Measurement of financial hardship in the context of universal health coverage

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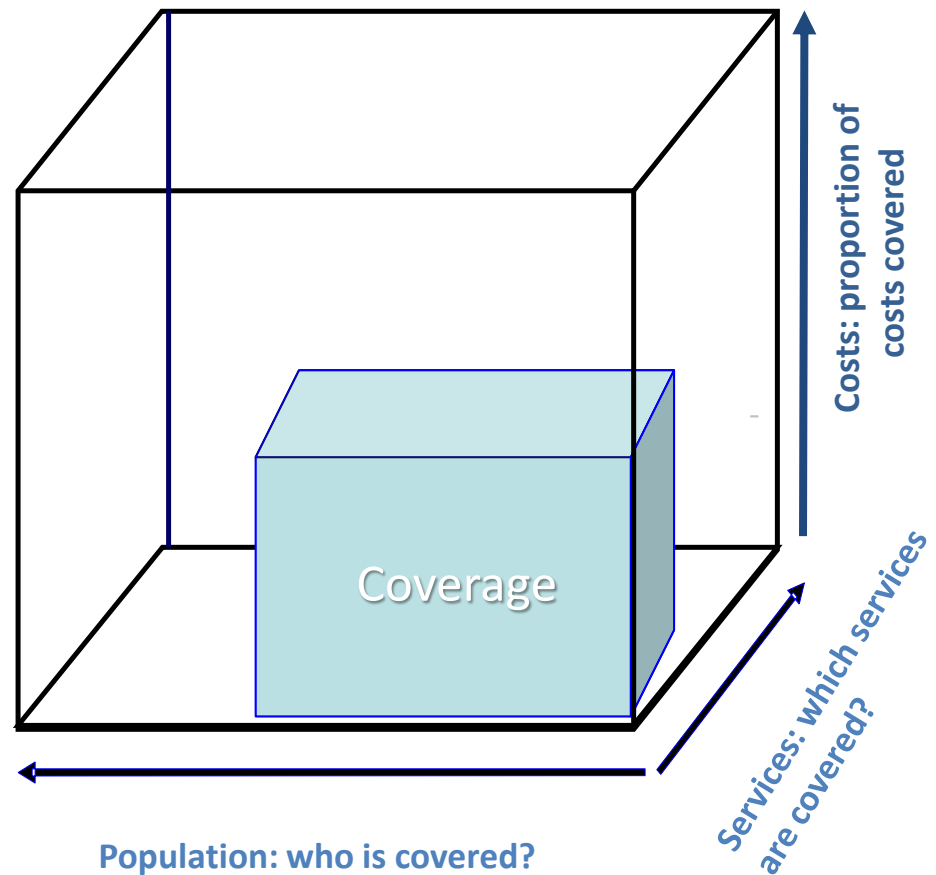
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Universal health coverage

Universal health coverage means access to all needed health services without financial hardship. Many World Health Assembly resolutions have also recognized this objective which was a central theme of the World Health Report 2010

Three dimensions of universal health coverage

Costs: proportion of costs covered

Services: which services are covered?
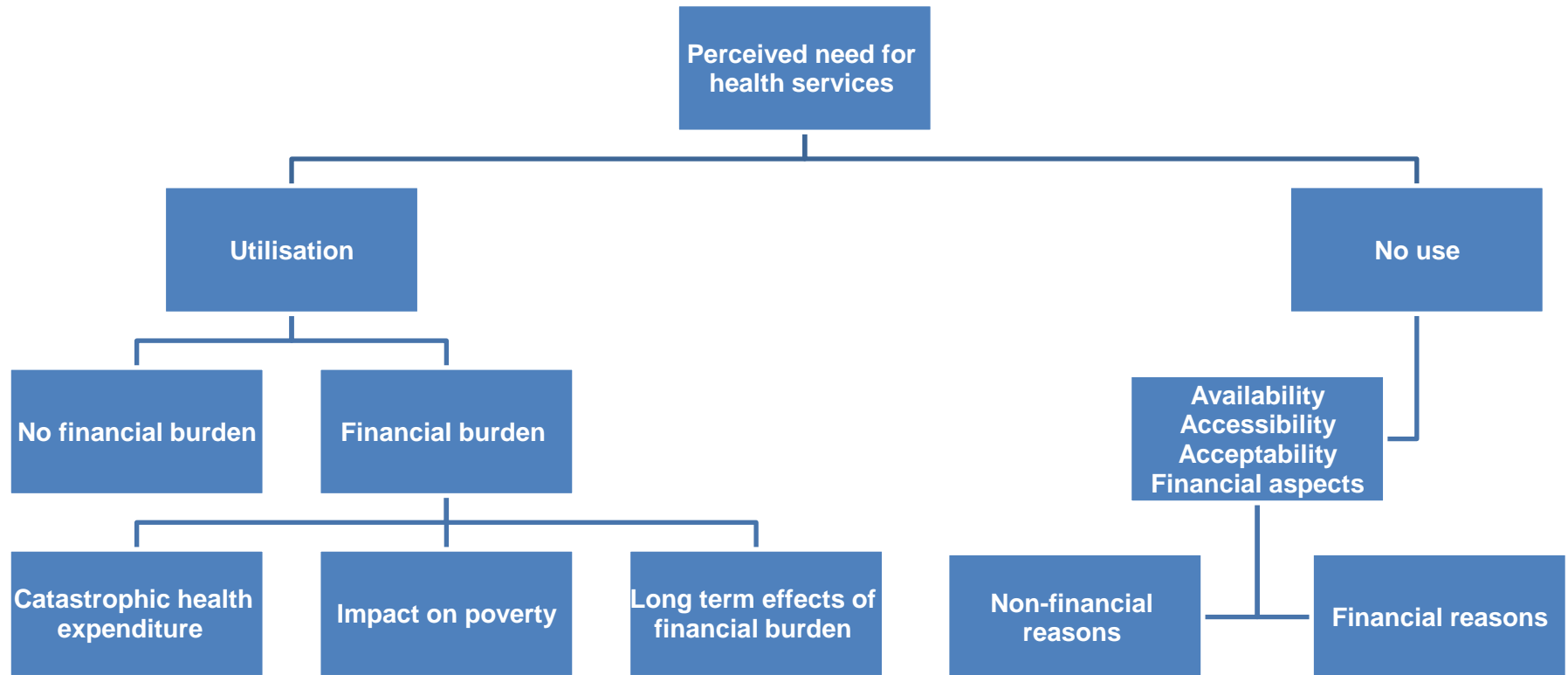
Coverage

Population: who is covered?

Absence of financial hardship in accessing health services – a goal of UHC

- Impediments to UHC
  - Barriers to accessing services
    - Geographic
    - Cultural
    - Financial
  - Low quality of services
  - Financial hardship due to accessing health services

Numbers that are commonly cited for financial hardship due to health expenditure

- 150 million people in the world face catastrophic health expenditure

- 100 million people are pushed below the poverty line due to health payments

- Additionally, millions of people forgoe the use of essential health services because of financial reasons

Financial risk protection

Financial risk protection vs. financial hardship

- Is universal health coverage only interested in the financial hardship from using health services and not financial barriers to access?

- Financial risk protection traditionally understood by economists to mean everything financial (economic) related to seeking care

  - Financial barriers to care + financial hardship from health payments

- UHC is interested in financial hardship from health payments

  - *Financial hardship in UHC roughly represents how the health system affects the general welfare of people*

- That is not to say that financial barriers to access are not important or should not be of particular interest to health economists/health financing people. They are also important in UHC in the access dimension – but they are separate from financial hardship within the concept of UHC.

What is financial hardship?

