

Understanding Household Catastrophic Health Expenditure

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Outline

- Definition of catastrophic health expenditure
- Hypothesis
- Data & methodology
- Results
 - cross country analysis
 - within-country case studies
- Summary and policy implications



Defining catastrophic health payment

- Households reduce their basic expenditures over a certain period of time in order to cope with the medical bills of one or more of their members
- No consensus on catastrophic threshold
- It is defined in a relative context
- Equal or above 40% of household's capacity to pay



Household's capacity to pay

- Effective income net of subsistence spending
- Subsistence spending: Food share based poverty line
 - the average equivalized food expenditure of households whose food share of total household expenditure is within the 45th and 55th percentile
 - equivalent household size

$$eqsize_h = hsize_h^\beta$$

- parameter β : estimated from 59 countries

$$\ln food = \ln k + \beta \ln hsize + \sum_{i=1}^{N-1} \gamma_i country_i + \varepsilon$$

$$\beta=0.564 \text{ (95\% confidence interval: 0.556-0.572)}$$



Estimation of subsistence expenditure

- The households whose food expenditure share of total household expenditure are at the 45th and 55th percentile across the whole sample
- Equivalized food expenditure for those households

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

- Poverty line: the average equivalized food expenditure for those households

$$PL = \frac{\sum w_h * eqfood_h}{\sum w_h}$$

- Subsistence expenditure for each household

$$SE_h = PL * eqsize_h$$

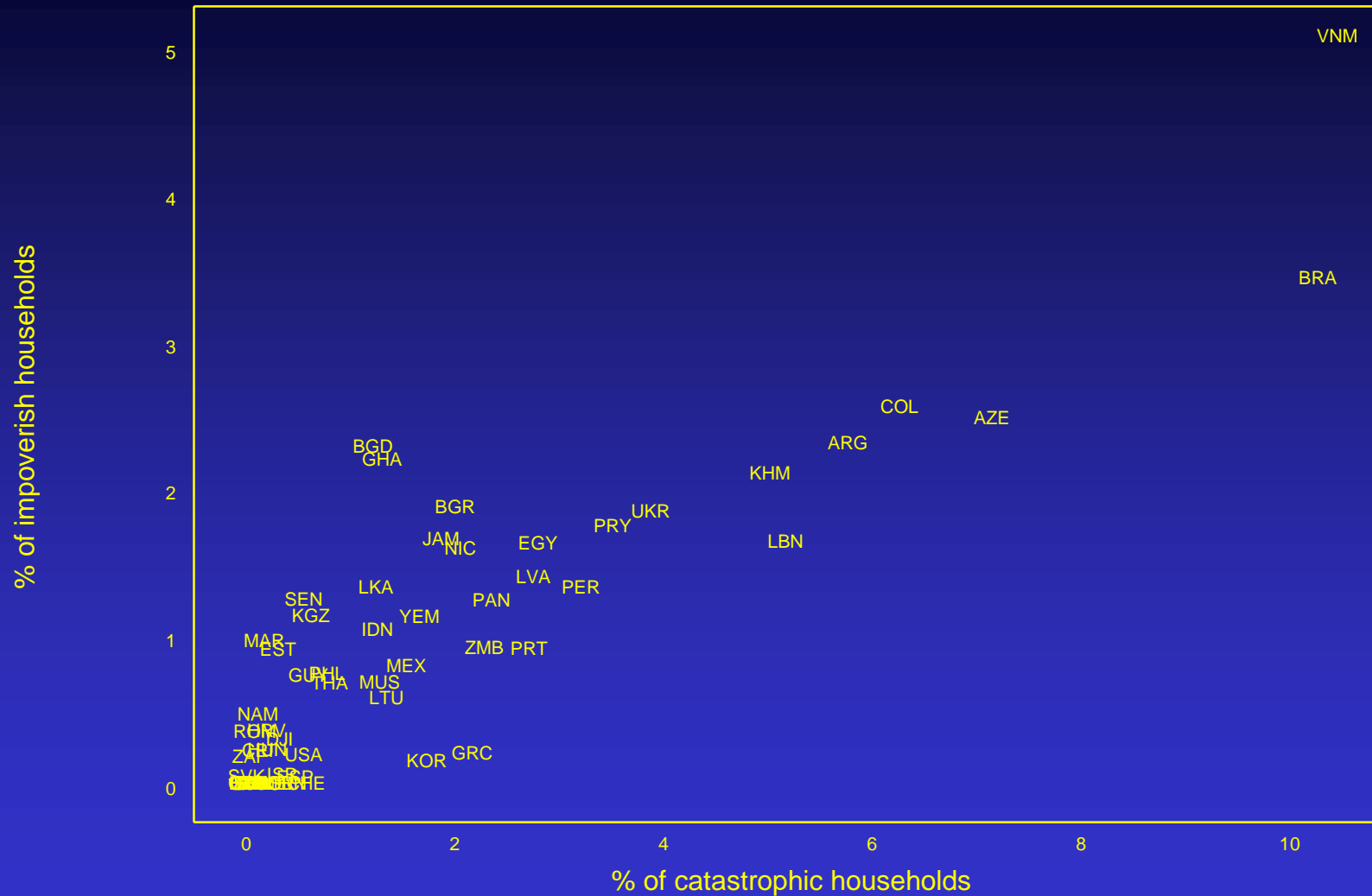


Catastrophic health payment matters

- More households living under the poverty line after health payments
 - impoverishment attributable to health payments ranges from less than 0.1% to 5%
- Dilemma for poor households:
 - being unhealthy or
 - being poorer
- The percentage of households with catastrophic health expenditure ranges from less than 0.1% up to 10.5%



Catastrophic payment and impoverishment



Hypothesis

