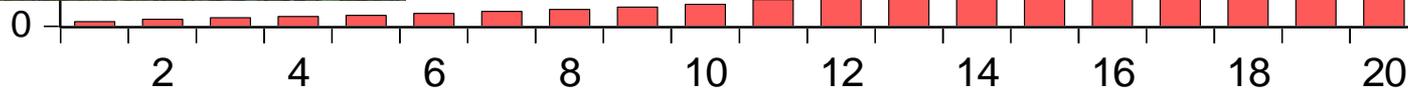# Global Inequality: Are the Poorest Being Left Behind?

## Martin Ravallion

Penn's parade of world incomes

Household income per person in $'s p

Mean income in $/day by ventile, 2008

Source: Lakner and Milanovic, 2013, "Global Income Distribution," Policy Research Working Paper 6719, World Bank. Photos by Peter Menzel
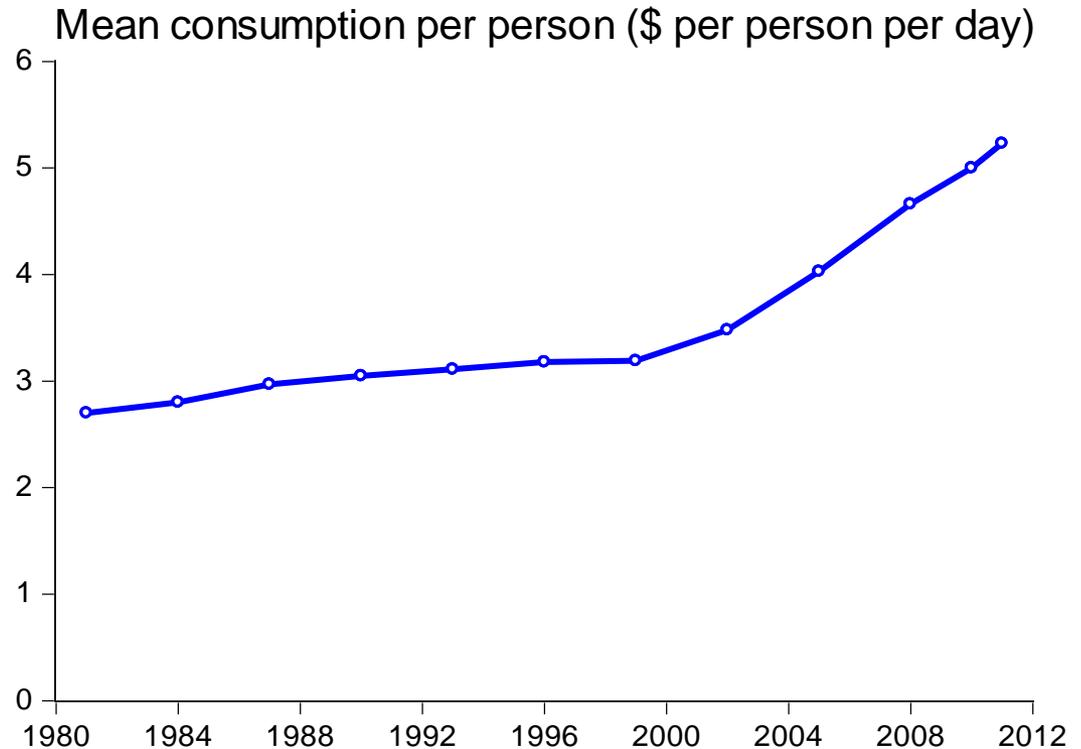
Penn's parade of world incomes

Household income per person in $'s per day in 2008

Legend:
- Mean income by ventile ($/day)
- Mean for top 1%
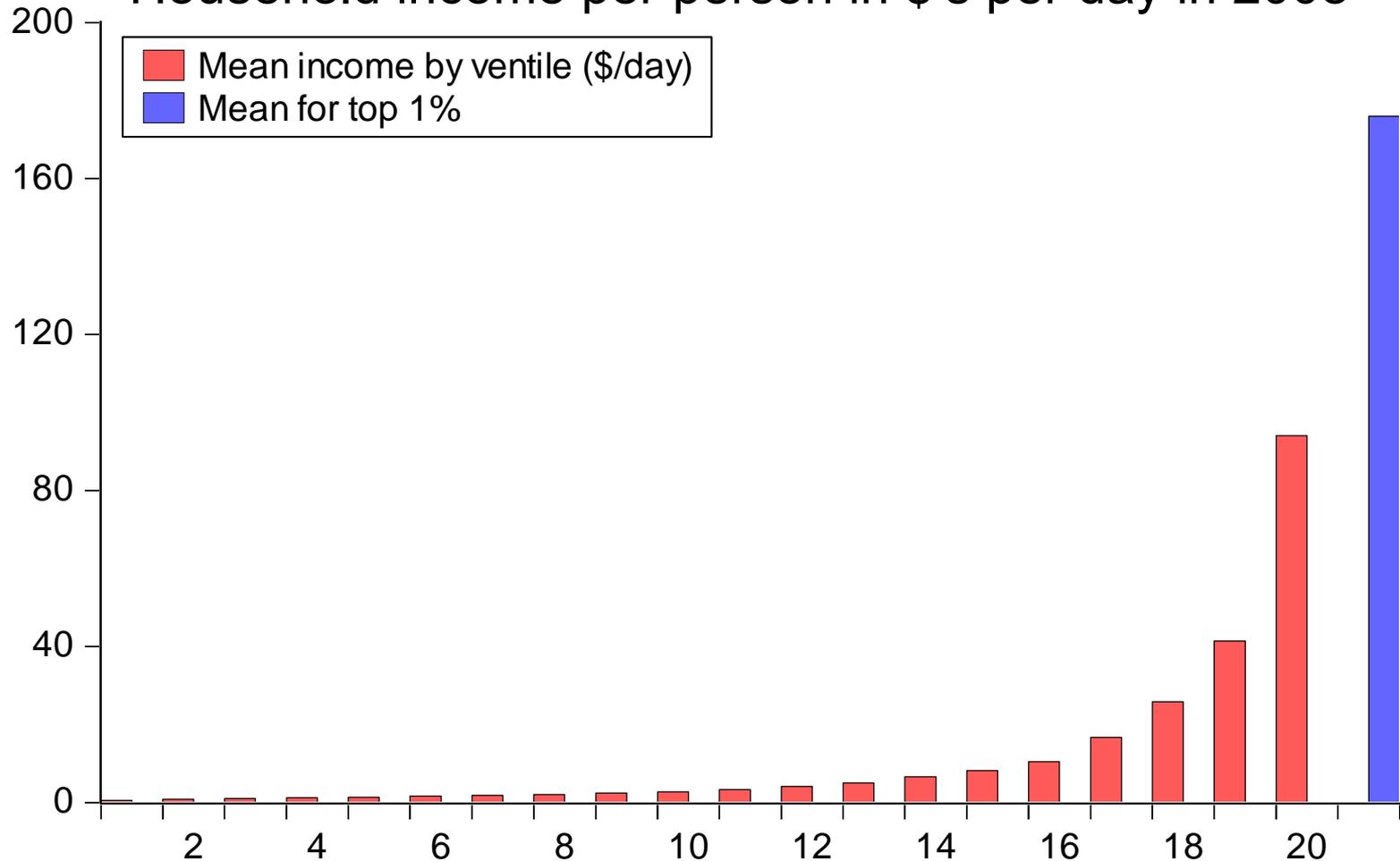
Growth in average household income in the developing world

