



Health insurance, financial protection and poverty

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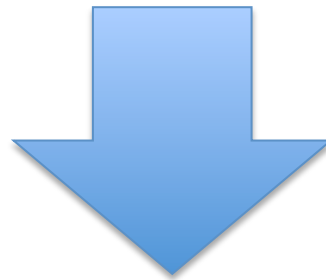
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Medical impoverishment & financial risk protection

Medical impoverishment

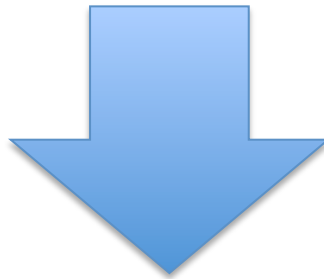
When confronted with expensive medical expenditures, poor people can face high out-of-pocket (OOP) payments and fall into poverty



Important issue in low- and middle-income countries, but also in the United States

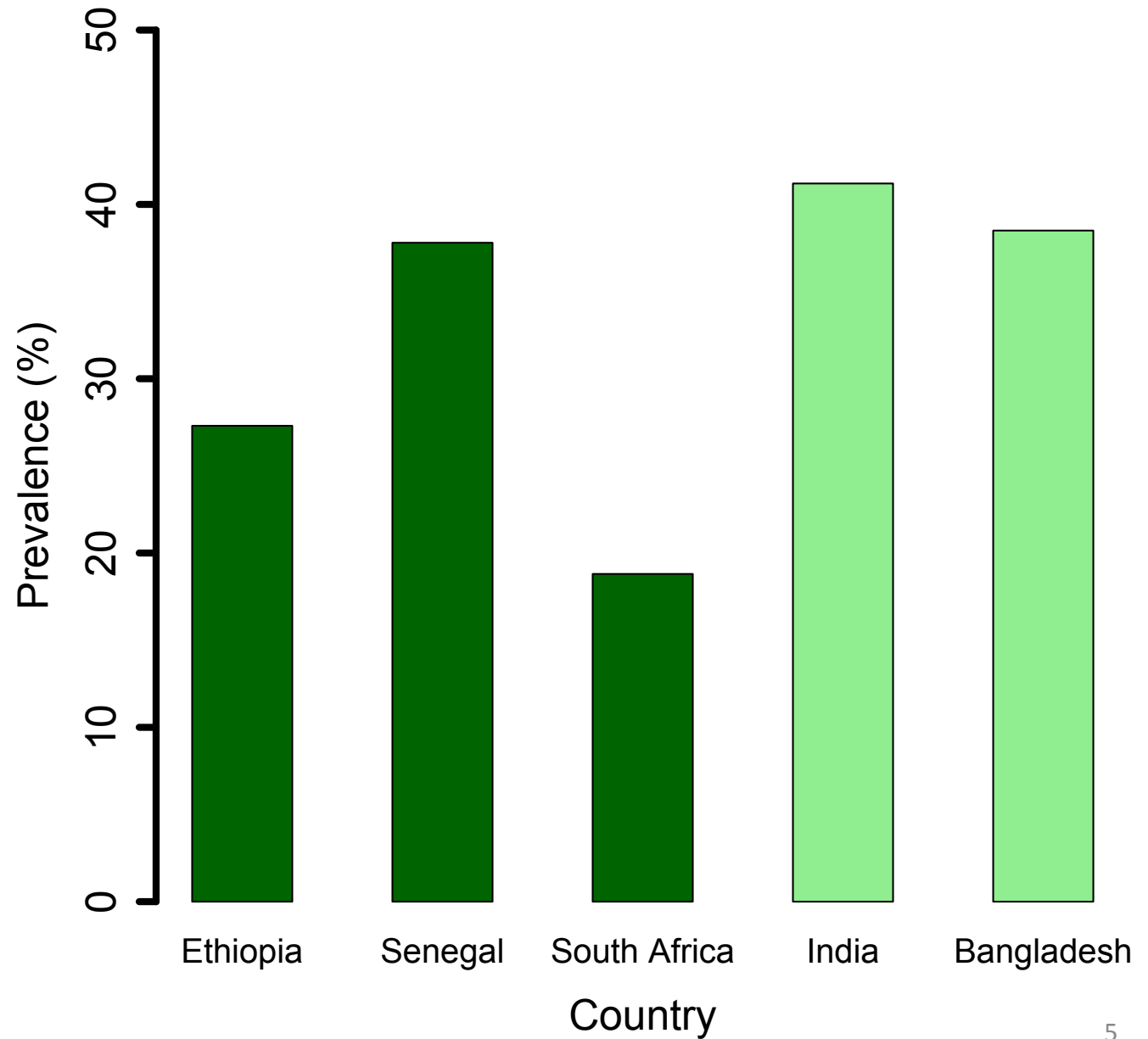
Example: borrowing & asset selling

When faced with costly medical treatment, the poor can use coping mechanisms
e.g. borrowing from relative/peers or sell assets



- Very high interest rates such as 40-50% annual
– Banerjee & Duflo (2007)
- Put individuals in high debt

Borrowing/asset sales for medical expenditures



Adapted from:
Kruk et al. (2009)

Case study of tuberculosis (TB) (1)

- Substantial household economic burden of TB
– Russell (2004), Cleary et al. (2013)

Table 2

Direct costs relative to ability-to-pay.

	Health care as % of household spending	<i>p</i> -Value	Incurred catastrophic expenditure (%)	<i>p</i> -Value
TB	13.06		32.99	
