

# The public economics of health policy in poor countries

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NIPFP, February 2016

# Principles of public expenditure

*“The important thing for government is not to do things which individuals are doing already, and to do them a little better or a little worse; but to do those things which at present are not done at all”*

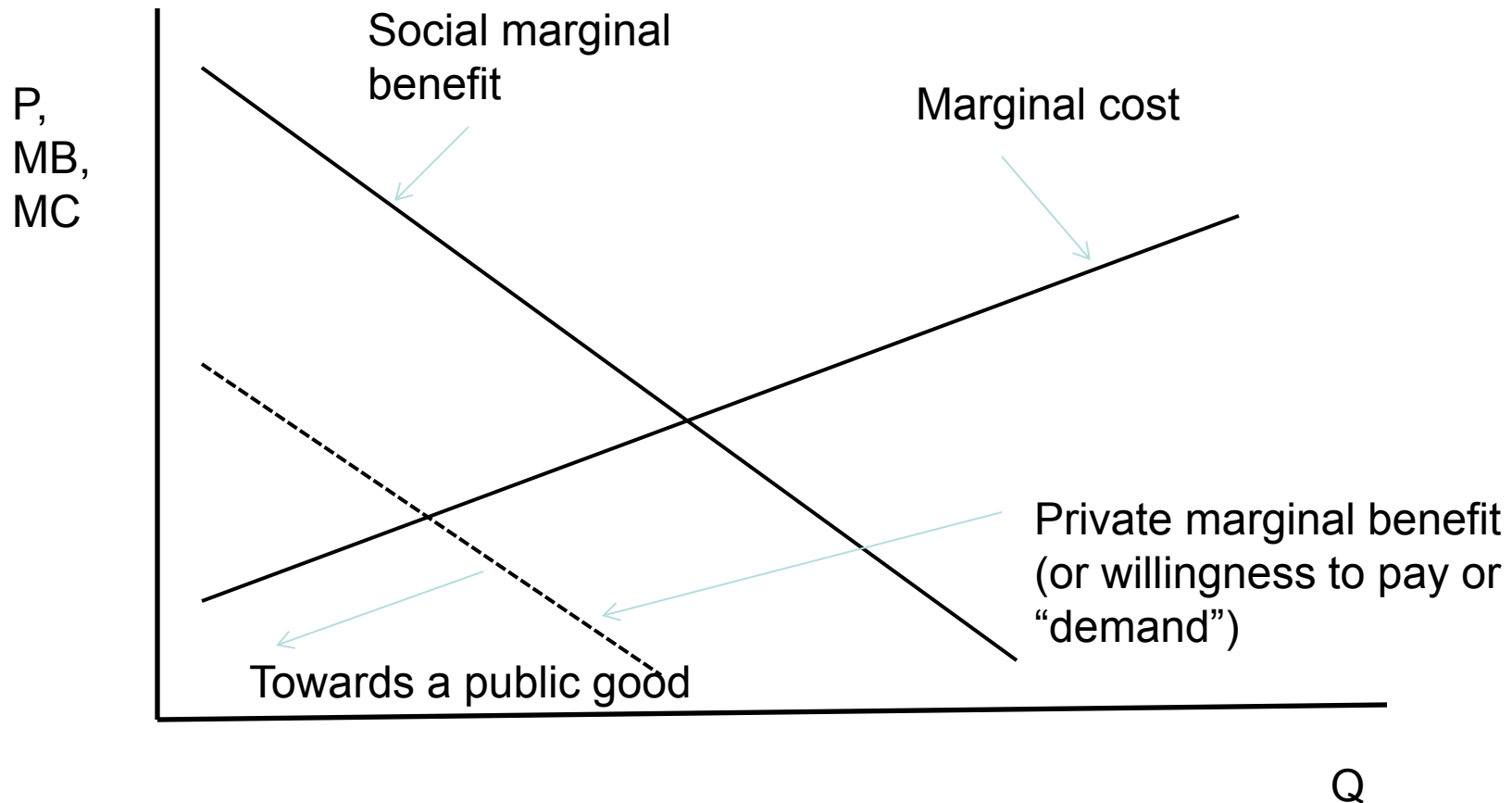
***J.M.Keynes, The End of Laissez-Faire, 1926***

# Market failures and standard policies

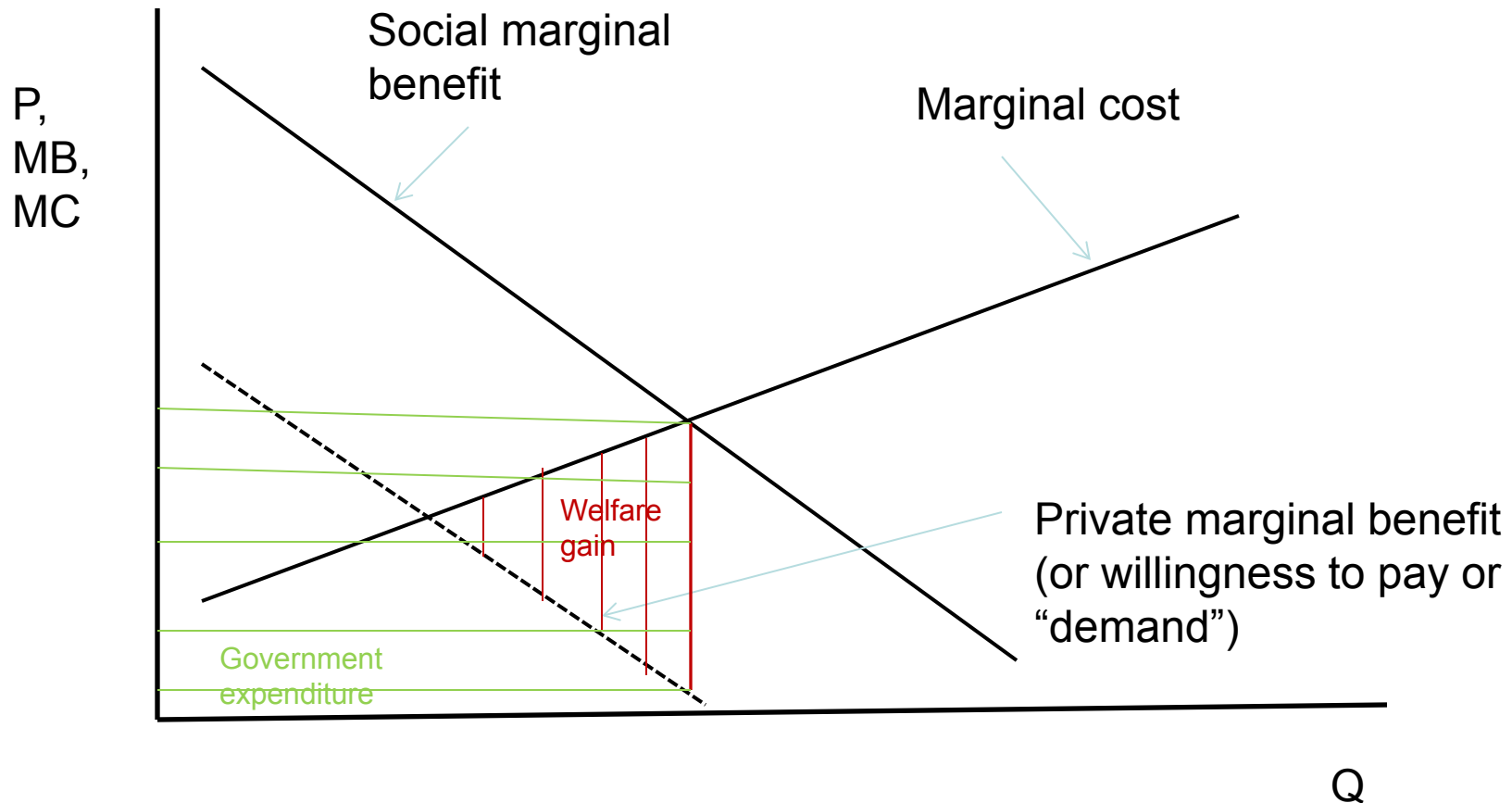
Problems characterizing  
markets related to health

- “Public” goods
  - Externalities
  - Information  
“asymmetries”
  - No insurance
- 
- And running through it all:  
improve life of the poorest  
first

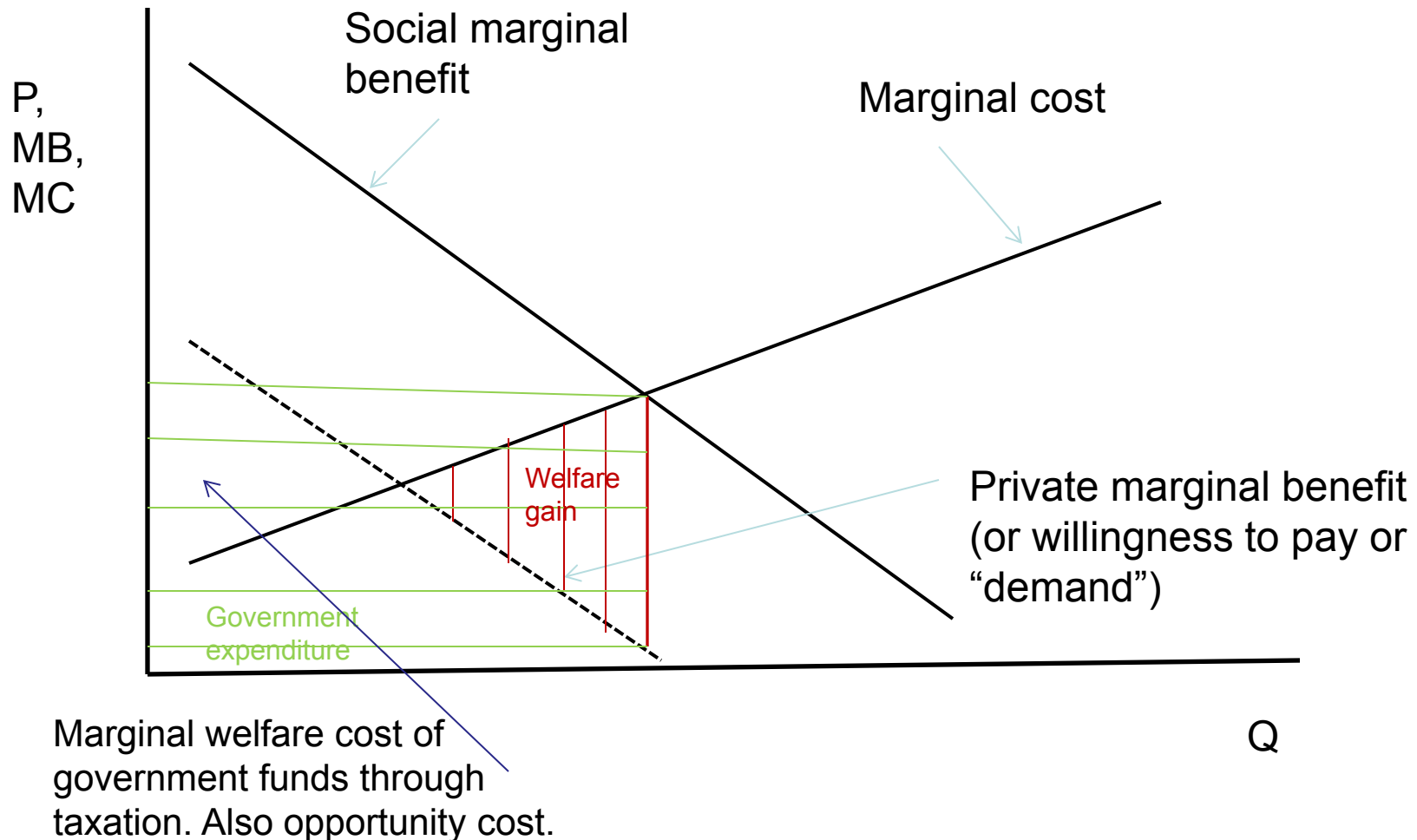
# Public goods/externalities



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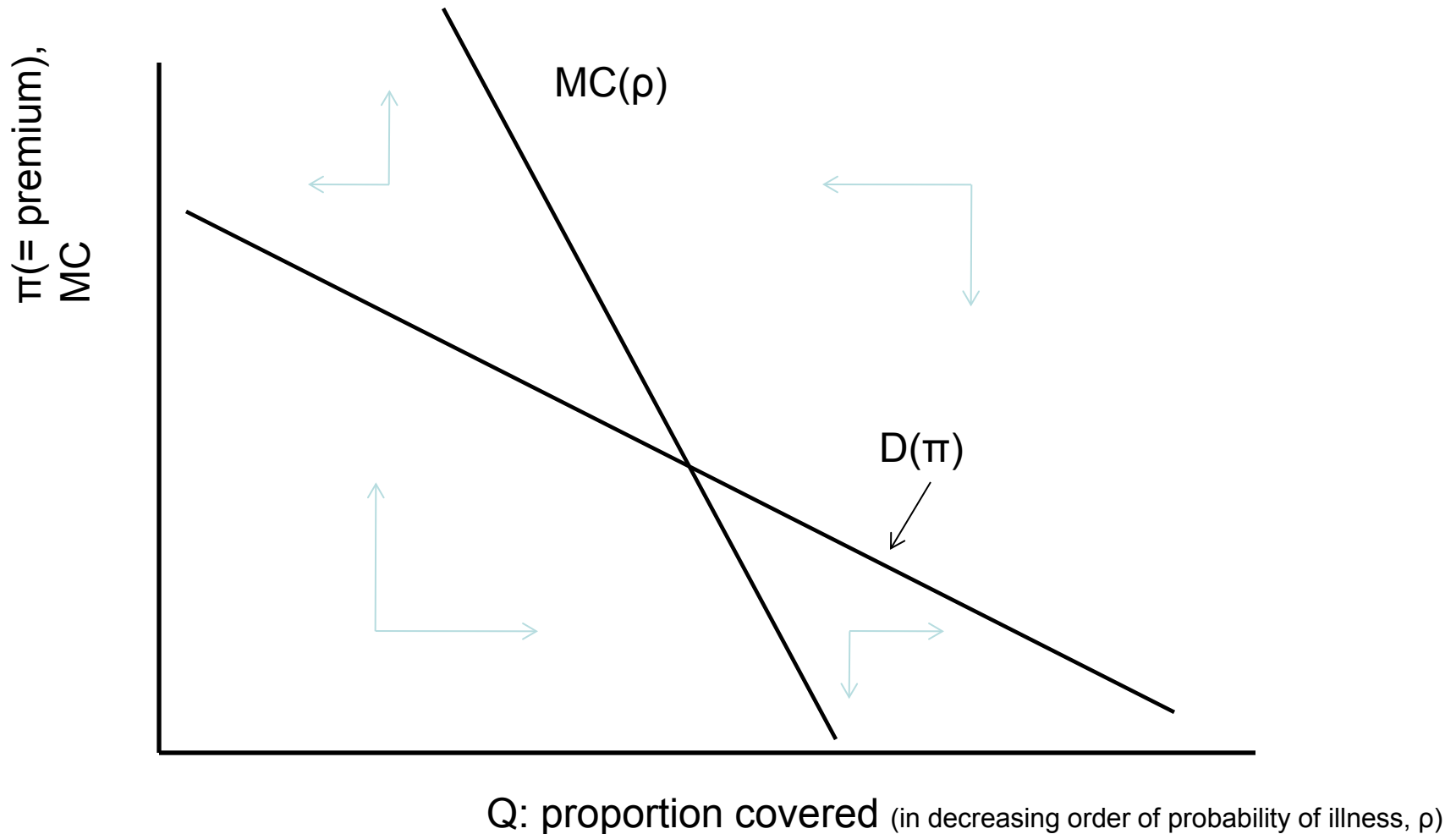


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# Adverse Selection and the collapse of insurance markets





# Market failures and standard policies

Problems characterizing markets related to health

- “Public” goods
- Externalities
- Information “asymmetries”
- No insurance
- And running through it all: improve life of the poorest first

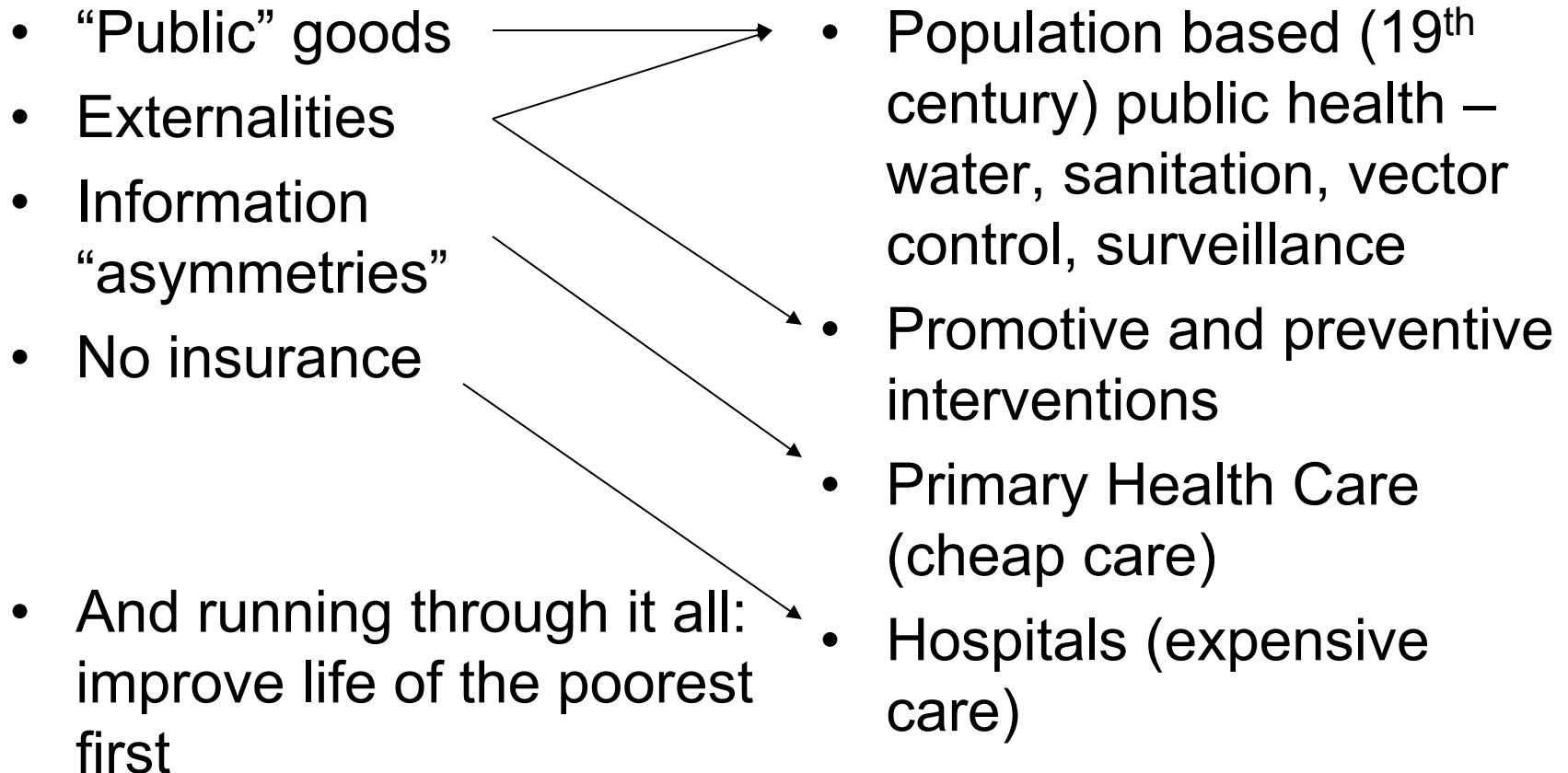
Standard policy options of government

- Population based (19<sup>th</sup> century) public health – water, sanitation, vector control, surveillance
- Promotive and preventive interventions
- Primary Health Care (cheap care)
- Hospitals (expensive care)

# Market failures and standard policies

Problems characterizing markets related to health

Standard policy options of government



But sometimes governments mess  
up, too, you know

# Market and government failures

A framework of  
relationships of accountability

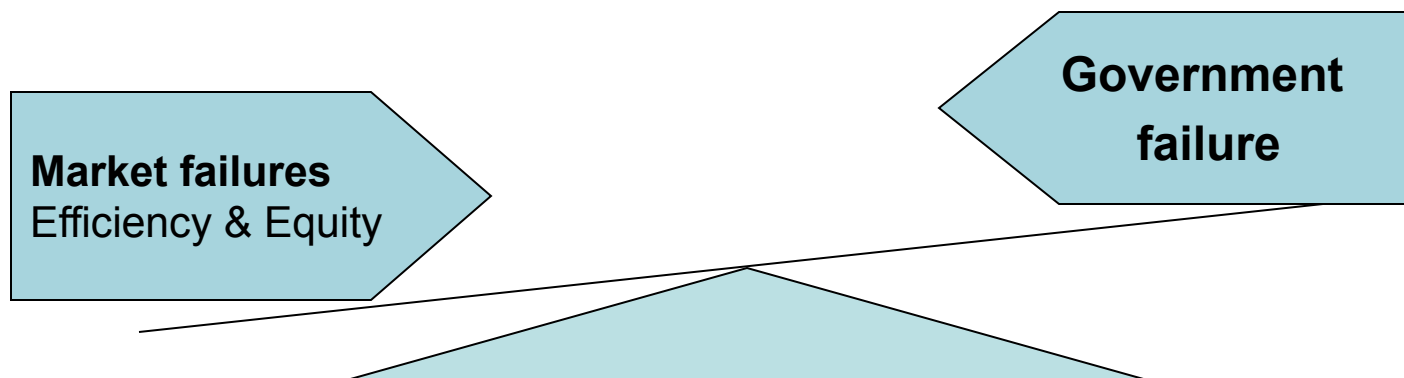


# Government failure: Accountability is the key

- Are policy-makers accountable to the public and really committed to improved health and financial protection?
- Are providers accountable to policy makers (and, through them, to people) for providing good service?

# Main principles from public finance

(including public accountability)

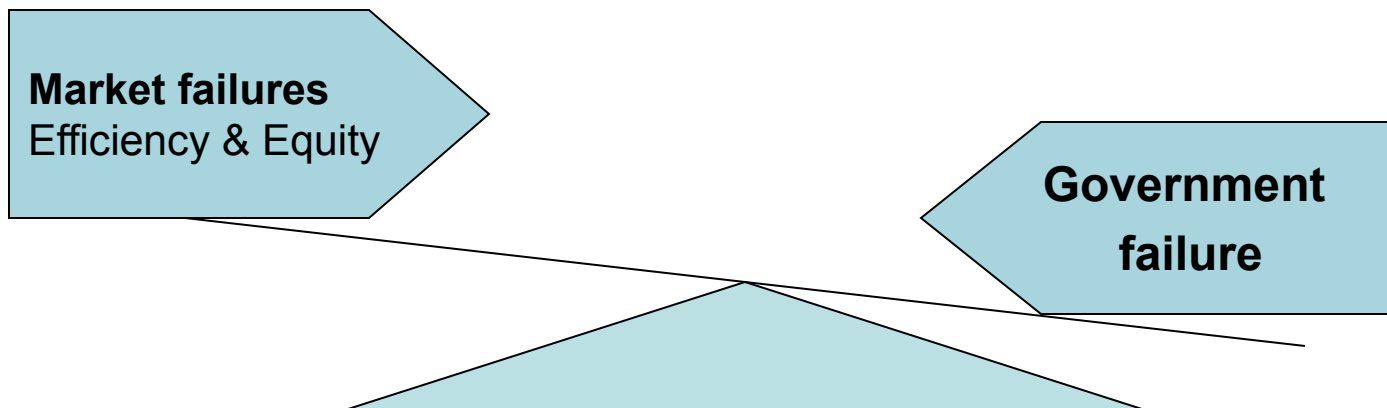


This is quantitative (even if it's a judgment call):  
**Size of the market failures vs. Ability to fix them**

'It is not sufficient to contrast the imperfect adjustments of unfettered private enterprise with the best adjustment that economists in their studies can imagine. For we cannot expect that any public authority will attain, or will even whole heartedly seek that ideal. Such authorities are liable alike to ignorance, to sectional pressure and to personal corruption by private interest'. A.C. Pigou, 1920

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I only have two things to say about  
policy (Any policy. Ever.)

- Provide public goods before private goods.  
(Or: fix really bad market failures first.)
- Do things you can do before trying those  
you can't. (Or: take constraints on  
government capabilities seriously.)
- You'd be surprised how bizarre these  
sound in health policy discussions



## **Complementarity/ conflict among efficiency; equity and administrative feasibility**

- Traditional public health - strong complementarity
  - Large scale, population based
  - Person-to-person preventive/promotive
- Primary health care - modest efficiency effects (varies), potentially high equity effects, difficult management
- Hospitals – high efficiency, high potential but low actual equity effects, easier management(?)

# Efficiency of traditional public health



## Theory

- High externality activities
- Pure public goods ( i.e. there **can't** be a private sector **even in principle** because you can't get beneficiaries to pay - not just that you don't want them to)

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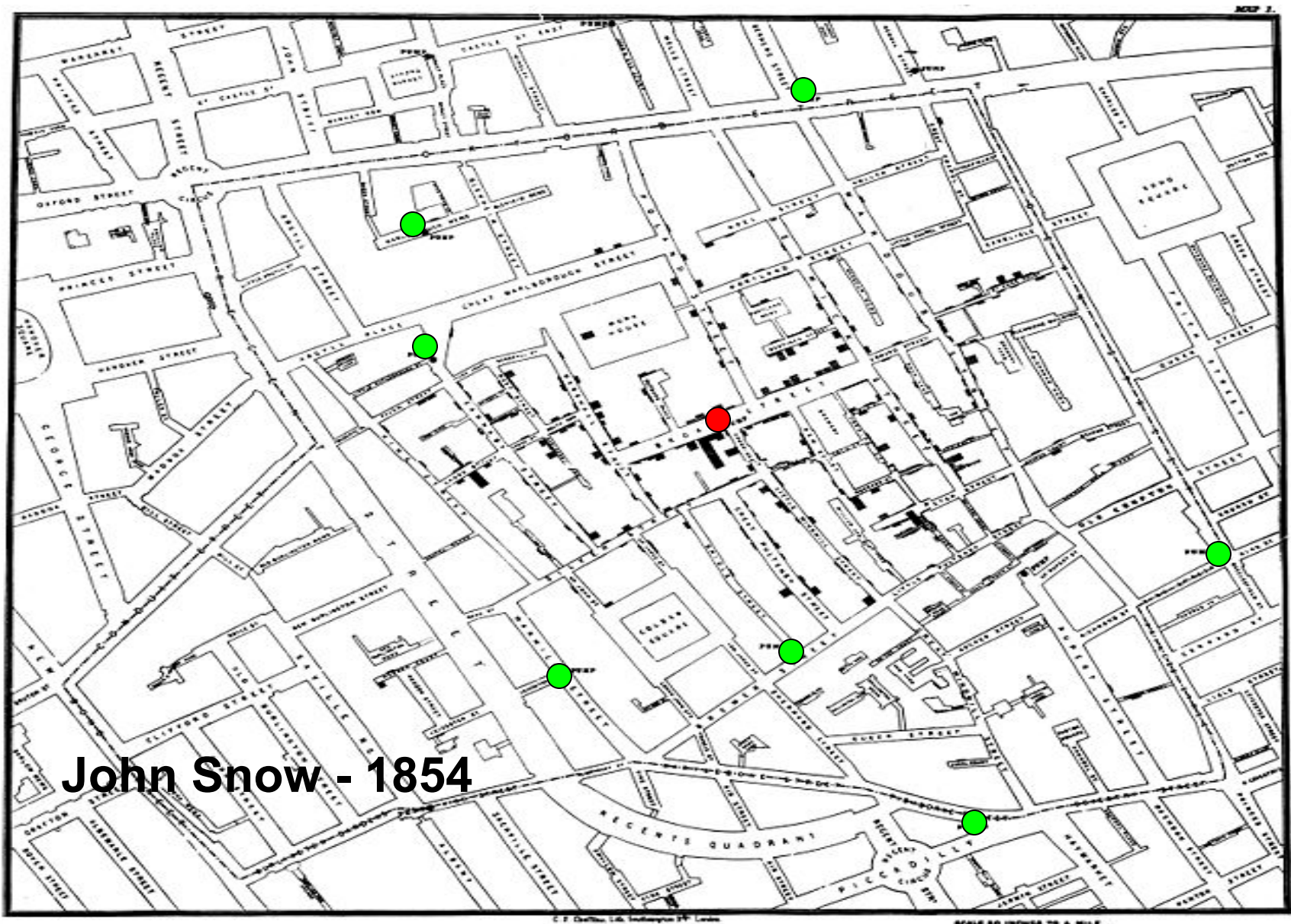
## Practice

- Large effects on health outcomes  
( which we figure people would want to improve if they could)