- New trajectory emerged in the new millennium.

- *Who benefited from this new growth?*

- *Were the poorest left behind?*

Mean consumption per person ($ per person per day)

A widely held view: poorest left behind

- "*The poorest of the world are being left behind. We need to reach out and lift them into our lifeboat.*" U.N. Secretary-General Ban Ki-moon, 2011

- "*The World's Poorest People Not Being Reached.*" IFPRI

- In 2014, the ILO's DG, Guy Ryder, wrote that "*Poverty is not yet defeated. Far too many are being left behind.*"

- And in 2015 the Vatican's representative to the U.N. reaffirmed that the poorest of the world are being left behind.

Economists appear to tell a very different story

- We hear adages such as "*a rising tide lifts all boats*" or claims that "*growth is good for the poor*" (Dollar and Kraay) or that there has been a "*breakthrough from the bottom*" (Radlet).

- These observers point to evidence of falling incidence of absolute poverty in the developing world over recent decades.

- Economists have mostly supported this alternative view.

The data are essentially the same.
So how can we understand these conflicting views?

Two ways of looking at the same data:
The counting approach

- Arthur Bowley and many others since
  - *"There is perhaps no better test of the progress of a nation than that which shows what proportion are in poverty; and for watching the progress the exact standard selected as critical is not of great importance, if it is kept rigidly unchanged from time to time."* (Bowley, 1915, p.213.)

- The theoretical foundations of the approach are found in a large literature on poverty measurement, in which various axioms have been proposed.
  - Focus, monotonicity, subgroup monotonicity, scale invariance, transfer principle,….

Two ways of looking at the same data: The Rawlsian approach

- This approach typically focuses on a consumption floor—the lowest expected level of living.

- Rawls's "difference principle" is often interpreted as "maximin," but Rawls insisted that some degree of averaging was required in defining the "least advantaged":

  - *"I assume that it is possible to assign an expectation of well-being to representative individuals holding these positions."* (Rawls, 1971, p. 56)

- If the poorest person sees a gain (loss) then (by definition) the consumption floor must rise (fall).

Other arguments for studying the floor

- Rights-based approaches to justice
  - Justice must be concerned with each citizen not averages
  - Rights must be secured for all; none left behind.
- Mahatma Gandhi's talisman:
  - "*Recall the face of the poorest and weakest person you have seen and ask if the step you contemplate is going to be any use to them*."
- The 2013 U.N. report on setting new development goals, which argued that: "the indicators that track them should be disaggregated to ensure *no one is left behind*."
- Social policies aim to raise the floor =>

A "safety net" can be interpreted as an attempt to establish a higher floor

Safety net as a consumption floor

- Statutory minimum wage rates: first appeared in late 19th century in an effort to help raise the consumption floor.

- Basic-income guarantee (BIG): From the 1970s, we started to see arguments in support of a fixed cash transfer to every adult person.

  – BIG aims to provide a firm floor to living standards; advocates in both rich and poor countries.

  – Social policy as a "right of citizenship" rather than something to be targeted based on "need."

- The International Labor Organization calls for a comprehensive Social Protection Floor: "*nationally defined sets of basic social security guarantees*".

Huge expansion in "social safety nets" (SSN) in the developing world

- SSN: Direct non-contributory income transfers to poor or vulnerable families

- In last 15 years many developing countries have introduced new SSN programs.

- Today almost every developing country has at least one SSN program.

- Roughly one billion people currently receive assistance.

- Using the World Bank's ASPIRE database I estimate that population coverage of SSN programs (% receiving any help) is growing at 9% per annum (3.5% points).

SSNs attempt to raise the floor

- The term "safety net" evokes the idea of some sort of floor, and some of the programs can be interpreted as efforts to raise the floor

- This includes the two largest programs to date in terms of population coverage, namely China's *Di Bao* program and India's *National Rural Employment Guarantee Scheme*, which is interpretable as an attempt to enforce the minimum wage rate in an informal economy.

- Raising the consumption floor is a common motivation for SSN programs.

- *But is this being achieved in practice?*

Judgements "on the ground" often look to the poorest

- In an article "Just a little bit richer" the *Economist* magazine (4/4/15) asked how much China's poor area programs have helped reduce poverty.
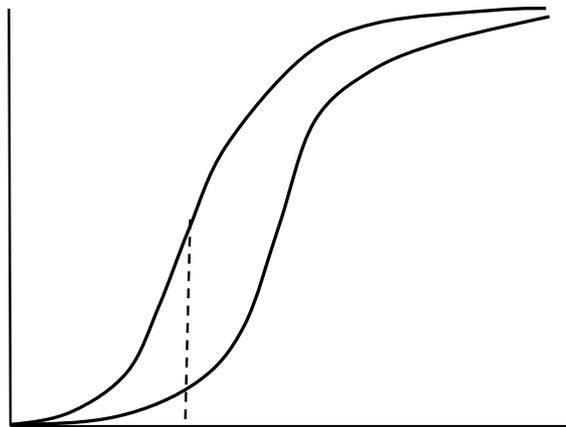

The article points to a poor village in NE Shanxi that has seen little progress: "*They laugh in unison when asked if they receive subsidies. The arrival of electricity 30 years ago was a vast improvement. But little else has changed in their lives since.*"