- How does financial hardship occur?
  - Would there be financial hardship if there were no health payments?
- Financial hardship is linked to financial means, which of course differ across different people in a population
- Inequalities in financial hardship are thus linked to wealth-related inequities by definition
- Inequalities in financial hardship may also be linked to other types of socio-economic inequities
  - For example, if people of a certain ethnicity were charged more for health care (either explicitly or implicitly due to health needs and service provision)

How to measure financial hardship/"financial risk protection"

- Common measures of financial risk protection
  - Catastrophic health expenditure measures
    - % of households with catastrophic health expenditure
    - Catastrophic overshoot
  - Impoverishment measures
    - % of households impoverished due to health payments
   - Increase in poverty gap

Principles behind financial contribution to health services

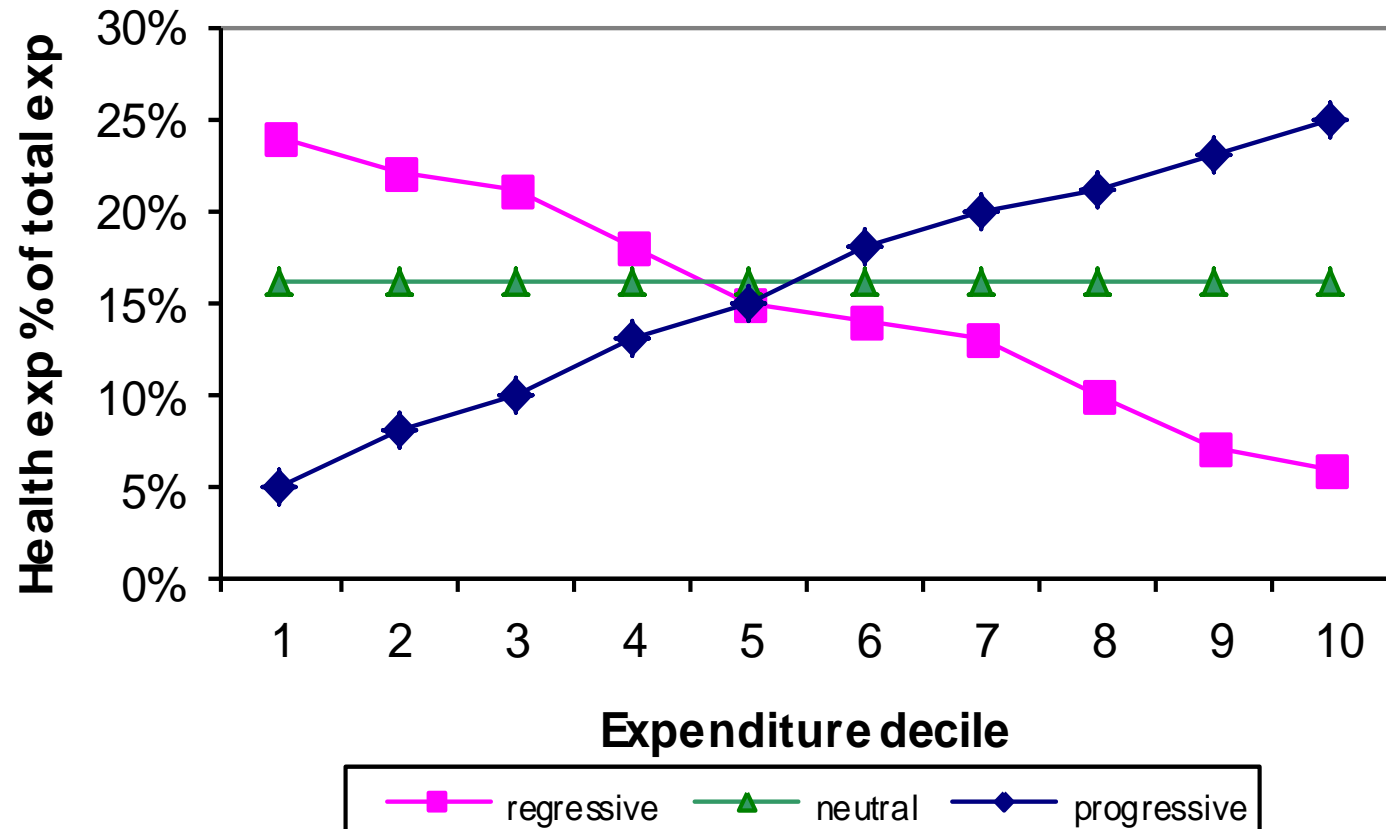All people should have access to essential interventions when needed

Financial risks of ill health should be pooled – e.g. people should not suffer catastrophic expenditures or be impoverished because of paying for health care

Financial contributions to the system should be based on ability to pay

Rich pay more than the poor
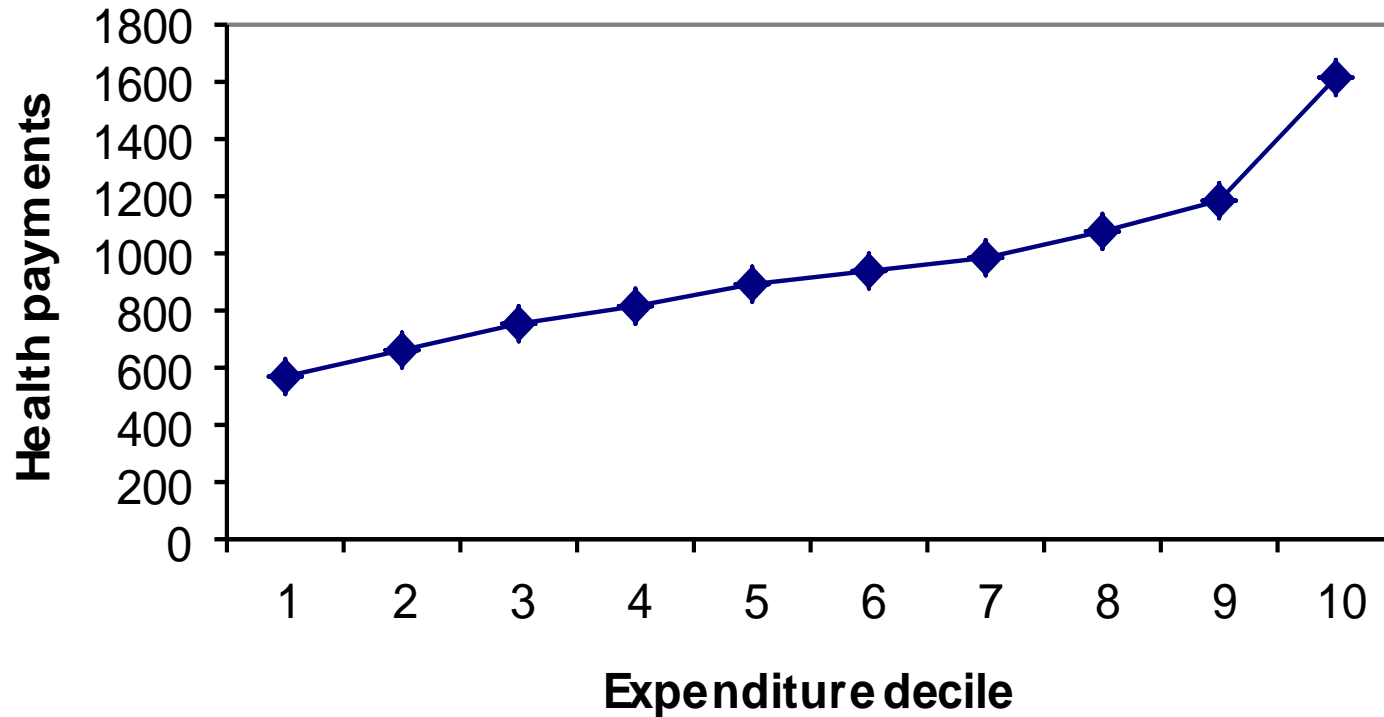
Progressivity

Catastrophic health expenditure

- When health payments for one or more members of a household are high relative to household's capacity to pay, the household has to forgoe other essential expenditures. This is notion of "catastrophic health expenditure".

- Other problems that are related to catastrophic health expenditure:
  - Some households have to borrow money or sell assets to finance their health care costs
  - Some households will earn less money due to deteriorated health condition
  - Some households are impoverished after paying for health services
  - Some housheolds who are already below the poverty line become even poorer due to health payments

Catastrophic health expenditure

How to calculate catastrophic health expenditure

- Different defnitions exist for "capacity to pay" and for the choice of the thresholds (i.e. denominator and threshold)

- WHO defnition:

  – A household has catastrophic health expenditure when its out-of-pocket health payments equal or exceed 40% of its non-subsistence expenditure, or what is called its capacity to pay

$$\frac{out\_of\_pocket\_health\_payments}{capacity\_to\_pay} \geq 40\%$$

How to measure the capacity to pay of a household?