# What reduces infant/child mortality?

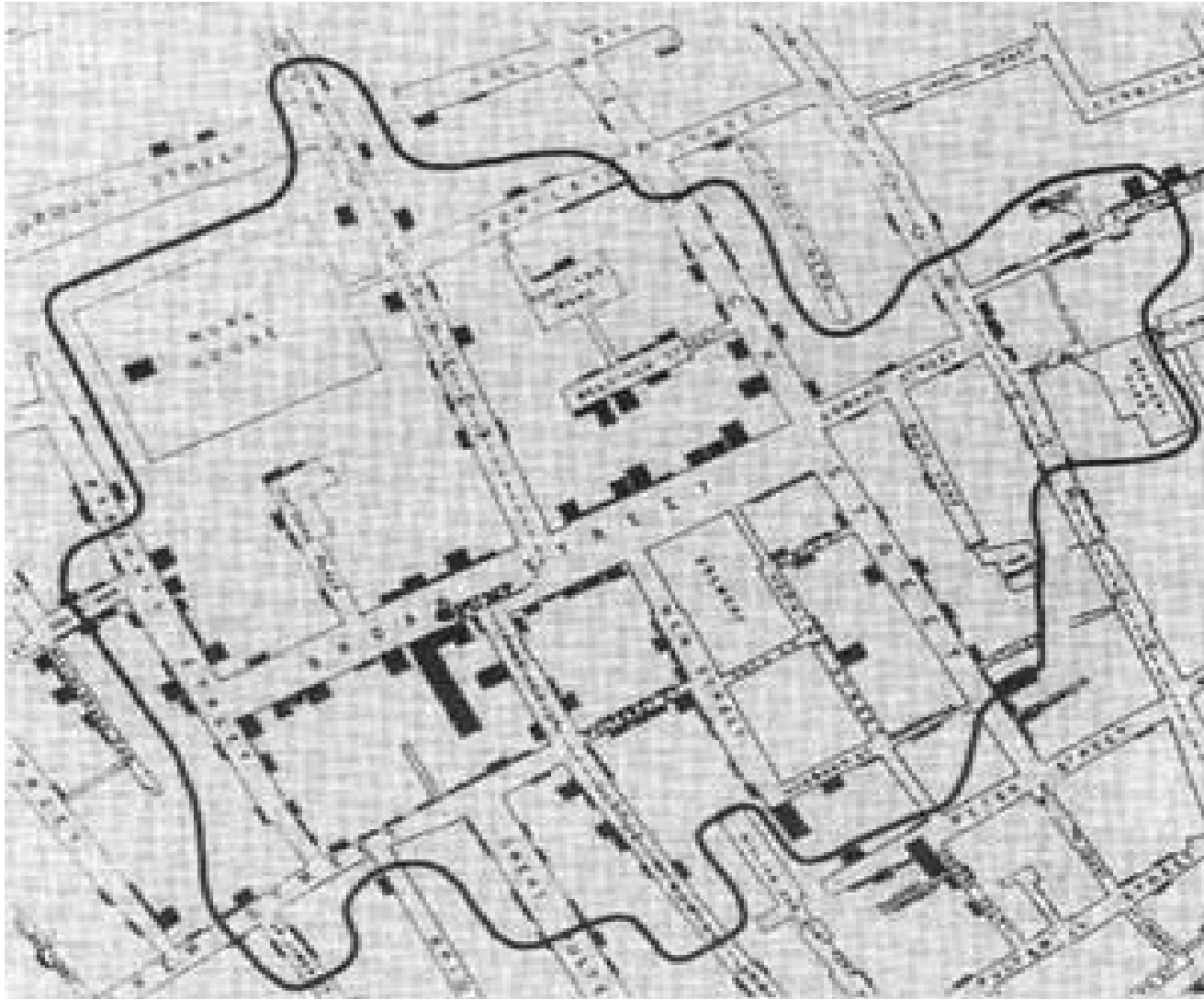
- Safe water/ sanitation
- Educated parents (probably mothers)
- Income (nutrition? better purchased care?)
- Immunization (highly correlated with income and education)
- Vector (pest) control – probably but matching programs to outcomes is hard due to data

# Surveillance (information generation) as a public good

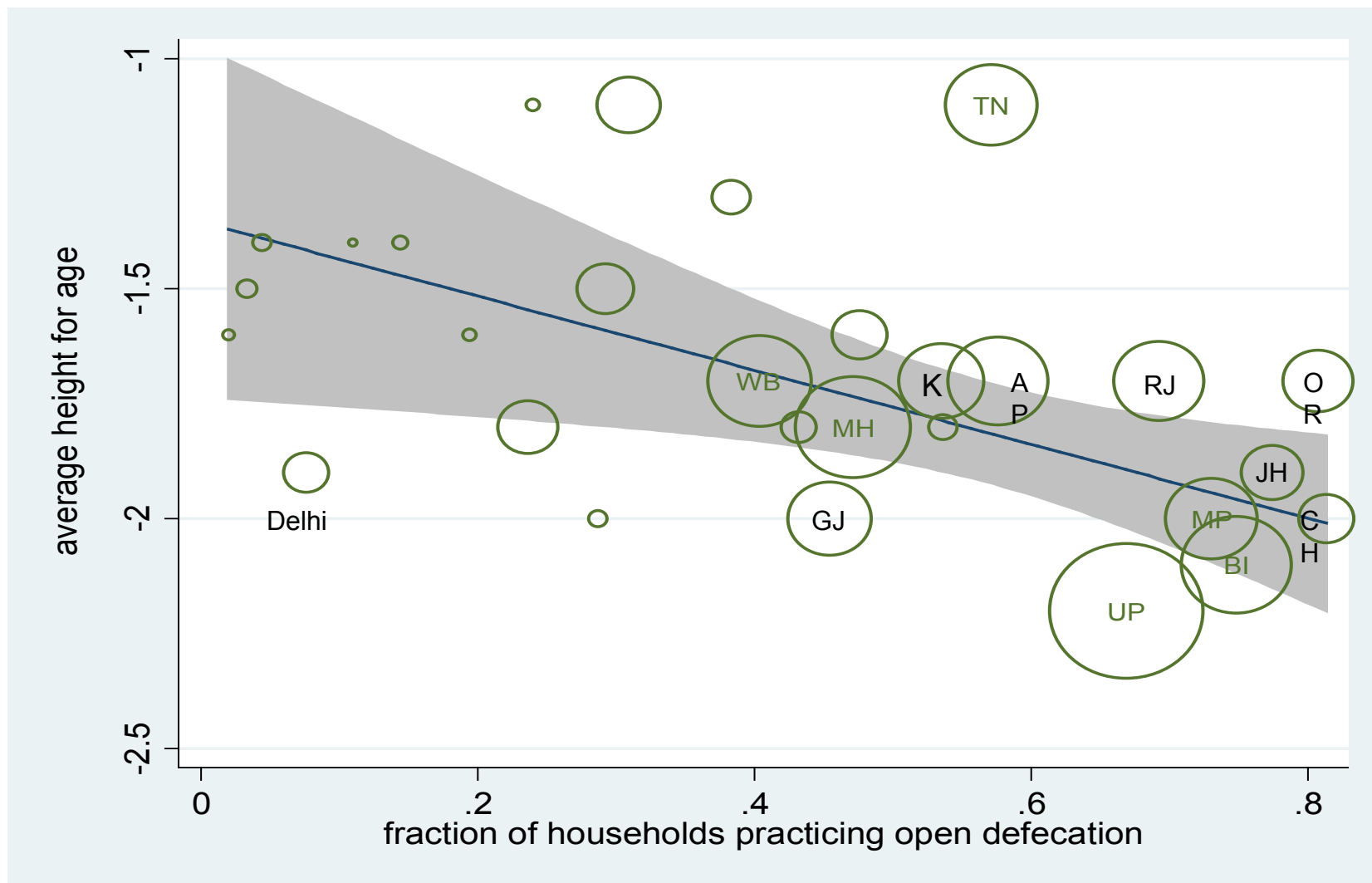


You know, Jeff, this isn't a particularly good example of public officials, like Chadwick, doing anything helpful because this was...

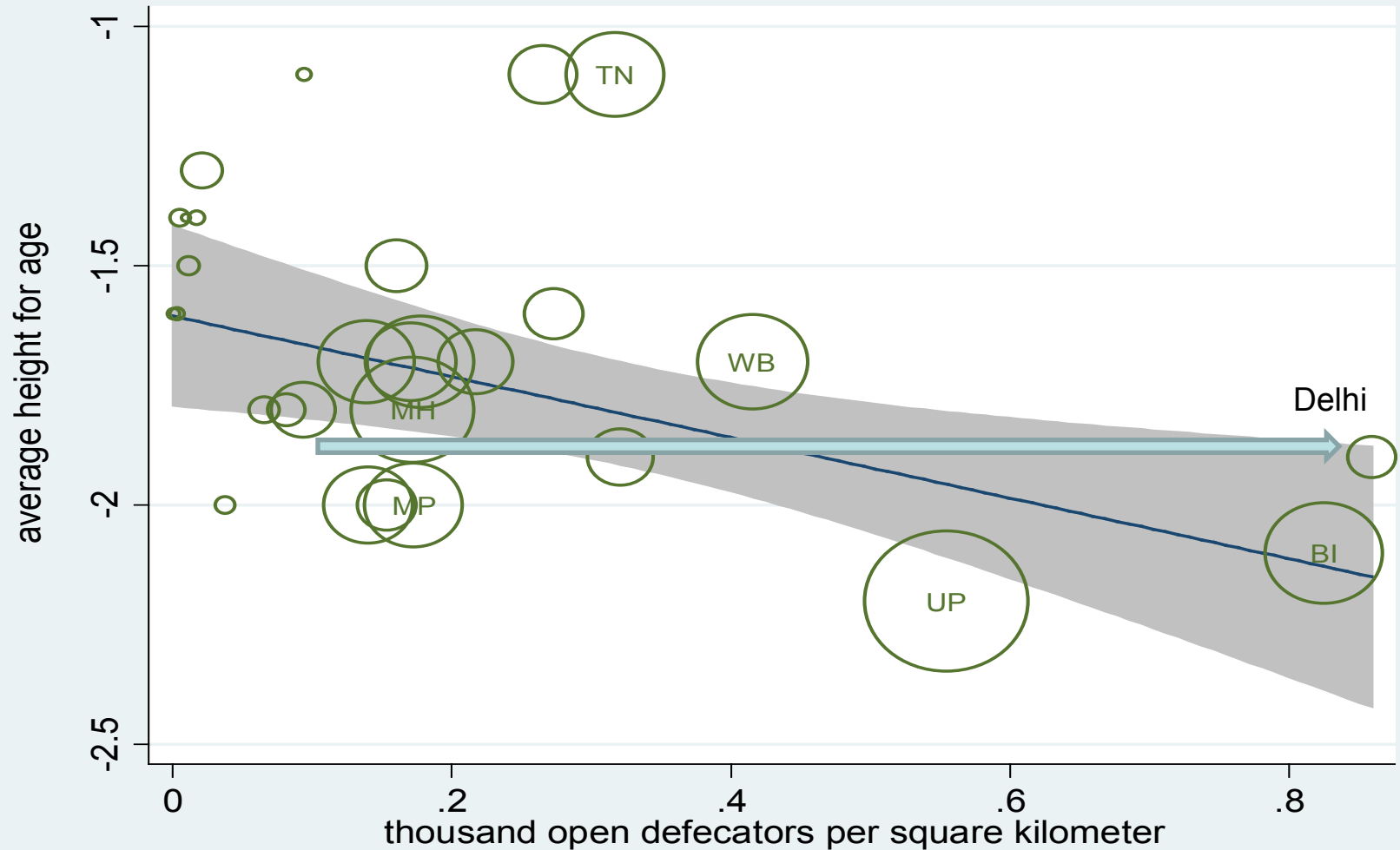
# Voronoi diagram



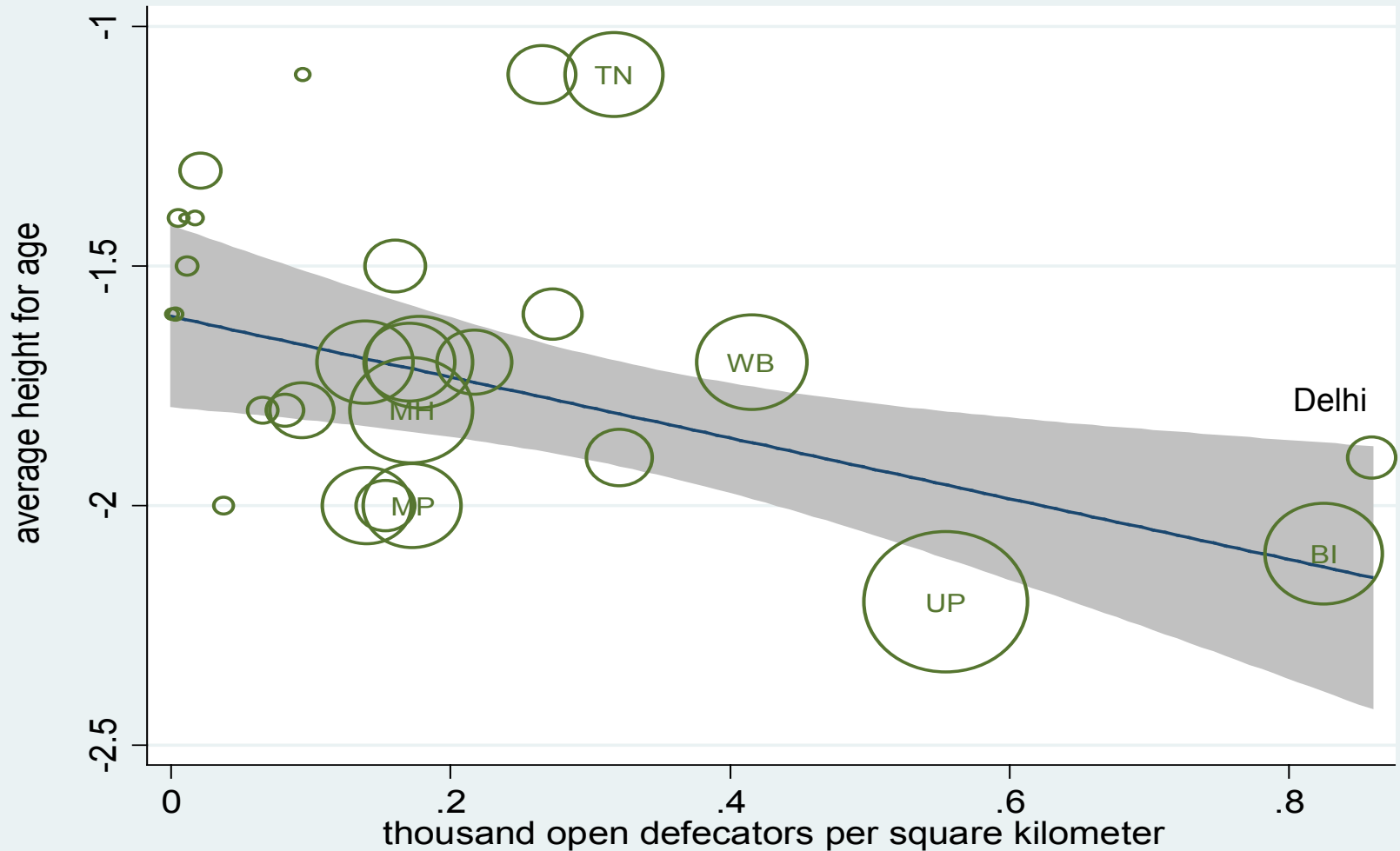
# Open defecation and height



# Density of open defecation and height

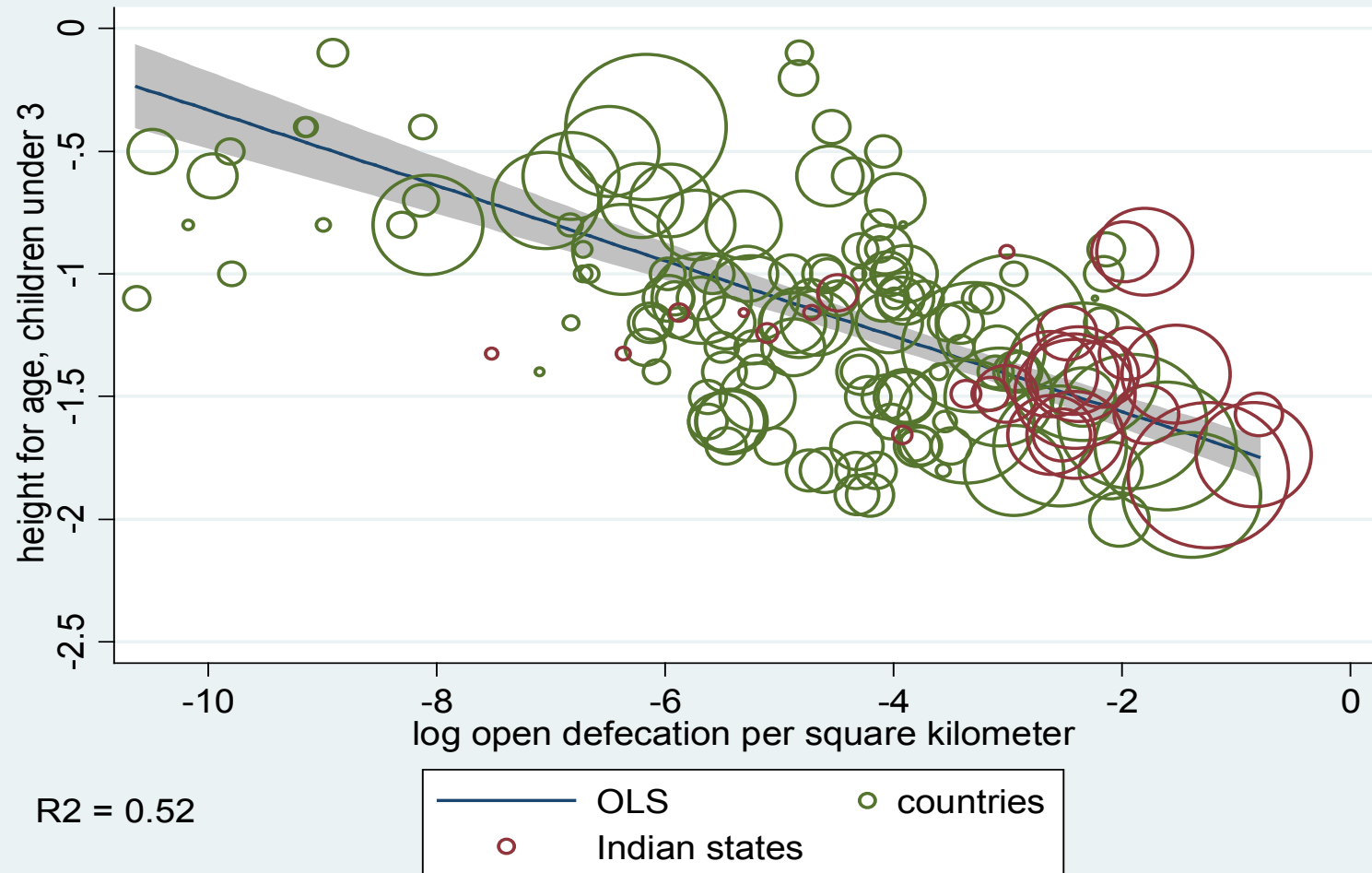


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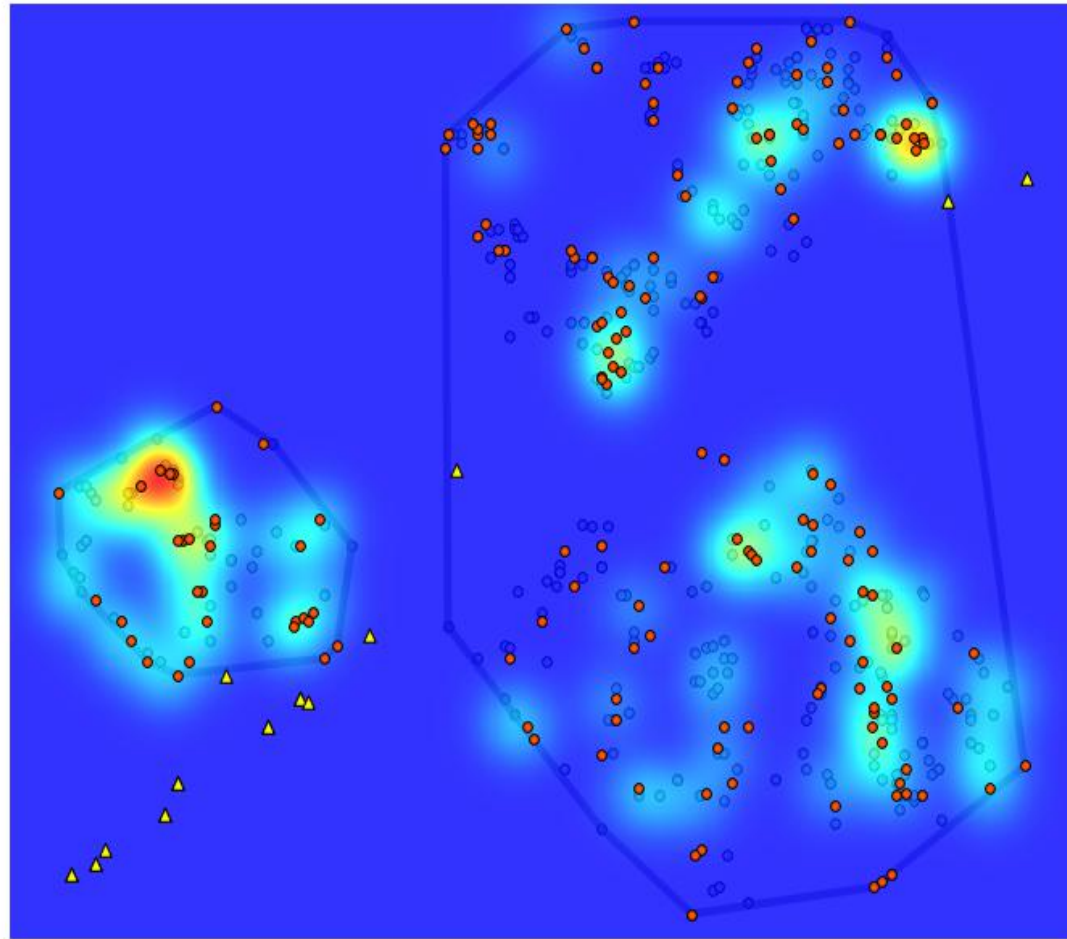




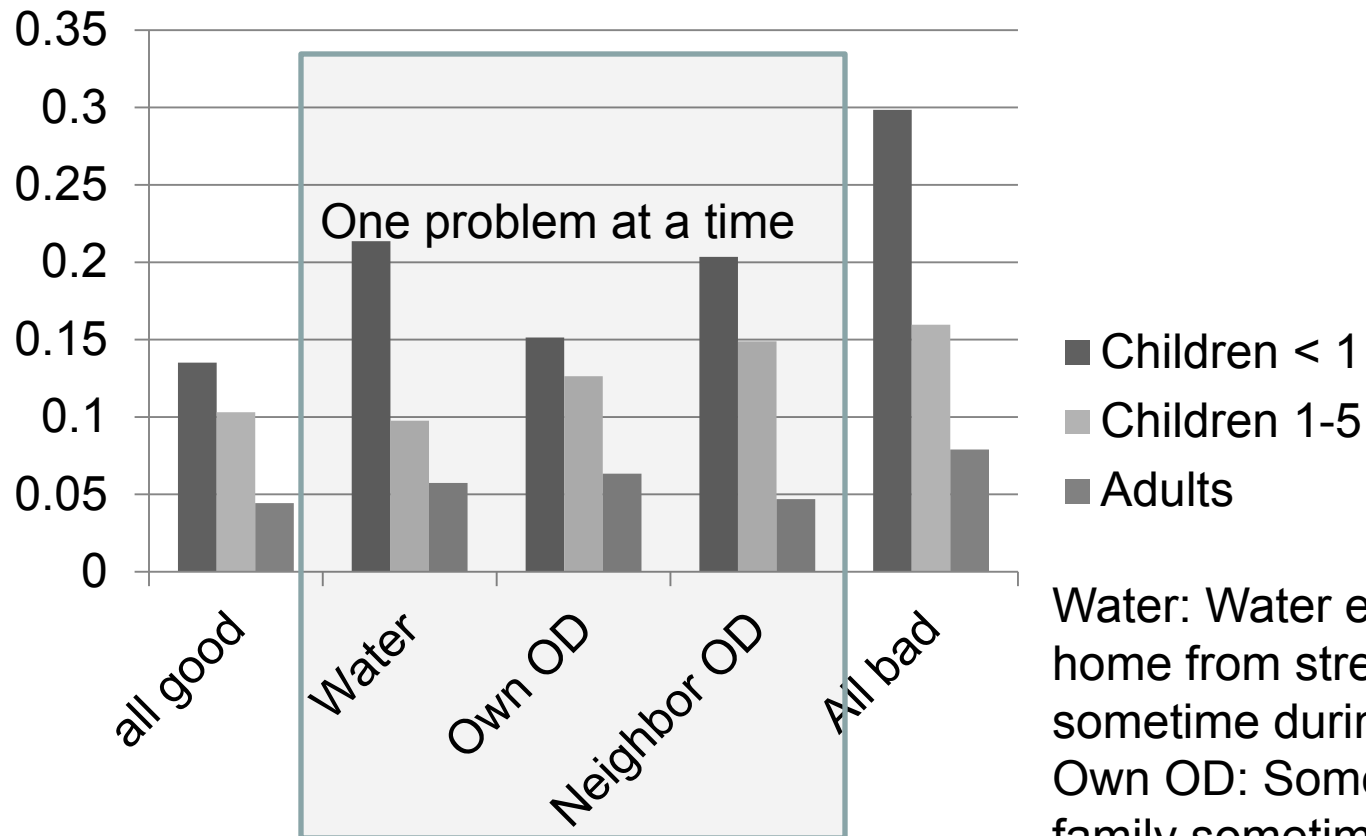
# Indian states in international comparison



# Open defecation in area and cases of diarrhea

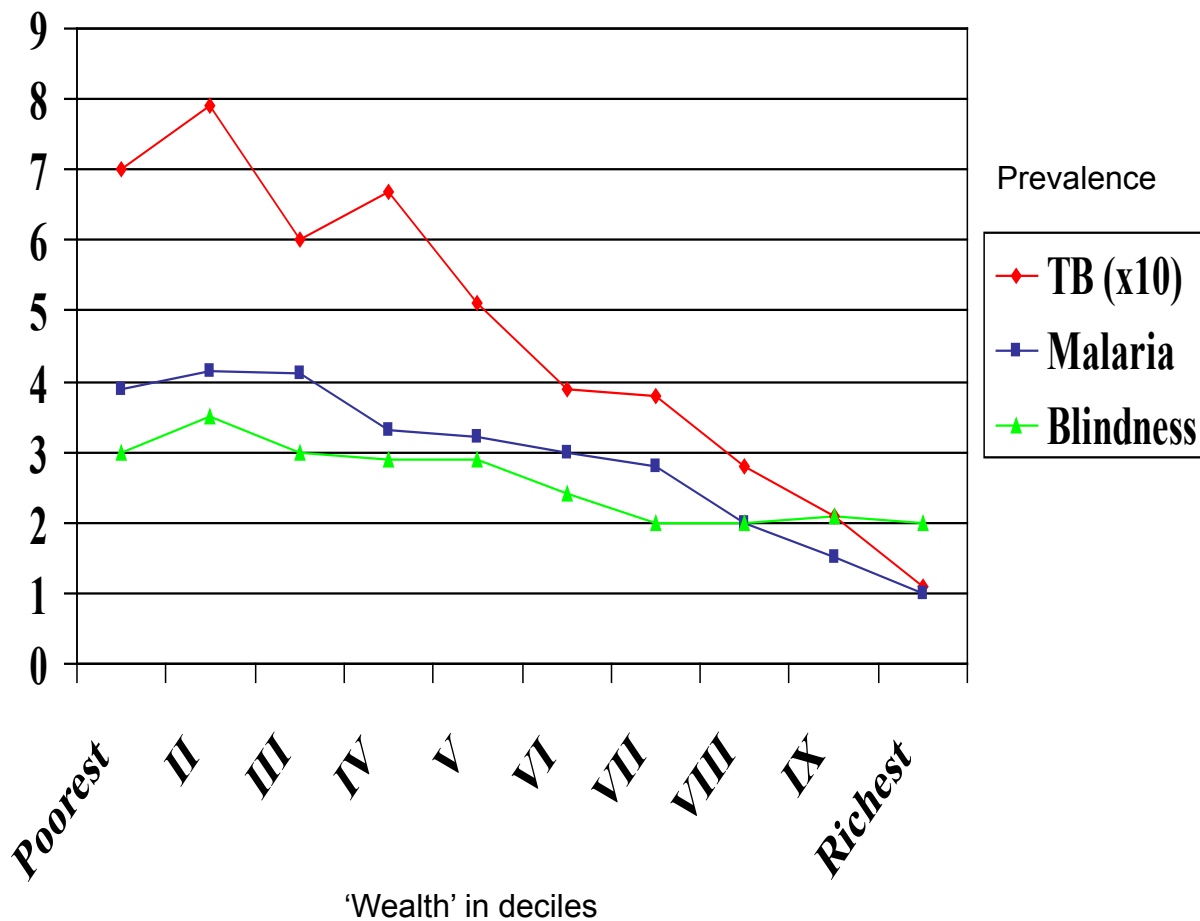


# Hygienic conditions and diarrhea incidence in Delhi slums



Water: Water enters home from street sometime during year  
Own OD: Someone in the family sometimes defecates in open  
Neighbor OD: a neighbor household has "Own OD" (GIS ID)

# Traditional public health helps the poor



- Disproportionate impact of infectious disease on poor
- Any reallocation from infectious to chronic disease hurts the poor (comparative advantage)

	Disease A (infectious)	Disease B (non-communicable)
Poor people	7	21
Not-so-poor people	1	14

**If you spend on A (and can't tell who's poor or not): 87% of public money goes to the poor -  $7/(7+1)$**

**If you spend on B: only 60% of public money goes to the poor –  $21/(21+14)$**

**EVEN THOUGH POOR PEOPLE SUFFER FROM B MORE THAN A - Shift \$100 from A to B and you transfer \$27 more dollars from helping poor people to non-poor**

# **Traditional public health is relatively easy to implement**

- Not a lot known about this (and there are several exceptions)

# Traditional public health is relatively easy to implement

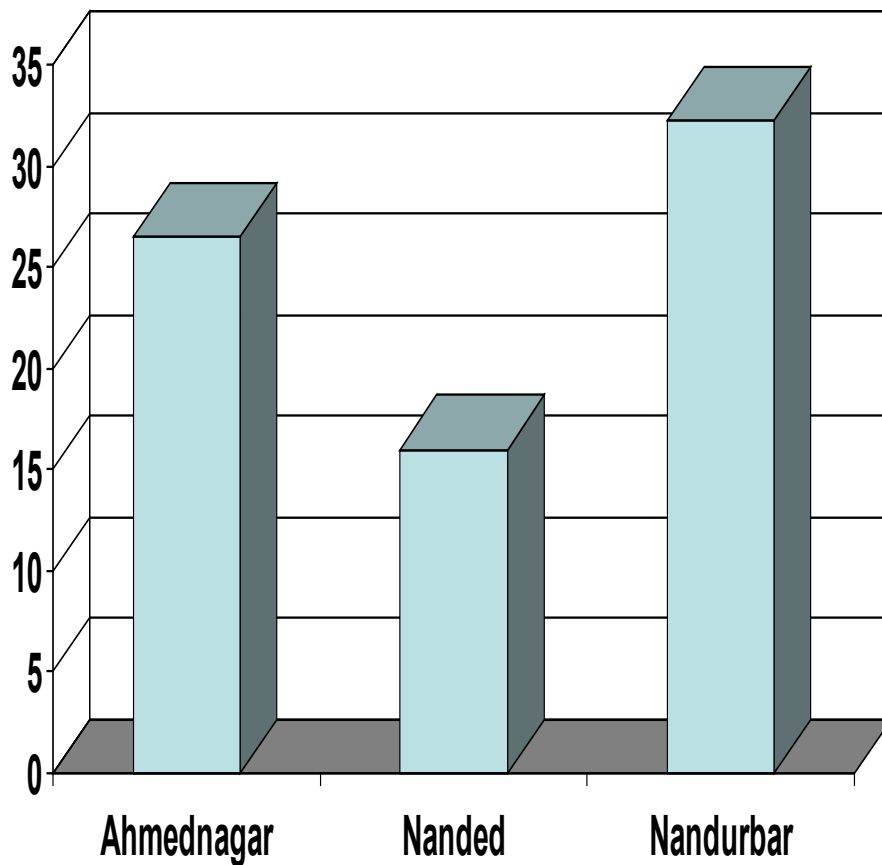
- Not a lot known about this (and there are several exceptions)
- Many activities are one-shot or campaign style
  - *India can handle famine but not hunger*
  - Pulse polio campaigns work- though perhaps at the expense of other immunizations
  - Argument is weaker for continuously supplied services
  - Few engineering inputs (drainage, sewer maintenance) require daily activity (in any one place)

OK, in all honesty, I have to  
mention the exceptions

- Central Rural Sanitation Program (CRSP)  
1986
  - Construction oriented
  - Creative uses for latrines
- Behavior change is never easy



# Latrine ownership $\neq$ usage



Plus: analysis reveals that family **usage** of toilets explained health status of children, **ownership** of toilets did not.