The counting approach may miss what is happening at the floor

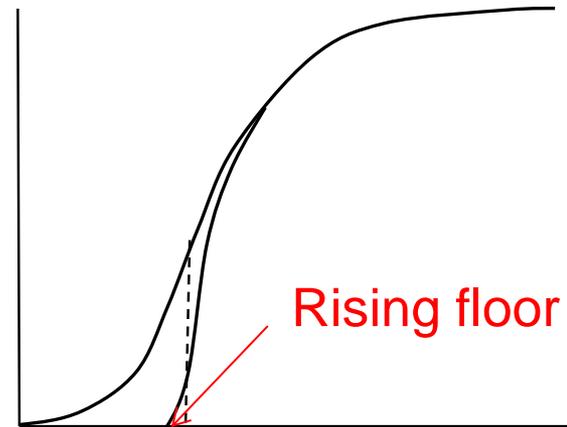# Same reduction in the poverty count but different implications for the poorest

Cumulative % of population

Measure of welfare

Poverty line

Floor stays put

Poorest left behind

Cumulative % of population

Rising floor

Measure of welfare

Poverty line

Same reduction in the incidence of poverty but without leaving the poorest behind

Poverty monitoring must be socially relevant

- This principle has long been understood, back to the early efforts in 19th century.

- An approach to measurement and monitoring that is out of step with social thought and the aims of social policy will become irrelevant.

- We may not accept that the floor is all we care about, but we cannot continue to ignore it in monitoring poverty.

How can the floor be estimated?

We cannot be sure that the lowest consumption in a survey <u>is</u> the floor

- When we refer to the "<u>typical</u> level of living of the poorest stratum" we are acknowledging that consumption may be low at one date for purely transient reasons.

- Identifying the floor as the strict lower bound of the <u>empirical</u> distribution of consumption could well be subject to idiosyncratic transient factors.

- We need an approach that is more robust to transient effects and measurement errors, but is still operational with the data available.

Quantifying the floor from survey data

- There is a non-negligible chance that anyone within some stratum of low <u>observed</u> consumption levels is in fact living at the floor.

  – This recognizes measurement errors and transient consumption shortfalls (whereby observed consumption falls temporarily below the floor, such as due to illness, but recovers soon after).

Estimating the level of the floor from available poverty measures

- The task is to implement Rawls: *"to assign an expectation of well-being to representative individuals"*
- Let $y^{\min}$ denote the lowest level of permanent consumption in a population. This is the consumption floor.
- We have *n* <u>observed</u> consumptions, y. The task is to use that data to estimate the mean $E(y^{\min}|y)$.
- The probability that person *i*, with the observed y_i, is in fact the worst off person is denoted $\phi(y_i) = \Pr(y_i = y^{\min})$.

Assumptions about $\phi(y_i) = \Pr(y_i = y^{\min})$

- The probabilities are not data, of course. But there are some seemingly defensible assumptions we can make.

Key assumption made here:

- Beyond some critical level of observed consumption y^* there is no longer any chance of being the poorest person in terms of latent permanent consumption.

- For those observed to be living below y^* the probability of observed consumption being the true lower bound of permanent consumption falls monotonically as observed consumption rises until y^* is reached.

Operational measure

- To derive an operational measure, it is assumed that the probability of being the poorest person declines linearly up to y^*.

- On solving I derive the following formula for the expected value of the consumption floor:

$$\text{Floor} = E(y^{\min}|y) = y^*(1 - SPG^*/PG^*)$$

- PG^* and SPG^* are the poverty gap index and squared poverty gap respectively.

Poverty measures can suggest progress even when the expected floor is falling

An example:

- Suppose that

    $y = (0.50, 0.50, 1.00, 1.25, 2.5, 5)$ with $y^*=1.25$

- Then PG=0.233 and SPG=0.127; the expected value of the floor is 0.57.

- Suppose that the distribution changes to

    $y' = (0.50, 0.50, 1.25, 1.25, 2.5, 5)$

- Then both PG and SPG show an improvement (the indices falling to 0.200 and 0.120 respectively) but the expected value of the floor has fallen to 0.50.

Data

Database of *PovcalNet*

- The database draws on distributional data from 900 HH surveys spanning 125 developing countries.

- Using the most recent survey for each country, 2.1 million households were interviewed.

- All poverty measures are estimated from the primary (unit record or tabulated) sample survey data rather than relying on pre-existing estimates.

- Prior truncations of the data (trimming the bottom or top) are avoided as far as possible, and appear to be rare at the bottom of the distribution.

- Past estimates are updated to ensure internal consistency with new data.

Data cont.

- Households are ranked by either consumption or income per person, with consumption being preferred when both are available.
- About 70% of the surveys allow a consumption-based measure.
  - The measures of consumption (or income, when consumption is unavailable) are reasonably comprehensive, including both cash spending and imputed values for consumption from own production.
- All distributions are weighted by household size and sample weights.
- The poverty count is the number of people living in households with per capita consumption or income below the international poverty line.

Data cont.

- All currency conversions are at purchasing power parities using the results of the 2005 round of the International Comparison Program.

- The main international poverty line is $1.25 a day as proposed by Ravallion et al. (2009) who provide various rationales for this line.

- It is assumed that y^*=$1.25, but with tests for sensitivity to this choice.