- **System level**
 - the availability of health services
 - lack of insurance coverage
 - low capacity to pay
- **Individual household level**
 - family size
 - ageing
 - urban/rural
 - others



Methodology

- **System level hypothesis:**

- cross country analysis
- double logarithmic multivariate ordinary least squares (OLS) regression

$$\ln(y) = \alpha + \sum \beta_i \ln(\chi)_i + \varepsilon$$

- **Individual household level hypothesis**

- within country studies
- Logistic regression

$$y = \alpha + \sum \beta_i \chi_i + \varepsilon$$

$$y = \ln\left(\frac{p}{1-p}\right)$$




Data sources


- **Micro level data from 59 countries' household survey data conducted between 1991 and 2001**
 - Living standard measurements study (LSMS)
 - Household budget survey
 - Household income and expenditure survey
 - others
- **National level data**
 - total health expenditure share of GDP (NHA & surveys)
 - out-of-pocket payment share of total health expenditure (NHA & surveys)
 - percentage of population under the poverty line (surveys)



Results from cross country analysis

- Higher percentage of households with catastrophic expenditure is associated with:

-  – higher percentage of OOP share of total health expenditure
- higher percentage of population under poverty line
- higher percentage of total health expenditure share of GDP

-  • The hypothesis at system level explains 77.5% of the variation in the percentage of households with catastrophic payment across countries.



Determinants of catastrophic health expenditure from cross country analysis

Variable	Coefficient	Standard deviation	t	P>t
Out-of-pocket payment share of total health expenditure (loophs)	2.161	0.199	10.87	0.001
Total health expenditure share of GDP (lhsgdp)	1.645	0.362	4.54	0.001
Percentage of households below poverty line (lpoverty)	0.173	0.045	3.80	0.001
Constant	2.733	1.141	2.40	0.020
Adjusted R-squared	0.772			
Prob > F	0.001			



Within country studies

- **Uganda**
National Household Survey (1999/2000)
- **Indonesia**
SUSENAS (2001)
- **Lebanon**
Health Expenditure and Utilization Survey
(1999)