Bushbuckridge	17.31	0.0001	35.25	0.000
Hlabisa	15.34		50.38	
Soweto	4.02		10.76	
Mitchells Plain	14.02		32.21	

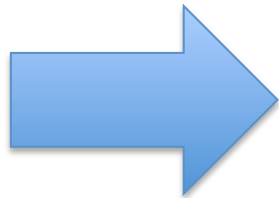
Data from Cleary et al. (2013) for 4 sites in South Africa

Case study of TB (2)

e.g. India: substantial out-of-pocket (OOP) payments (~ 80% of healthcare privately subsidized)

1. Direct costs

- DOTS = partially privately financed (Niruparani et al. 2010)
- Private doctors/non-DOTS (Rajeswari et al. 1999; Uplekar et al. 2001; Udwadia et al. 2010)



prescribe non-standard regimens
low-quality treatment

Case study of TB (3)

2. Indirect costs (e.g. earnings foregone)

Number of workdays lost among TB patients in India

Occupation	Rural	Urban
Self employee	71	62
Wage earner	72	84

Data from Muniyandi et al. (2006)

What causes medical impoverishment?

Large costs associated with diseases born out-of-pocket by households

1. OOP direct medical costs (e.g. cost of TB drugs)

When private sector is large (e.g. Nigeria, India)

2. OOP direct non-medical costs (e.g. transport costs)

When health facility is far and no decentralized care
(e.g. antiretroviral therapy in the beginning, surgery)

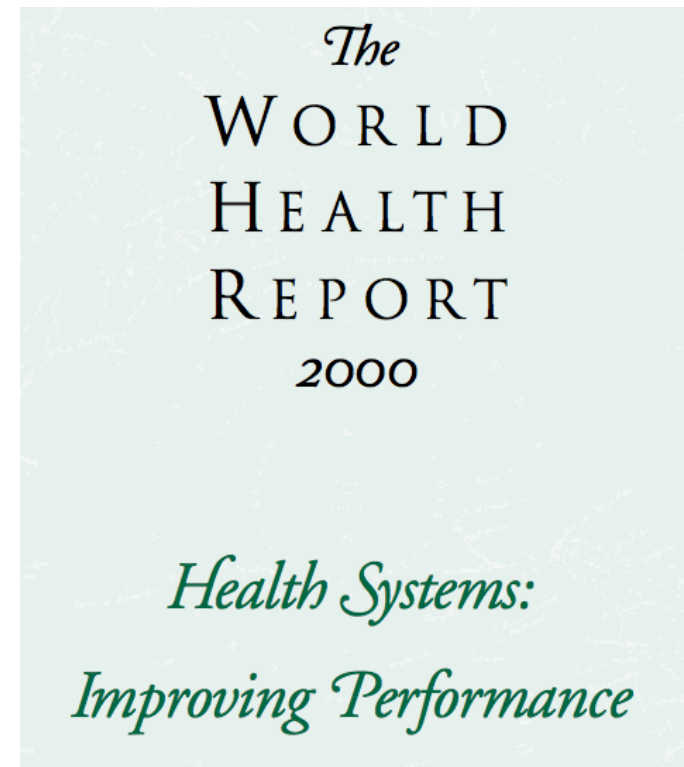
3. Indirect costs (e.g. time lost and earnings foregone)