Results using the counting approach

The counting approach indicates a large reduction in absolute poverty

Headcount index (% living below poverty line)
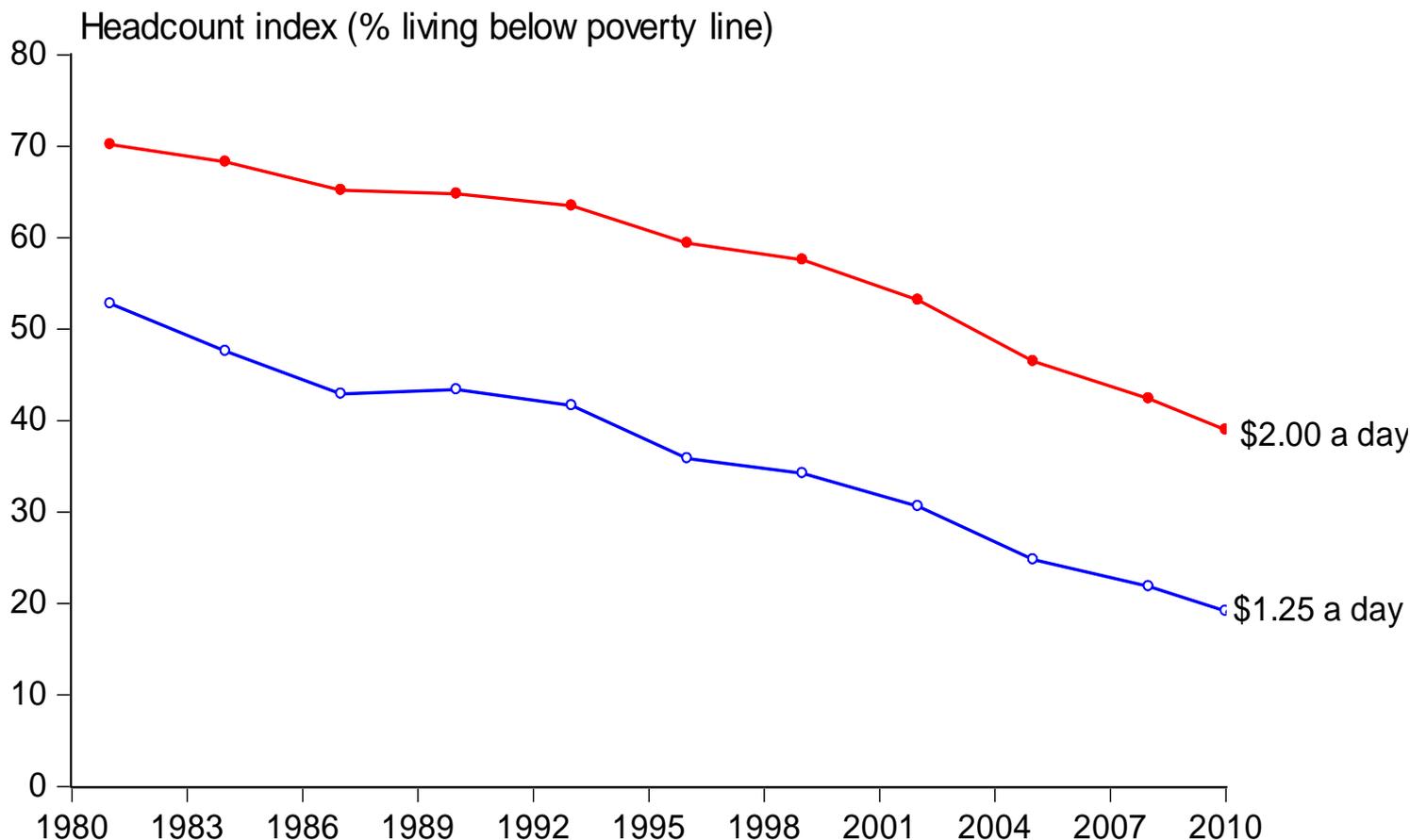
But might the counting approach pick up the lack of progress for the poorest if one looks well below the $1.25 line?

Percentage of the population of the developing world living below each line
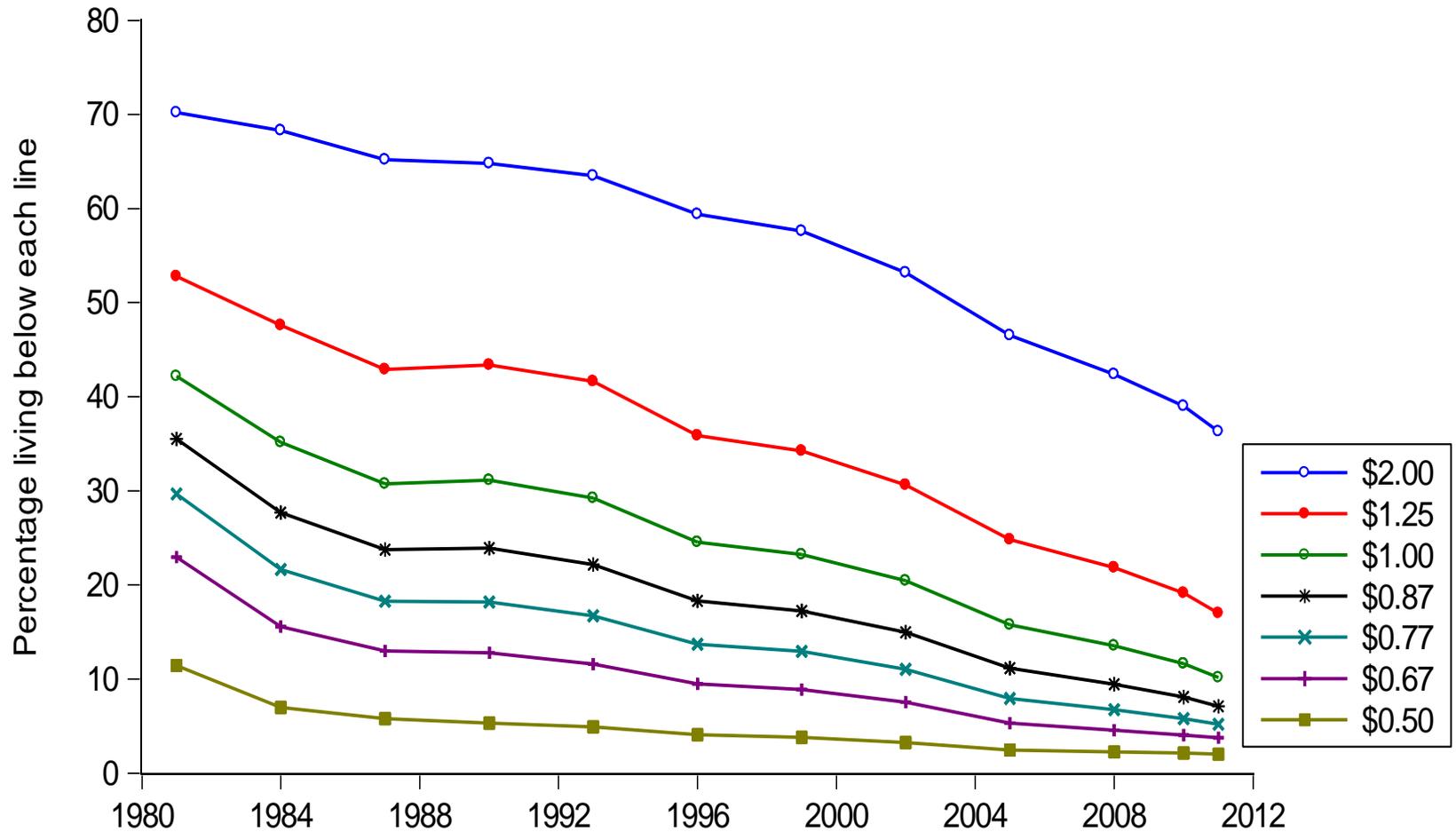
Note: All in 2005 prices at purchasing power parity

Growth and the poorest

- In the light of these findings, let us now revisit the longstanding debate about how much poor people have benefited from economic growth.