- Actual income (Y, current)

- Permanent income (PY, permanent)

- Effective income (EY, effective)
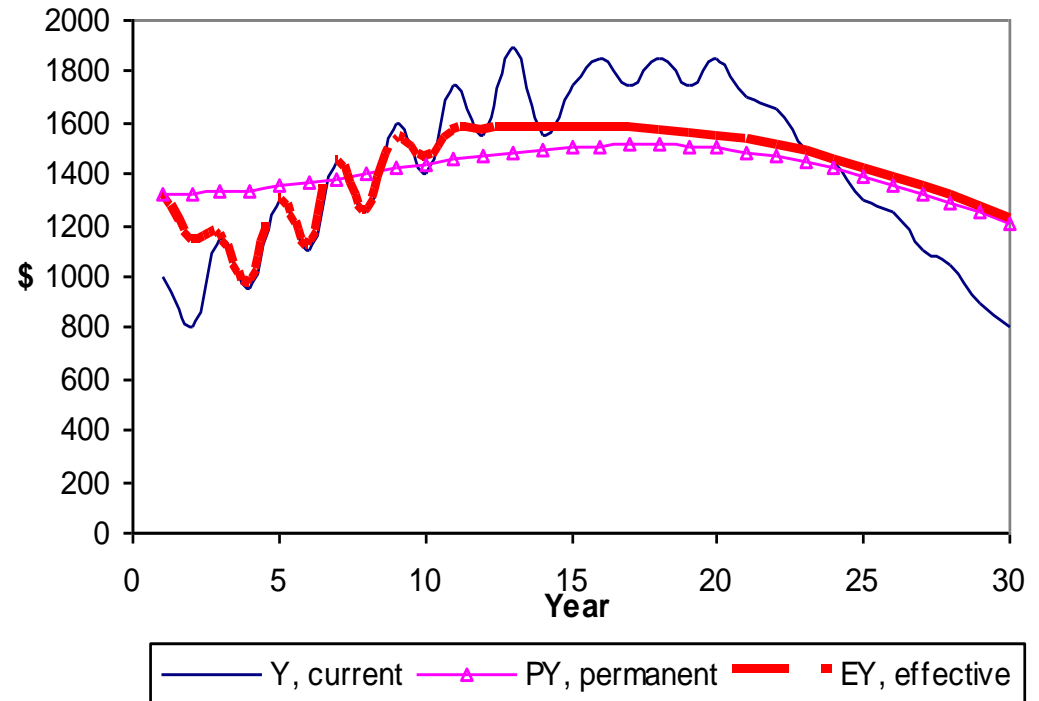
Household subsistence expenditure

- **Idea of subsistence expenditure is what should not be considered as a household's capcity to pay**
- **What should this subsistence expenditure correspond to?**

- **Basic household expenditure on food**
  - Doesn't include spending on restaurants
  - Doesn't include spending on tobacco or alcohol
- **Basic household expenditure on food + other basic household expenditure**
- **International poverty line:**
  - $1 per person per day (1985), converted in the local currency with respect to purchasing power

- **Poverty line based on food expenditure**
  - The average basic food expenditure of households whose food share of total household expenditure is between the 45th and 55th percentile
  - Adjusted for household size to take into account economies of scale

$$eqsize_h = hhsize_h^{\beta} \qquad \beta = 0.56$$

Calculating household subsistence expenditure

- Step 1. Calculate the percentage of food in total household expenditure for all households - *foodexp$_h$*

$$foodexp_h = \frac{food_h}{exp_h}$$

- Step 2. Order households according to their *foodexp$_h$*

- Step 3. Identify households' whose *foodexp$_h$* falls between the 45th and 55th percentile

- Step 4. Calculate equivalised food expenditure according to the household size - *eqfood$_h$*

$$eqfood_h = \frac{food_h}{eqsize_h}$$

- Step 5. Calculate the average *eqfood$_h$* for households identified in Step 3
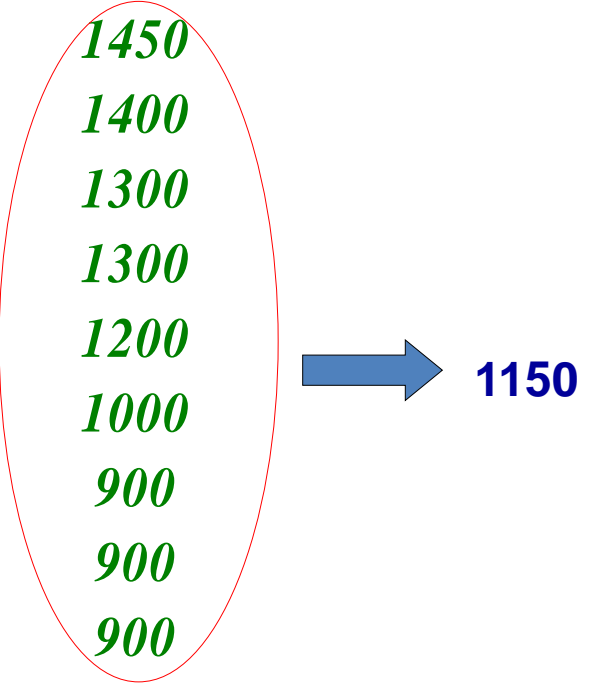
$$pl = \frac{\sum w_h * eqfood_h}{\sum w_h} \quad \text{where } food45 < foodexp_h < food55$$

- Step 6. Calcuate the subsistence expenditure of households

$$se_h = pl * eqsize_h$$

Example: Calculate subsistence expenditure

foodexp	**Percentile** of *foodexp*	*eqfood*
…	…	…
44%	45th	1500
45%	46th	*1450*
45%	47th	*1400*
48%	48th	*1300*
48%	49th	*1300*
49%	50th	*1200*
59%	51st	*1000*
54%	52nd	*900*
55%	53rd	*900*
56%	54th	*900*
57%	55th	800
…	…	…

➡ **1150**

The capacity to pay of a household

- Capacity to pay (*ctp*)

$$ctp_h = exp_h - se_h \qquad \text{if} \quad se_h <= food_h$$

$$ctp_h = exp_h - food_h \qquad \text{otherwise}$$

- Household financial contribution (*oopctp*)

$$oopctp_h = \frac{oop_h}{ctp_h}$$

- Catastrophic health expenditure (*cata*)

$$cata_h = 1 \quad \text{if} \quad oopctp_h \geq 0.4$$

$$cata_h = 0 \quad \text{otherwise}$$
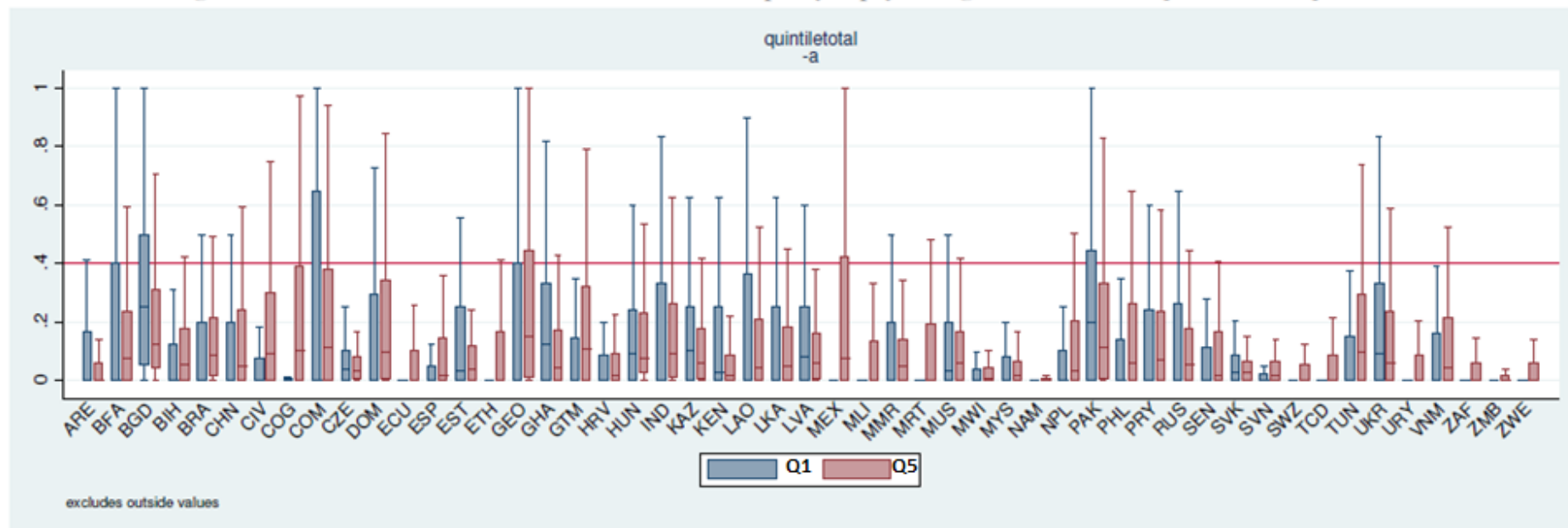
Q1, Q5 and Average - Catastrophic health expenditure