Percentage of people who defecate in open despite owning toilets in Maharashtra (2004)

## Traditional Public Health scores high on all three criteria

- Efficiency effects clear: address market failures with large welfare effects
- Equity effects clear: any reallocation from infectious to non-communicable diseases hurts the poor
- Implementation: generally not so hard (speculation) but with at least the one grotesque exception

## **Complementarity/ conflict among efficiency; equity and administrative feasibility**

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**What *doesn't* appear to reduce infant/child mortality?**

**Publicly provided primary health care**

# A horserace of determinants of height-for-age: open defecation practices, income and public health care coverage

	(1)	(2)	(3)	(4)	(5)	(6)
	average height-for-age of children under five					
open defecation	-0.635**			-0.479**	-0.537*	-0.485**
(1,000 / km <sup>2</sup> )	(0.215)			(0.149)	(0.230)	(0.171)
SDP per capita		9.297+		1.529	0.518	4.792**
		(4.881)		(3.895)	(5.982)	(1.633)
no government facility			-0.0196*	-0.0156	-0.0159	-0.00562
			(0.00872)	(0.0104)	(0.0106)	(0.00419)
population density					0.0000144	
					(0.0000385)	
intercept	-1.605***	-2.066***	-0.908*	-0.974+	-0.927	-1.495***
	(0.0822)	(0.165)	(0.396)	(0.553)	(0.592)	(0.206)
n (states)	29	29	29	29	29	29
weight	population	population	population	population	population	none

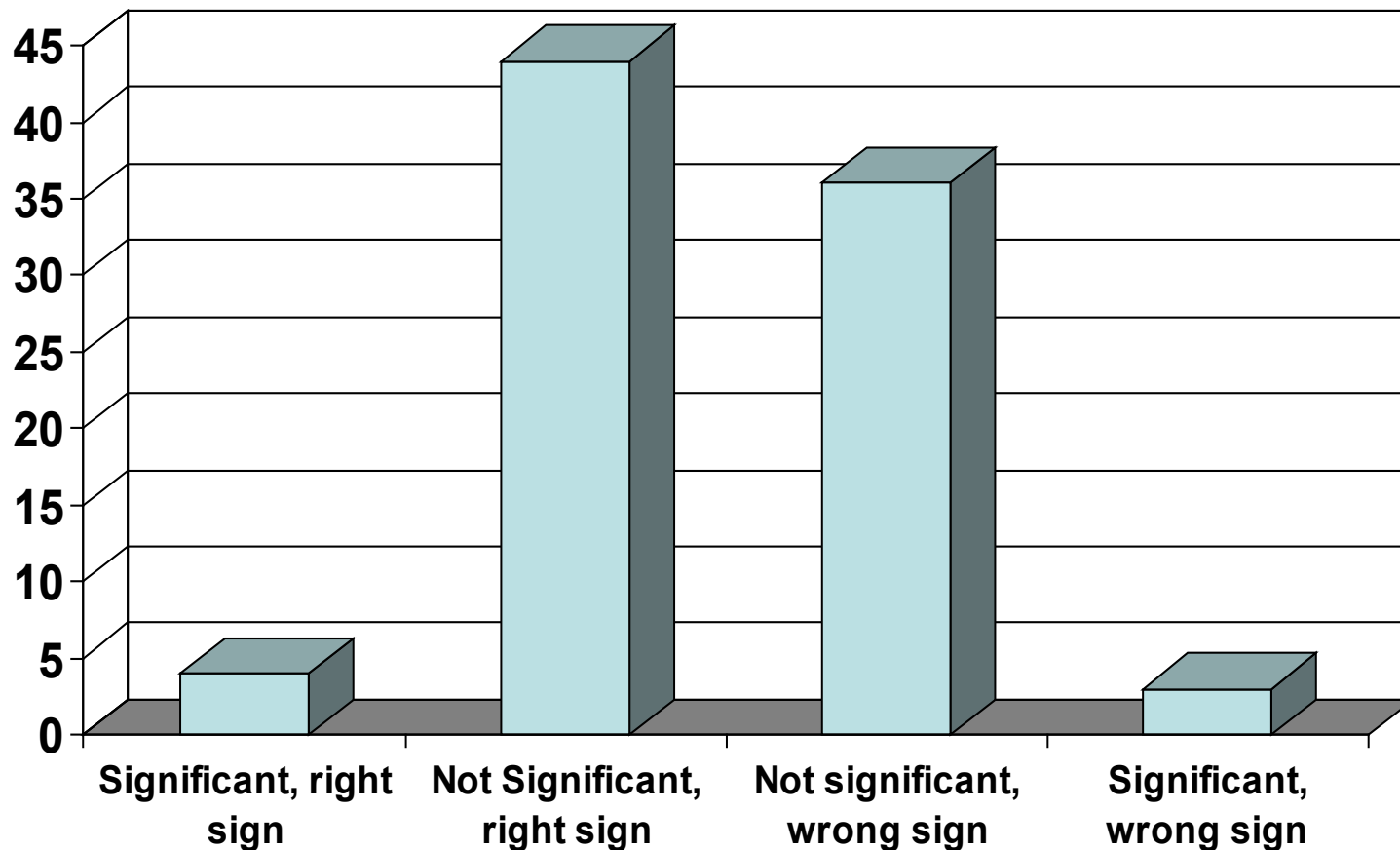
Note: I'm cheating here. Only "no government facility" is directly controlled by policy even a little bit. I will come back to this, though.

# Over time, same story

	(1)	(2)	(3)	(4)
NFHS:	1, 2, & 3	1, 2, & 3	1, 2, & 3	2 & 3
	height for age, children under 3			
open defecation	-0.737**	-0.868**	-0.664**	-0.751**
	(0.111)	(0.122)	(0.134)	(0.129)
state FEs		•	•	•
round FEs			•	•
n (state-years)	75	75	75	55
R <sup>2</sup>	0.334			



Distribution of t-tests of the variable “any public facility in village” on rural infant and child mortality. All states, various specifications, NFHS 1998 (propensity score matching\*)



Source: Chaudhury, Hammer and Pruthi (2005)

# Doesn't matter what data or method (maybe not even what country)

- NFHS 1992 and 1998 (India) – no regression effect
- Reproductive and Child Health survey (India) 1998, 2001 – ditto
- Bangladesh Demographic and Health Survey - nothing
- Brazil IPEA study of municipios: zilch
- Malaysia: nada
- Chad: zip
- Philippines: a partial exception
- Torture the data as much as you like and it still won't talk (in contrast: education, income proxies, water source, sanitation habits, good roads, etc., etc. all squeal at the slightest provocation – samples are very large – at least in India)

In India, health care is basically private

IF we spend the equivalent of *one* box on  
Population based public health....

We spend 3 on Preventive  
Health care

8 on PHC's

12 on Hospitals

Public Curative  
Care is 20  
boxes

PHC's

Hospitals

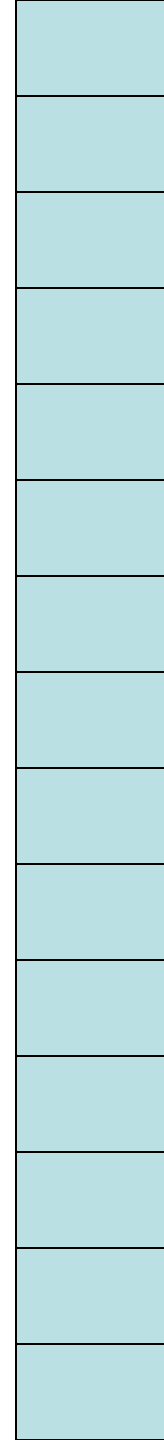
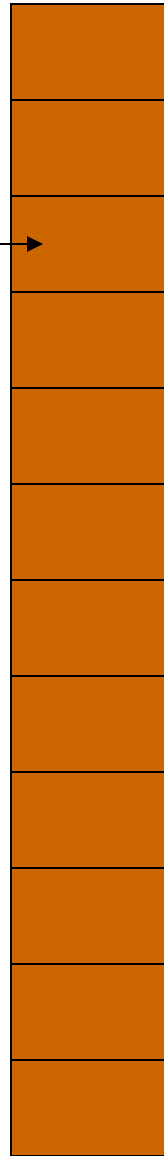
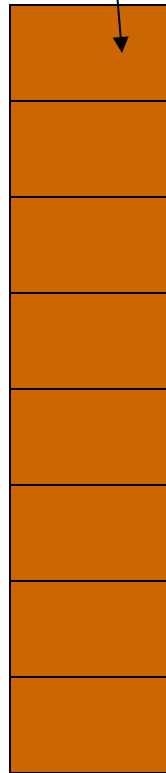
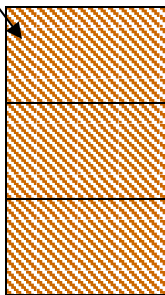
And....

Private Care

"Public health"  
is 4 boxes

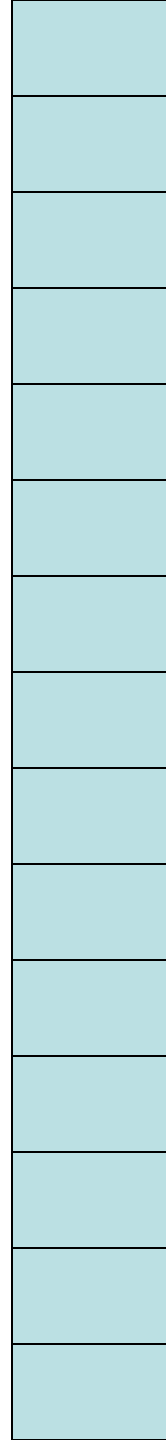
Preventive/Promotive  
Public Health

Population based  
public health









**75** Boxes on Private  
Care!

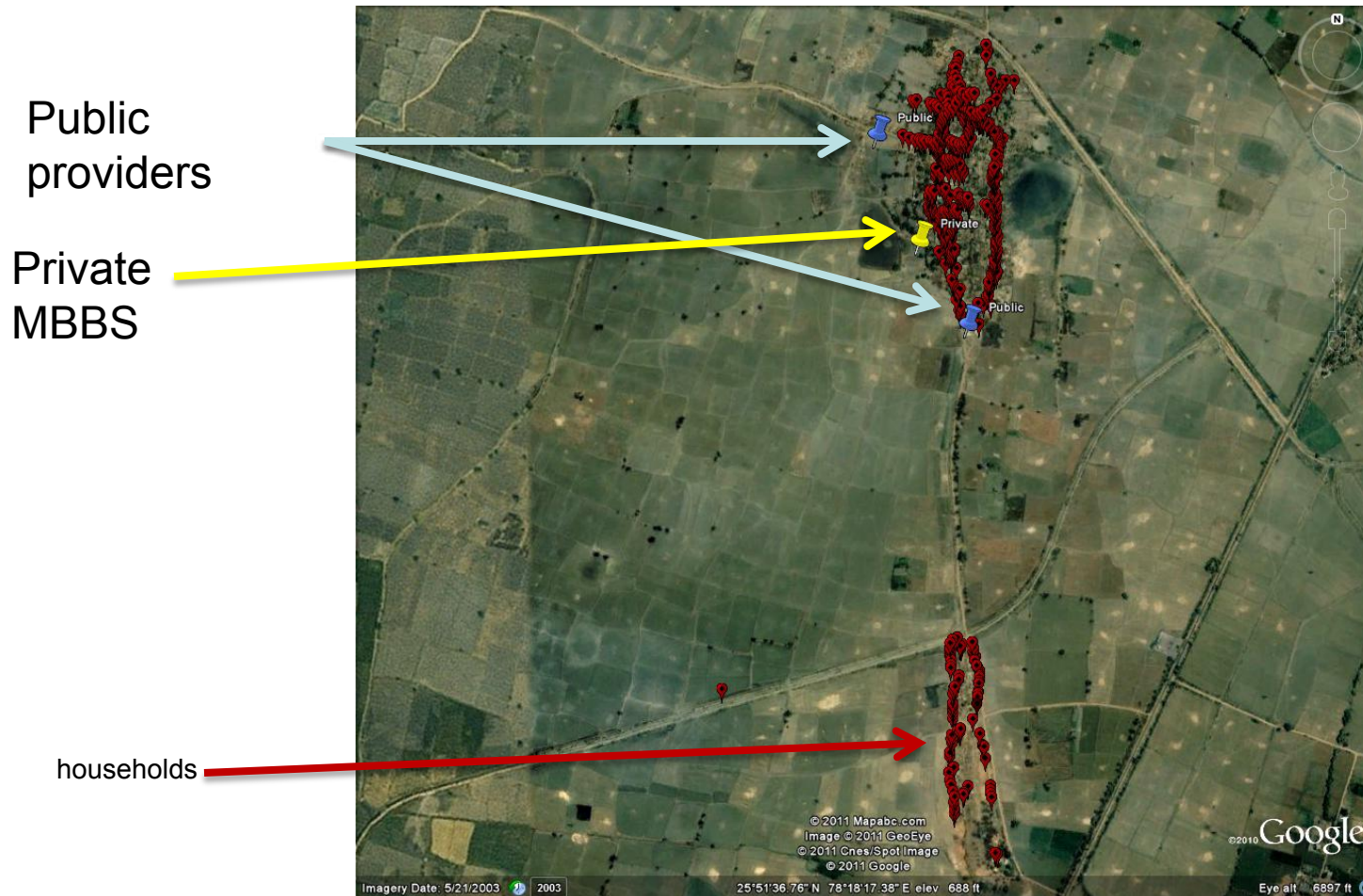




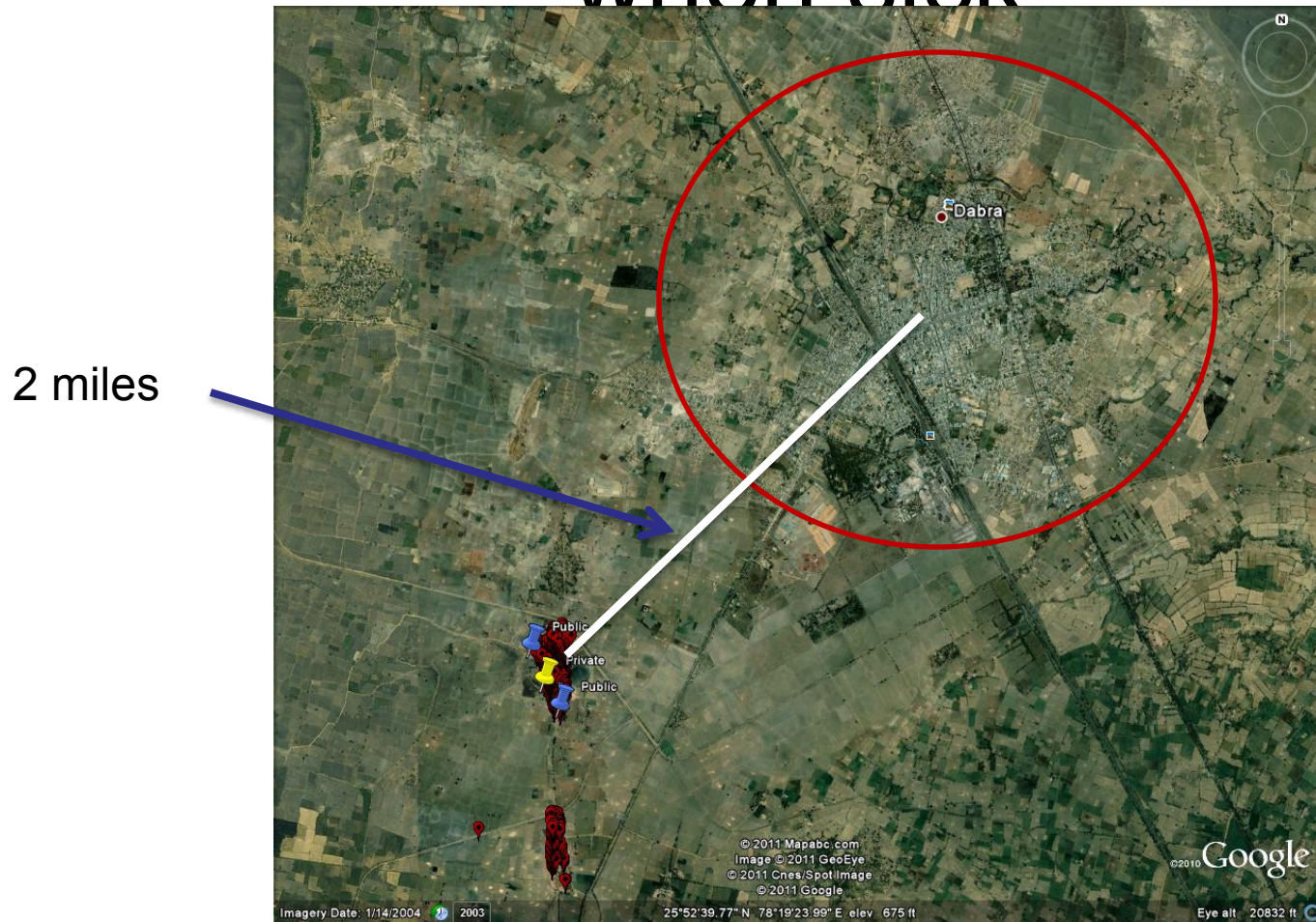
# And the private sector...?

- Can't compete in market for expensive procedures – no insurance except in niche market in urban areas. This is changing but the data is both sparse and late.
- Spans a broad range of services – real doctors, traditional medical systems and totally untrained “quacks” – all for minor illnesses (when it's really serious, people go or get referred to hospitals)
- So, public ***primary*** health care is just one option in a much larger private market

# Health care providers in a village of two hamlets



But there's a larger village two miles away that most people go to when sick

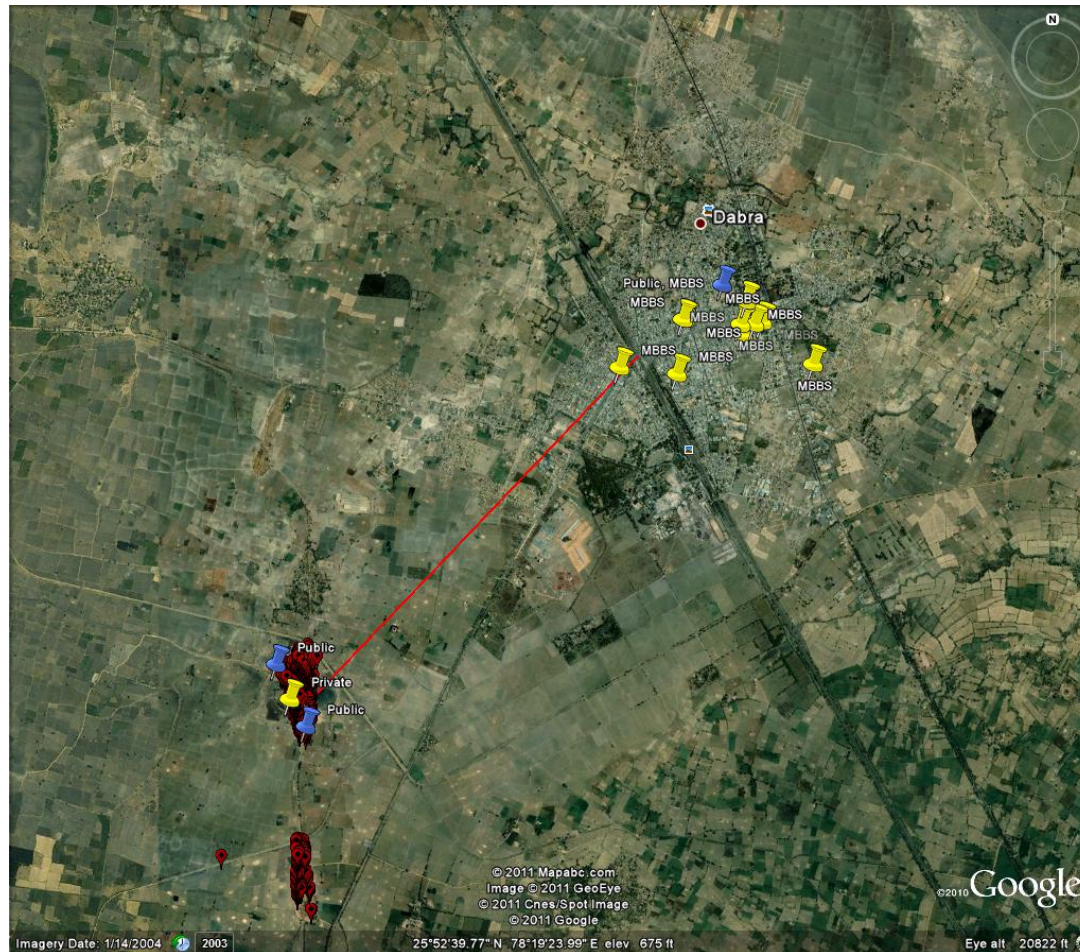




...and it has 1 public and 11 private  
“real” doctors

Public  
providers

Private  
MBBS



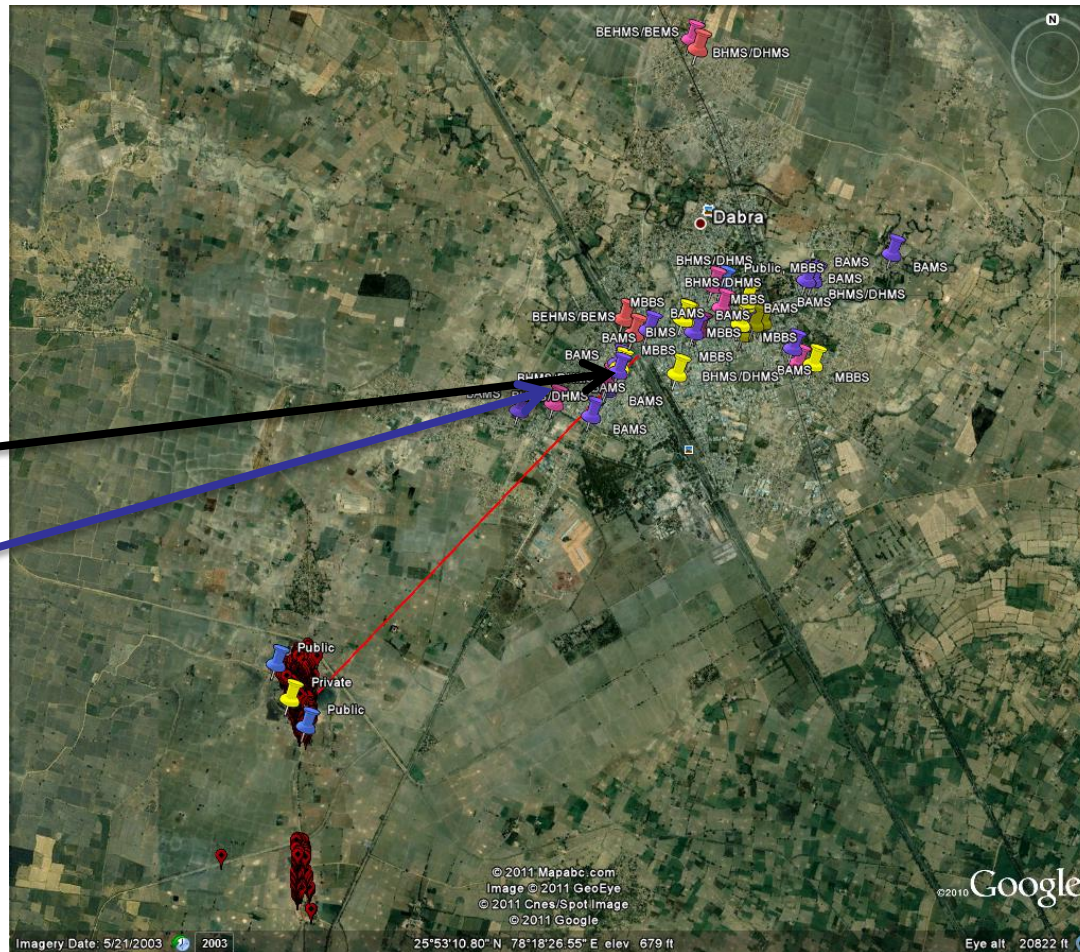
...plus 8 homeopaths, 15 Ayurveds, a bunch of Unani, electro-homeopaths, “integrated” medics, pharmacists