- A stylized fact that has emerged from the literature on developing countries is that growth in average living standards tends to come with lower incidence of absolute poverty.

- Typically this has been demonstrated by focusing on prevailing poverty lines for low income countries, such as represented by the $1.25 a day line.

- However, the incidence of ultra-poverty is no less responsive to growth in the mean.

Growth elasticities of poverty reduction

$$E[\ln(P_{it}/P_{it-\tau_i})/\tau_i] = \alpha + \beta \ln(M_{it}/M_{it-\tau_i})/\tau_i$$

| Poverty line	Growth rate based on survey mean	Growth rate based on NAS consumption
$2.00	-1.681	-1.494
$1.25	-2.345	-1.961
$0.87	-2.072	-2.332
$0.77	-2.115	-2.549

Good news, but is the floor also rising?

- Declining incidence of ultra-poverty for a wide range of possible lines.

- Growth is no less effective against ultra-poverty incidence.

- But is this because of a rising floor, or just fewer people living near the floor?

Cumulative % of population

Cumulative % of population

or

?
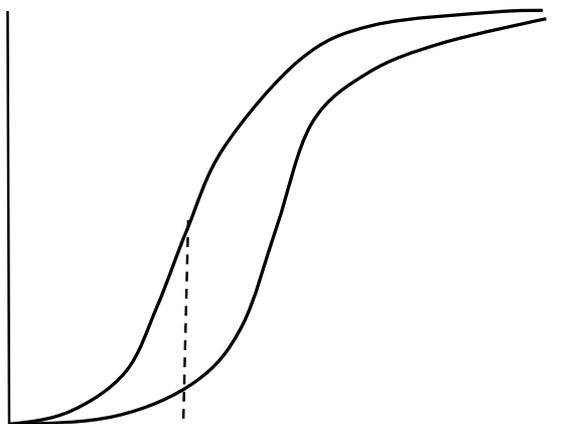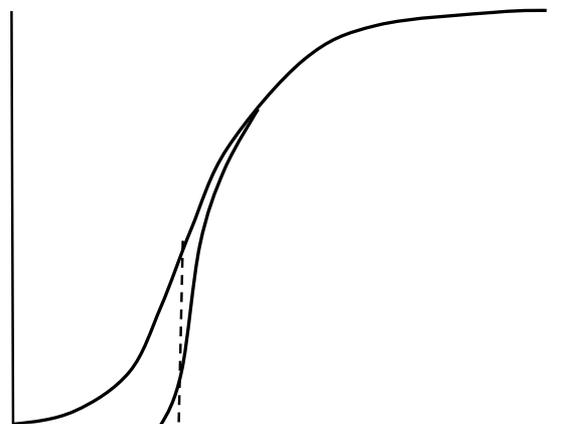
Measure of welfare
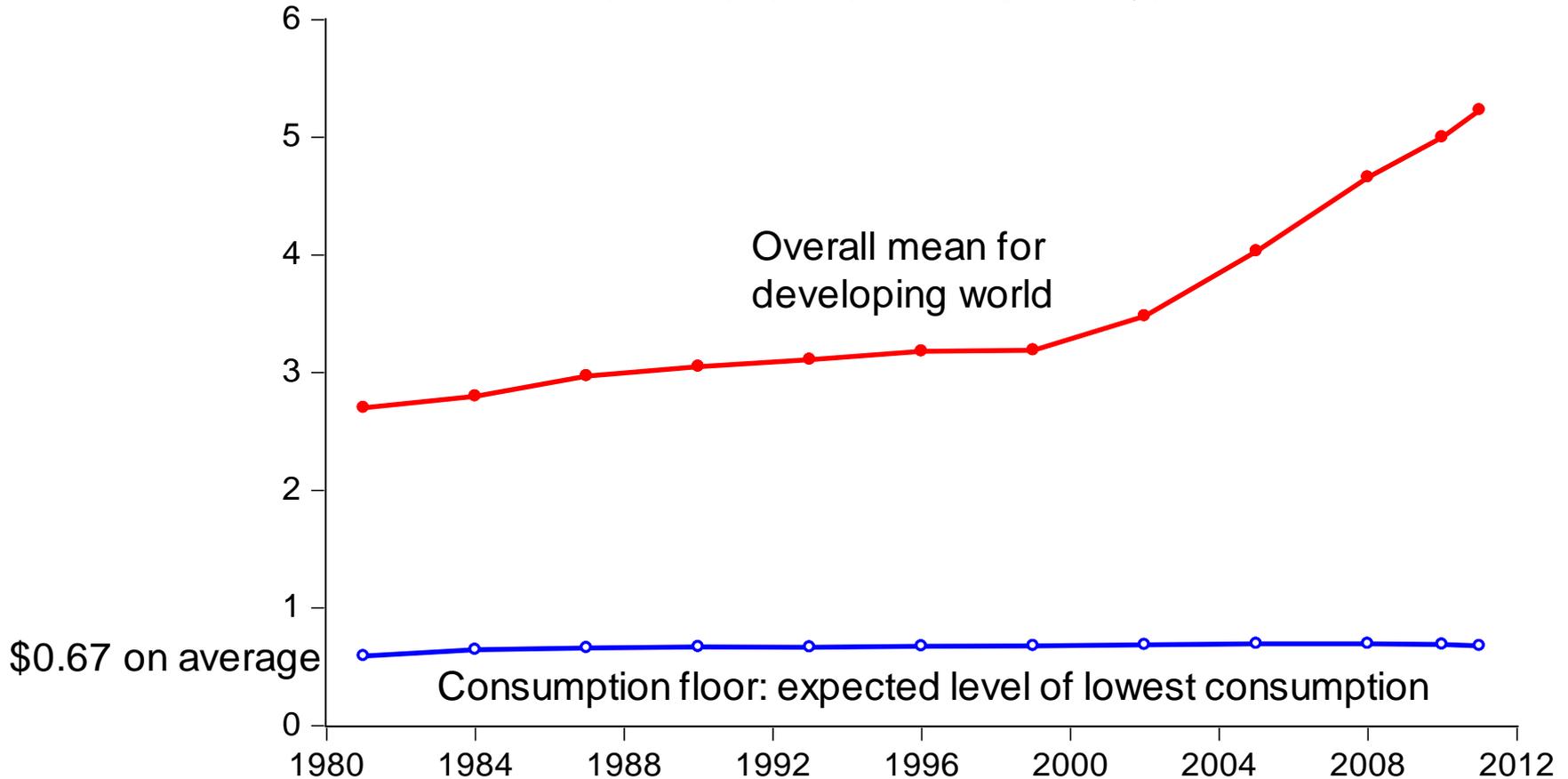
Measure of welfare

Focusing on the floor gives a very different picture

Estimated mean floor = $0.67 a day

- For linear decline in probability and $y^* = \$1.25$.