Catastrophic expenditure : Range 0%-12%

Legend: Q1, Q5, Average
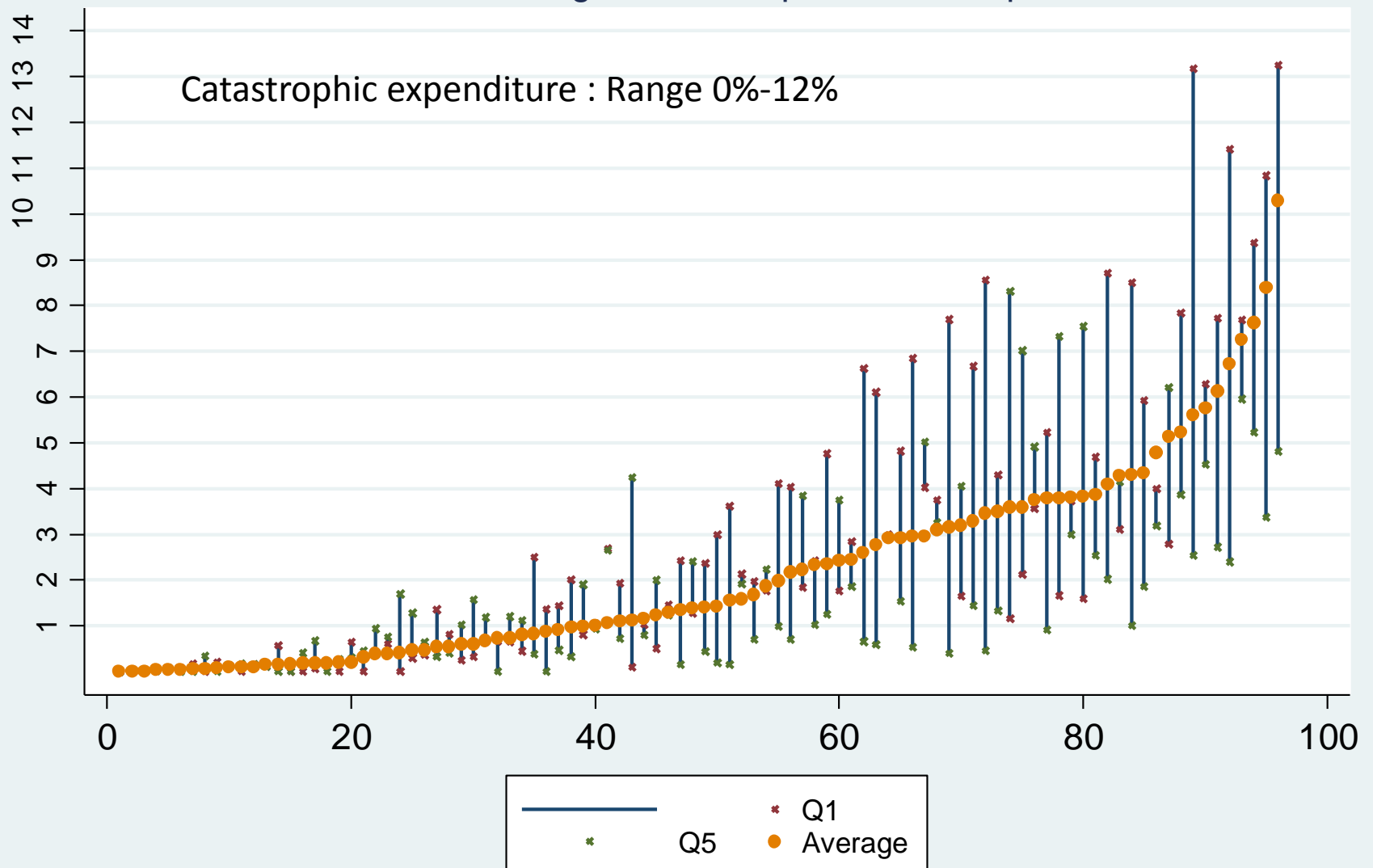
Source: Household surveys, 96 countries

Catastrophic overshoot = how much does the burden from OOP exceed the threshold for financial catastrophe?
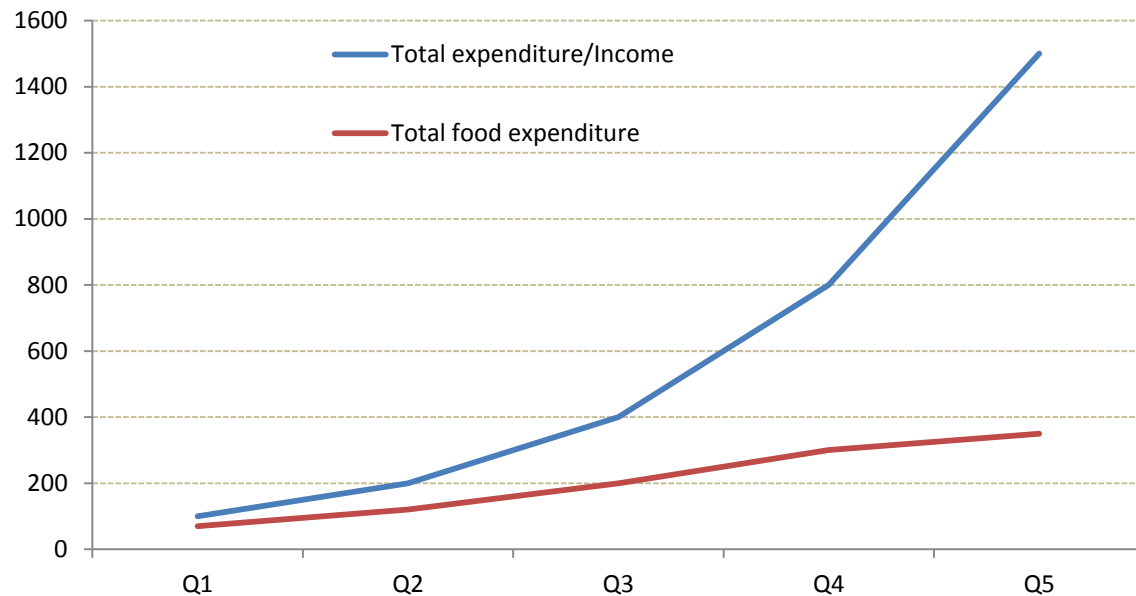
World Health Survey 2003

Figure 3 - Distribution of OOP as a share of household capacity to pay among all households in quintile 1 and quintile 5