When disease lasts long and can be impactful (e.g. mental conditions)

Prevention of medical impoverishment
= financial risk protection (FRP)

Health system objectives

- Improving health and the distribution of health in the population
- **Financial risk protection: prevention of medical impoverishment**
- **Fairness in the financial contribution toward health**



Measures of financial risk protection

1. Catastrophic expenditures

- Defined as health spending $>$ threshold defined in relation to household's prepayment income
- Threshold
 - = fraction of medical spending + non-medical spending
- Threshold
 - = fraction of pre-payment income – (food & other necessities)

Wagstaff (2010)

Application: cross-country studies

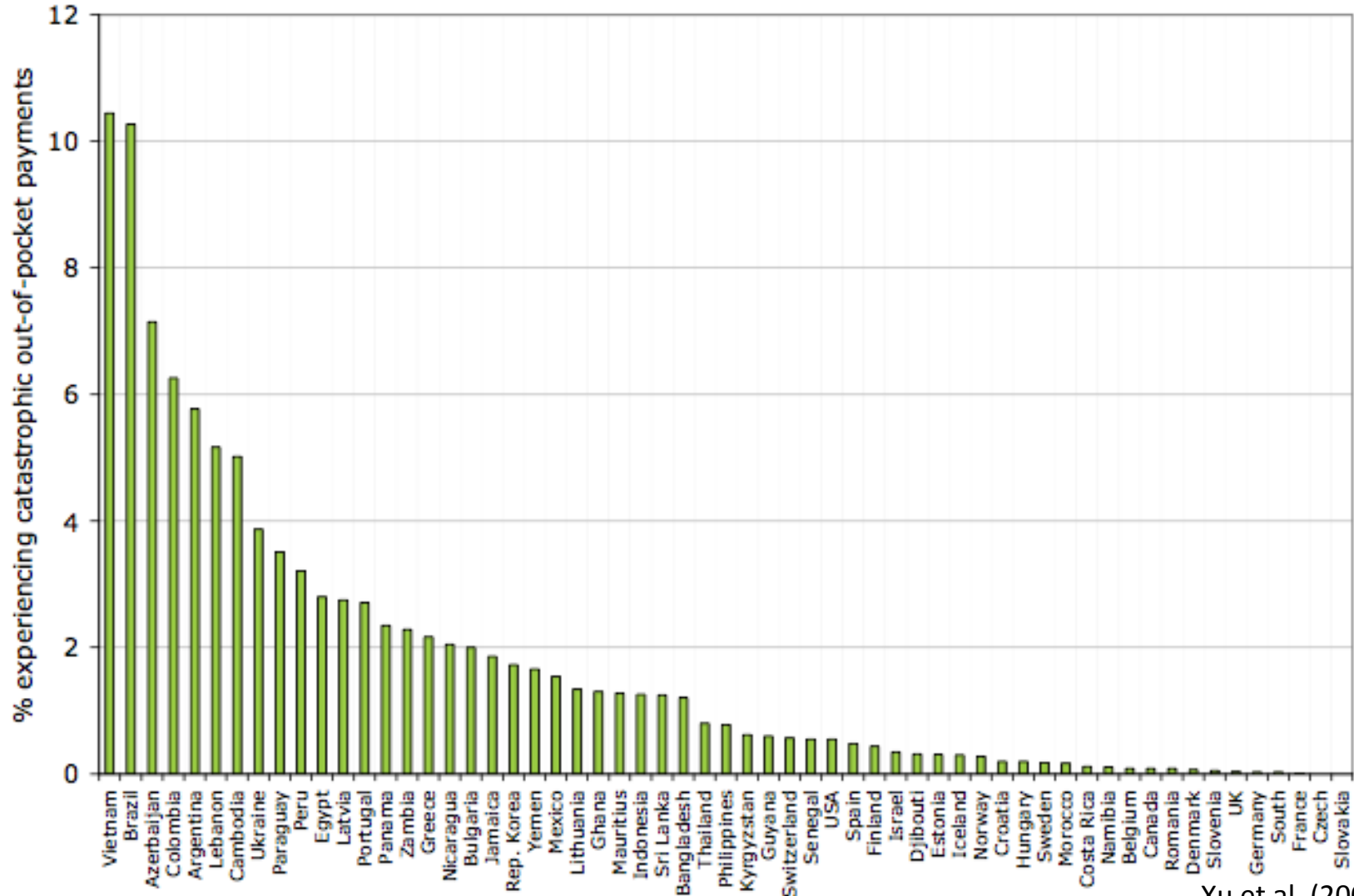
Xu et al. “Household catastrophic health expenditure: a multicountry analysis”. Lancet 2003