- Standard error of \$0.10 per day. 95% confidence interval for the consumption floor is thus \$0.47 to \$0.87 per day.

- Slow growth (0.4% per annum), and unresponsive to growth in mean consumption.

- Using instead $z = \$1.00$ one finds floor of \$0.55, and even less sign of a trend increase.
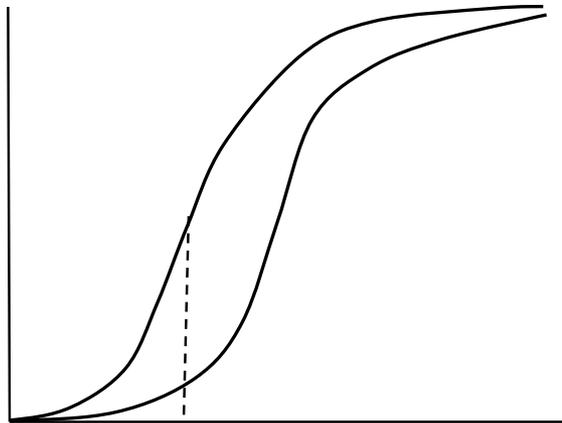
Much less progress in raising the consumption floor

Mean consumption ($ per person per day)

Overall mean for developing world

$0.67 on average

Consumption floor: expected level of lowest consumption

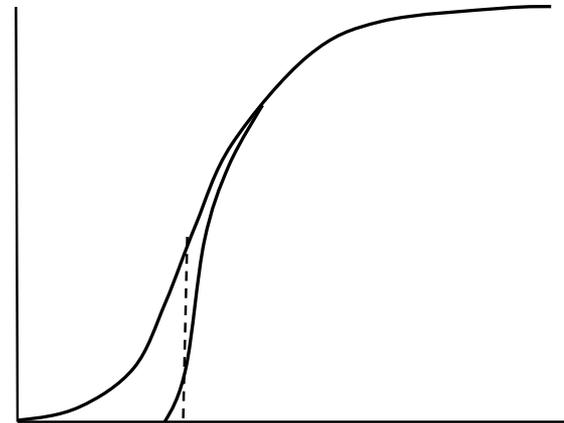# Fewer people living near the floor, but little change in the floor

Cumulative % of population
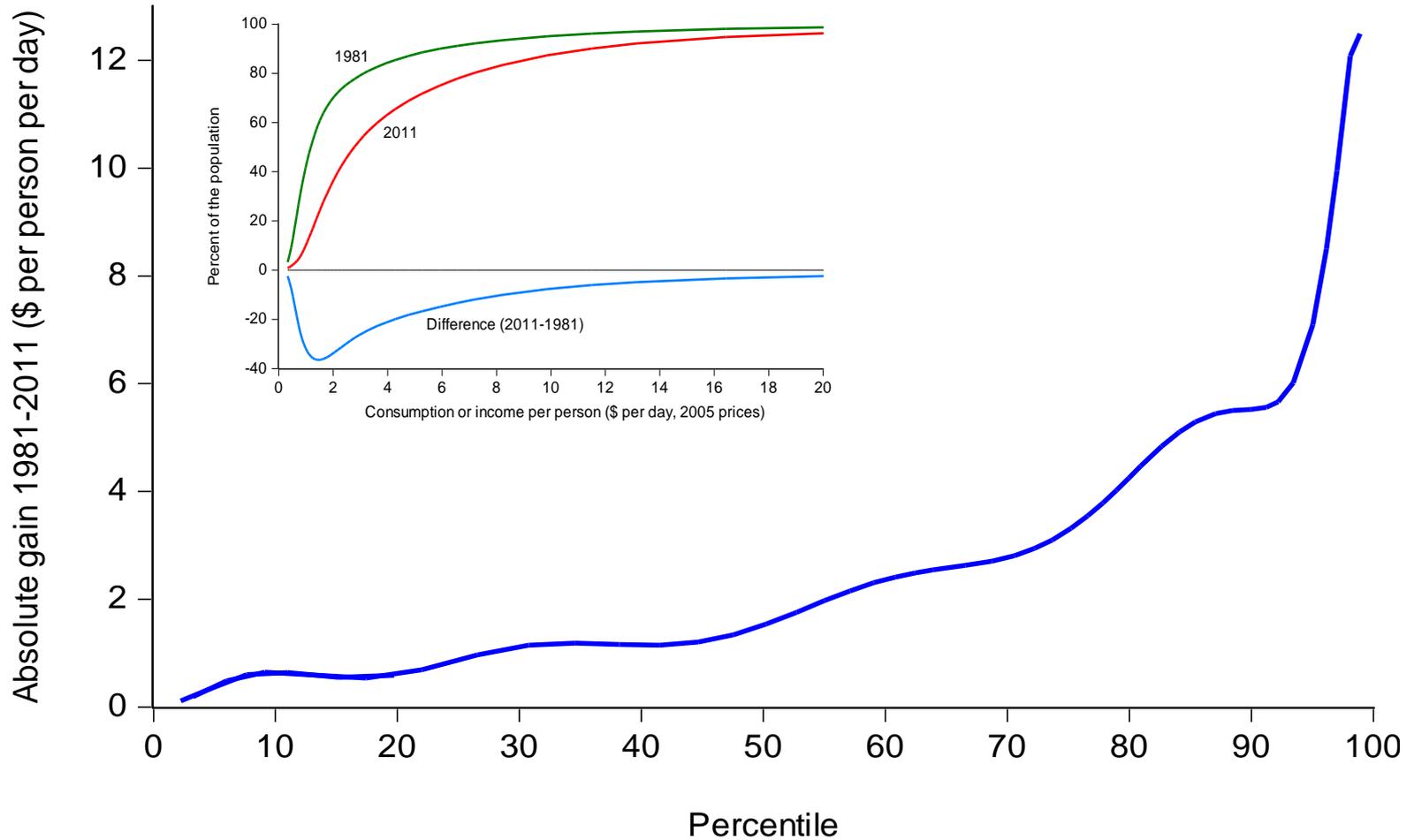
Measure of welfare

Yes!