Source: Saksena, P., Xu, K. & Durairaj, V. 2010. The drivers of catastrophic expenditure: outpatient services, hospitalization or medicines? World Health Report (2010) Background Paper, 21
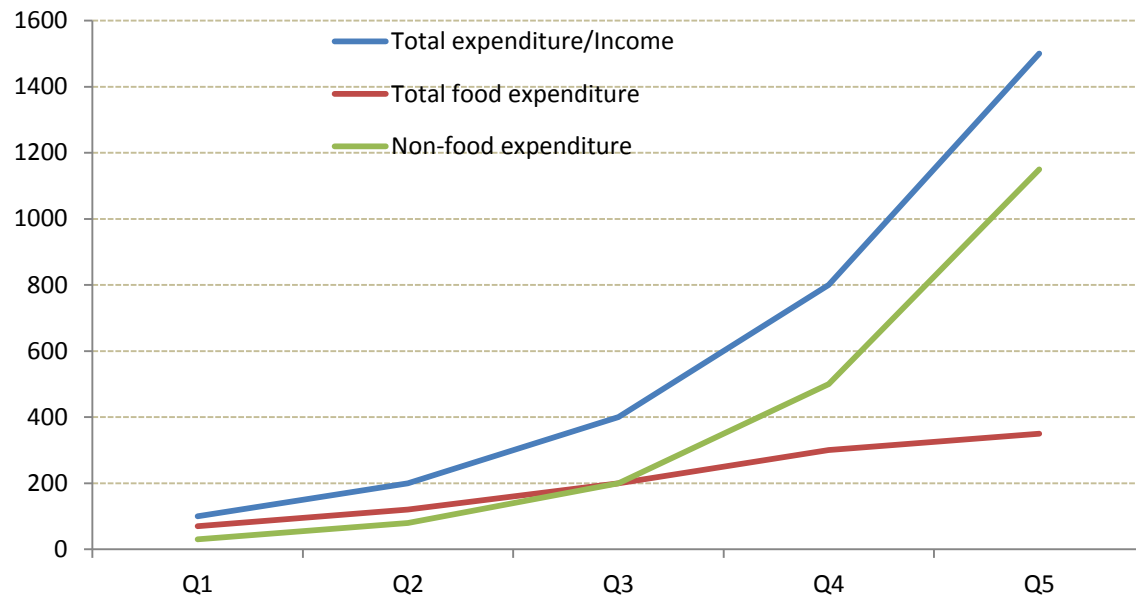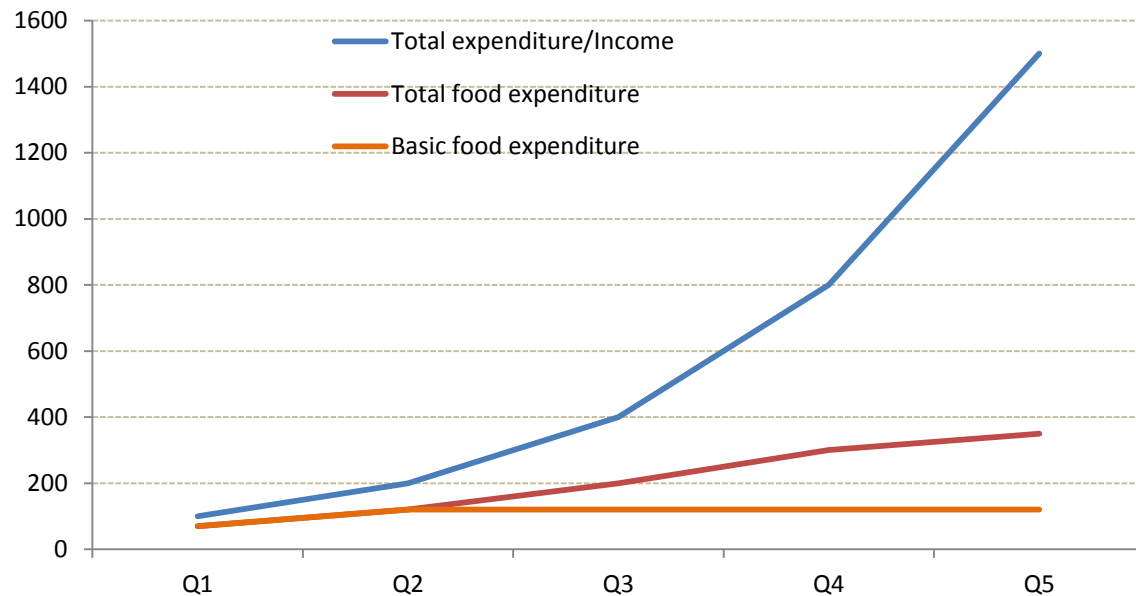
Catastrophic health expenditure: WHO denominator vs. WB denominator

- Non-food expenditure or non-food based expenditure ("capacity to pay") : which is a better denominator for catastrophic health expenditure?
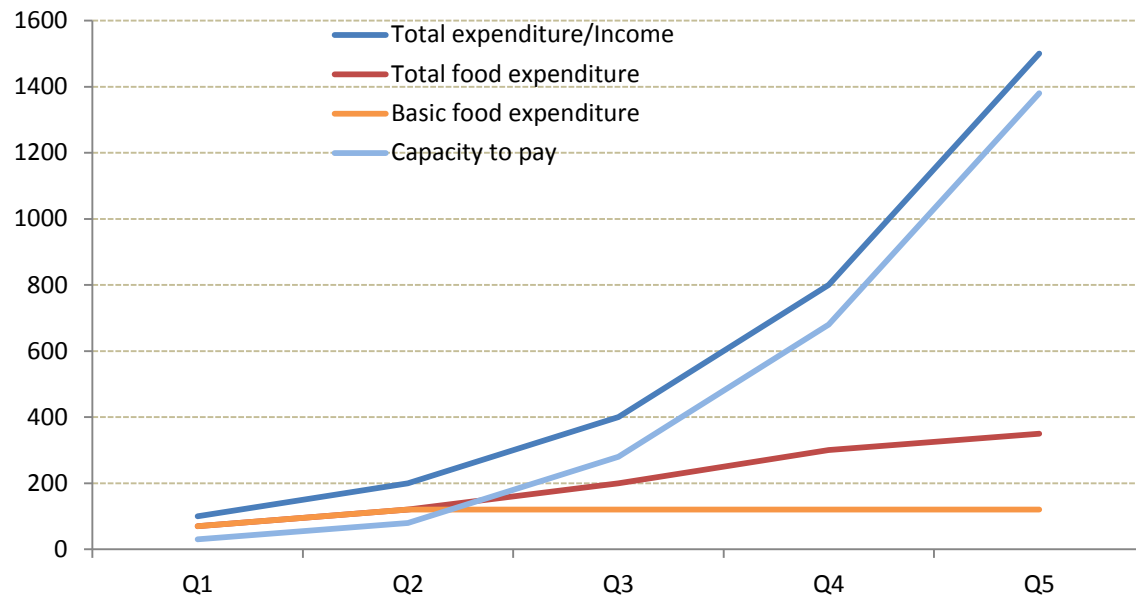   - Engel's Law

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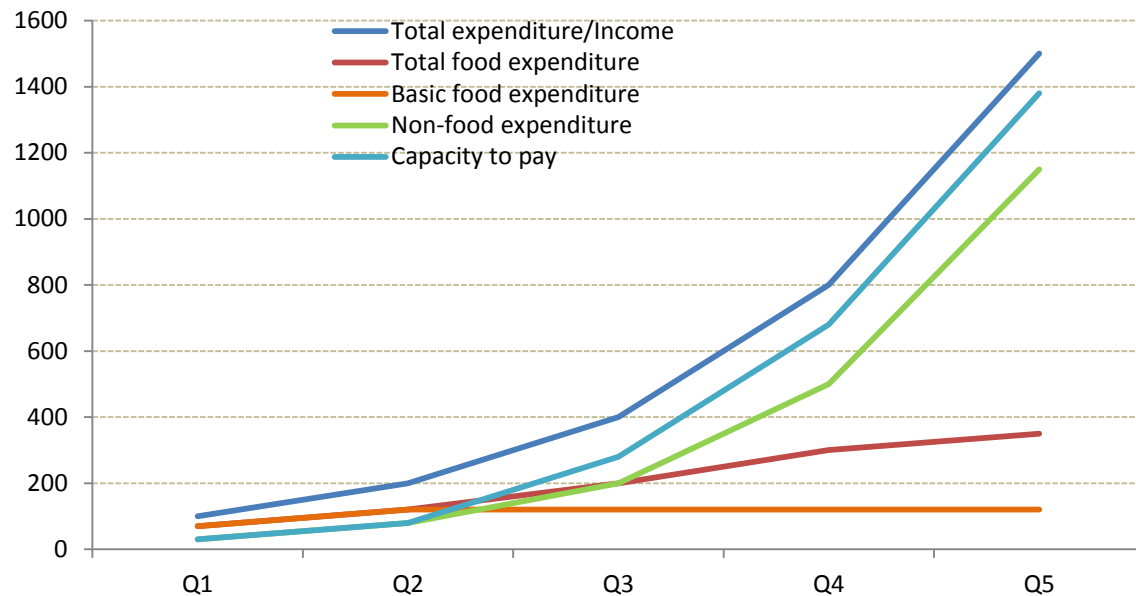 - Engel's Law