Public  
providers

Private  
MBBS

Homeopaths

Ayurvedic / Unani





...and a larger number altogether  
of people with no training at all

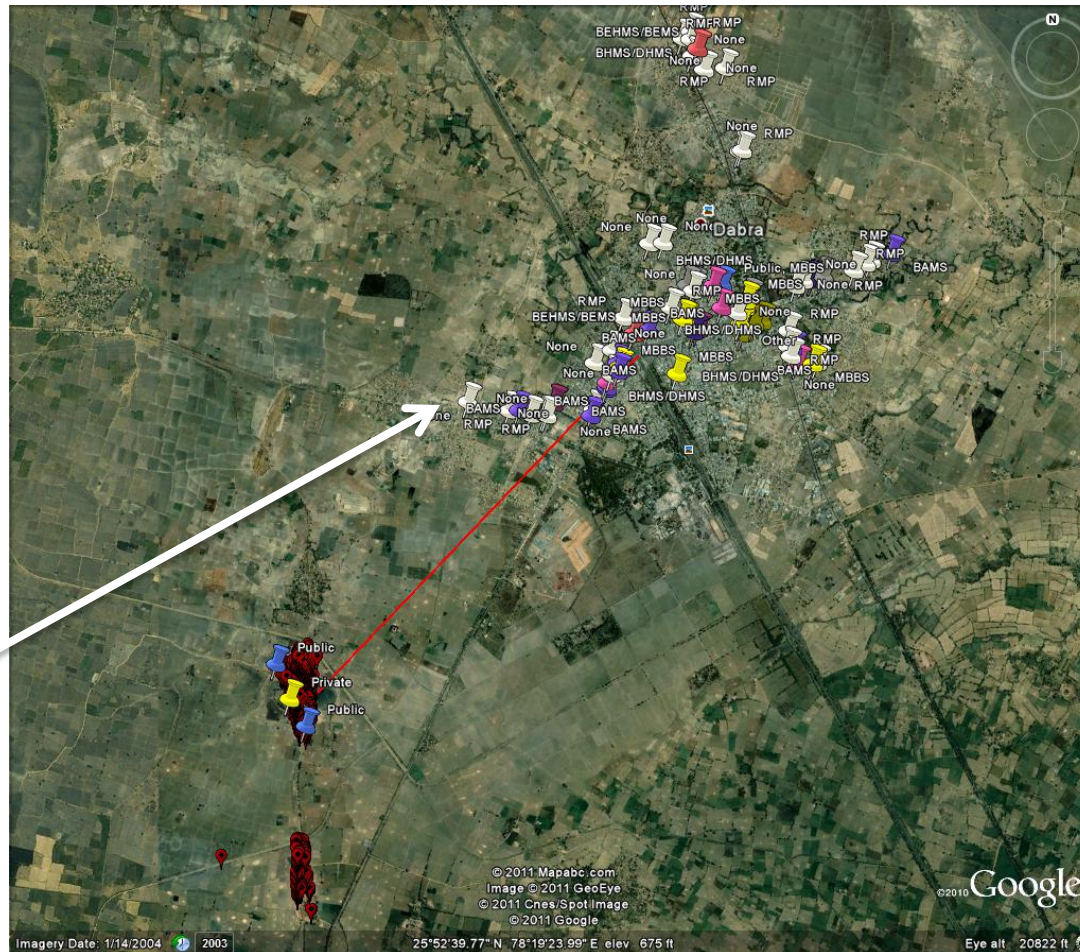
Public  
providers

Private  
MBBS

Homeopaths

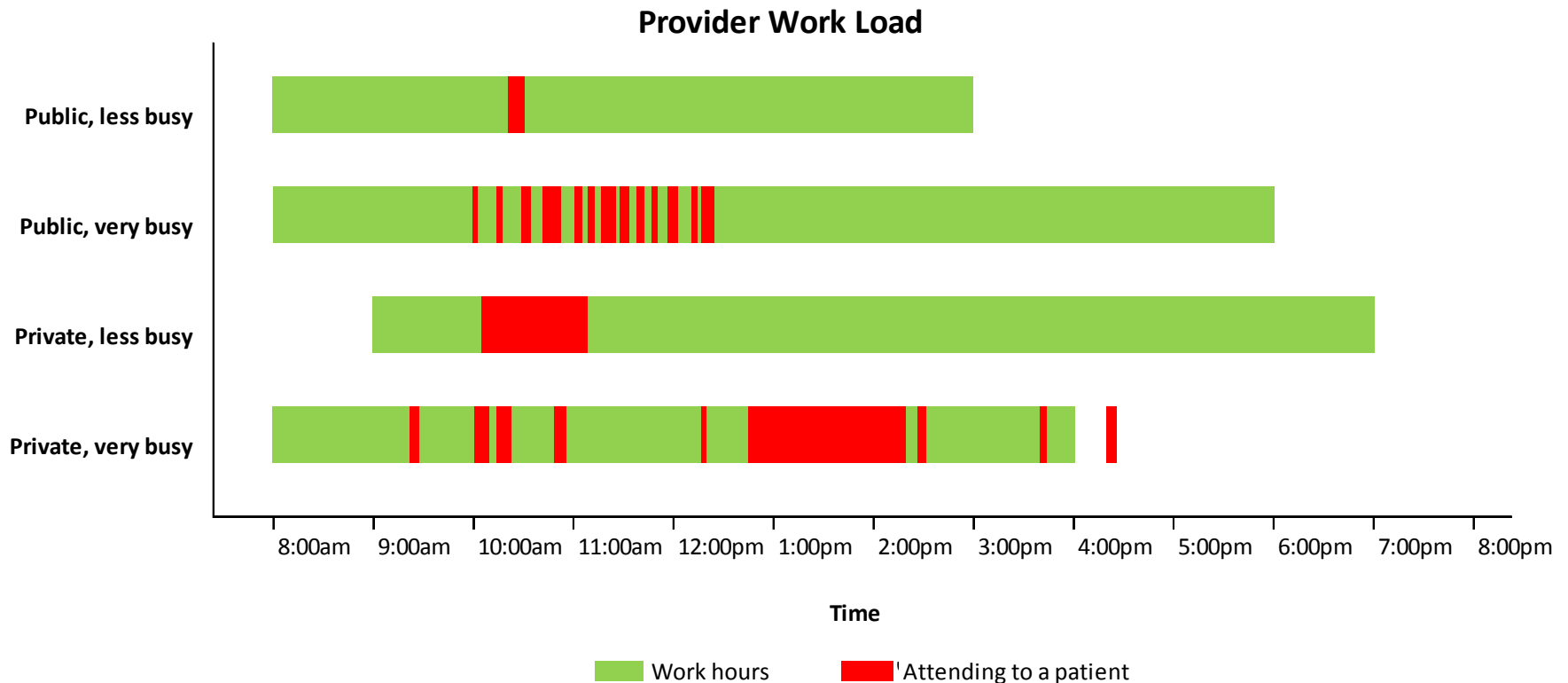
Ayurvedic / Unani

No degree or  
qualification at all



# Excess Capacity

Leading to so many alternatives that public employees work 39 minutes/day – same as private providers (similar results from Tanzania, Senegal where doctor “shortage” is even more acute)

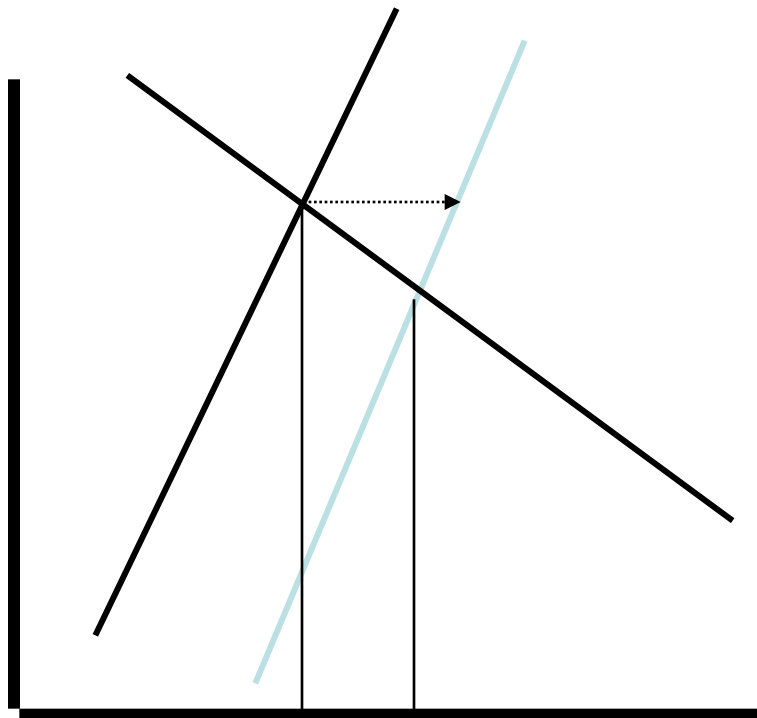


# Relevance of complete market

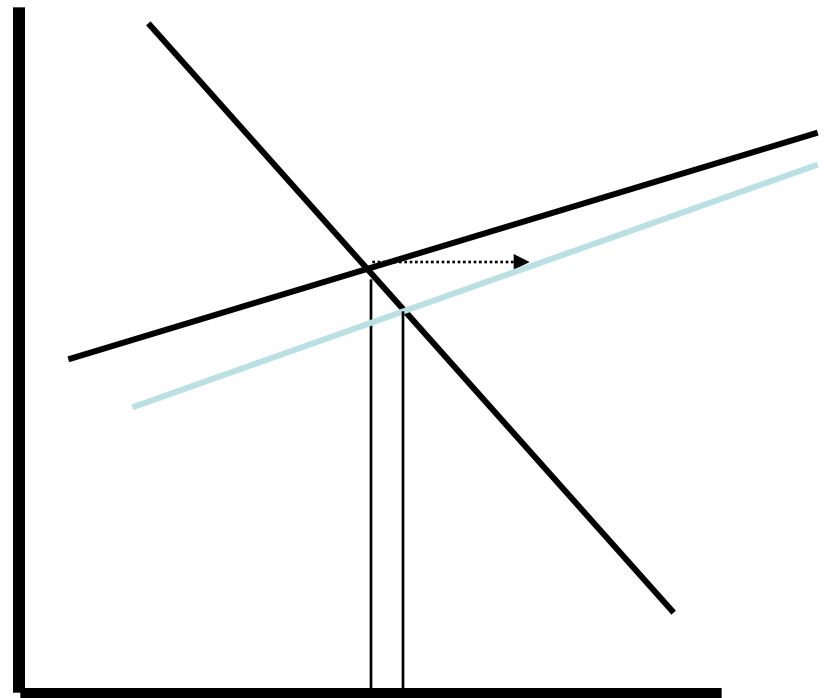
- Size of cross price elasticities and ... cross distance elasticities? (Well, anyway, the change in demand for one good with respect to the proximity of the other)
- Difference in quality of care between the types of providers (the answer will surprise you)
- In any case, you want to know the **net** effect on the entire market of expanding services



# Possible effects of public medical care



Poor area

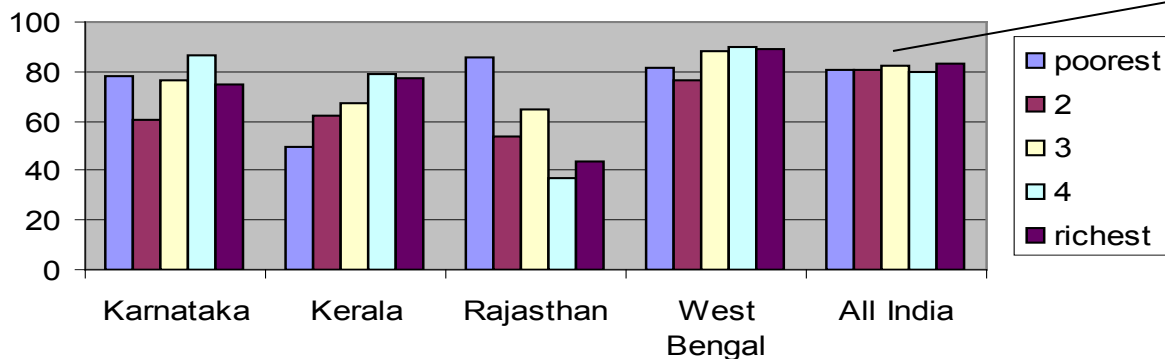


Not-so-poor area

# Poor people rely on the public sector?

## Primary Health Care

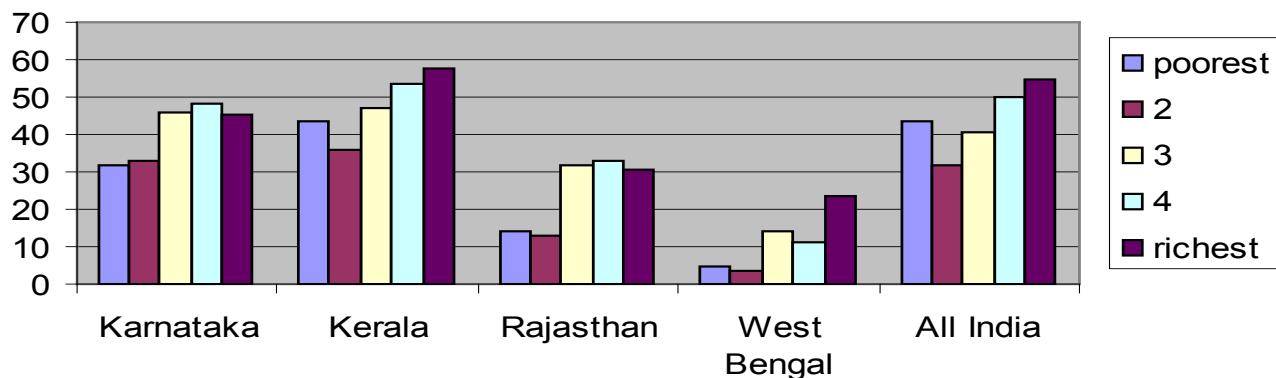
Share of the private sector in number of visits for primary care services - rural areas



Doesn't seem to matter how poor you are. But national average masks some interesting state variations.

## Hospitals

Share of the private sector in hospital in-patient days - rural areas



# Reasons to doubt effectiveness of public sector in Pakistan- almost no one uses it

	2012			2006	
Place of treatment	Diarrhea	Cough/Fever		Diarrhea	Cough/Fever
Government Hospital	7.89	7.97		6.61	8.61
RHC/BHU/FWC	1.97	1.61		9.92	9.27
Lady health worker	0.61	0.09		2.48	0.66
All public sector	10.47	9.68		19.01	18.54
Private hospital	24.58	26.09		19.83	13.25
Private doctor	36.12	36.43		31.40	39.07
Other private	13.20	12.05		12.40	11.92
All private sector	73.90	74.57		63.64	64.24
Not treated	15.63	15.75		17.36	17.22
Total	100	100		100	100
Public sector if treated	12.41	11.49		23.00	22.40
Private sector if treated	87.59	88.51		77.00	77.60

PDHS reported in Afzal, Ghaus and Hammer (2015)

Public shrinking?

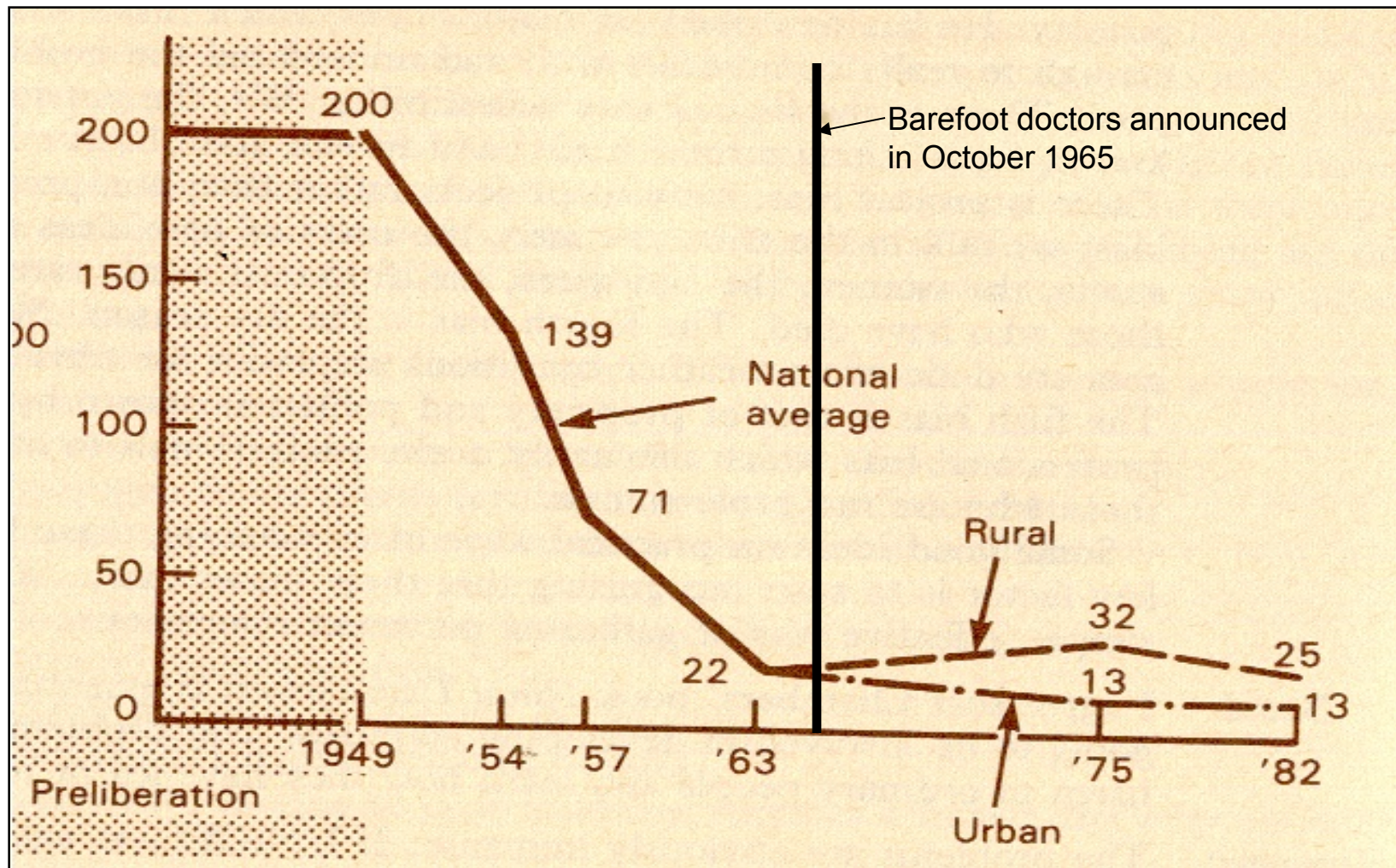
# And India?

- I don't know: people say NRHM has changed all this
- But the preliminary NSS data for 2015 seems to say the private sector is still 80% of primary care visits

But what about China?

Didn't those "barefoot doctors" work?

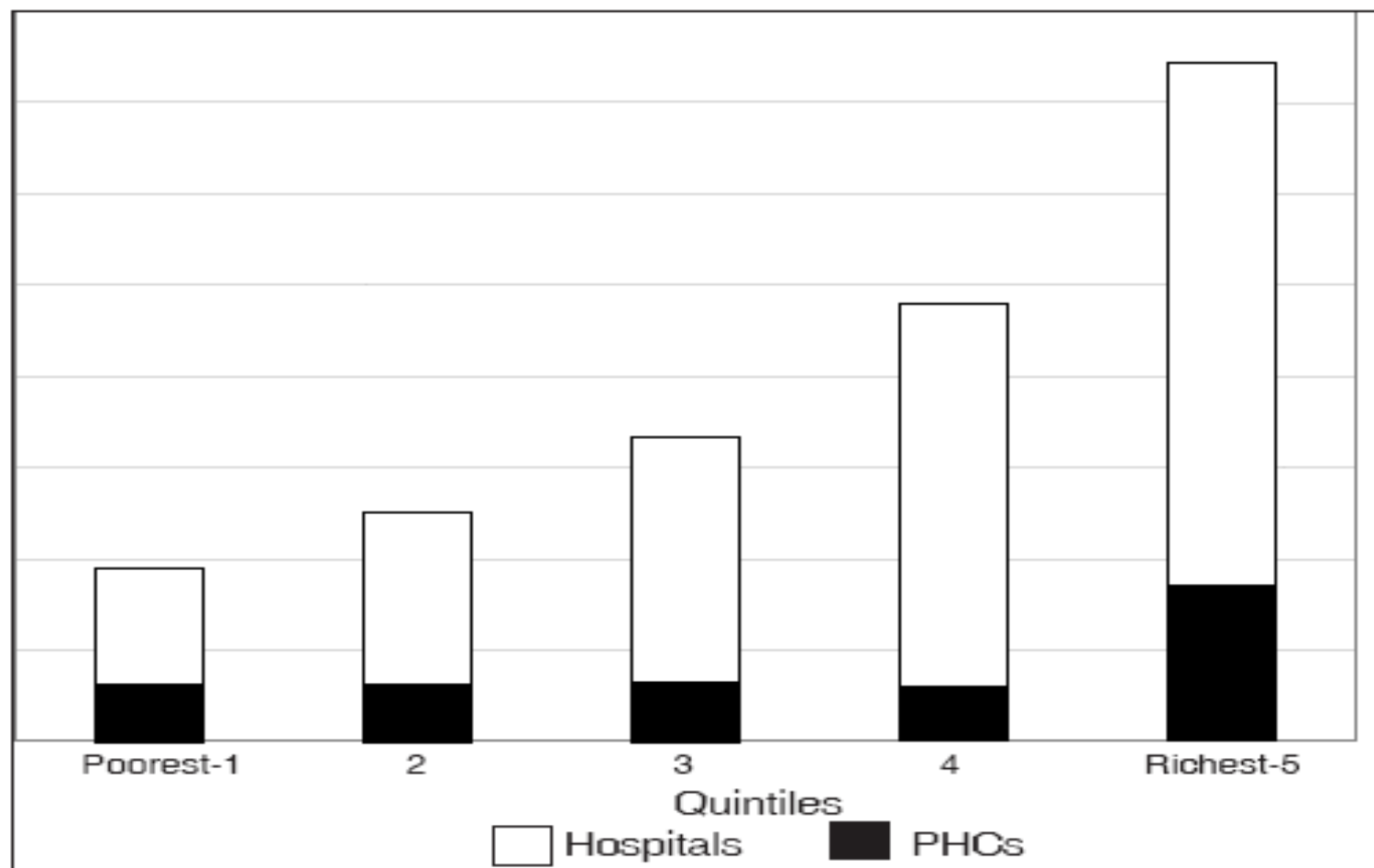
# IMR in China (1949-82; *WC Hsiao, NEJM, 1984* – with one added fact)



# But what about equity?

- Sometimes yes
- Sometimes no
- (Why don't you look before you start spouting off on this?)

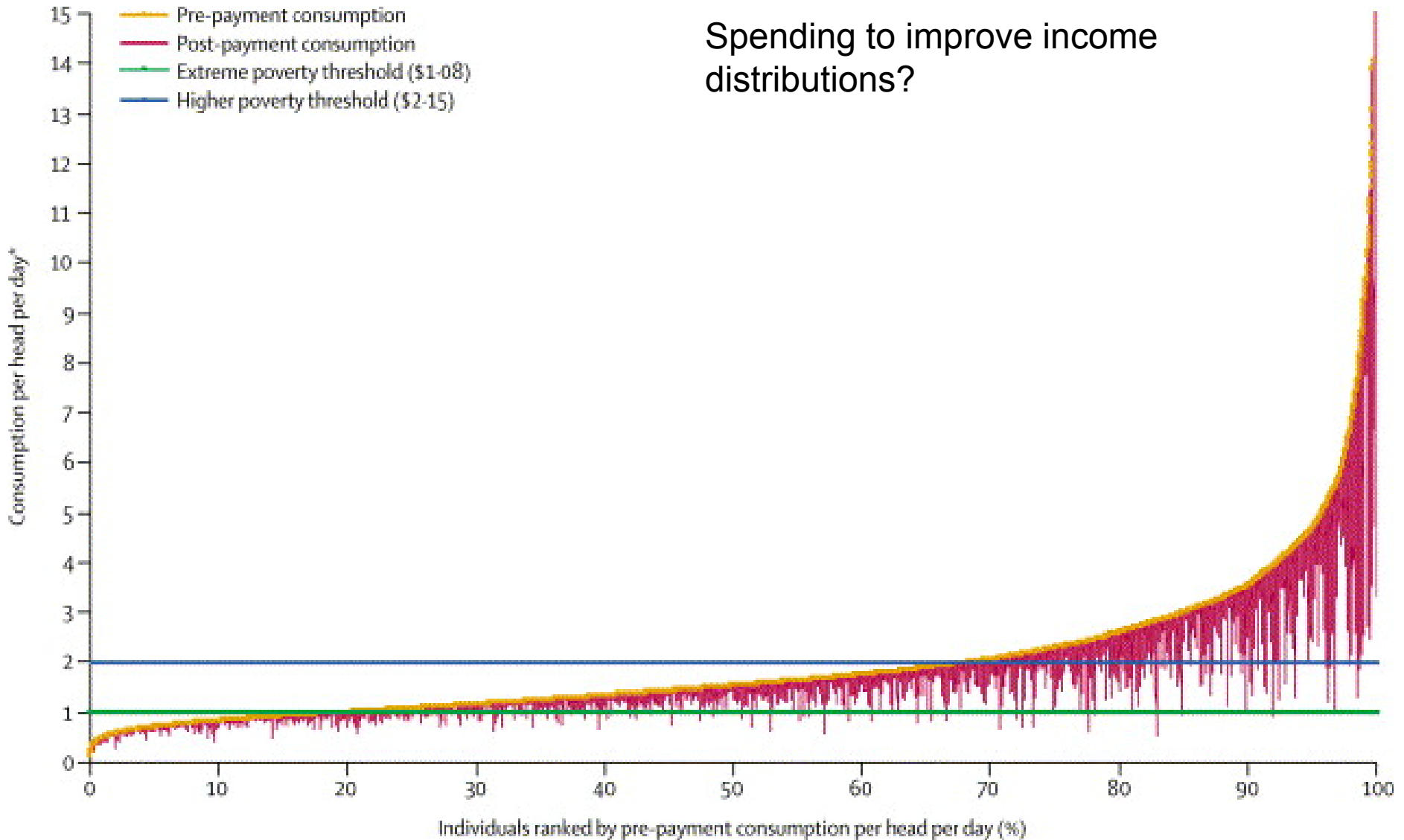
**Figure 5: Subsidies for Curative Care Help the Rich**  
Distribution of healthcare subsidies, 1995-96



Source: Mahal et al (2002) and Chaudhury et al (2006a).



## Spending to improve income distributions?



\*Data adjusted for 1993 purchasing power parity.

Van Doorslaer et al, Effect of payments for health care on poverty estimates in 11 countries in Asia: an analysis of household survey data, The Lancet v. 368, no. 9544, p. 1357-1364, October 2006

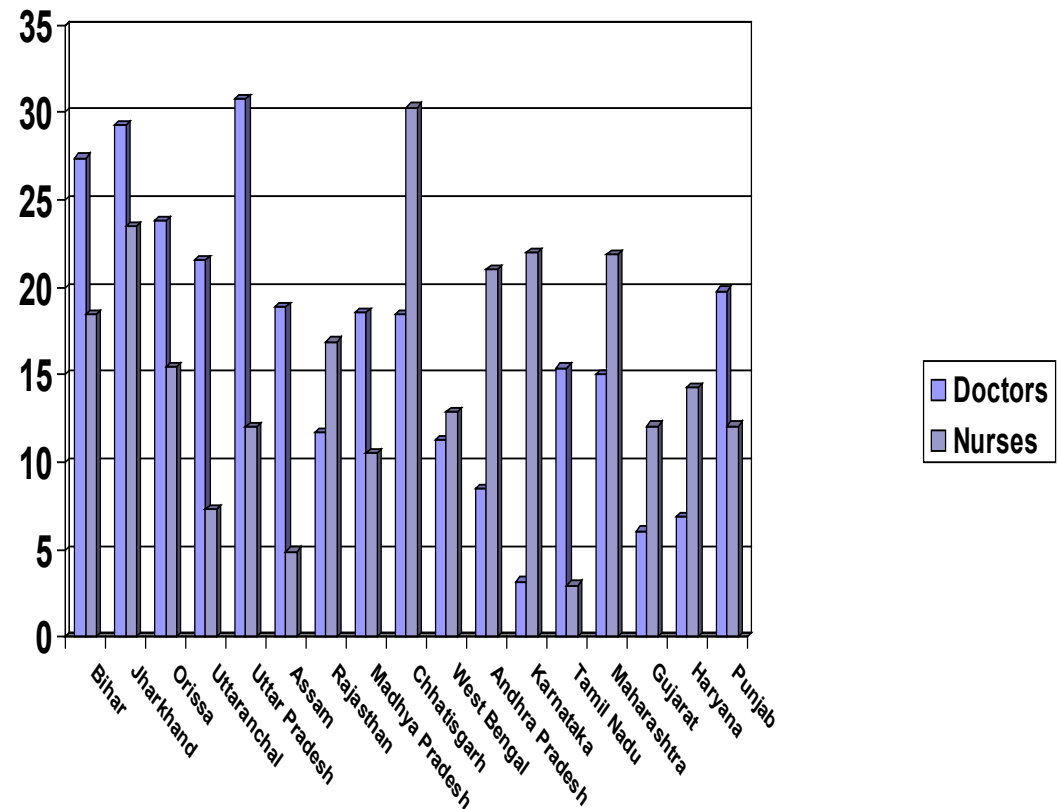
Why can't we even give this stuff  
away?