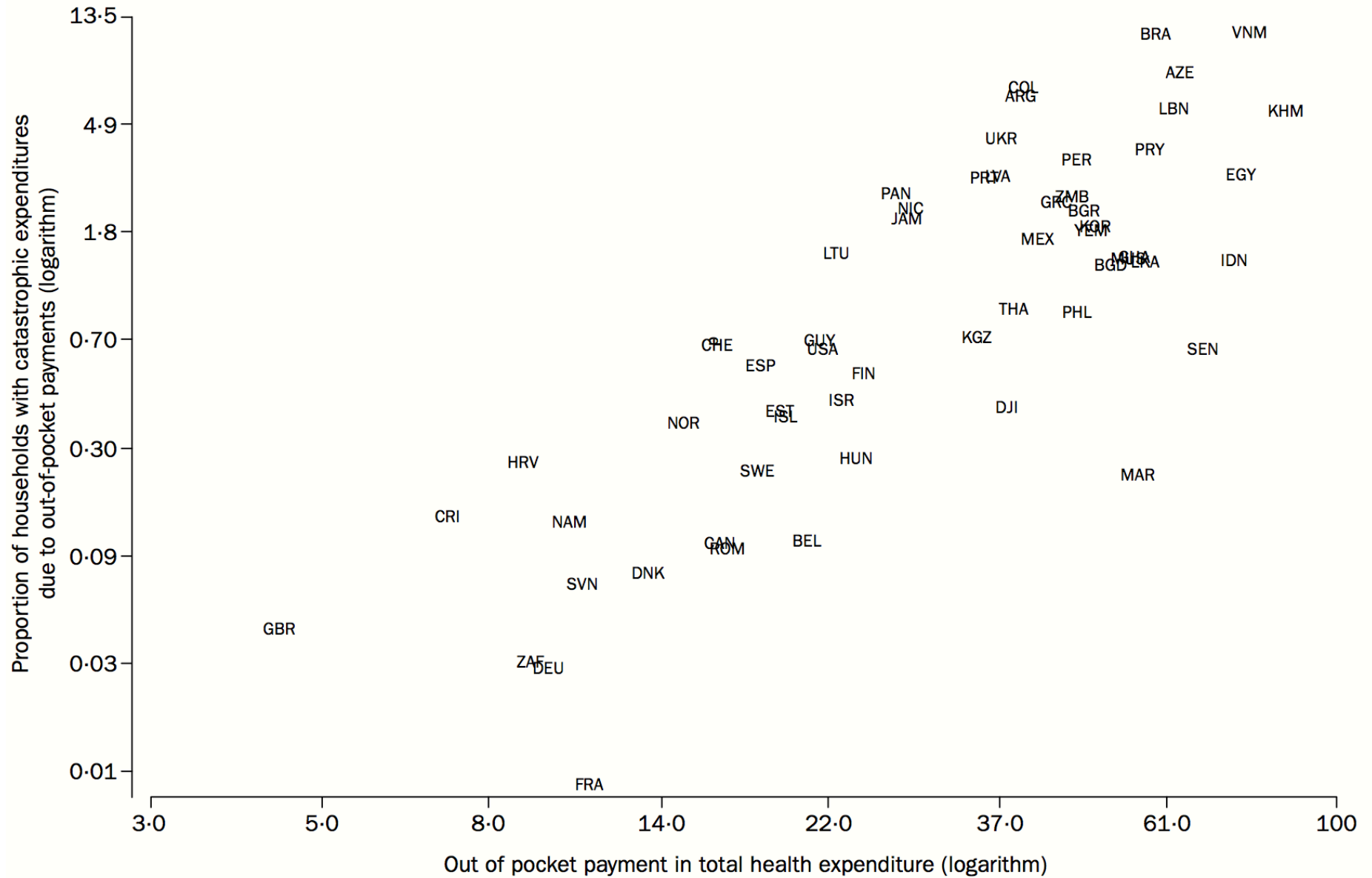
Medical expenditures E are ‘catastrophic’ when superior to 40% of subsistence income SI
(off housing and food consumption)