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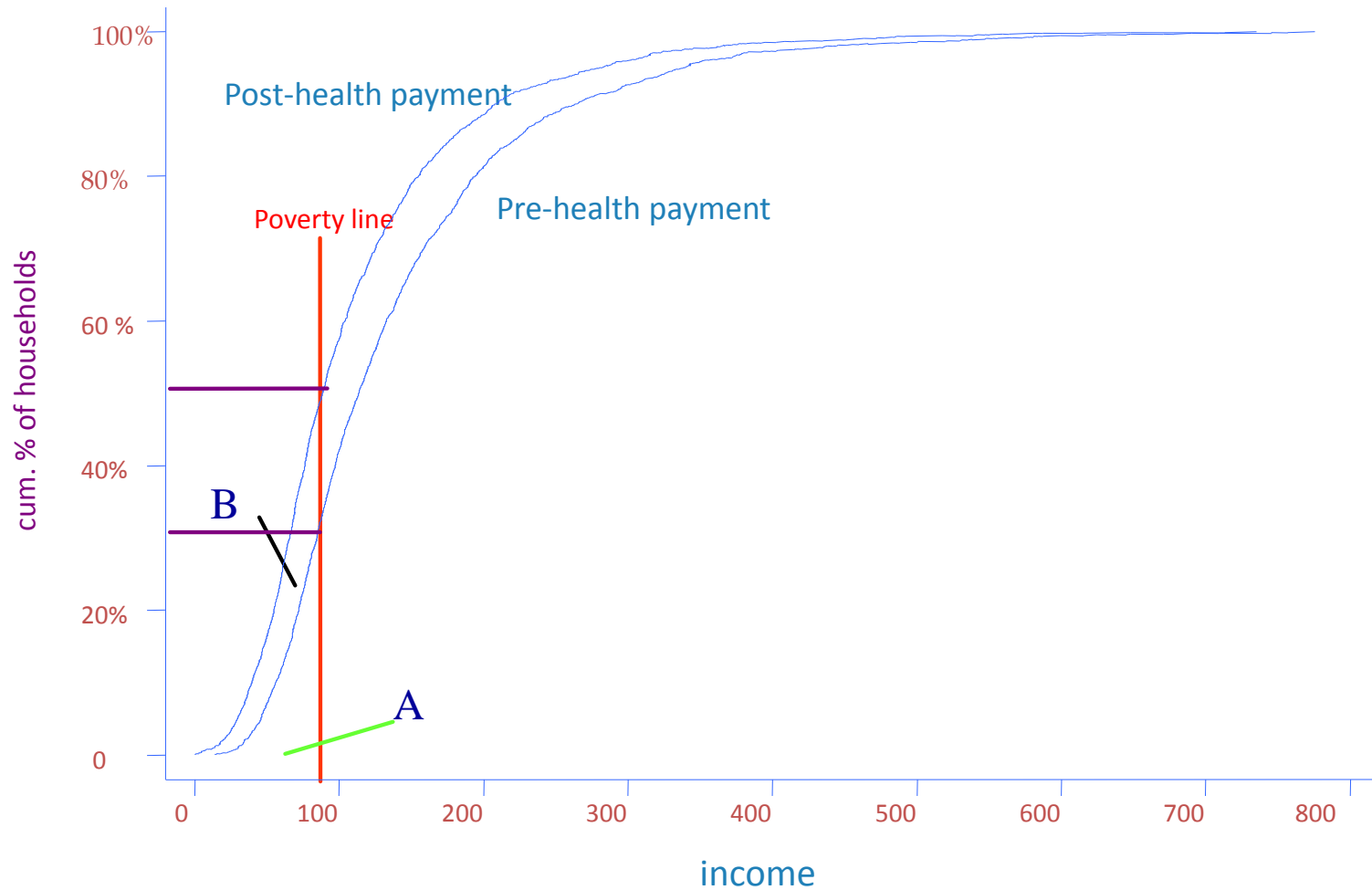   - Engel's Law

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Impact on poverty

- cum. % of households (y-axis)
- income (x-axis)
- Post-health payment
- Pre-health payment
- Poverty line
- A
- B

Poverty impact - headcount

Poverty line

- Relative poverty lines
- Absolute poverty lines (national poverty lines, $1 or $2 per day)
- Use of subsistence expenditure, *se* as a poverty line

$$poor_h = 1 \quad \text{if} \quad exp_h < pl$$

$$poor_h = 0 \quad \text{otherwise}$$

Impoverishment (the difference between the number of people under the poverty line before and after health payments)

$$impoor_h = 1 \quad \text{if} \quad exp_h \geq pl \quad \text{and} \quad exp_h - oop_h < pl$$

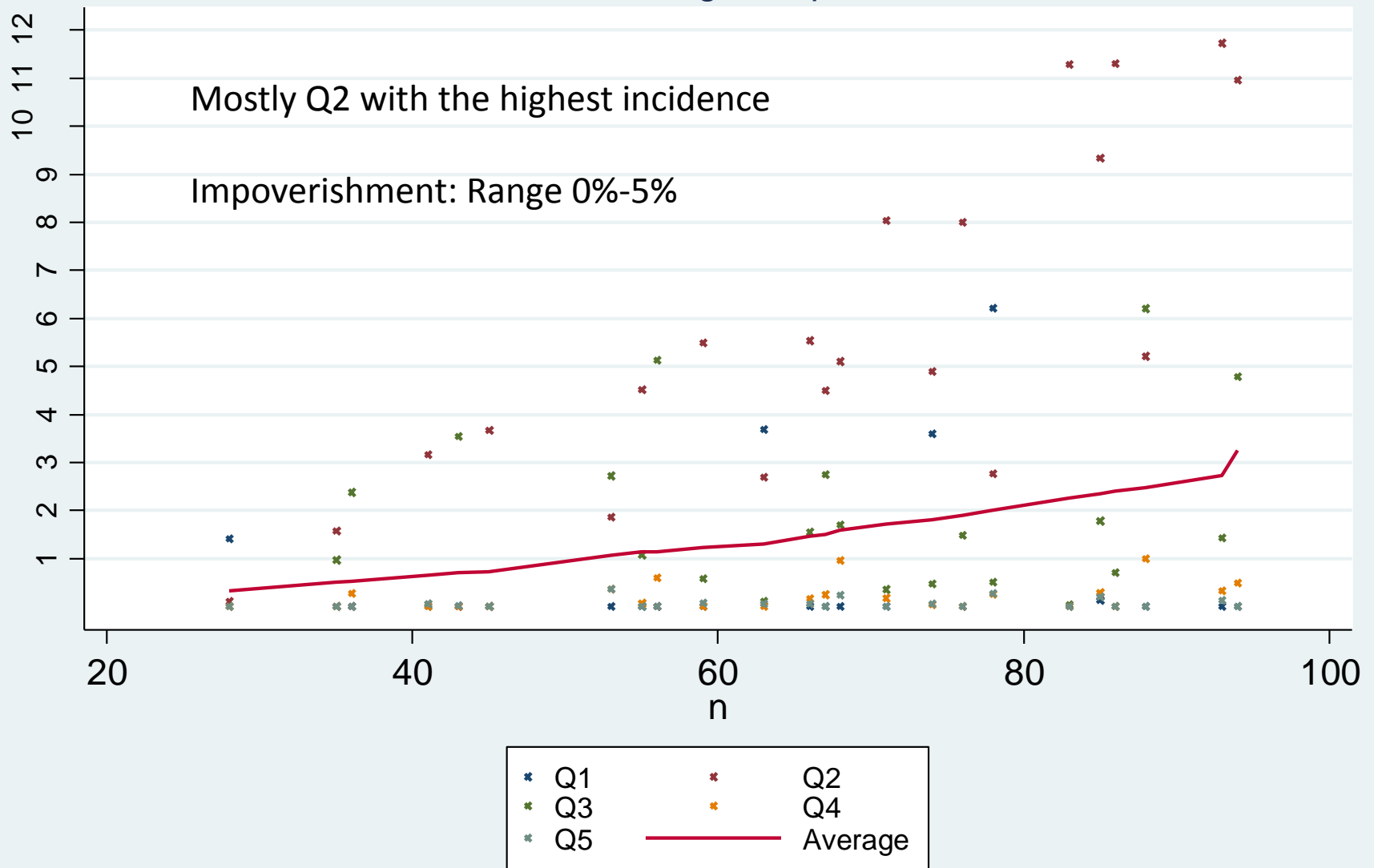$$impoor_h = 0 \quad \text{otherwise}$$

Under WHO methodology pl = se (subsistence expenditure)

Poverty impact – depth of poverty

- The impact of health payments on the depth of poverty:

  - Depth of poverty before health payments ($gapb_h$)
  $$gapb_h = pl_h - exp_h \text{ if } exp_h < pl_h$$

  - Depth of poverty after health payments ($gapa_h$)
  $$gapa_h = pl_h - (exp_h - oop_h) \text{ if } exp_h - oop_h < pl_h$$

  - Difference in the depth ($dgap$) before and after health payments
  $$dgap = \frac{\sum w_h gapa_h - \sum w_h gapb_h}{\sum w_h}$$

