
- ▶ For girls, dropout declined from 18% to 12%.
- ▶ Fraction of girls who became pregnant or had a child by 2005 declined from 14.4% to 10.6%.
- ▶ Fraction of girls who became pregnant or had a child by 2007 declined from 30.7% to 26.1%.

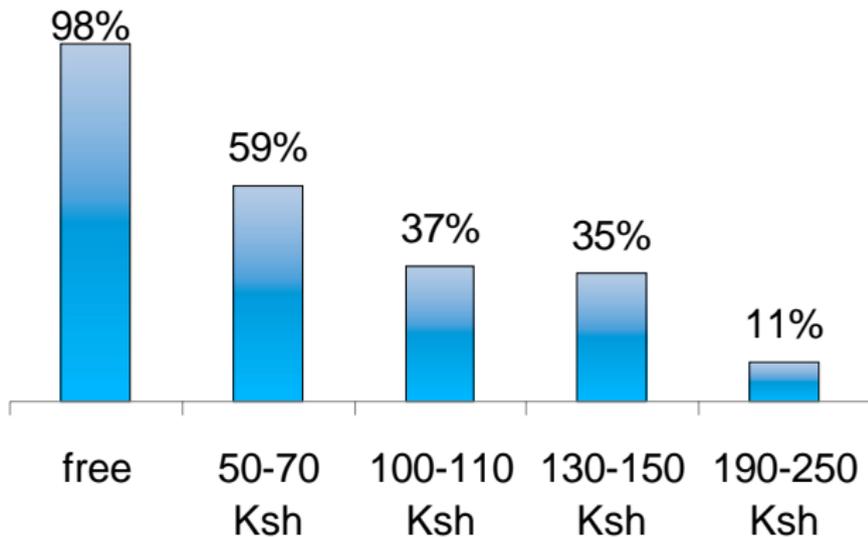




## Learning by Doing and Learning from Others: Results

- ▶ More likely to purchase at first follow up if net is cheaper.  
▶ Figure
- ▶ As likely to use bednet in beginning at first follow-up when free. ▶ Figure
- ▶ More likely to buy a second one if they received the first one for free. ▶ Figure
- ▶ It is really an experience effect: effect smaller for chlorine.
- ▶ Social learning: More likely to buy at second follow-up if they know more people who got it for free. ▶ Figure
- ▶ Social learning on health (but going in the other direction) was also found by M. Kremer and E. Miguel on deworming.

## Fraction of Households Who Buy the First Net









## Conclusion: Policy Implications

- ▶ The market *will not* naturally lead to an outcome where preventive care is delivered, or demanded.
- ▶ We cannot just rely on communities to ensure that preventive care is delivered.
- ▶ The quality of care depends on the underlying demand:
  - ▶ Emergence of a dangerous private sector if there is no trust in Government (to regulate, or to deliver).
  - ▶ Good quality care must be a politically salient issue to guarantee the quality of the public sector.
- ▶ A publicly funded, publicly provided (or regulated) effort to encourage behavioral change is essential.