Results from within-country studies

Uganda 1999/2000

- There are 3.2% of households with catastrophic expenditure
- 2.2% of households are pushed into poverty
- 15% households can not afford the service when needed;
23.4% households among the poor can not afford the services
- Higher risk
 - less healthy and more use
 - senior family members
 - northern and western regions
- Lower risk
 - bigger families
 - urban area
 - households in the lowest expenditure decile



Logistic regression for Uganda

	Odds Ratio	Std. Err.	z	P>z
old65	1.25	0.198	1.43	0.154
use	1.38	0.048	9.18	0.000
1st decile	0.28	0.091	-3.91	0.000
chronic	1.39	0.190	2.43	0.015
urban	0.37	0.131	-2.81	0.005
hh size	0.86	0.025	-5	0.000
not single hh	0.69	0.124	-2.06	0.039
ill	13.16	7.527	4.5	0.000
northern	1.60	0.282	2.66	0.008
western	1.44	0.209	2.51	0.012



Results from within country studies Indonesia 2001

- There are 3.5% of households with catastrophic expenditure
- 1.8% of households are pushed into poverty
- Utilization for non-poor is 13.5%, for poor is 8.6%
- Higher risk
 - less healthy and more use
 - senior family members
 - higher income groups
- Lower risk
 - bigger family
 - urban area
 - households with some kinds of health insurance



Logistic regression for Indonesia

variables	Odds Ratio	Std. Err.	z	P>z
urban	0.733	0.001	-167.1	0.000
Askes	0.559	0.002	-191.2	0.000
Jamsostek	0.470	0.002	-146.0	0.000
Company	0.672	0.004	-75.1	0.000
Other	0.855	0.011	-12.6	0.000
community insur	0.918	0.011	-7.0	0.000
Health card	0.991	0.003	-2.7	0.007
HMO	0.993	0.007	-1.0	0.344
work	0.582	0.001	-235.2	0.000
sickh	2.019	0.008	172.2	0.000
use_outpatient	4.029	0.009	600.7	0.000
use_inpatient	6.374	0.013	893.1	0.000
middle school	0.917	0.002	-47.8	0.000
exp decile	1.179	0.000	471.8	0.000
old 65yrs	1.563	0.003	221.2	0.000
male	0.965	0.003	-13.5	0.000
hhsiz	0.883	0.000	-244.0	0.000
disrupth	2.233	0.006	312.3	0.000



Results from within-country studies

Lebanon 1999

- There are 6.2% of households with catastrophic expenditure
 - 1.6% of households are pushed into poverty
 - Utilization for non-poor is 25%, for poor is 18%.
 - 18% of poor households cannot afford the needed services (8.5% for non-poor)
 - Higher risk:
 - less healthy
 - senior family members
 - Nabatieh and Beqaa region
 - Lower risk
 - with insurance
 - formal education
 - households in the lowest expenditure decile
-



Logistic regression for Lebanon

	Odds Ratio	Std. Err.	z	P>z
old	1.43	0.095	5.34	0.000
1st decile	0.78	0.137	-1.4	0.162
education	0.61	0.071	-4.26	0.000
chronic diseases	1.49	0.063	9.44	0.000
insurance	0.78	0.024	-8.09	0.000
handicaped	1.25	0.152	1.85	0.064
work	0.88	0.050	-2.23	0.026
hh hsize	0.93	0.027	-2.42	0.016
nationality	0.46	0.093	-3.84	0.000
Nabatieh	1.56	0.244	2.87	0.004
Beqaa	1.64	0.245	3.31	0.001



Summary

- At system level
 - the availability of health services, low capacity to pay, lack of prepayment or health insurance are leading to higher percentage of households with catastrophic expenditures
- At household level
 - socio-economic characteristics have impact on catastrophic expenditure
 - poor households are excluded from the system



Policy impact

- Expand insurance coverage with sufficient benefit package
- Pragmatic and sustainable risk pooling mechanism needed
- Remove physical and financial barriers to access health services for poor
- The improvement of physical access to health services must be accompanied by financial protection policy
- Socio-economic characteristics of households provide evidence for policy focus