Q1, Q5 and Average - Impoverishment

Mostly Q2 with the highest incidence

Impoverishment: Range 0%-5%

Legend:
- Q1
- Q2
- Q3
- Q4
- Q5
- Average

Source: Household surveys, Low income countries
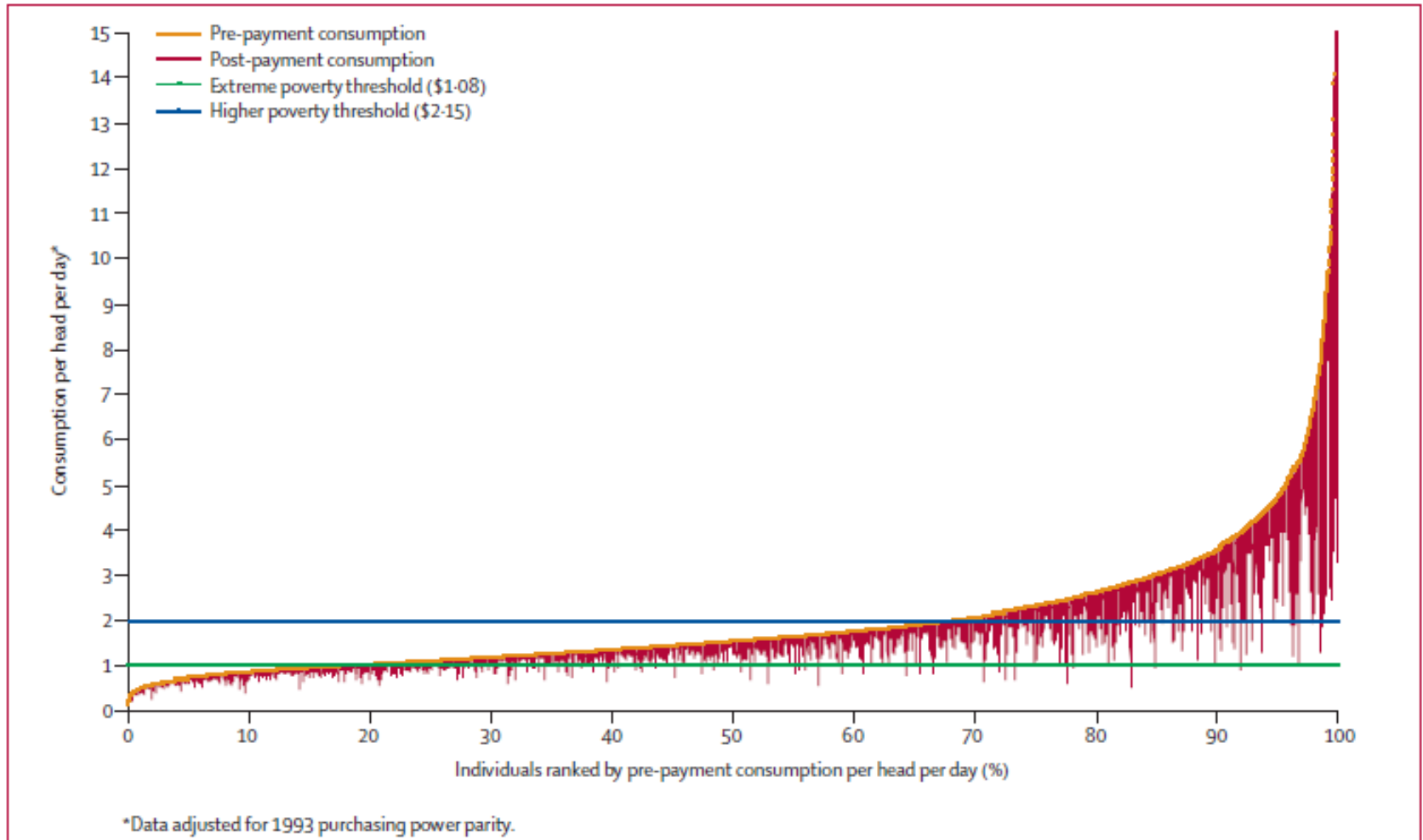
Depth of poverty

Figure 3: Distribution of total consumption before and after subtracting health-care payments–Bangladesh (2000)

Source: Eddy van Doorslaer, Owen O'Donnell, Ravi P Rannan-Eliya, Aparnaa Somanathan, Shiva Raj Adhikari, Charu C Garg, Deni Harbianto, Alejandro N Herrin, Mohammed Nazmul Huq, Shamsia Ibragimova, Anup Karan, Chiu Wan Ng, Badri Raj Pande, Rachel Racelis, Sihai Tao, Keith Tin, Kanjana Tisayaticom, Laksono Trisnantoro, Chitpranee Vasavid, Yuxin Zhao, Effect of payments for health care on poverty estimates in 11 countries in Asia: an analysis of household survey data, The Lancet, Volume 368, Issue 9544, 14–20 October 2006, Pages 1357-1364, ISSN 0140-6736, http://dx.doi.org/10.1016/S0140-6736(06)69560-3.
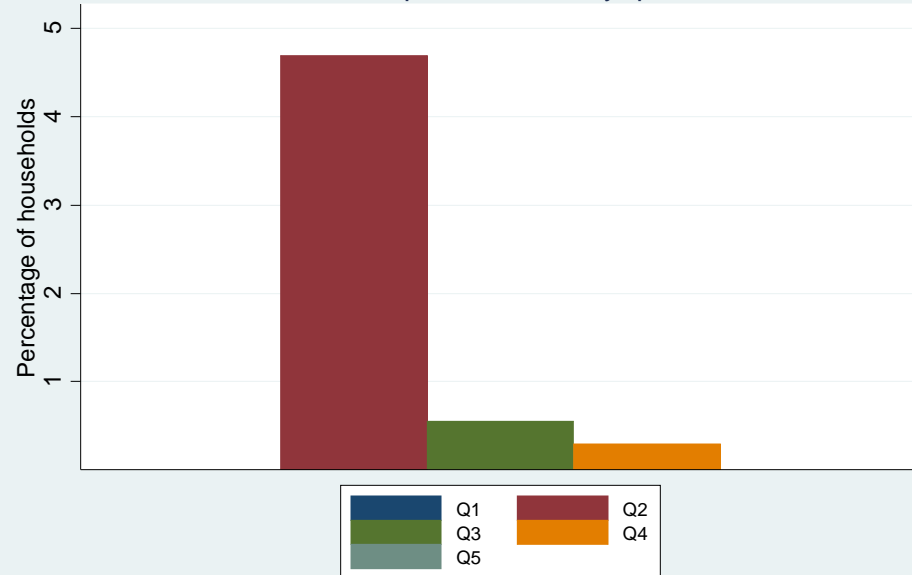
Further issues to consider

- WHO methodology used on the following 2 slides

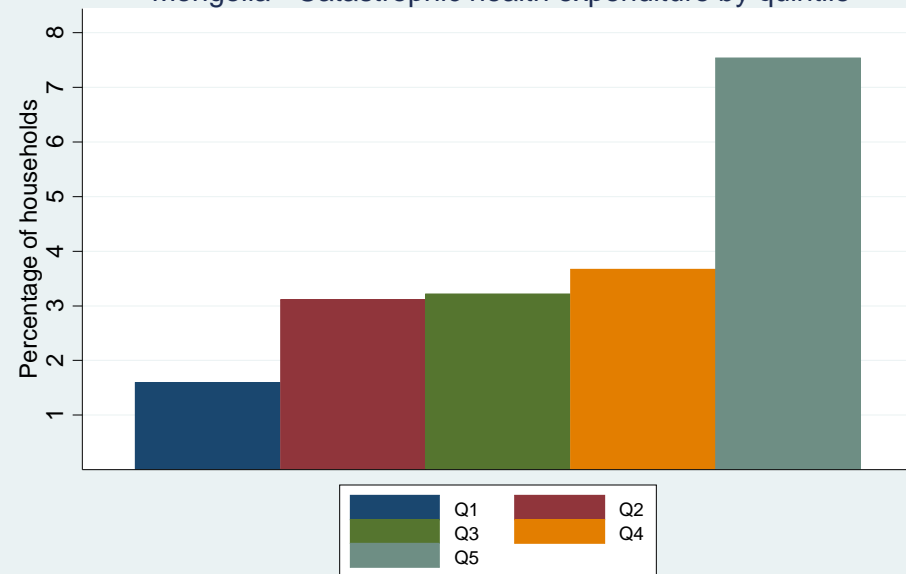## Laos - Catastrophic health expenditure by quintile
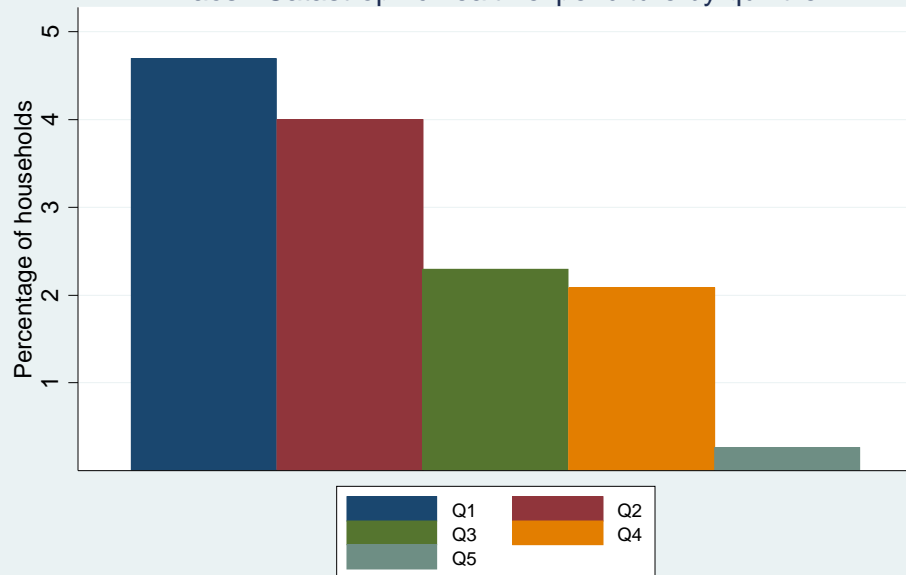
Source: Laos Expenditure and Consumption Survey 2003