$$E > 0.40 * SI$$

Example (1): catastrophic expenditures

Figure 4: The incidence of catastrophic out-of-pocket payments in 59 countries

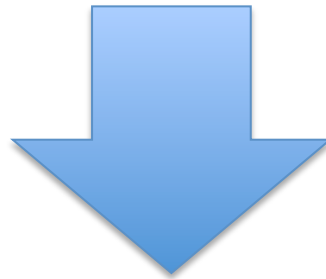




Measures of financial risk protection

2. Impoverishing expenditures

- Before health spending shock, household income $>$ poverty line
- After health spending shock, household $<$ poverty line



1 poverty case due to medical expenditure

Wagstaff (2010)

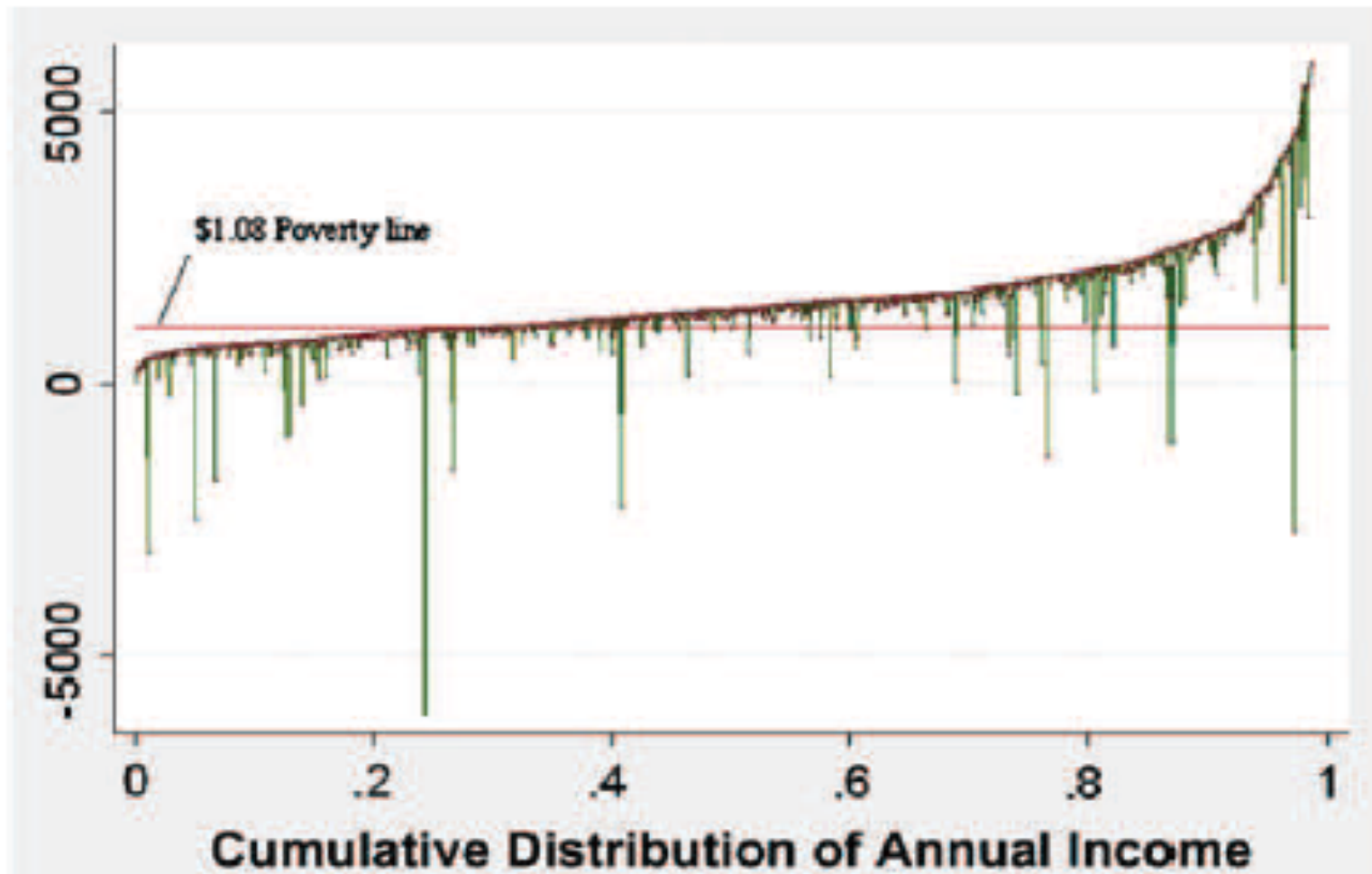


Fig. 2. Cumulative distribution of income and the effect of medical spending. Note: for the purpose of this figure, observations with extreme values (above 6000 RMB and below -6000 RMB) are excluded.

Yip and Hsiao (2009)

Mechanisms of financial risk protection & health insurance

Mechanisms of financial risk protection

- **Self-insurance** (e.g. borrowing against own income)
- **Loans upon incidence of disease/medical expenditures**
- **Moving from out-of-pocket payments to prepayment mechanisms reduces medical impoverishment**

(Xu et al. 2007; cross-country study)

- **Social insurance programs/health insurance**

e.g. México & Seguro Popular in 2004 (Knaul et al. 2006)

e.g. Medicare in the US

(Finkelstein and McKnight 2008; McClellan and Skinner 2006)

Social insurance programs

- **e.g. in the United States**

Social security: provides insurance against earnings loss due to death or retirement

Unemployment insurance: provides insurance against job loss

Disability insurance: provides insurance against career-ending disability

Workers' compensation: provides insurance against on-the-job accidents

Medicare: provides insurance against medical expenditures in old age

Gruber (2005)

Health insurance (1)

- Individuals/employers pay ‘**insurance premiums**’ against health problems and associated medical expenditures
- **Insurance premiums:** money paid to insurer for insurance against adverse events
- When outcomes are uncertain, people want to smooth their consumption over possible outcomes
- **Consumption smoothing:** translation of consumption from periods with high consumption and low marginal utility, to periods with low consumption and high marginal utility

Gruber (2005)

Health insurance (2)

Actuarially fair premium:

insurance premium that is set equal to the insurer's expected payout

incidence x medical cost

$$= p * c$$

Gruber (2005)

Risk aversion and risk premium

- **Risk aversion:** difference across individuals in extent to which they are willing to bear risk (e.g. level of risk aversion)
- Very risk averse = very rapidly diminishing marginal utility; very afraid of consumption falling and happy to sacrifice consumption in good state to insure themselves from large reductions in bad state
- Less risk averse = slowly diminishing marginal utility; aren't willing to sacrifice much in good state to insure themselves in bad state
- **Risk premium:** amount individuals will pay for insurance above beyond actuarially fair price

