Development Economics

Lecture 16: Poverty

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Today

1. Poverty measures
2. Poverty around the world

Define Poverty

- *The poverty line* y_p: The amount of income or consumption below which in poverty

  - If $y_i < y_p$ then person i is in poverty
  - Useful function: an "indicator" or dummy function

$$1(y_i < y_p) = \begin{cases} 1 \text{ if } y_i < y_p \\ 0 \text{ if } y_i \geq y_p \end{cases}$$

  - y_p is a socially defined measure: different countries use different measures

Head Count Ratio

- **Number of people in poverty**
  - $\Sigma \, 1(y_i < y_p);$ y_p poverty line

- **Head Count Ratio: the proportion of people in poverty**
  - $1/N \, \Sigma \, 1(y_i < y_p);$ N population
- **HCR and the Probability Density Function**

Density

0   **y_p**   **Income**
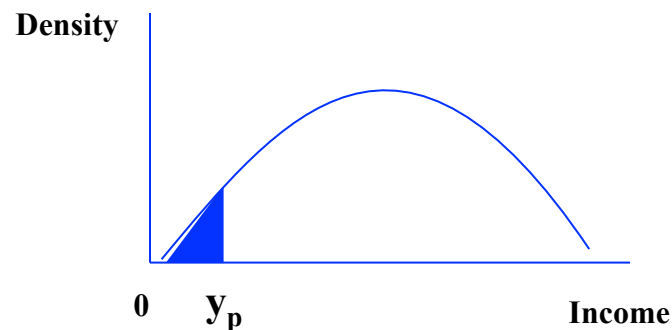
Problems with the HCR

- The Poverty Headcount and the Headcount ratio count the poor

- But ignores inequality among the poor
  - Can lead to very bad policy decisions
  - Suppose want to reduce poverty and use HCR
  - One way to do it would be to tax the poorest people, give money to the barely poor to move them past the poverty line

- Poverty is almost always measured using the HCR anyway

Better Poverty measures?

- *Total Poverty Gap*: the amount necessary to bring everyone who is currently below the poverty line up to line
  - TPG = Σ 1(y_i<y_p) ($y_p - y_i$)
- Average Poverty Gap
  - TPG / N
- Poverty Gap Index
  - PGI = APG / y_p = [1/ (N y_p)] Σ 1(y_i<y_p) ($y_p - y_i$)

Foster-Greer-Thorbecke Index

$$P_\alpha = 1/N \; \Sigma \; 1(y_i < y_p) \; [(y_p - y_i)/y_p]^\alpha$$

α determines how much we care about inequality among poor

$\alpha = 0$;

$$P_0 = 1/N \; \Sigma \; 1(y_i < y_p) \; [(y_p - y_i)/y_p]^0 = 1/N \; \Sigma \; 1(y_i < y_p) = HCR$$

$\alpha = 1$;

$$P_1 = [1/(N \; y_p)] \; \Sigma \; 1(y_i < y_p) \; (y_p - y_i) = PGI$$

as α increases, care more about how far below the line the poor are

How do we define Poverty Line?

- There are no obvious statistical breaks in things we care about at a single point

- Income, consumption, health, education, . . . are generally the same right above the poverty line as right below it.

- So the data does not help!

- Poverty line is a political and social concept not an economic one

Dollar a day?

- World Bank defines absolute poverty as living below $1 a day

- Not really true, it is $1 a day in 1985 PPP terms (and $1.08 even then)
  - Approximately $1.25 in today's dollars

- Poverty line chosen based on what seemed to be the poverty lines of poor countries
  - An easy number for propaganda purposes: If poor countries think you are poor, you must really be poor!
  - $1.25 poverty line is poverty line of poorest today, and approximately $1.08 updated for inflation

Dollar a day?