(or, in bureaucratese:  
implementation poses challenges)

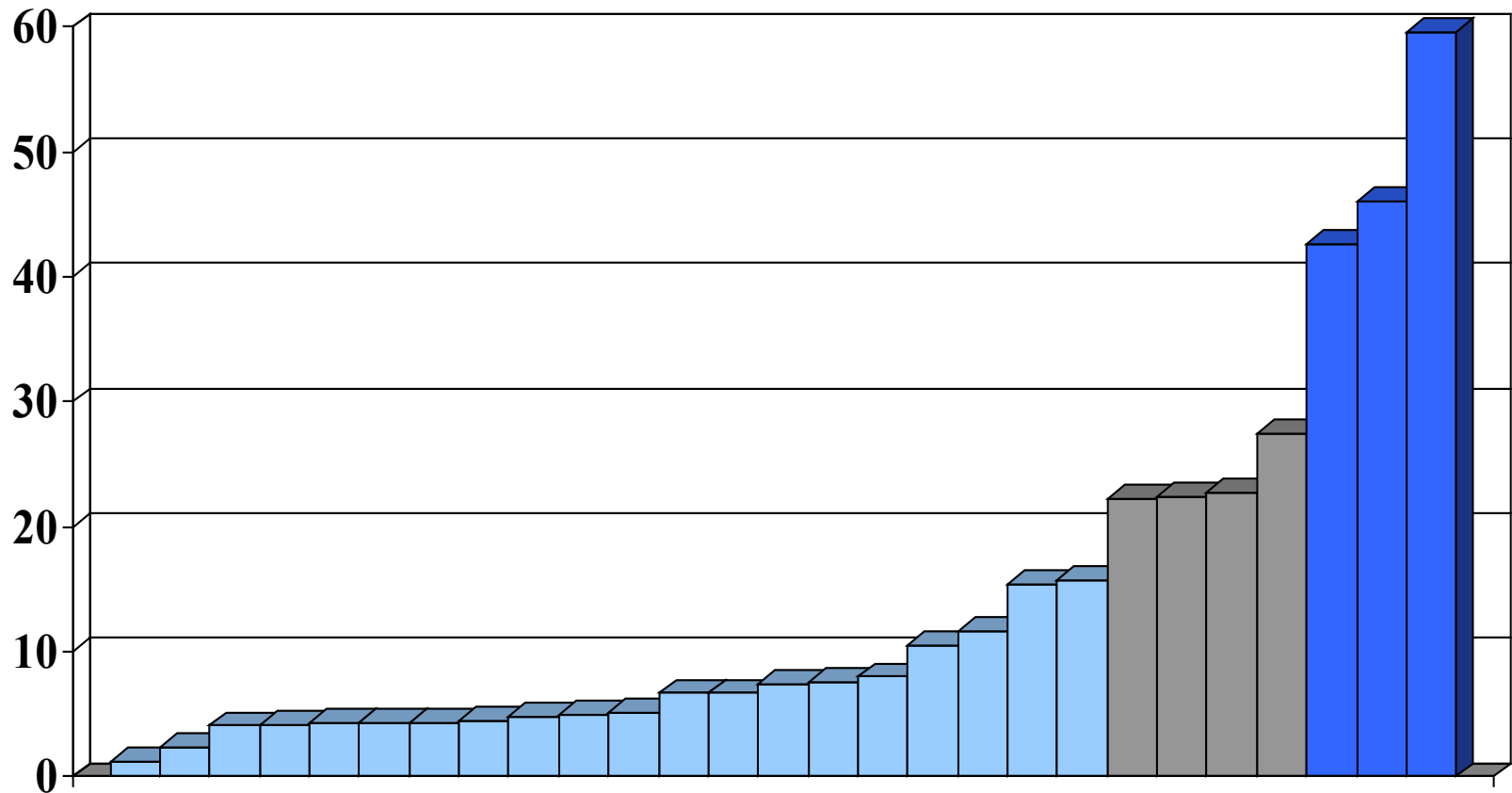
# PHC's: What do people find when they get there?

- Vacancies

% of staff positions vacant



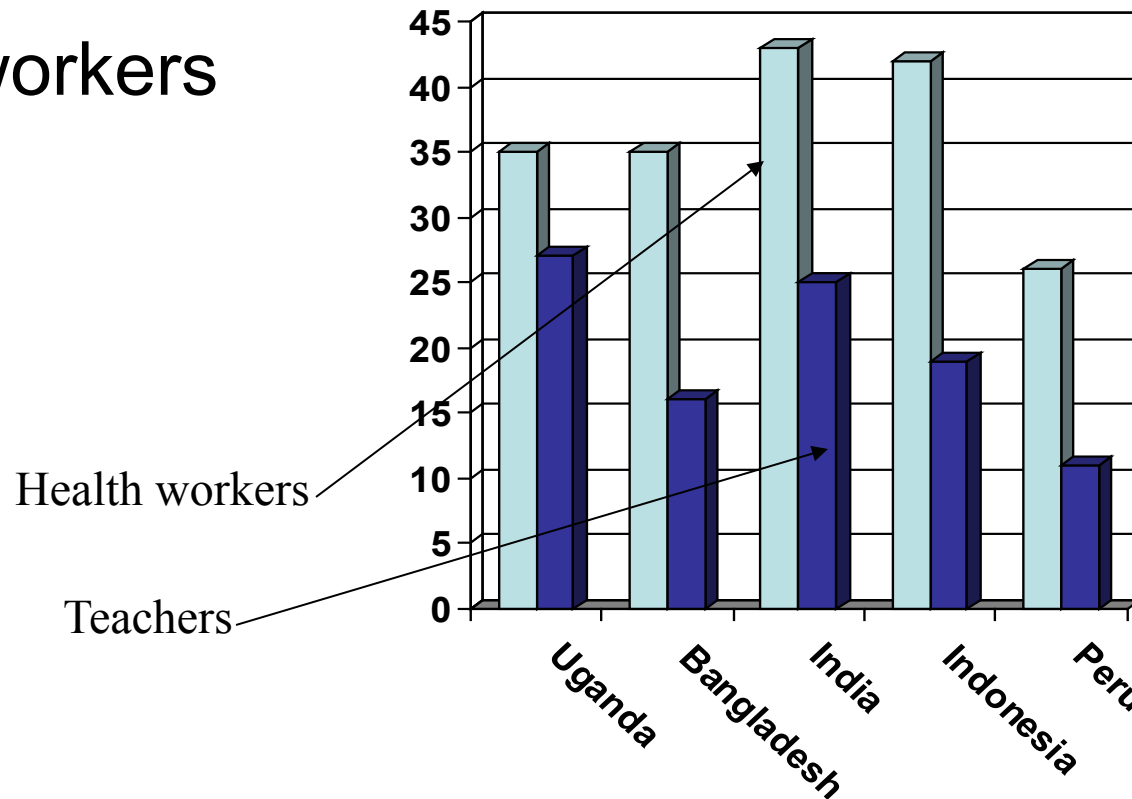
# Percentage of health centers without doctors by province: Indonesia



# Public facilities: What do people find when they get there?

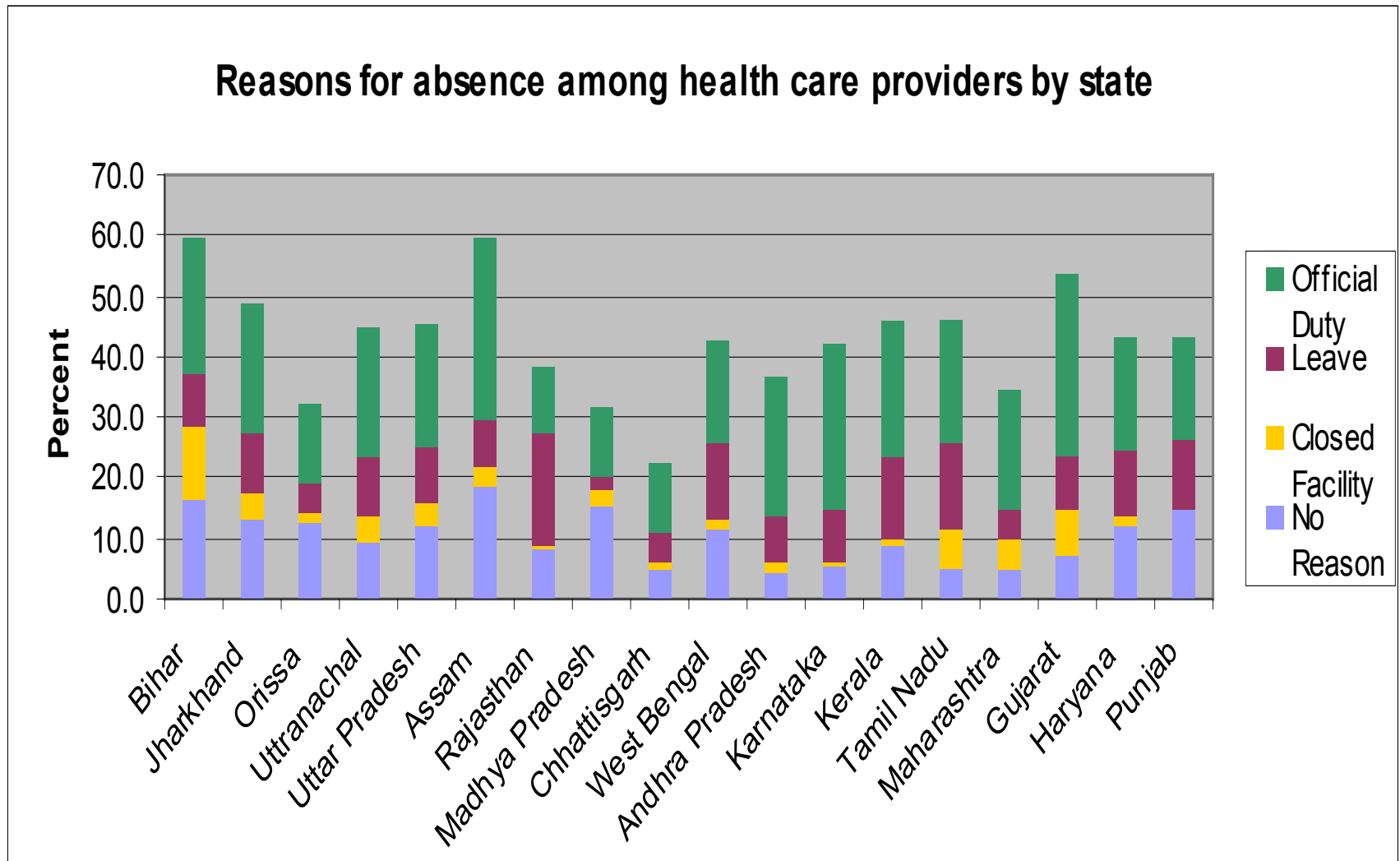
Absenteeism among teachers and health workers

- Vacancies
- Absent workers



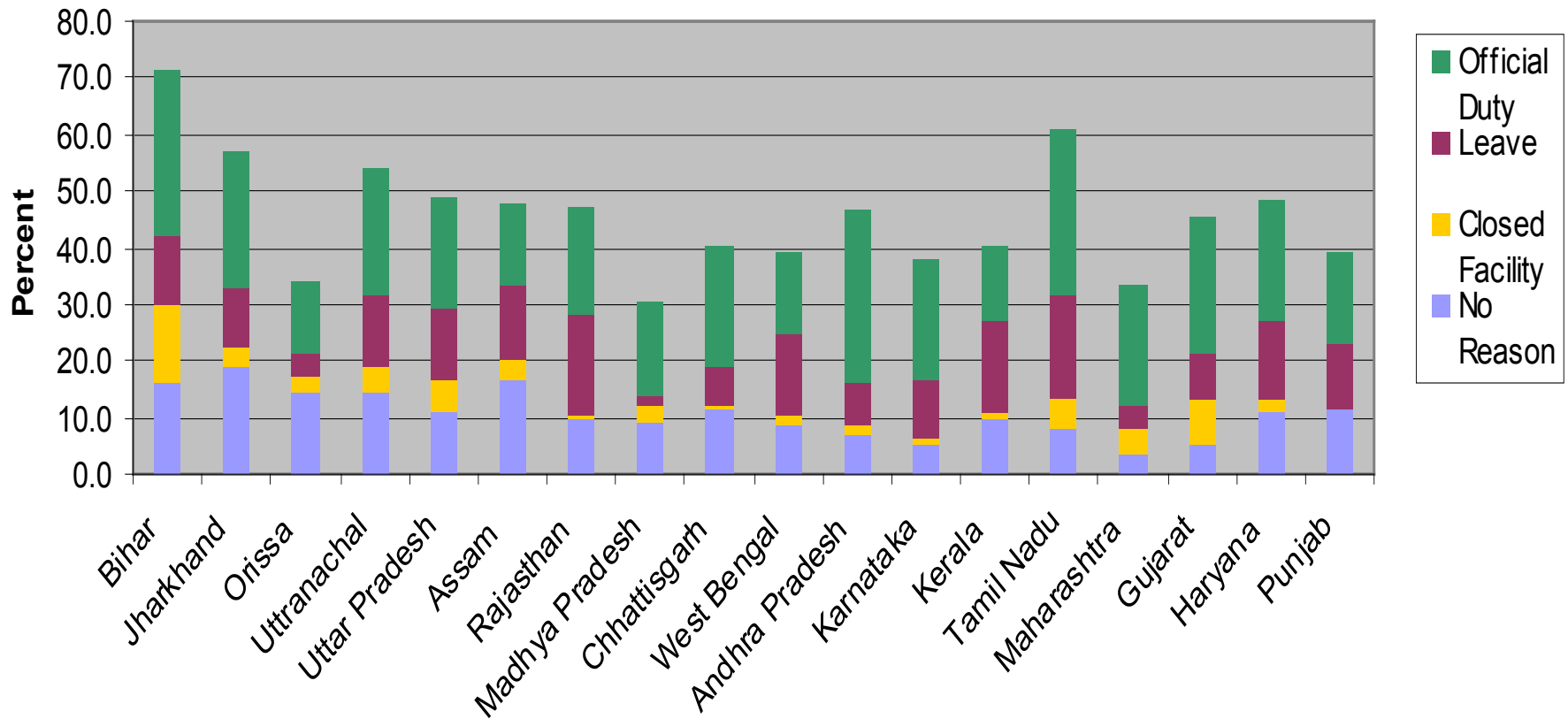
Source: Chaudhury, Hammer, Kremer, Muralidharan and Rogers (2004)

# Absence rates – all providers



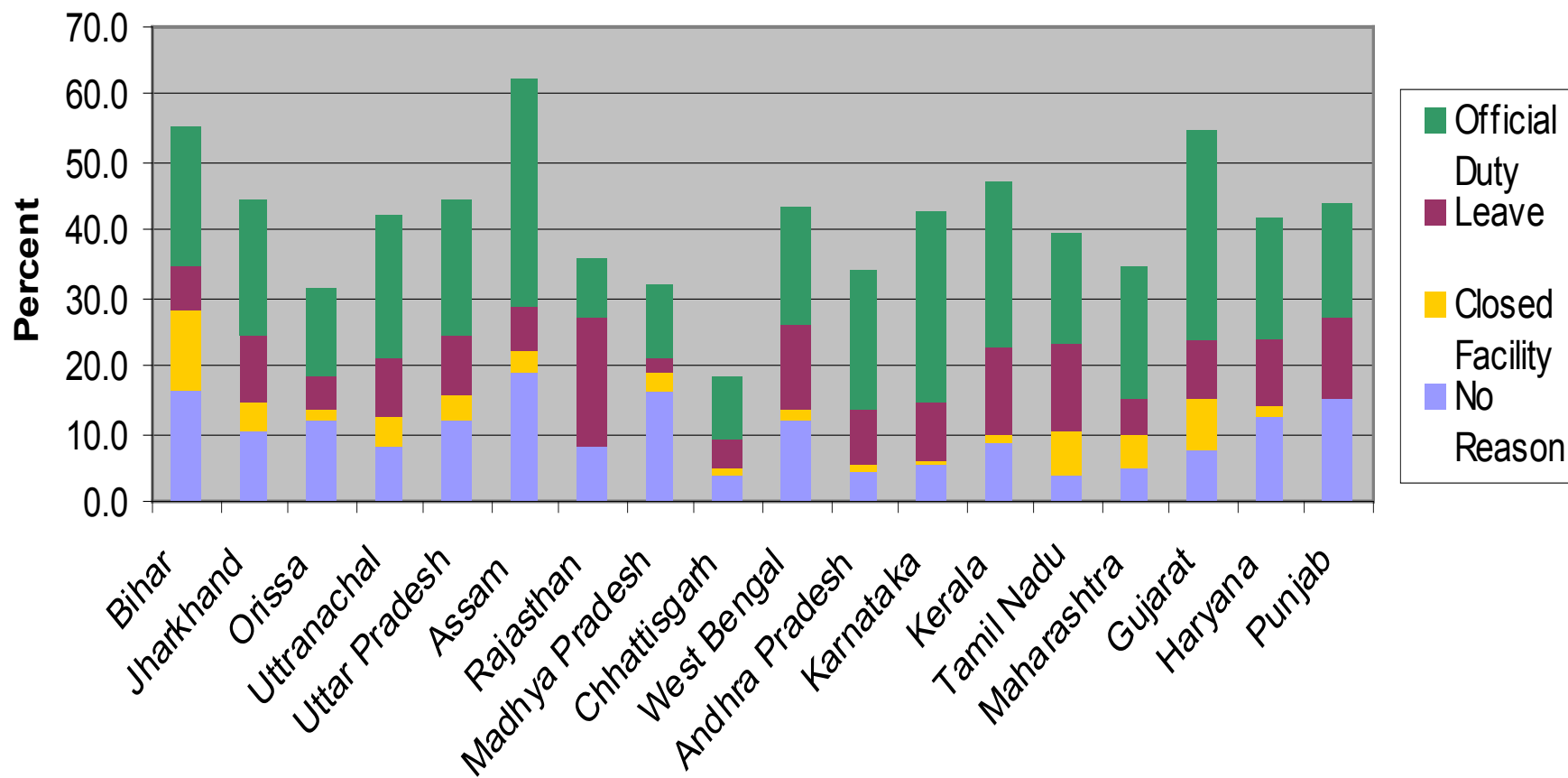
# Absence rates – Doctors only

Reasons for absence among doctors by state



# Absence rates – Other personnel

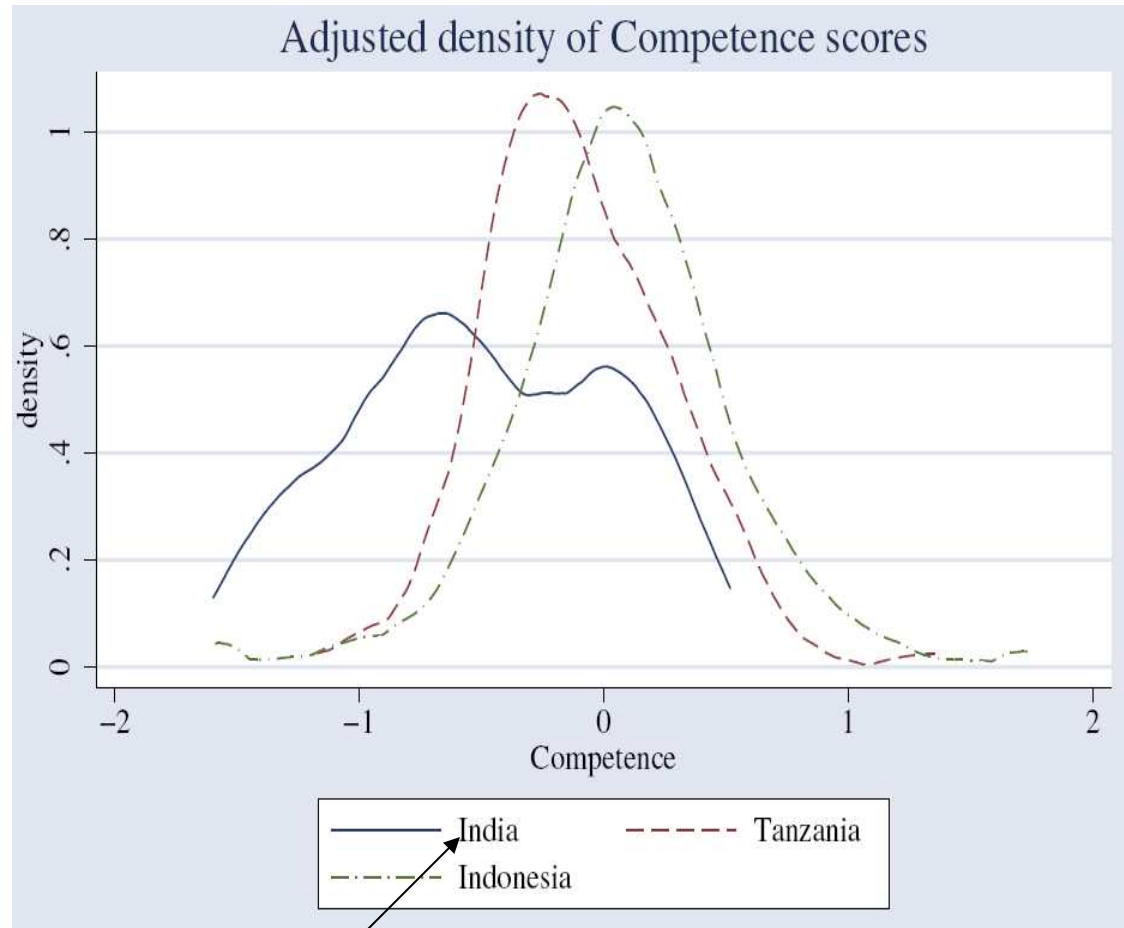
Reasons for absence among non-doctors by state





# PHC's: What do people find when they get there?

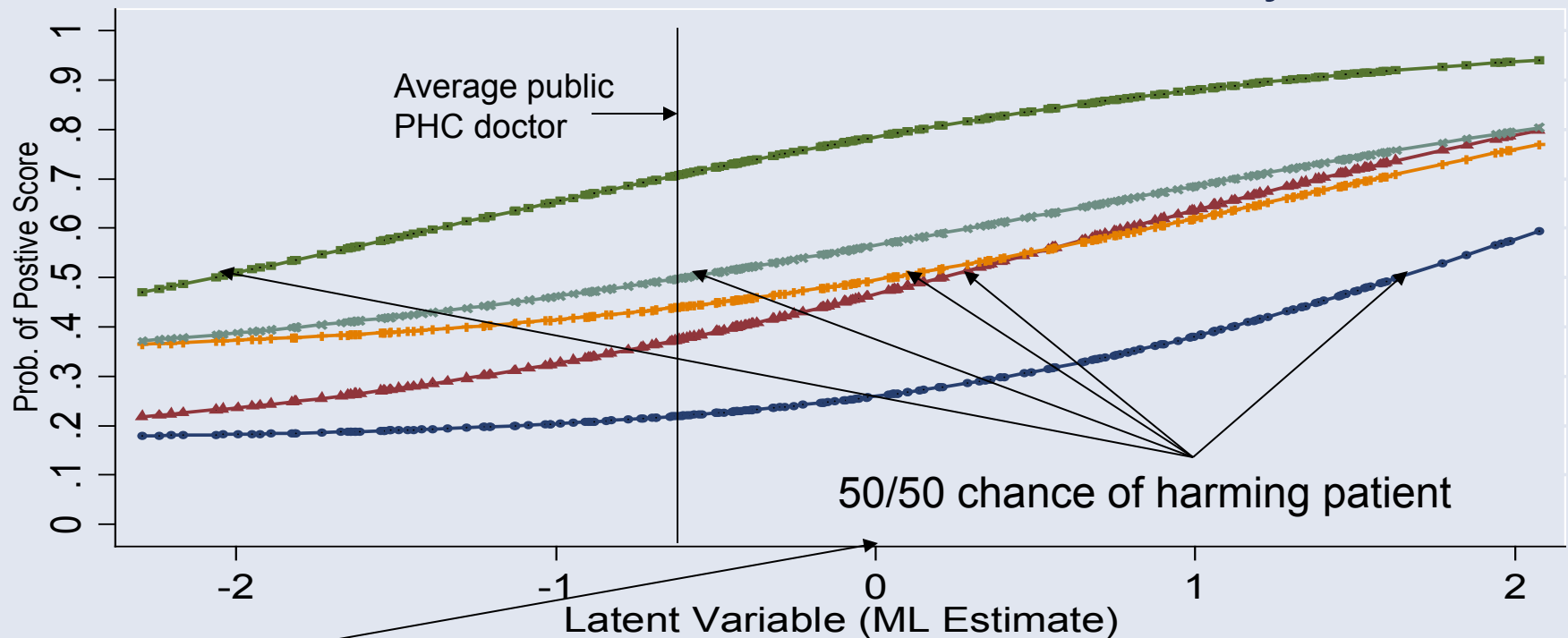
- Vacancies
- Absenteeism
- Low capability



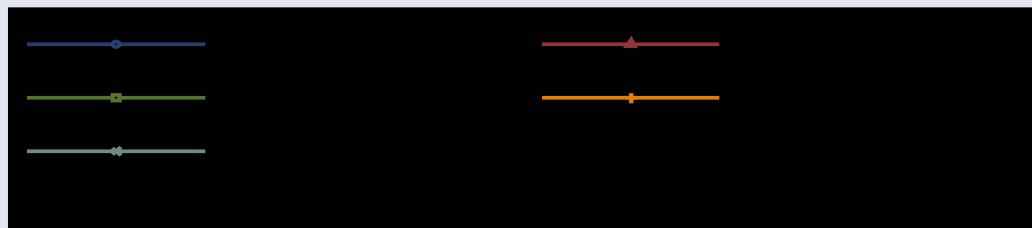
Just Delhi!

# What does “low capability” mean?

## Probabilities of Non-Harmful Treatment by Illness



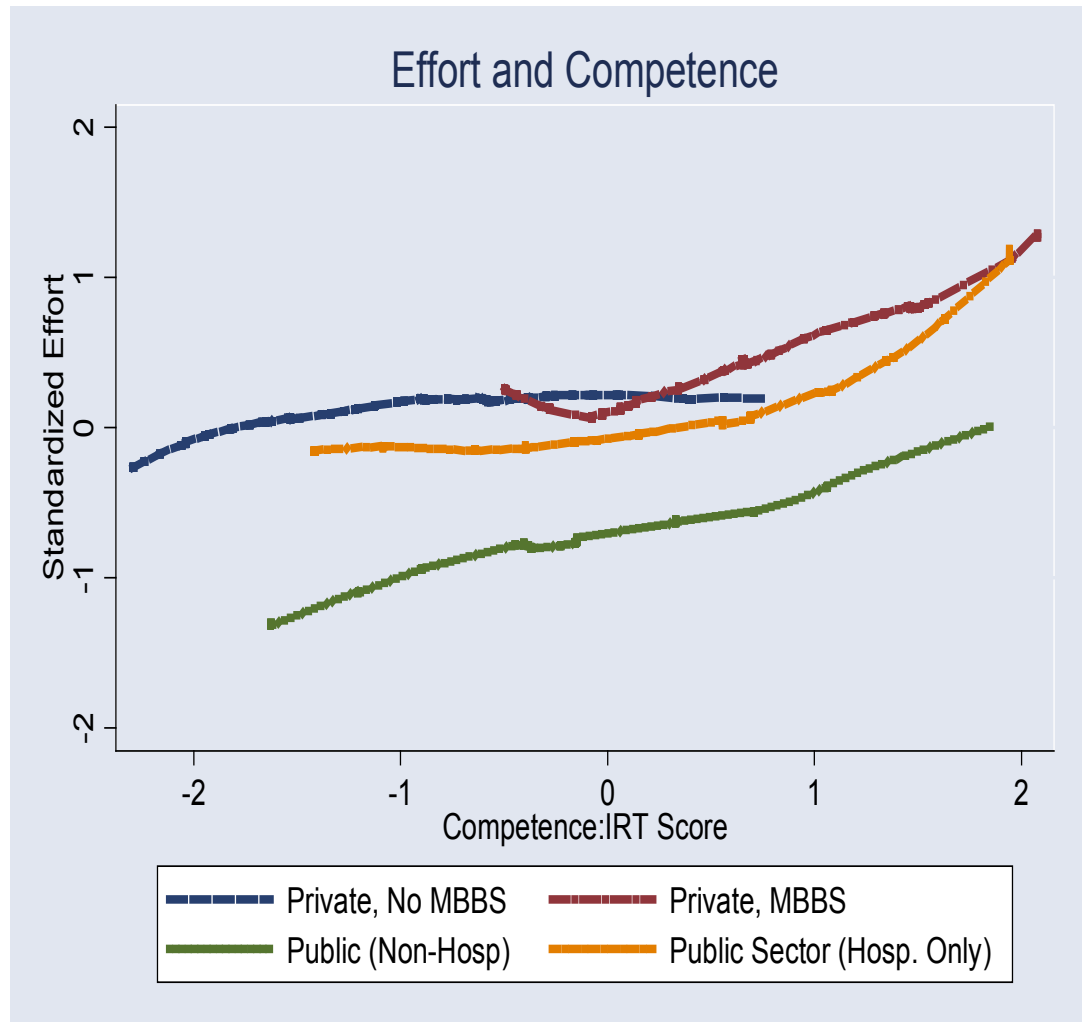
Average  
Competence



# PHC's: What do people find when they get there?

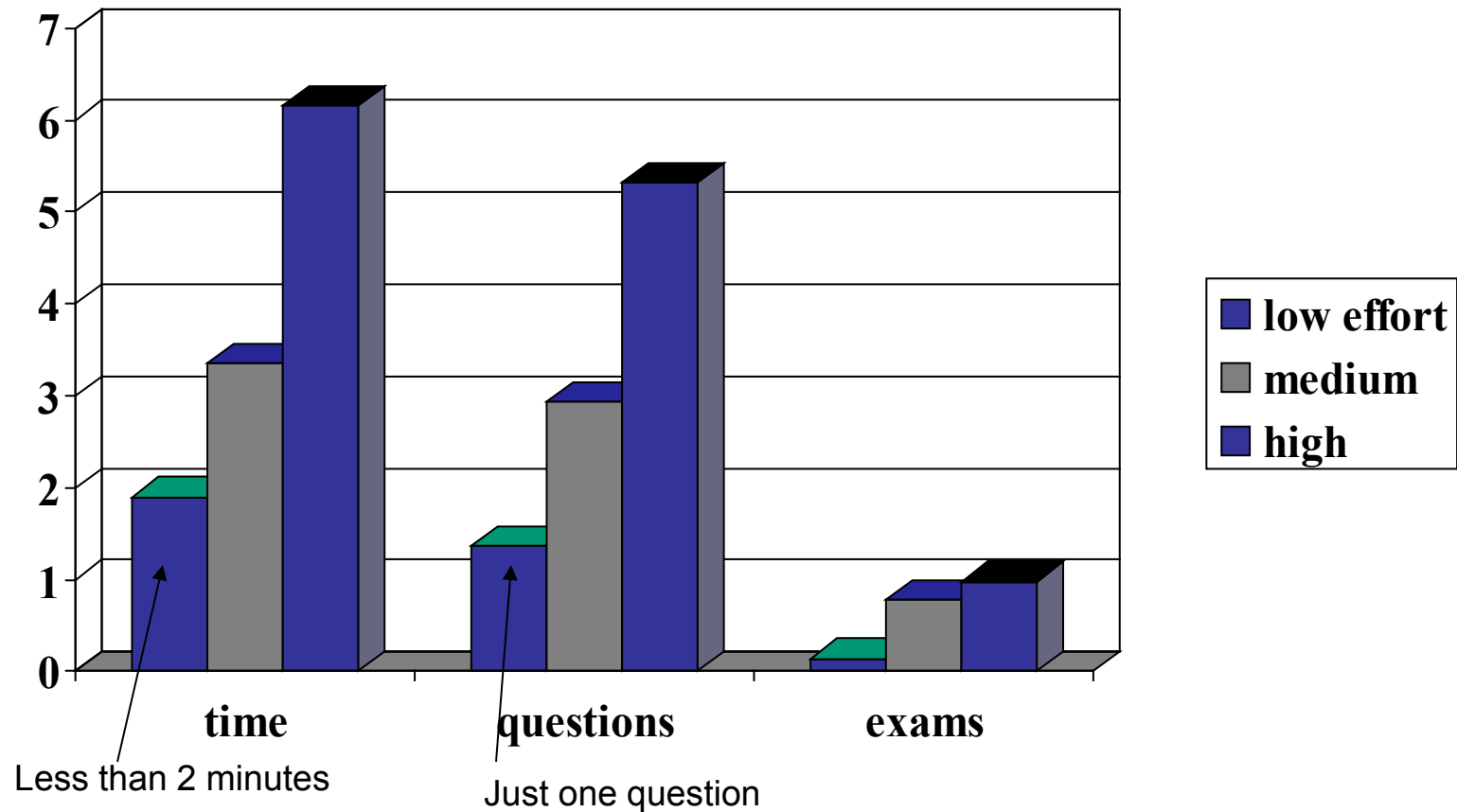
- Vacancies
- Absenteeism
- Low capability
- Very little effort