Cumulative % of population

Measure of welfare

No!

Absolute gains by percentile 1981-2011

Differences across countries

- Rising floor in 2/3 countries, falling in 1/3.

- India has seen only modest progress in raising the floor.

India's slow progress in raising the floor

Mean consumption ($ per person per day, 2005 prices)

Overall mean consumption

Expected value of the consumption floor

41
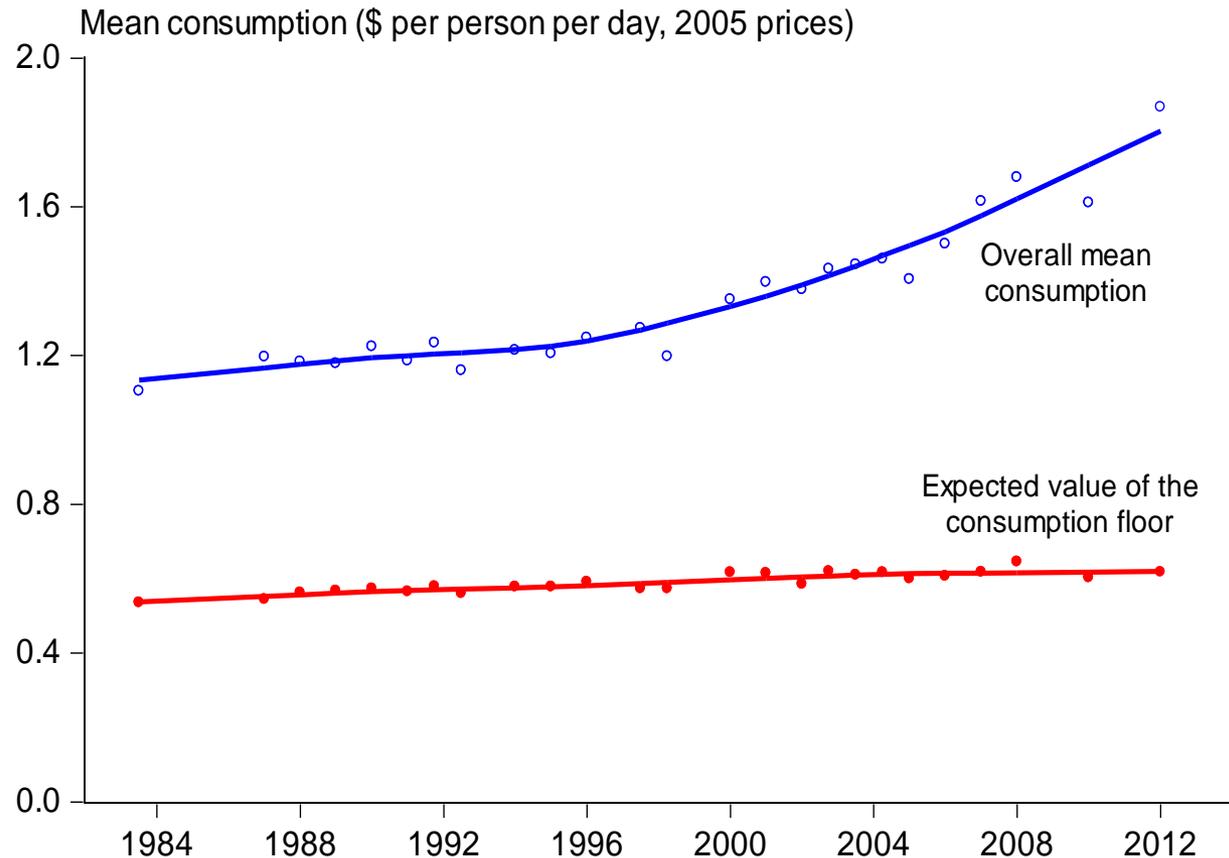
The floor is lagging behind the rapid growth in the means for China and India
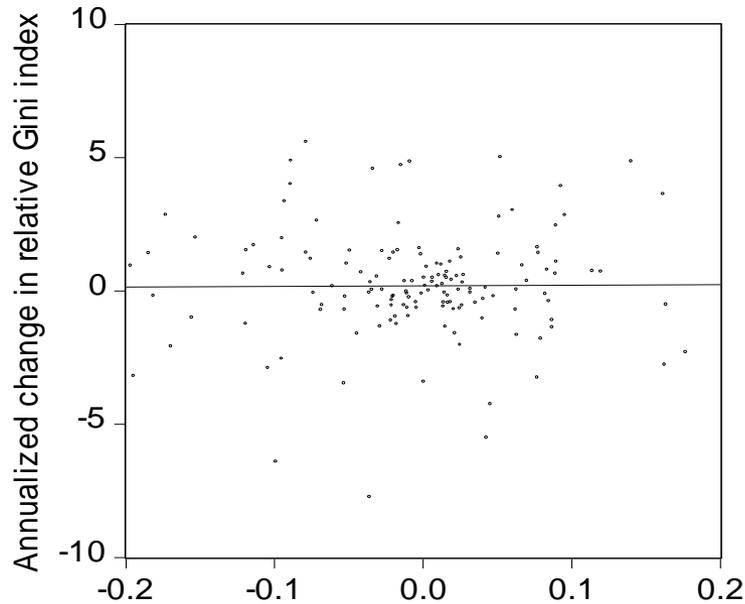
- There has been a trend increases in the estimated floor for both China and India, but at a much slower pace than the overall mean.

- Using annual data for China 1981-2011, I find that the regression coefficient of the change in the log of the floor to the change in log of the mean is 0.296 (s.e.=0.158).

- Using unevenly spaced data over the same period for India, the regression coefficient of the annualized growth rate in the floor on the growth rate in the mean is 0.424 (s.e.=0.104; n=25).

Growing economies have seen rising absolute inequality

- We have seen that the mean has been rising markedly relative to the floor.

- This generalizes to the mean absolute gap => the absolute Gini index.