Figure 1: National poverty lines plotted against mean consumption
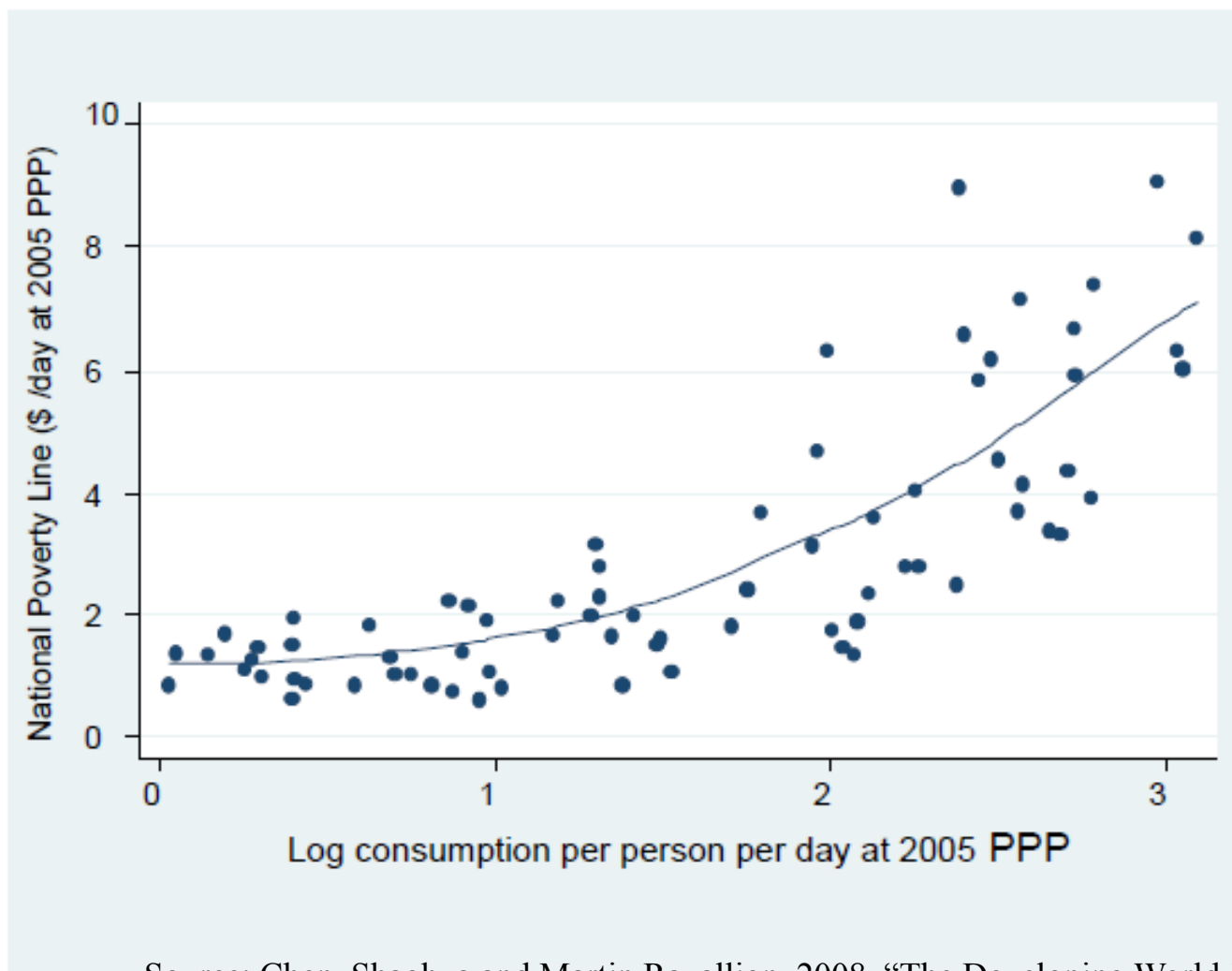
Source: Chen, Shaohua and Martin Ravallion. 2008. "The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty" World Bank Policy Research Working Paper 4703.

How do we calculate the world's poor?

1. Choose a poverty line in dollars.

2. Convert that poverty line to local currency.

3. Household surveys for a given country give an estimate of the distribution of consumption.

4. Calculate the proportion below the line based on surveys.

5. Add up the poor in the world.

Converting to local currency

- Recent poverty figures use 2005 International Comparison Project

- Collects price data for many countries (including China!) to create a comparable basket of goods

- Much better than before

- But still some problems:
  - Urban versus rural
  - Quality hard to determine, although less of a problem now
    - if orange soda is in basket, is Orangina or Fanta higher quality?

Going back in time

- Using dollar poverty line and ICP gives local currency poverty line in 2005

- Need all the way back to 1981

- Use country Consumer Price Index to change local poverty line back in time
  - If there was inflation, then the buying power of a given unit of currency has eroded over time
  - So using a constant poverty line would overstate how poor people were in the past

Multiple Surveys

- Not every country has a survey every year
  - (Many have very few surveys)
- Take nearest survey to figure out poverty for given year
  - Say survey for 1995, want poverty for 1993
  - Use survey in 1995 to form a Lorenz Curve (inequality) and mean consumption
  - Use national accounts data on GDP growth to calculate mean consumption for 1993
  - Use the Lorenz curve for 1995, 1993 population, and calculated 1993 mean consumption, to calculate 1993 head count

Table 4: Headcount indices of poverty (% below each line)

	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) Aggregate for developing world									
Old estimates using 1993 ICP									
$1.08 (1993)	40.6	33.0	28.7	28.7	25.6	22.8	22.3	20.4	17.2
New estimates using 2005 ICP									
$1.00	41.4	34.4	29.8	29.5	27.0	23.1	22.8	20.3	16.1
$1.25	51.8	46.6	41.8	41.6	39.1	34.4	33.7	30.6	25.2
$1.45	58.4	54.4	49.9	49.4	47.2	42.6	41.6	38.1	32.1
$2.00	69.2	67.4	64.2	63.2	61.5	58.2	57.1	53.3	47.0
$2.50	74.6	73.7	71.6	70.4	69.2	67.2	65.9	62.4	56.6

Source: Chen, Shaohua and Martin Ravallion. 2008. "The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty" World Bank Policy Research Working Paper 4703.