Measures of financial risk protection

Catastrophic expenditures

Impooverishing expenditures

Money-metric value of insurance provided

Estimate a 'risk premium'

McClellan & Skinner (2006)

Finkelstein & McKnight (2008)

Smith (2013)

Verguet, Laxminarayan & Jamison (2014)

Examples of health insurance programs (1)

United Kingdom's National Health Service (1948)

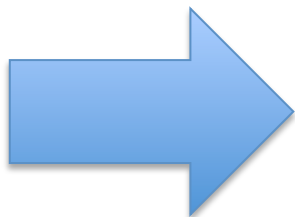
“There are no charges, except for a few special items. There are no insurance qualifications. But it is not a charity. You are all paying for (the National Health Service), mainly as taxpayers, and it will relieve your **money worries in times of illness...**’

Examples of health insurance programs (2)

México & Seguro Popular

See Knaul et al. (2006)

- Introduced in 2004
- Structural reform mandated by congress designed to provide financial protection by offering publicly provided insurance to 50 million Mexicans not belonging to a social security institute
- Insurance premiums subsidized as a large majority of México's poor were uninsured



Large number of health reforms followed in other Latin American countries (e.g. AUGE in Chile)

Examples of health insurance programs (3)

Health Transformation Program (HTP) in Turkey

Insurance coverage for the poorest population groups increased from 2.4 million in 2003 to 10.2 million in 2011

See Atun et al. (2013)

China

	UEBMI		URBMI		NCMS	
	2008	2010	2008	2010	2008	2010
Target population	Formal sector urban workers	Formal sector urban workers	Children, students, elderly people without previous employment and migrants (in some cities)	Children, students, elderly people without previous employment and migrants (in some cities)	Rural residents	Rural residents
Risk-pooling unit	City	City	City	City	County	County
Enrolment, %	80.7%	92.4%	63.8%	92.9%	90.0%	96.6%
Total premium per person (¥)*	1443	1559	131	138	96	157
Government subsidy per person	0	0	80	120 (200 in 2011)	80	120 (200 in 2011)
Central government contribution	0	0	40	60 (100 in 2011)	40	60 (100 in 2011)
Individual contribution†	2–3% of salary (about ¥494–741)‡	2–3% of salary (about ¥494–741)‡	20–170 in central and western provinces; 40–250 in eastern provinces‡	20–170 in central and western provinces; 40–250 in eastern provinces‡	20–30 in western and central provinces; 30–50 in eastern provinces‡	20–30 in western and central provinces; 30–50 in eastern provinces‡
Employer contribution†	6–8% of salary (about ¥1483–1977)‡	6–8% of salary (about ¥1483–1977)‡	0	0	0	0
Benefit design						
Inpatient reimbursement rate (%)§	67.0%	68.2%	43.8%	47.9%	37.8%	43.9%
% of counties or cities covering general outpatient care	Savings accounts	Savings accounts	12.5%	57.5%	29.1%	78.8%
% of counties or cities covering outpatient care for major and chronic disease	Savings accounts	Savings accounts	61.6%	82.7%¶	63.0%	89.4%¶
Total reimbursement ceiling	NA	Six-times average wage of employee in the city	NA	Six-times disposable income of local residents	NA	Six-times income of local farmers

¥6.5 is about US\$1. UEBMI=Urban Employee Basic Medical Insurance. URBMI=Urban Resident Basic Medical Insurance. NCMS=New Cooperative Medical Scheme. NA=data not available. *For URBMI and NCMS, total premium can be greater than the sum of government subsidies and individual contribution because local governments can contribute more than the minimally required amount. †Variations exist in western, central, and eastern provinces because individuals in richer provinces contribute more than the minimum required amount. ‡2009 data. §% total inpatient expenditure reimbursed by insurance taking into account deductible, copayment, and ceiling. ¶Rates as of end of March, 2011.

Table 1: Summary of three social health insurance programmes^{28,30,32,35}