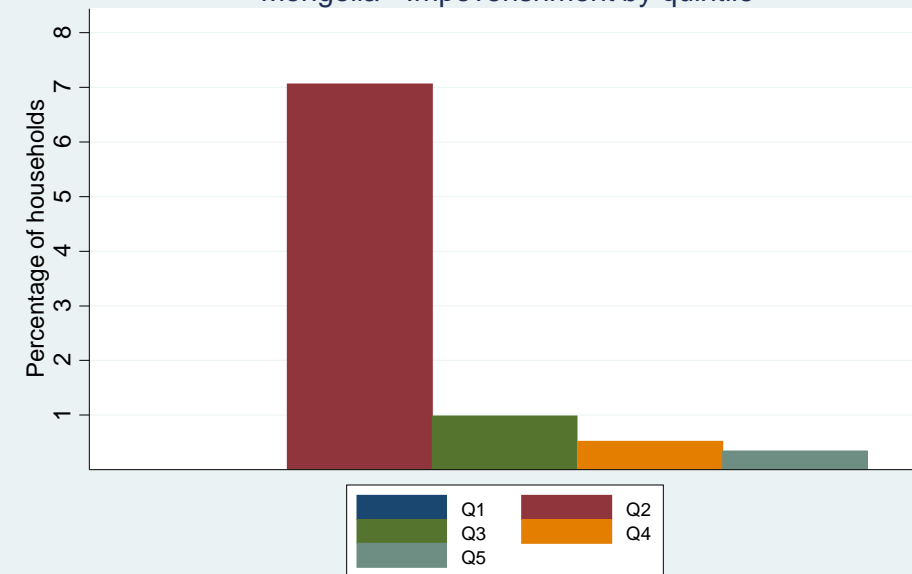## Laos - Impoverishment by quintile

Source: Laos Expenditure and Consumption Survey 2003

Mongolia - Catastrophic health expenditure by quintile

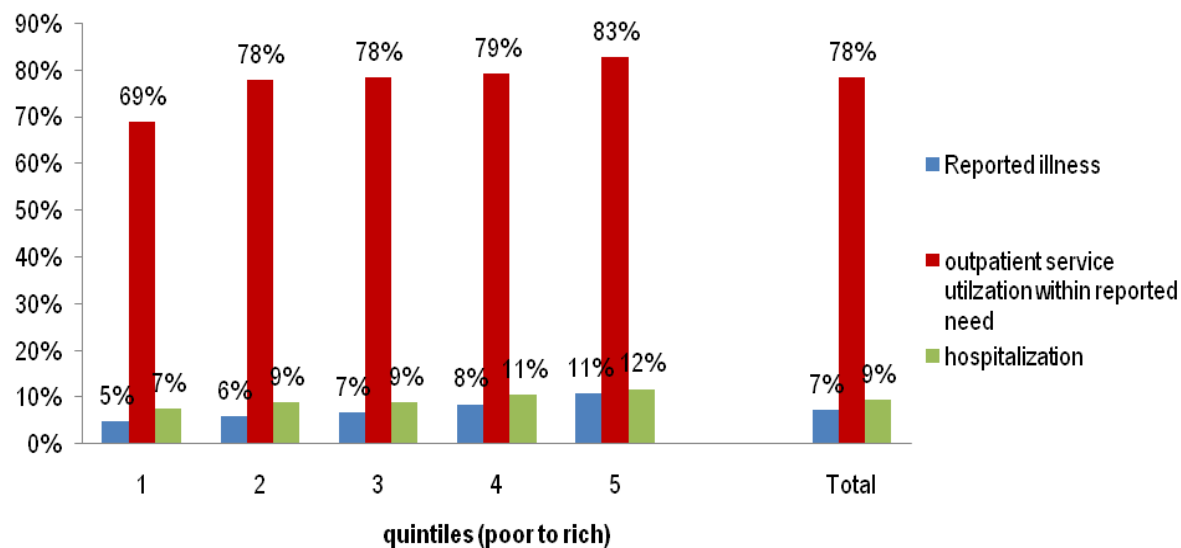Source: Mongolia Household Socio-Economic Survey 2009
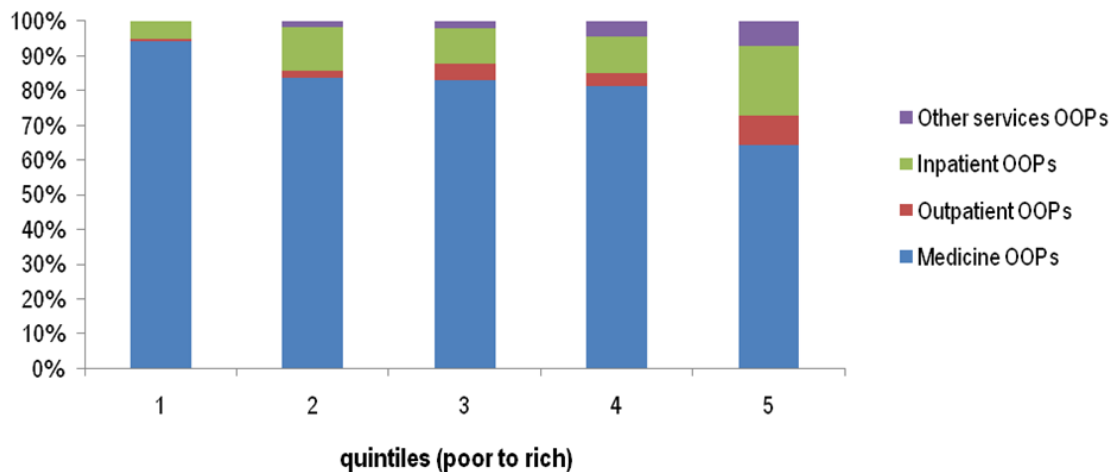
Mongolia - Impoverishment by quintile

Source: Mongolia Household Socio-Economic Survey 2009

Mongolia – a further look

Need and use of health services

Structure of out-of-pocket payments

Source: Mongolia Household Socio-Economic Survey 2009

Some final thoughts

- Financial risk protection analysis should always be done side-by-side health service use analysis → no use = no financial hardship
- Disaggregation of OOP is useful
- Income/expenditure already build into indicator of financial risk protection (e.g. impoverishment, catastrophic health expenditure)
  - Inequity in financial risk protection across wealth dimensions is very much reflection of inequalities in wealth
  - Equity in financial risk protection will really be important in non-wealth dimensions
- Impoverishment/catastrophic health do not capture everything
  - Indicators built on cross-sectional data – they do not capture the long-term effects of health expenditure
  - How do you take into account the financial/economic hardship faced by a household who because of spending on health care had to pull a child out of school instead to send him/her to work?
    - What is the scope of capturing issues like this?

How to do a study on financial risk protection

- MOH and other national institutions should be involved so that the studies have some impact on policy and monitoring of policies

- Collaboration with the statistical office or a research institution is very useful for getting the data and analyzing it

- Considerable scope for expanding studies to look at equity in health service use (which is strongly recommended), impact of particular reforms, etc.