Table 5: Numbers of poor (millions)

	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) Aggregate for developing world									
Old estimates using 1993 ICP									
$1.08 (1993)	1488.5	1281.4	1178.5	1247.5	1172.4	1092.9	1119.8	1067.1	931.3
New estimates using 2005 ICP (number in millions below each line at 2005 PPP)									
$1.00	1515.0	1334.7	1227.2	1286.7	1237.9	1111.9	1145.6	1066.6	876.0
$1.25	1896.2	1808.2	1720.0	1813.4	1794.9	1656.2	1696.2	1603.1	1376.7
$1.45	2137.7	2111.5	2051.7	2153.5	2165.0	2048.1	2095.7	1997.9	1751.7
$2.00	2535.1	2615.4	2639.7	2755.9	2821.4	2802.1	2872.1	2795.7	2561.5
$2.50	2731.6	2858.7	2944.6	3071.0	3176.7	3231.4	3316.6	3270.6	3084.7

Source: Chen, Shaohua and Martin Ravallion. 2008. "The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty" World Bank Policy Research Working Paper 4703.

(b) % living below $1.25 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	77.7	65.5	54.2	54.7	50.8	36.0	35.5	27.6	16.8
Of which China	84.0	69.4	54.0	60.2	53.7	36.4	35.6	28.4	15.9
Eastern Europe and Central Asia	1.7	1.3	1.1	2.0	4.3	4.6	5.1	4.6	3.7
Latin America and Caribbean	11.5	13.4	12.6	9.8	9.1	10.8	10.8	11.0	8.4
Middle East and North Africa	7.9	6.1	5.7	4.3	4.1	4.1	4.2	3.6	3.6
South Asia	59.4	55.6	54.2	51.7	46.9	47.1	44.1	43.8	40.3
Of which India	59.8	55.5	53.6	51.3	49.4	46.6	44.8	43.9	41.6
Sub-Saharan Africa	53.7	56.2	54.8	57.9	57.1	58.7	58.2	55.1	51.2
Total	**51.8**	**46.6**	**41.8**	**41.6**	**39.1**	**34.4**	**33.7**	**30.6**	**25.2**

(c) % living below $2.00 a day

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
East Asia and Pacific	92.6	88.5	81.6	79.8	75.8	64.1	61.8	51.9	38.7
Of which China	97.8	92.9	83.7	84.6	78.6	65.1	61.4	51.2	36.3
Eastern Europe and Central Asia	8.3	6.5	5.6	6.9	10.3	11.9	14.3	12.0	8.9
Latin America and Caribbean	22.5	25.3	23.3	19.7	19.3	21.8	21.4	21.7	16.6
Middle East and North Africa	26.7	23.1	22.7	19.7	19.8	20.2	19.0	17.6	16.9
South Asia	86.5	84.8	83.9	82.7	79.7	79.9	77.2	77.1	73.9
Of which India	86.6	84.8	83.8	82.6	81.7	79.8	78.4	77.5	75.6
Sub-Saharan Africa	74.0	75.7	74.2	76.2	76.0	77.9	77.6	75.6	73.0
Total	**69.2**	**67.4**	**64.2**	**63.2**	**61.5**	**58.2**	**57.1**	**53.3**	**47.0**

Source: Chen, Shaohua and Martin Ravallion. 2008. "The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty" World Bank Policy Research Working Paper 4703.

Growth and Poverty

- Differing opinions on the relationship between growth and poverty: why World Bank calculations matter

- Bad
  - Growth hurts poor: get marginalized
  - Poverty programs hurt growth (by redistributing, costing efficiency)
  - Rich save more

- Good
  - Growth good for poor: more to go around
  - Poverty programs are good for growth
  - Poor save too

Growth and Poverty

- Poverty programs may help growth
  - If poor cannot invest (in education, health, and businesses), then poverty reduces investment and growth
  - Low incomes, bad health, low education, may lower productivity—reducing poverty may improve productivity by improving these
  - **My own work:** *what's good for the worker is good for the firm*
- Evidence: China and India have reduced poverty through growth—more successful than anti-poverty programs

Growth and Poverty

- Growth does not have to be pro-poor
  - Some types of growth help poor more than others
  - Policy matters—India has used growth (largely in cities) to redistribute to the poor
  - In China the unraveling of communist social policies bad for some poor—but higher wages and employment have helped many more
- Evidence suggests that lack of growth is anti-poor
  - Countries that grow **may** not reduce poverty
  - Countries that do not grow **will** not reduce poverty

Who are the poor?

- **People in rural areas**
- **Women**
  - Female headed households (often widows) are poorest
  - Earnings differentials from men
  - Households with more children
- **Ethnic minorities**
  - Native Americans
  - "Backward" Tribes and Castes in India
  - Non-Han in China

Household versus the individual

- Poverty is usually measured at the household level
    - Generally take household income or consumption and divide by household size
- But using household as unit misses inequality within household
    - Generally can't do better—don't observe distributions within household
- Lots of disguised inequality and poverty
    - Women, elderly, children may be more poor than they seem

Power to women?

- Many developing countries have specific policies to promote women

- Often in political contexts, but also to combat poverty

- The mother's education and income seems to be strongly related to
  - Improvements in child health, education
  - Declines in fertility

- So focus on poverty may not be sufficient, it may also be distribution **within** household