India: Tanzania  
is similar



# What does “very little effort” mean? (India)

In Delhi, “low effort” interactions are almost completely coincident with those in public Primary Health Care facilities

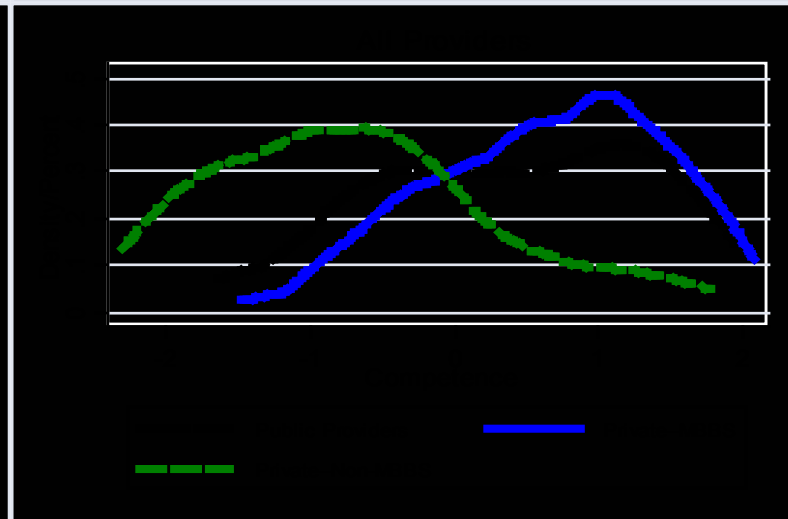
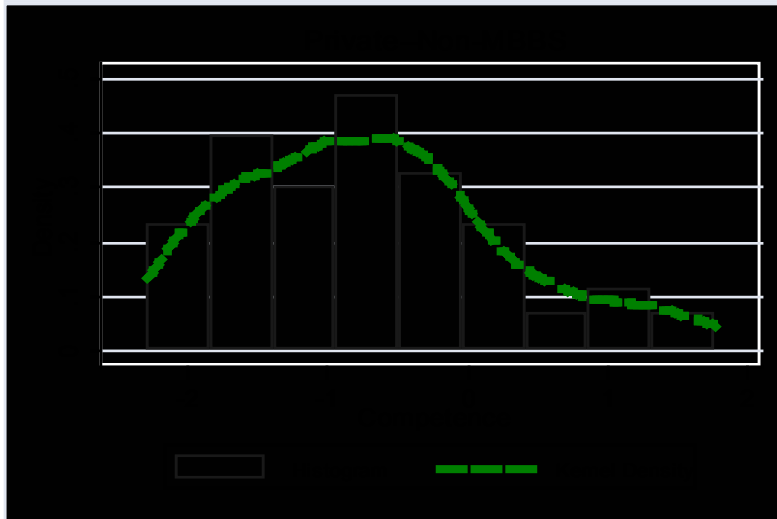
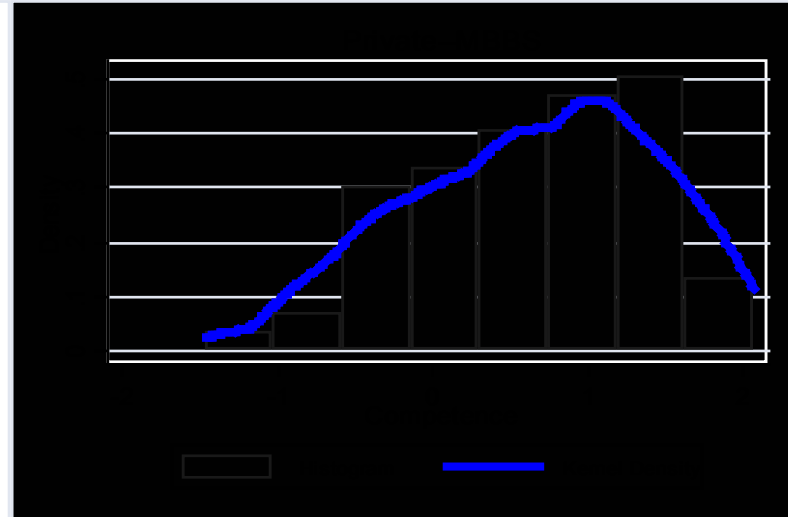
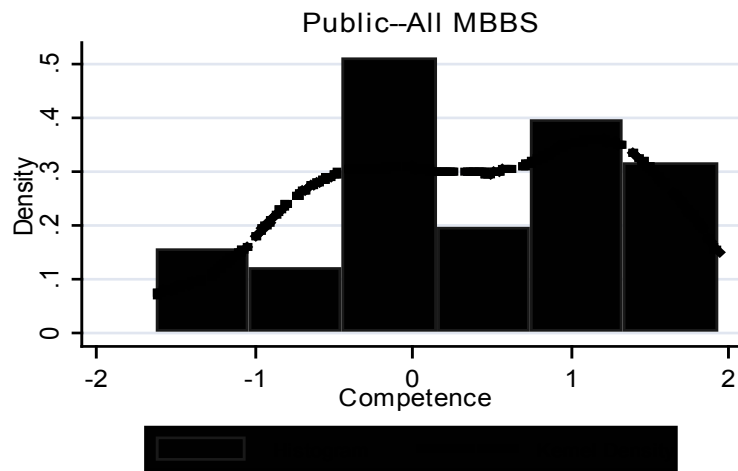


## A word on “quackery and crookery”

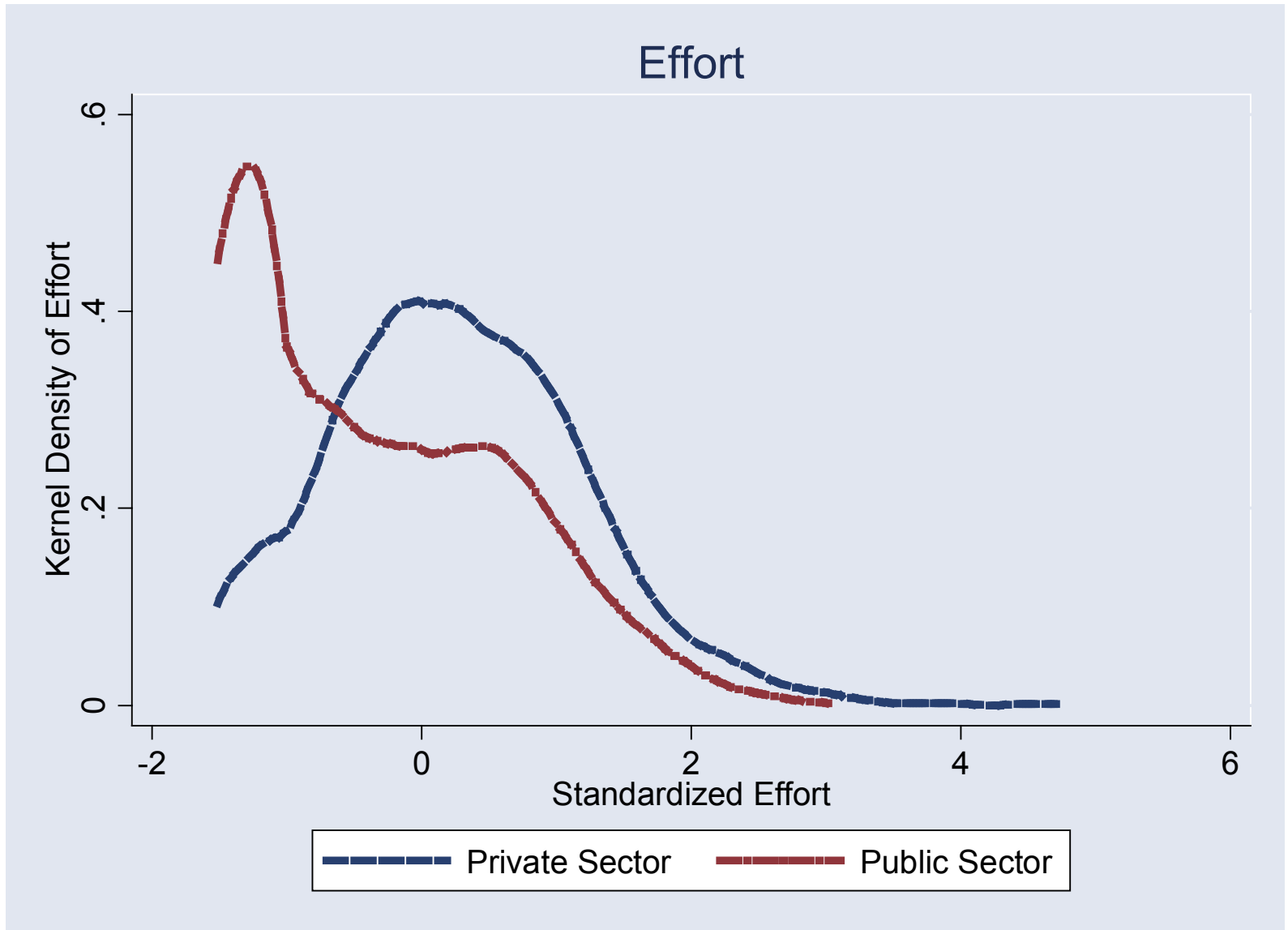
- The problem isn't public versus private
- The problem is rich versus poor

# Public or Private?

## Distribution of Competence by Qualification

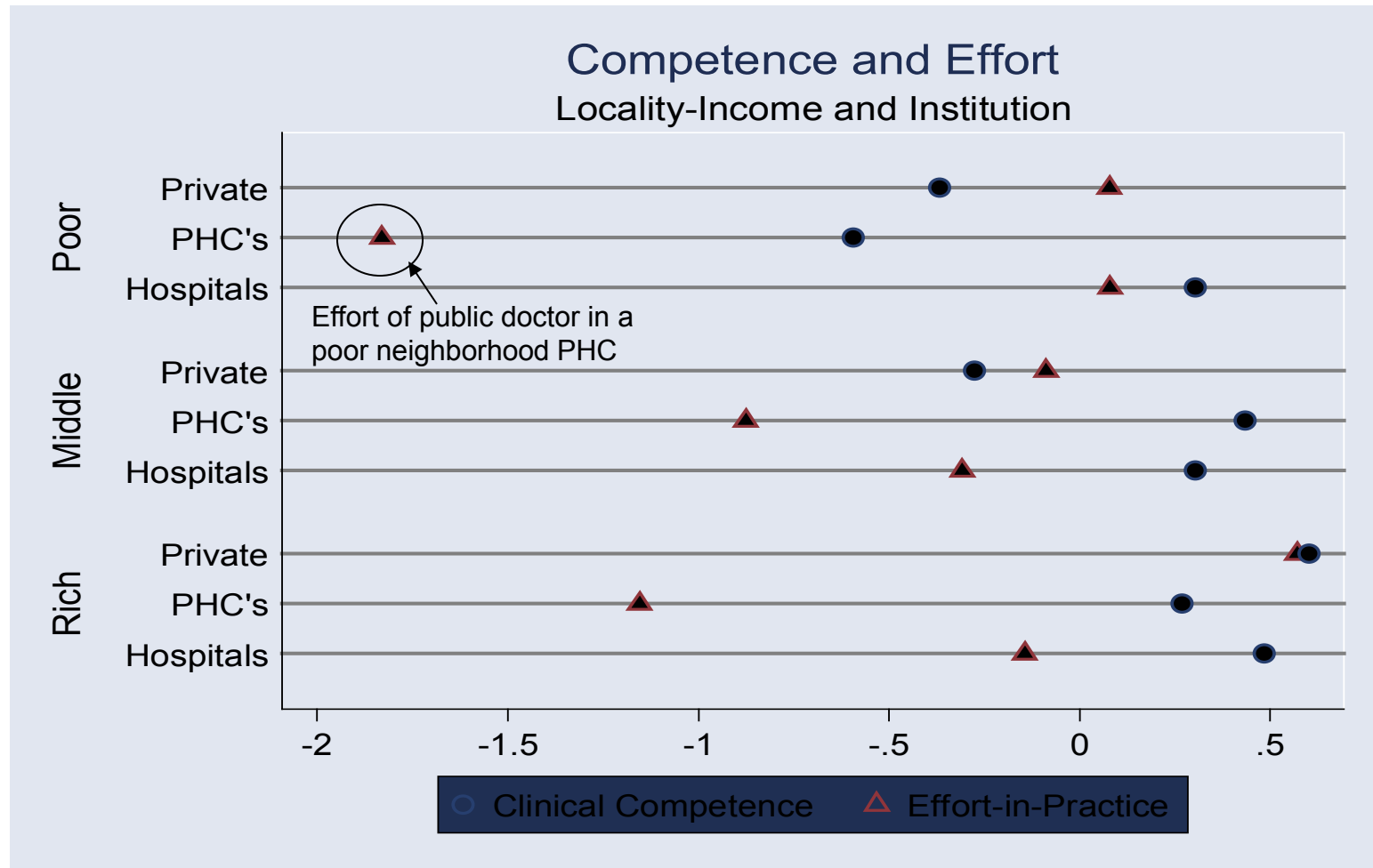


# Public and Private Sector



# Quackery and crookery for the poor in Delhi

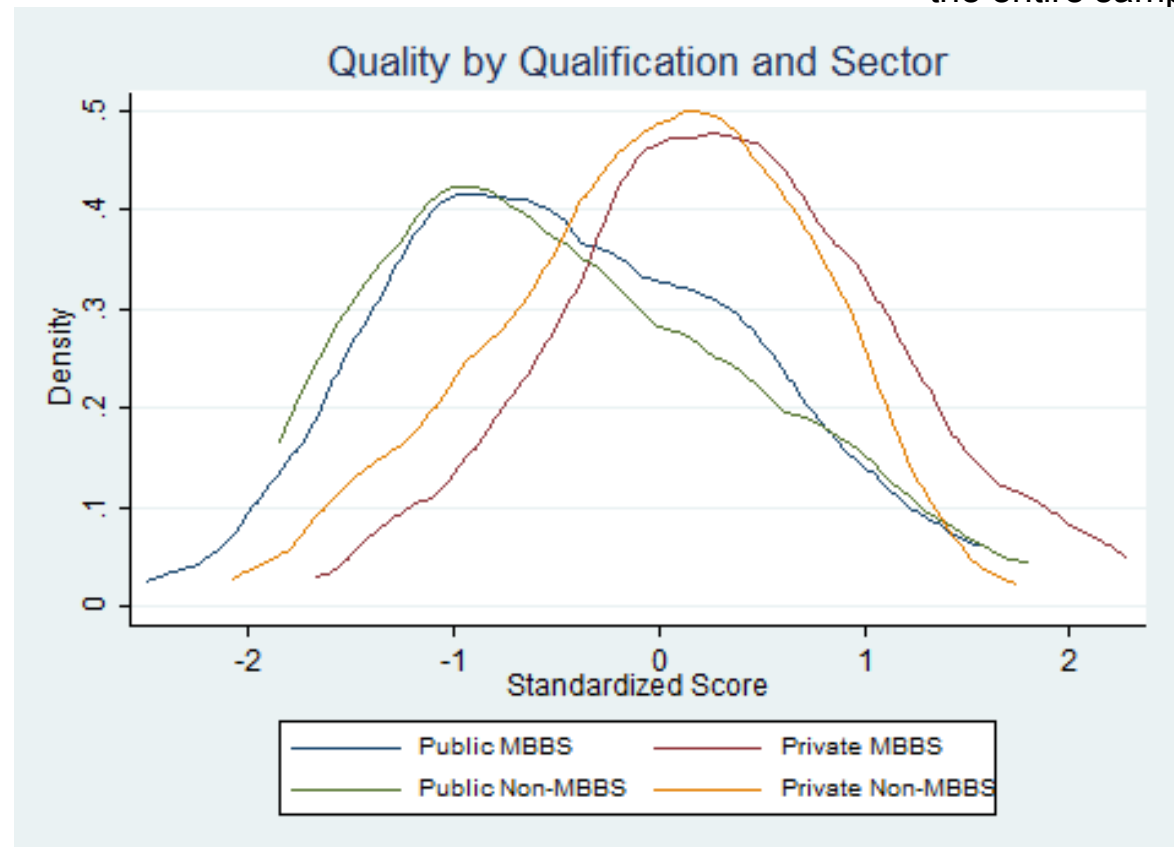
▪ no matter where they go





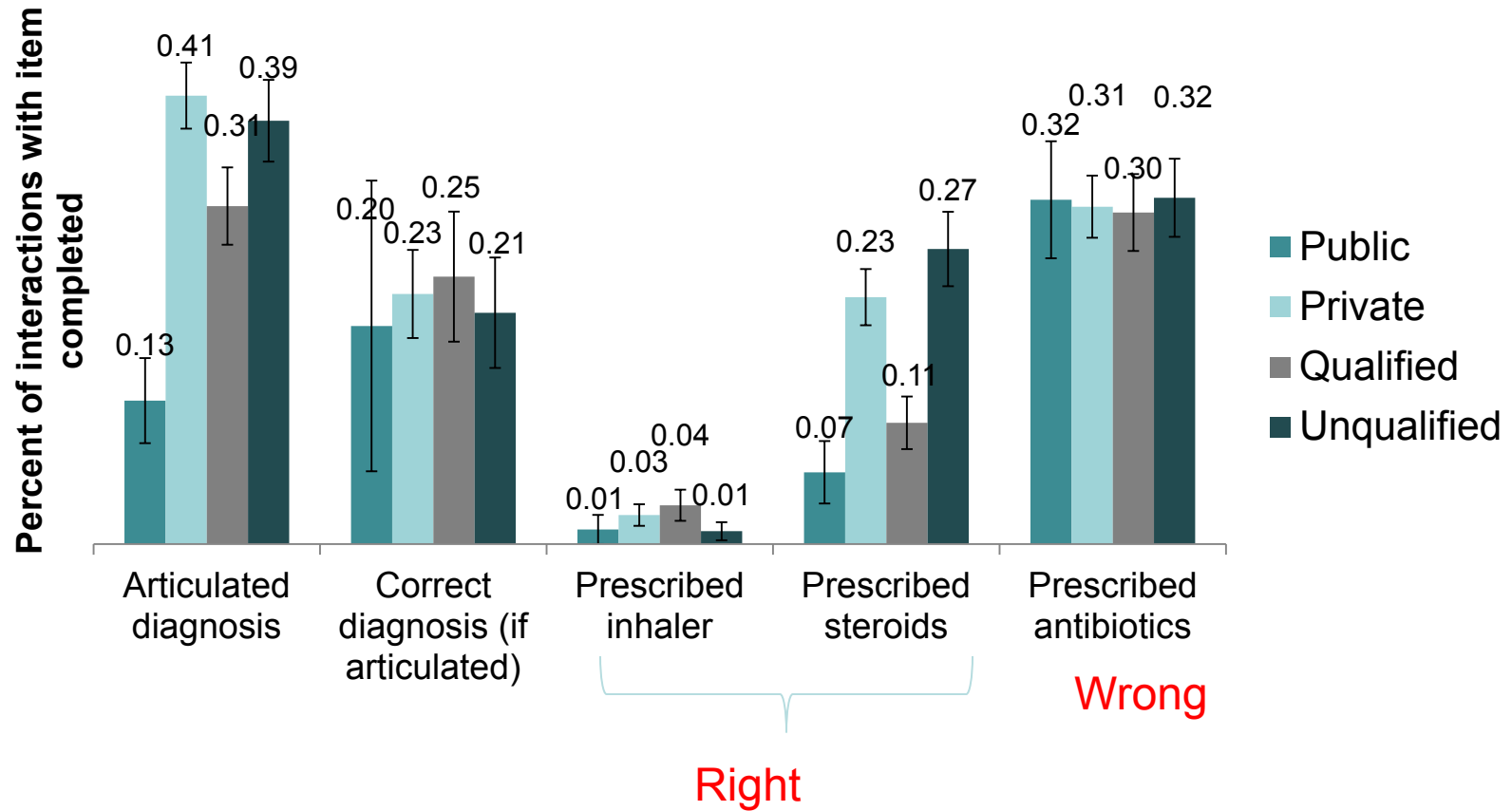
## Quality in MP

Public MBBS doctors, although most competent, they did the least and so are of the lowest quality in the entire sample.



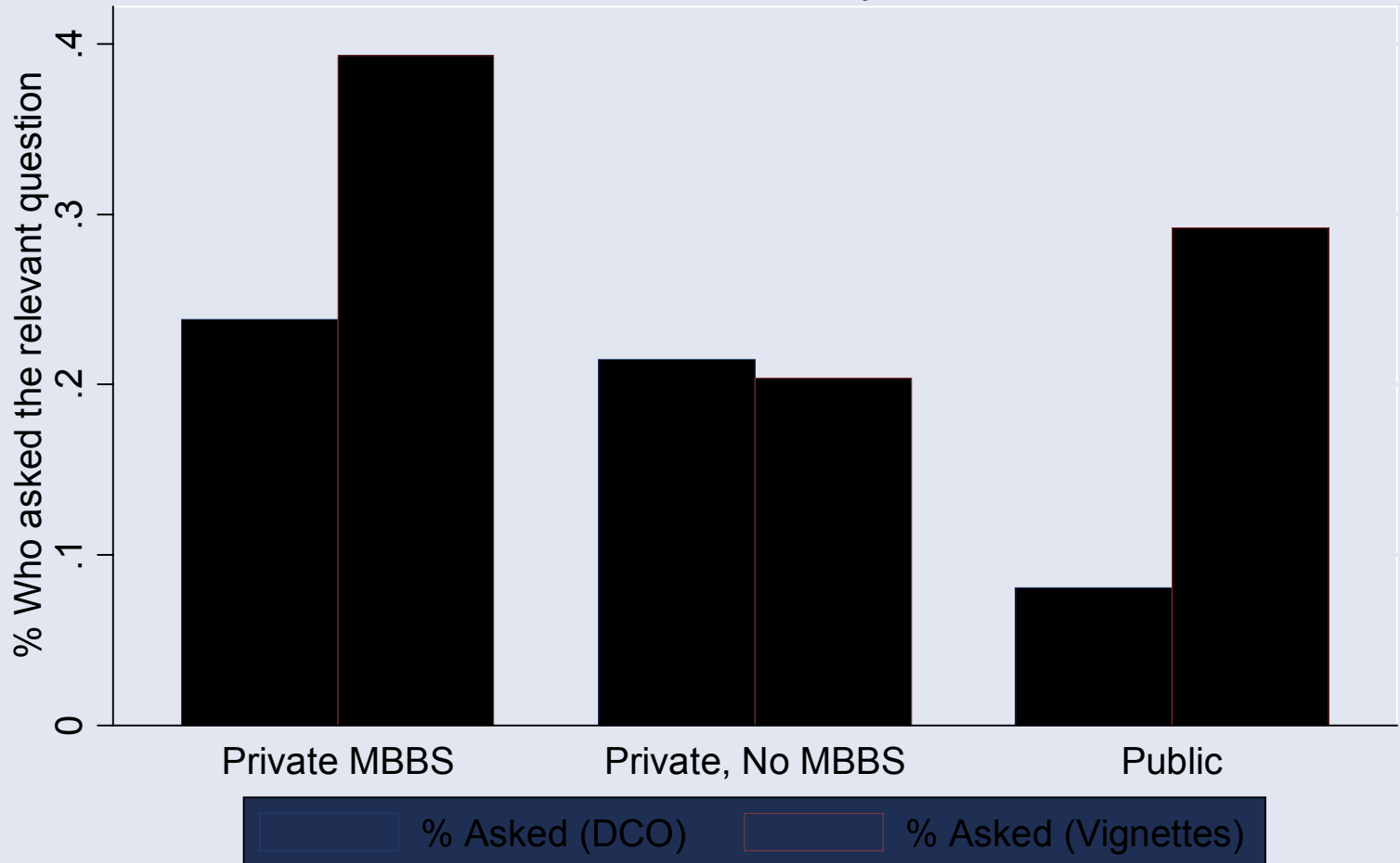
# Diagnosis and treatment

## Asthma In Madhya Pradesh



# Do as I say, don't do as I do -urban

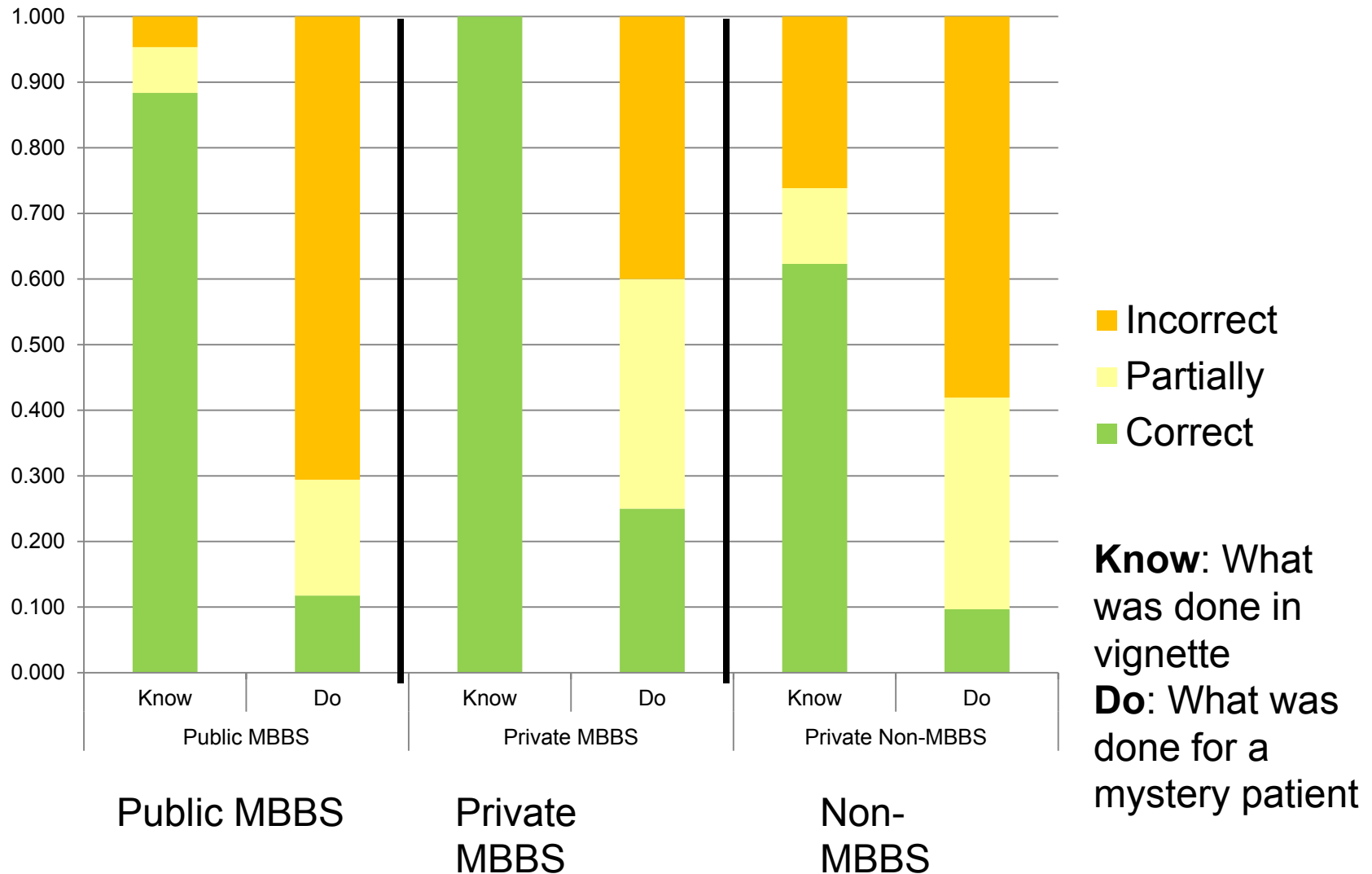
What They Know  
...And What They Do



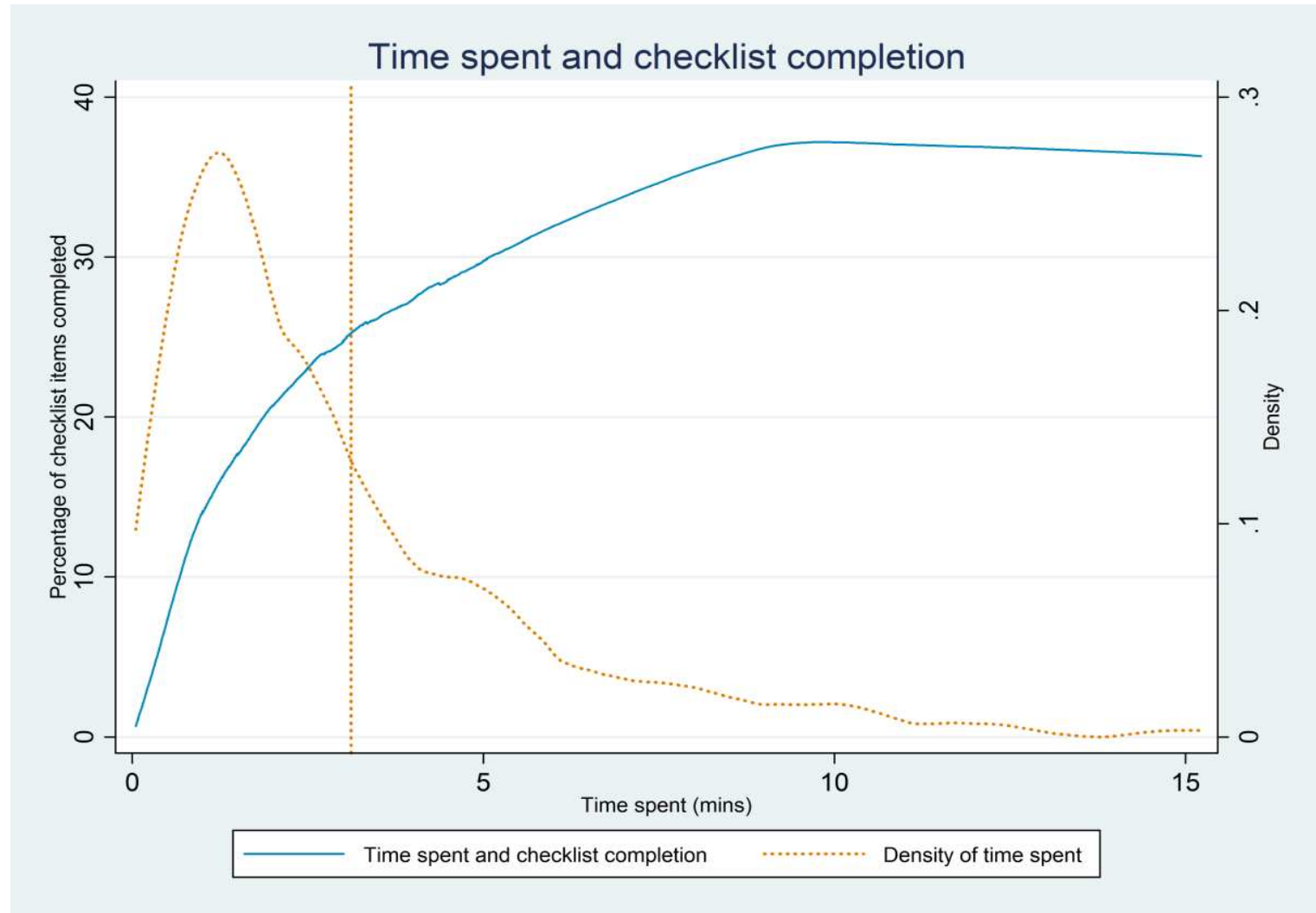
Delhi  
cough and  
diarrhea

# The Know-do gap - rural

## Correct treatment of Unstable Angina

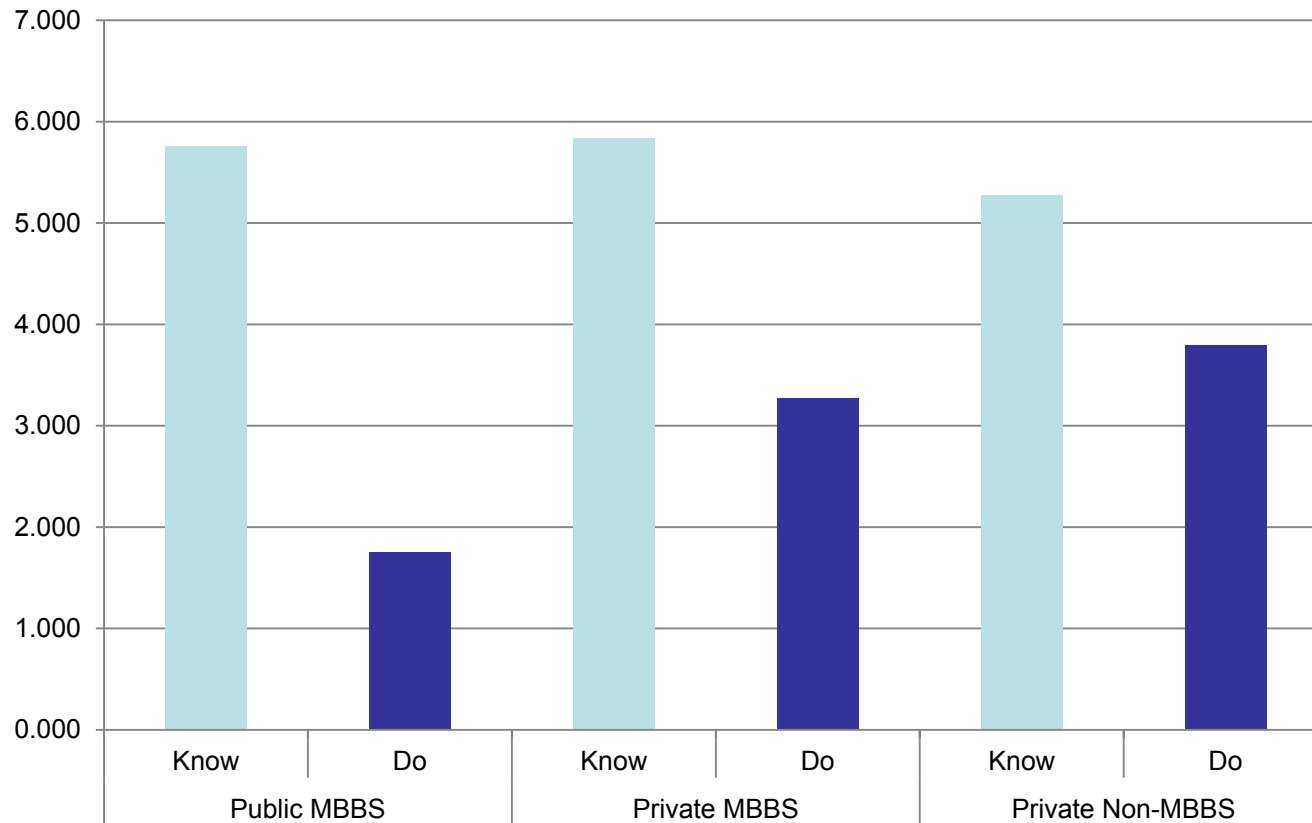


# Treatment success is linked to effort

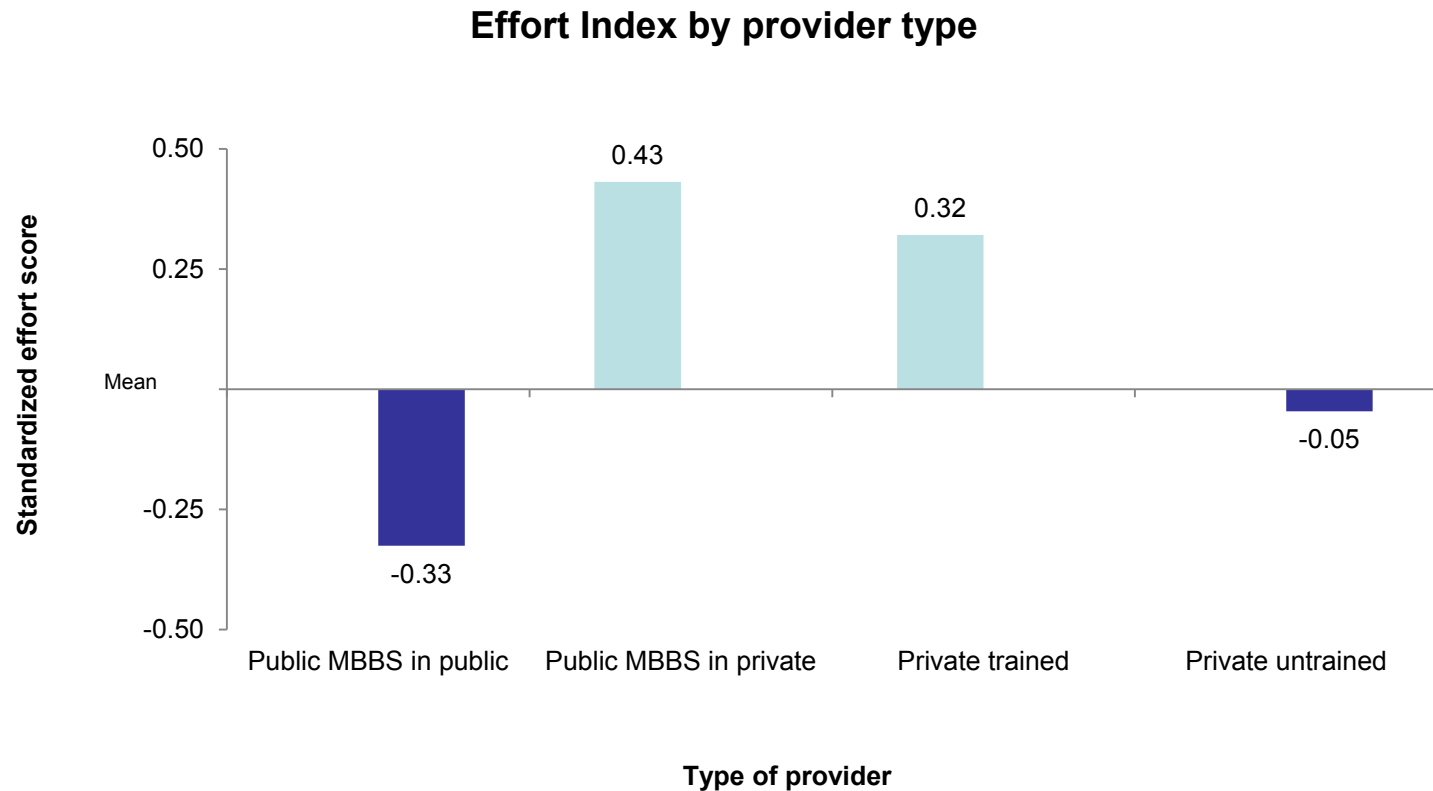


# Of which there isn't much...

## (Time spent with patients)

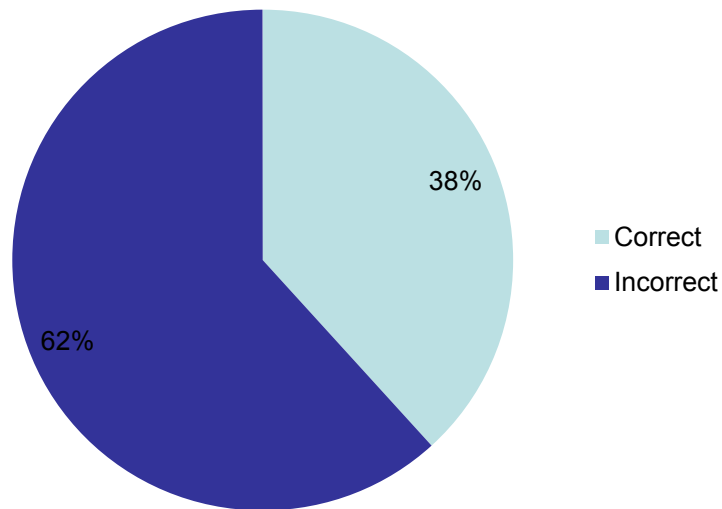


# Incentives must be at work somehow:

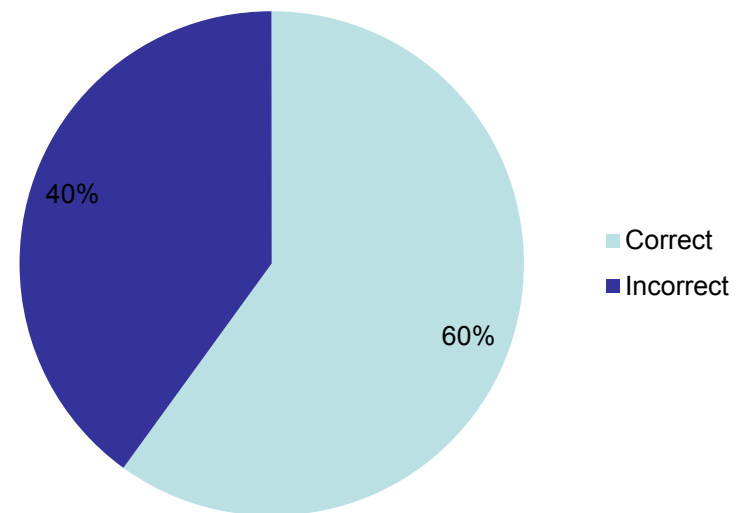


# Public sector doctors do much better in their private clinics

Likelihood of correct treatment for a heart attack: Public MBBS in public clinics



Likelihood of correct treatment for a heart attack: Public MBBS in private clinics



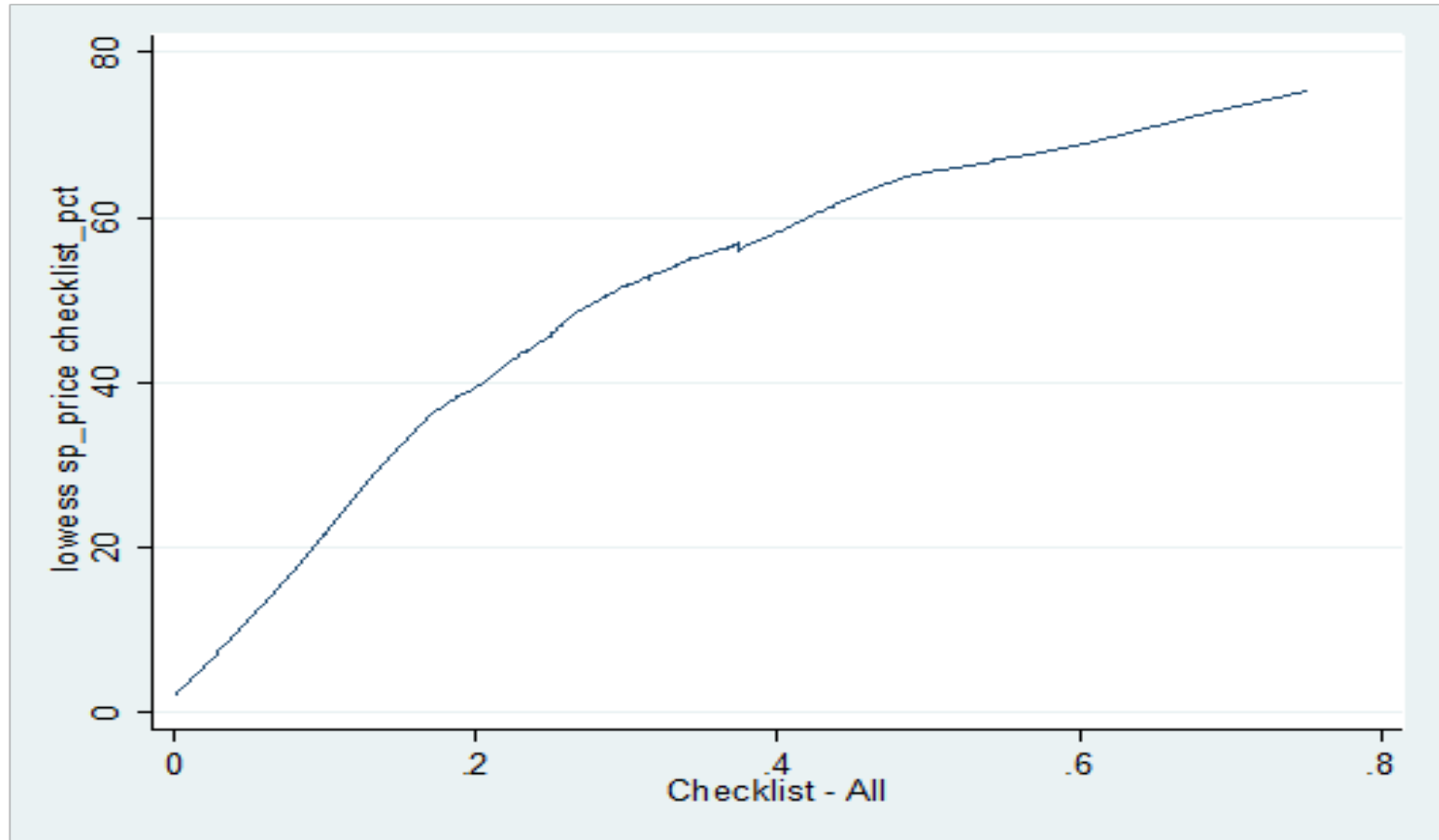
People have always known this:

“I know Mr. Reddy. He is a government doctor but I go to him in the evening.”

(Probe Qualitative Research Team, 2002)



# The private sector is a mystery



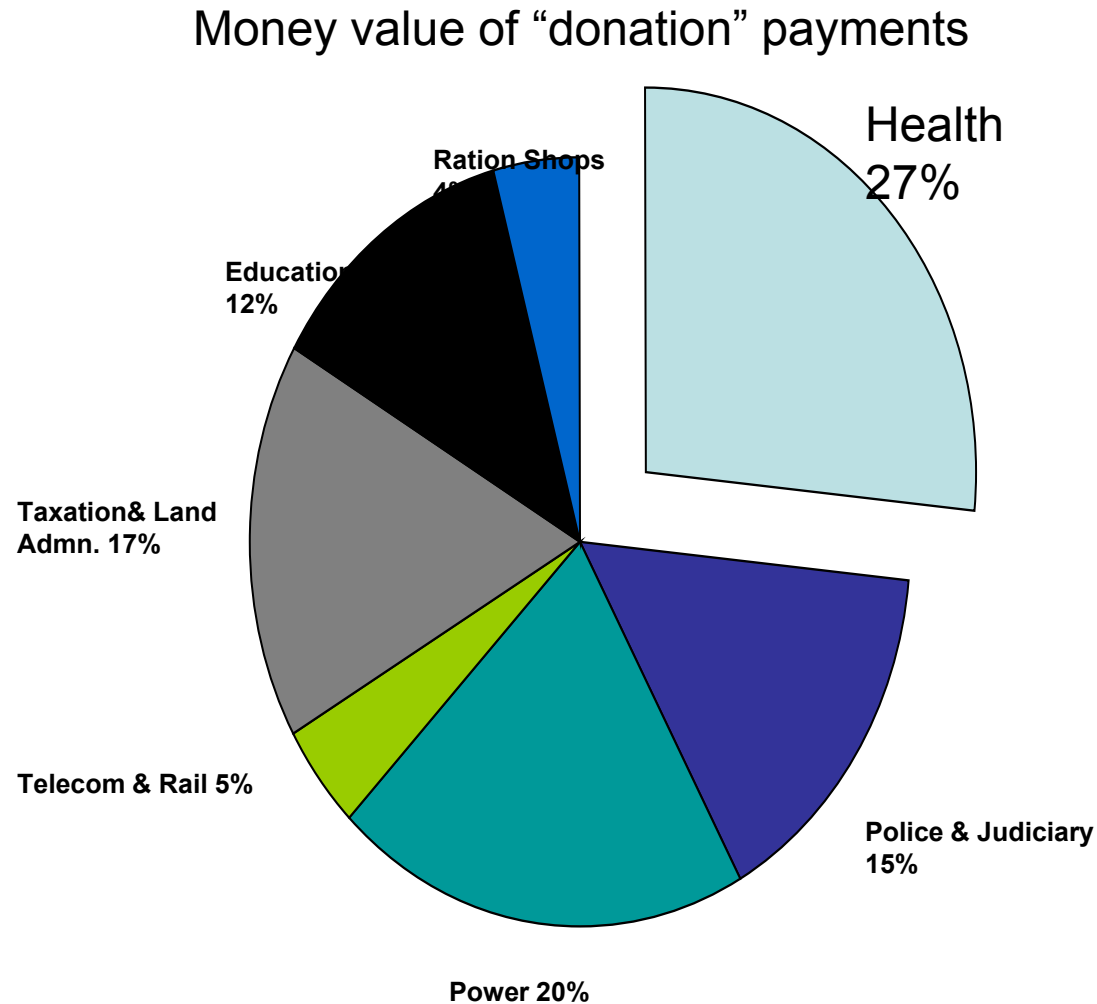
Fees charged vary substantially with “asking more questions”  
(and, therefore, getting the right answer)

# Identifying the market failure in the private sector is not easy

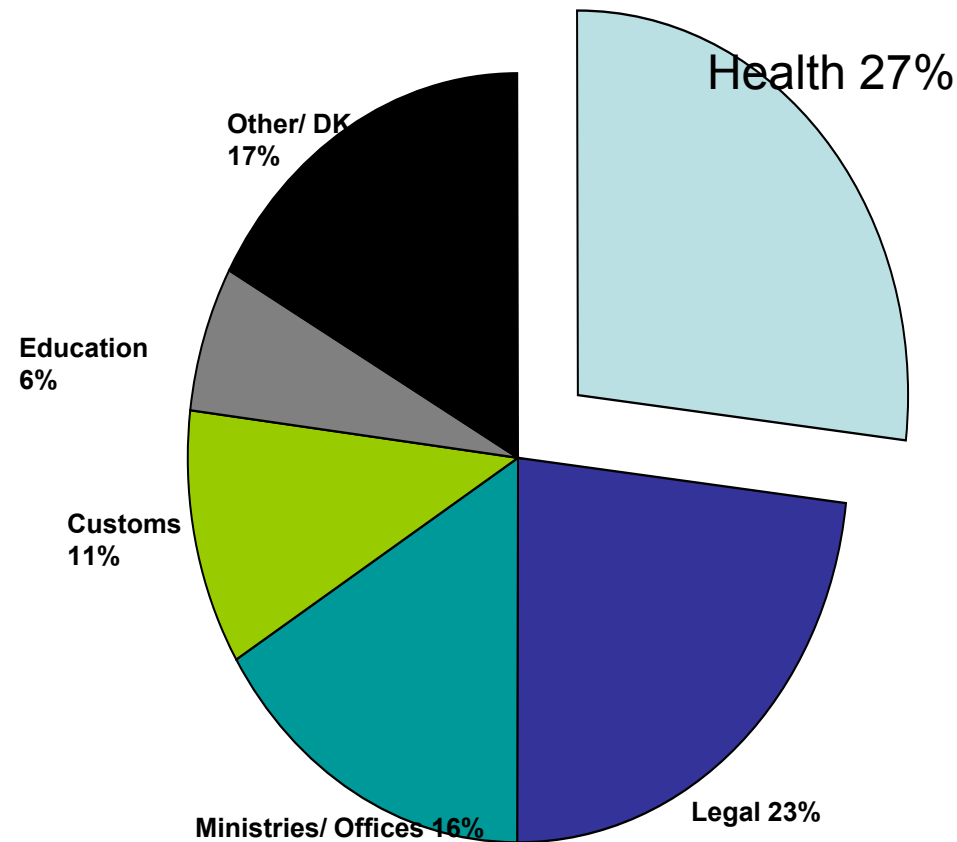
- Do doctors talk patients into things they don't need or is it the other way around?
- Private doctors aren't much more conscientious than public even when they are paid – they are not “doing” too much
- Only a small fraction of private doctors (17% or so) “know” not to do too much but “do” it anyway

# PHC's: What do people find when they get there?

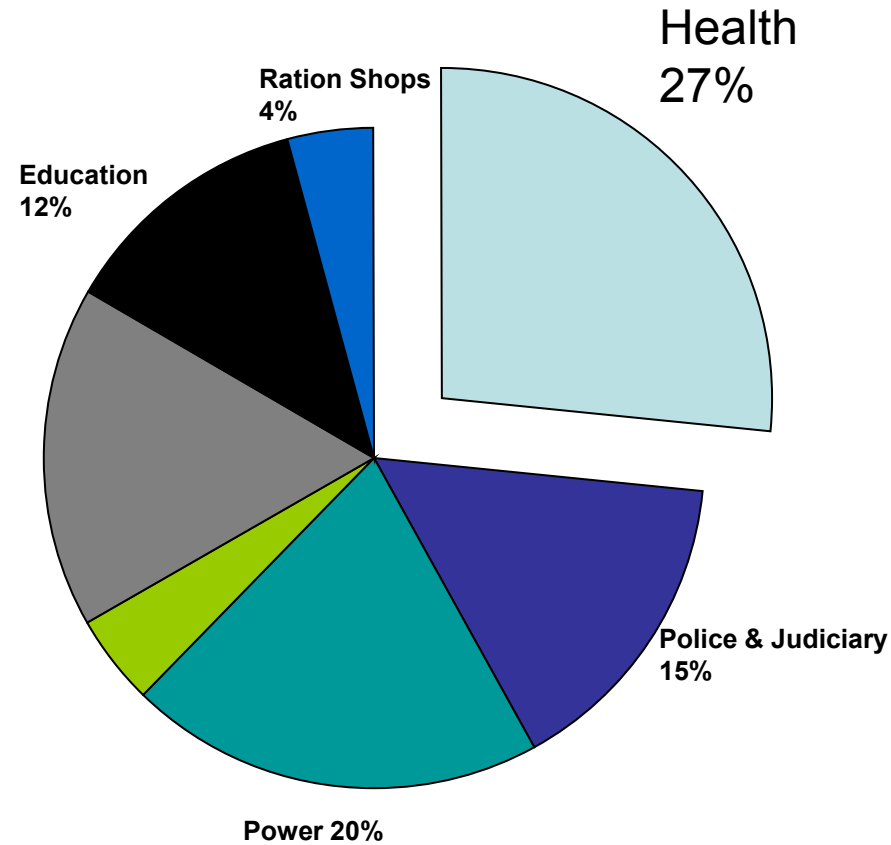
- Vacancies
- Absenteeism
- Low ability
- Low effort
- “Donation” requests



# This happens lots of places health is rationed.



Perceptions of “most corrupt” –  
Nine Eastern Europe Countries



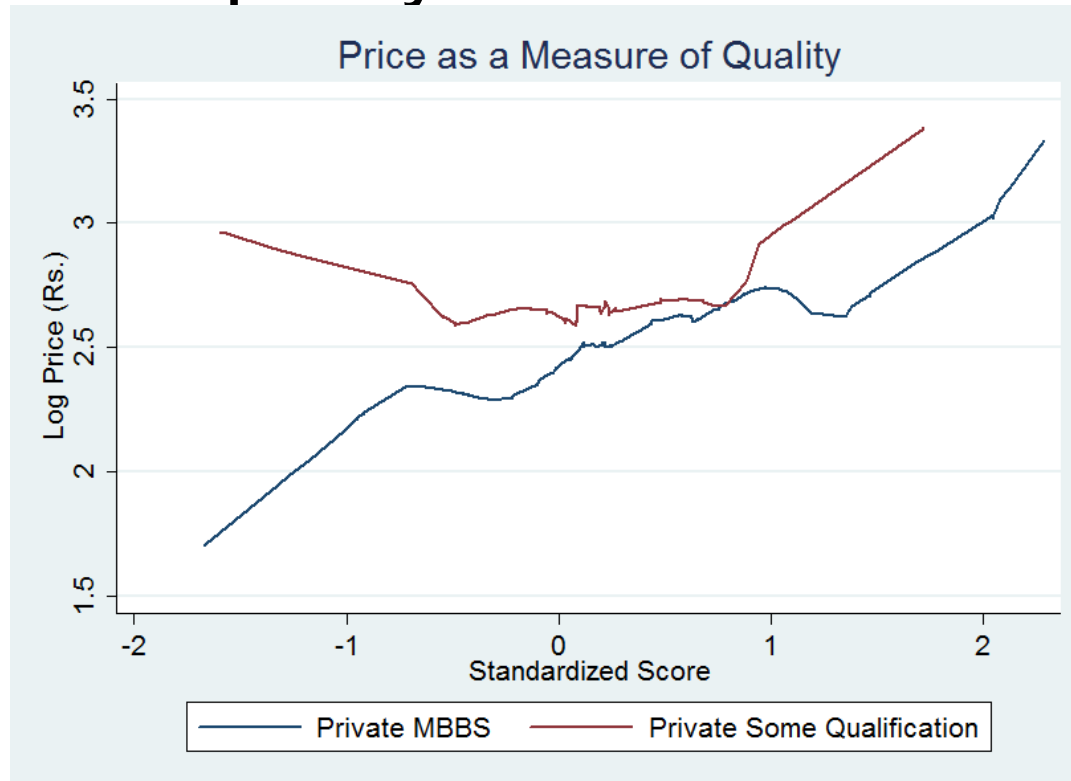
Value of “Donations” - India

# So why don't people go to (free) real doctors instead of quacks?

- You haven't been paying attention?
- Ministry (and international organization) answers: People don't know any better
- Really?

# Prices: willingness to pay for quality

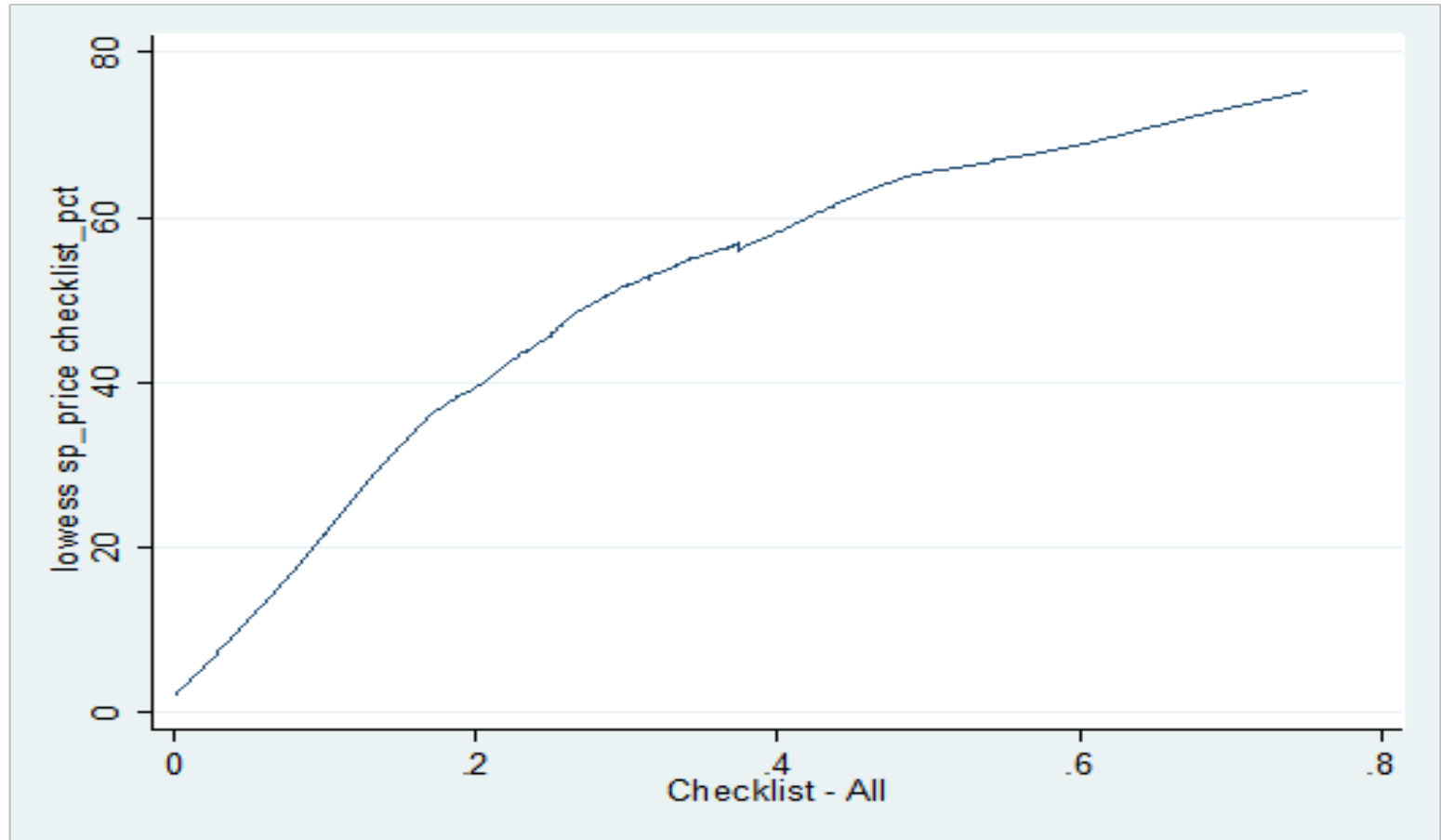
- In fact, prices are significantly correlated with quality



Higher quality providers charge higher prices

Because this is an audit study, the price-quality relationship is purged of case and patient selection problems

# The private sector is still a mystery



Fees charged vary substantially with “asking more questions”  
(and, therefore, getting the right answer)

## Why is this? Let's look at incentives

- You are paid by salary
- You are not monitored by supervisors
- You will not be fired or have pay reduced under virtually any circumstances
- You are of much higher social status and have much greater political power than your clients – complaints don't touch you
- You have lucrative alternative work in the private sector

What would *you* do?



## Incentive problems are not specific to poor countries

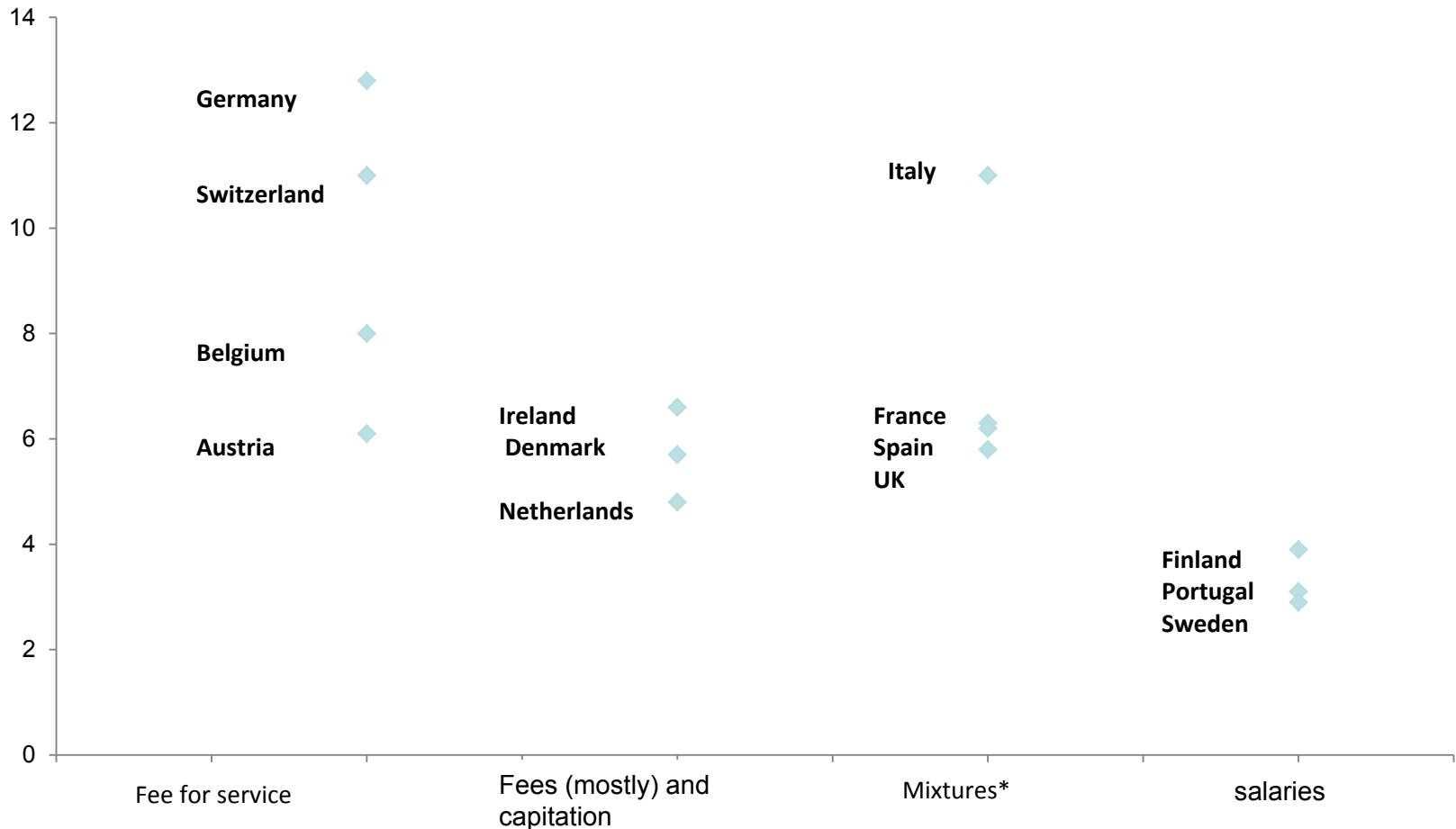
- **No rich country in the world pays their primary health care providers as per the previous slide.**
  - UK: capitation plus fees for specific services
  - Almost everywhere else: Government pays (or ensures payment) for insurance, almost all providers are private
- The **PRINCIPLE** is “money should follow the patient” – the ultimate decentralization
- Two exceptions: one is very informative:  
Sweden – **local** government and ~~currently reforming~~  
reformed in Stockholm.

Core question: how to pay doctors?

How do rich countries do it?

# Rich countries and health care visits (Could be dated – OECD 1997)

Note: Government pays for these, this is just HOW they pay



\*Italy and Spain: capitation; France: Fees and salary; UK: Capitation (mostly) and fees

# All payment systems have to strike a balance between too much and too little care

- Fee for service always creates incentives to do too much. Why? Because the more the doctor does, the more he or she gets paid. (Even I, with a Ph.D., can understand this)
- (though maybe not in Indian primary care?)
- Being salaried always creates incentives to do too little – as we've seen
- In between, many options all with pros and cons
  - Capitation (Primary Care - usually too little)
  - Diagnostic Related Groups (too little, but depends)

# Sliding into hospital care

Impact of hospitals on health not so clear (in aggregate), Impact on financial security  
VERY clear

Incentive effects of payment systems involve  
same set of issues

In fact, decision to treat at hospital rather  
than primary care facility (either public or  
private) is one of the big concerns (why or  
when to refer?)

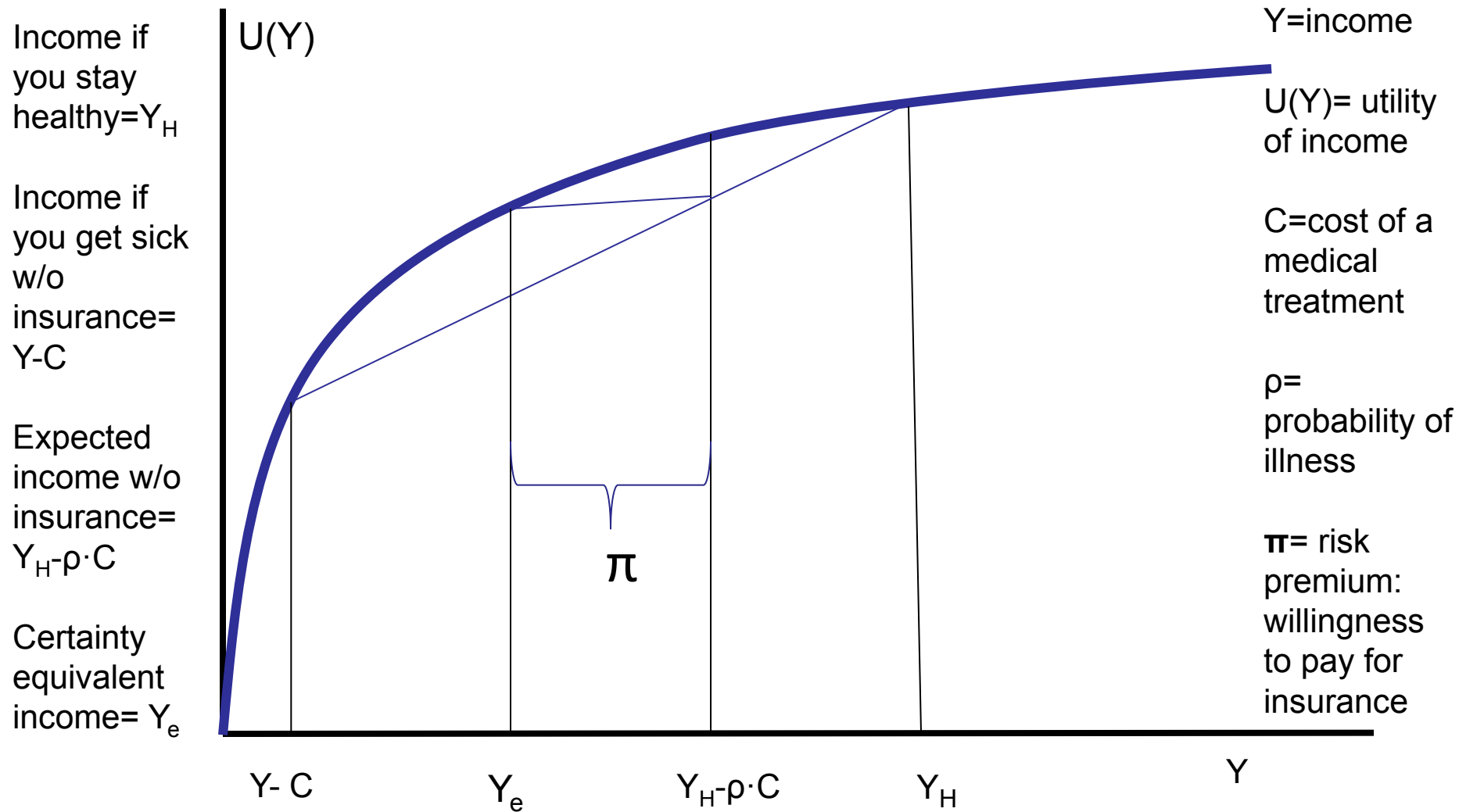
# **Complementarity/ conflict among efficiency; equity and administrative feasibility**

- Traditional public health - strong complementarity
  - Large scale, population based
  - Person-to-person preventive/promotive
- Primary health care - modest efficiency effects (varies), potentially high equity effects, difficult management
- Hospitals – high efficiency, high potential but low actual equity effects, easier management(?)

# Hospital care - fixing market failures

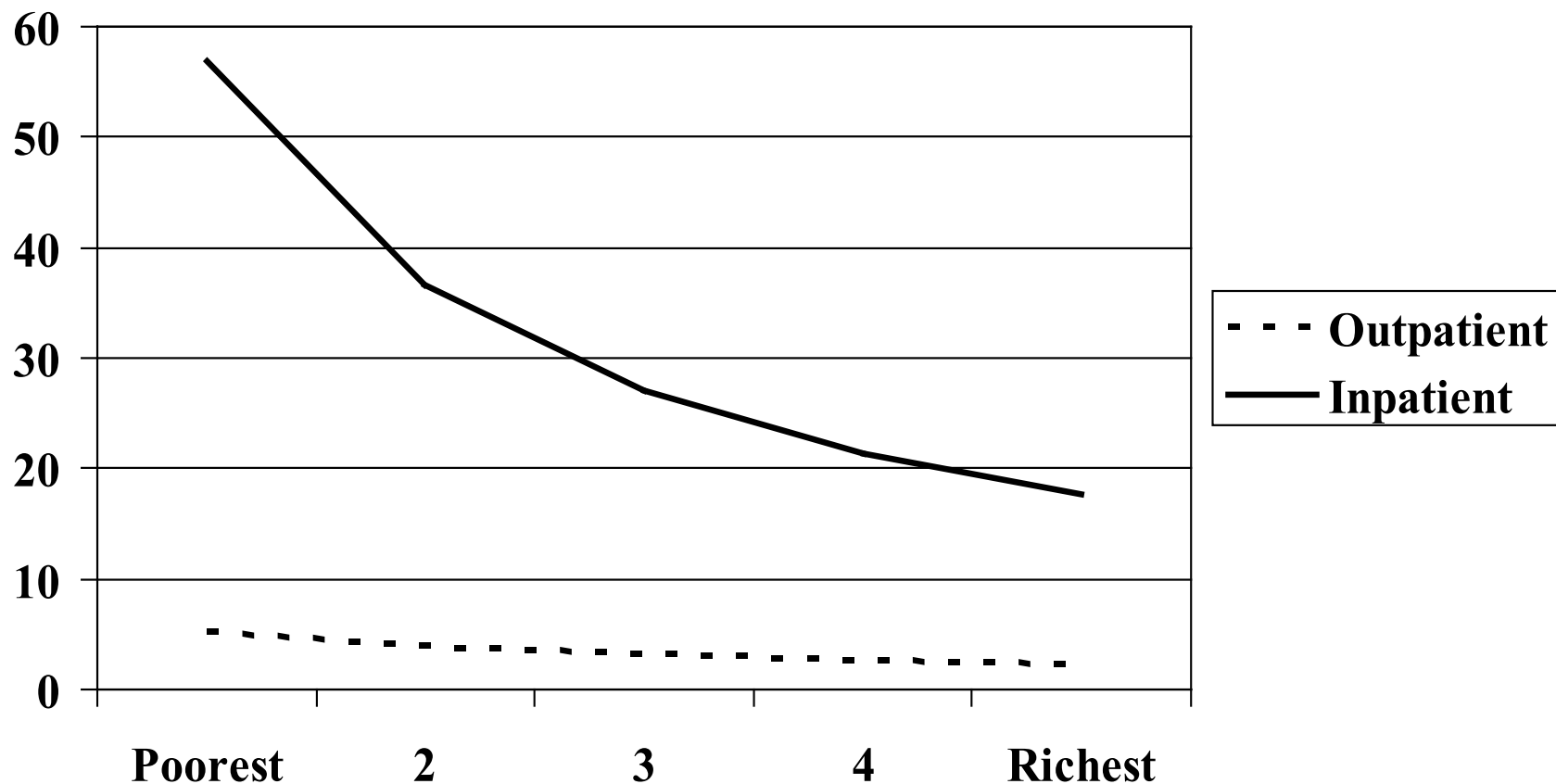
- Insurance markets always fail
- Avoiding catastrophic financial loss a problem for everyone
- Great fear of falling into debt and inescapable poverty from the poor and nearly poor (Problems curable at PHC level won't do this)

# Value of protection against risk

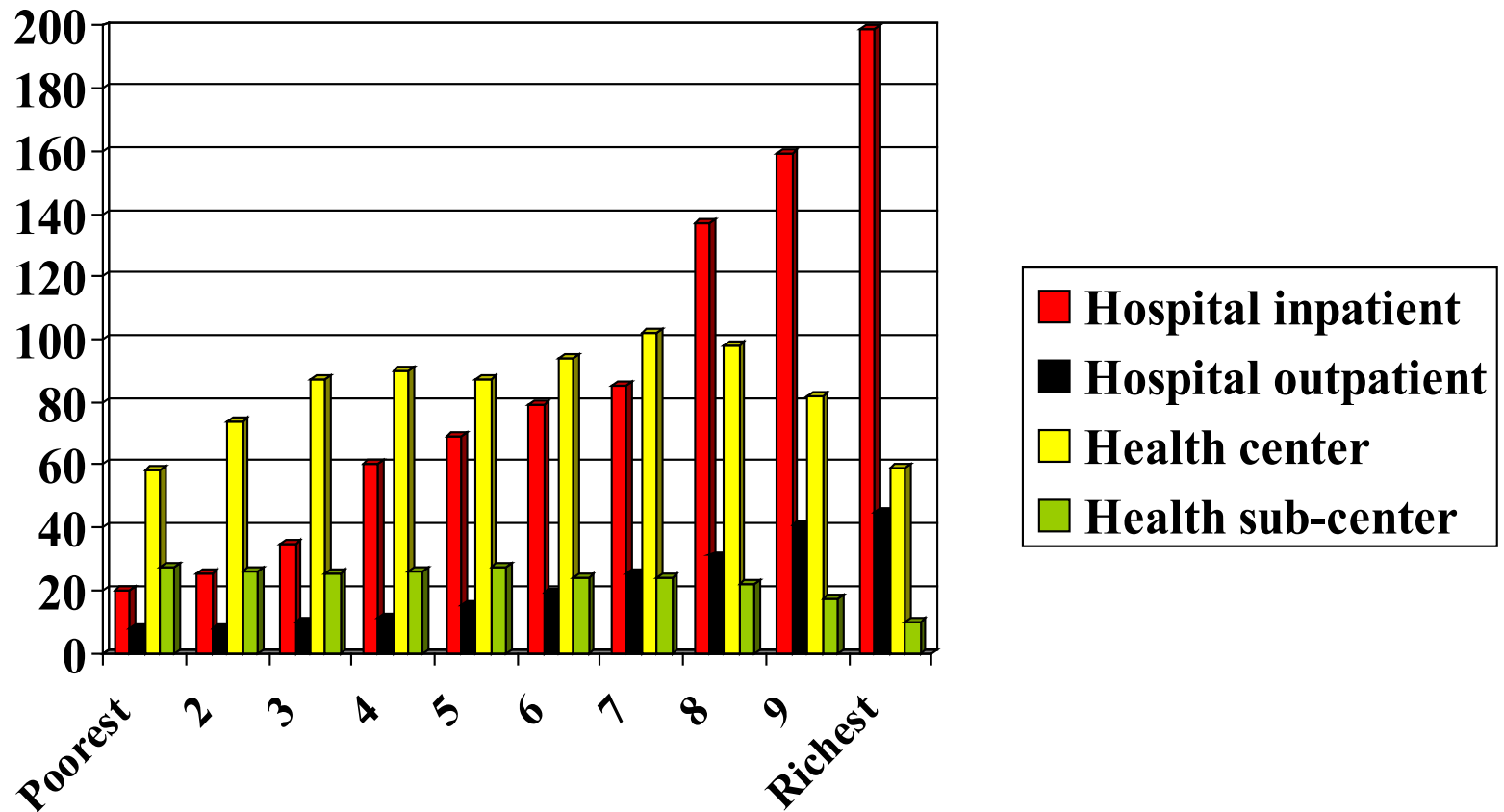




# Value of insurance as a % of expected cost – 1998 (India and Brazil (+/-))

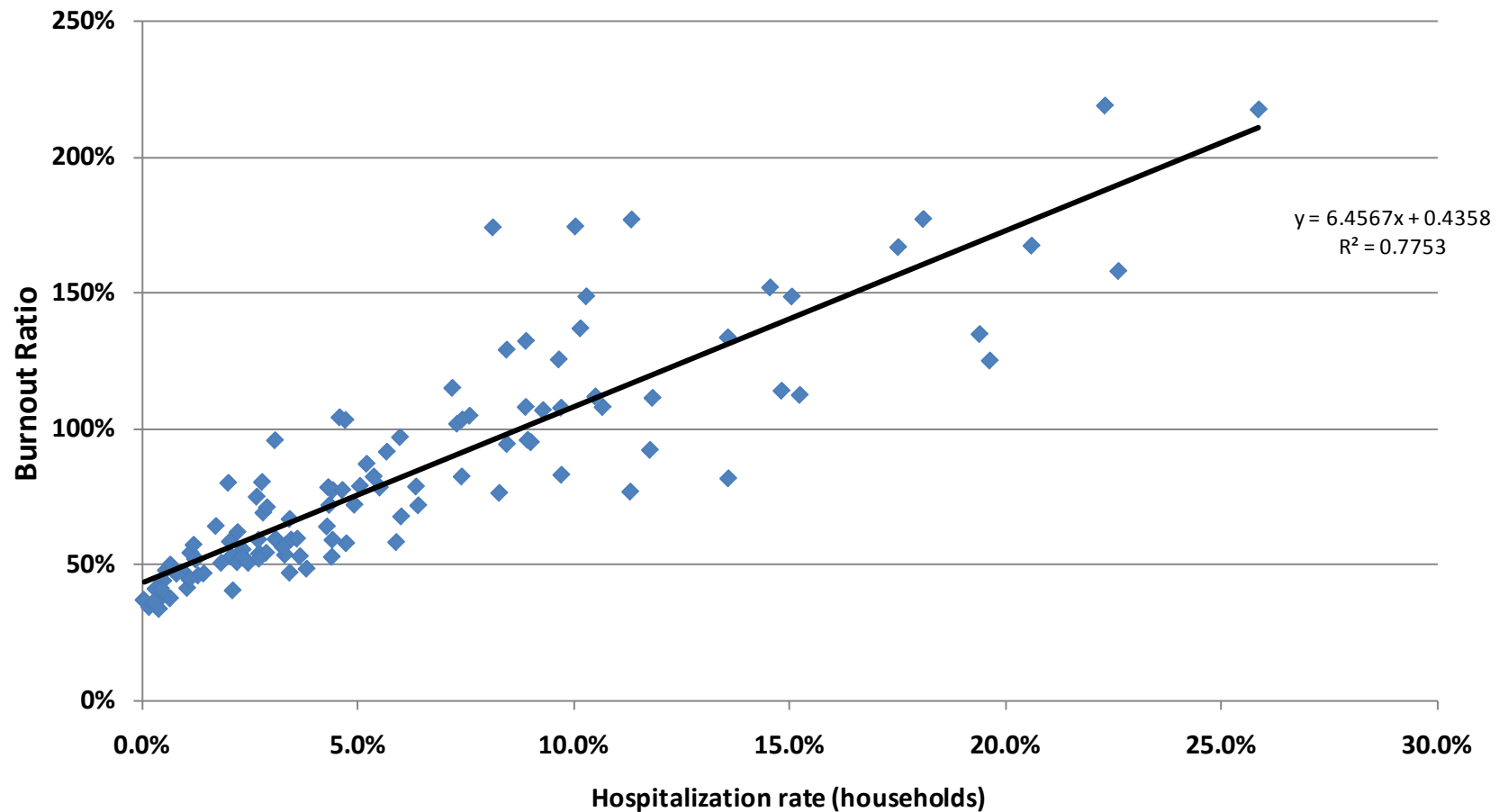


# Big dilemma: distribution of health care subsidies, Indonesia



# Incentives to over-treat?

Adjusted claims ratios for 103 districts by utilization rate through June 2010



Source: Ministry of Labour and Employment RSBY database as reported in Palacios (2011)

# But running a hospital is easier than running a network of PHC's

Major incentive problem the same but...

- A much less dispersed network to manage
- Staff satisfaction higher (and performance easier to ensure) in hospitals than in smaller facilities (AP study)

# Hospital functioning and quality is a vastly understudied area

- We know almost nothing about this
- Needs methodological advances, basic description of what's out there, etc., etc.

# So, can policy improve health?

- Of course – and if done right can improve welfare, too, which subsumes health.
- But DON'T let “them” fool you – first priority for India is traditional public health
- Middle income countries – and so, India soon - need to deal with insurance either directly or with public hospitals (RSBY needs a closer look but for the time being we probably need hospitals)
- Primary health care was probably never the right way to go (discuss among yourselves)

# Have incentives and markets been central issues in India's health policy?

- Ummm... No
- In fact, the prior question of “what does this spending do?” is rarely asked

# Problem #1

$$\frac{d(\text{health status})}{d(\text{public spending on health care})} \approx 0$$

$$\frac{d(\text{health status})}{d(\text{nearby government health care facilities})} \approx 0$$



# Problem #2: No one raised problem #1 (nor how providers perform on salary)

- **Bhore committee 1946:** Recommended integration of curative and preventive medicine at all levels with seamless referrals. Specific staffing per capita requirements for each level.
- **Mudaliar Committee 1962:** noted PHC's weren't working but advised spending more on them anyway
- **Jungalwalla 1967:** A service with a unified approach for all problems
- **Singh (1973), Shrivastav (1975), Bajaj(1986),** plus four other reports all the same
- **Mid-term review 10<sup>th</sup> plan 2005:** Sub center for every 5,000 people, PHC for every 30,000 people etc. etc., Integrated referral chain (virtually identical to Bhore on).
- **NRHM mission statement 2005:** not much different but does mention water and sanitation (which didn't really happen but a new line of health workers did)
- **Lancet (January 2011):** NOW is the time to implement the Bhore recommendations
- **High Level Expert Group (November 2011):** "Develop a National Health Package that offers, as part of the entitlement of every citizen, essential health services at different levels of the health care delivery system." Oh, and "**Reorient health care provision to focus significantly on primary health care.**" while we "Ensure equitable access to functional beds for **guaranteeing secondary and tertiary care.**" By "increasing HRH density to achieve WHO norms of at least 23 health workers per 10,000 population" (i.e., Bhore if Xerox machines existed in 1946)
- **Einstein 1925** (possibly apocryphal, though true): "Insanity is doing the same thing over and over and expecting different results"