Same data, but very different pictures
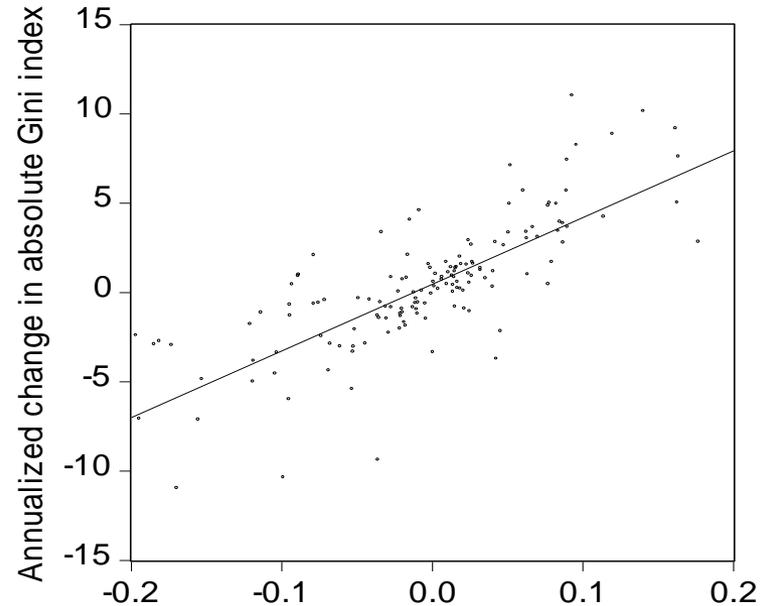

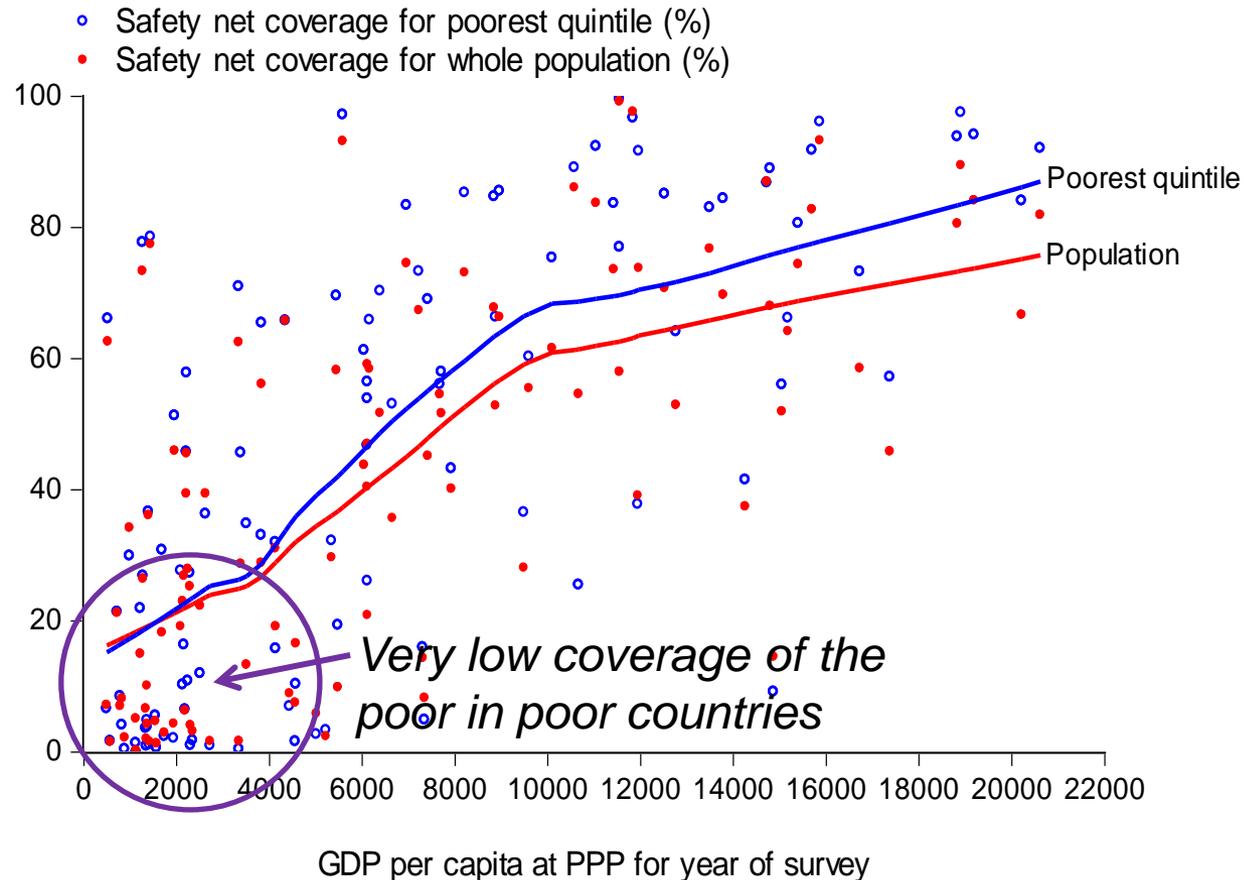*Relative inequality (Gini)*

Absolute inequality (Gini)

Differing concepts of "inequality" underlie development policy debates, not differences in data.

Why so little progress in raising the floor despite expanding SSNs?

Poor SSN coverage of poor people

The share of the poorest 20% receiving help from the SSNs in developing countries.

- Only about one third of those in the poorest quintile are receiving help from SSNs.

- And worse performance in poorer countries.

○ Safety net coverage for poorest quintile (%)
● Safety net coverage for whole population (%)

Poorest quintile
Population

Very low coverage of the poor in poor countries

GDP per capita at PPP for year of survey

<u>Source</u>: WB's ASPIRE data set

46

SSN=Non-contributory transfers targeted to poor and vulnerable people.

Growth and SSN coverage

- Comparing coverage over time for 25 countries the GDP growth rate has no explanatory power for the changes in coverage of poor people.

- However, the growth rate does emerge as a significant predictor of the change in coverage of the poor people <u>relative to</u> overall coverage.

- Suggestive that with better social policies we may expect to see better progress in lifting the floor in the future.

Growth and SSN coverage of poor people

Regressions for changes over time in SSN coverage

	(1) Change in SSN coverage of the poorest 20%	(2) Change in SSN coverage of the poorest 20% *less* change in overall SSN coverage rate
Intercept	2.937**	-1.059*
	(1.323)	(0.555)
Growth rate in GDP per capita (annualized)	0.033	0.187**
	(0.255)	(0.078)
R^2	0.001	0.130
SEE	5.419	2.190
Mean dep. var.	3.022	-0.569
N	23	23

Note: White standard errors in parentheses. *** indicates significance at the 1% level; ** at 5%.
Source: Author's calculations.

Conclusions

Are the Poorest Being Left Behind?
Understanding why we hear different answers

- A clue to can be found in the conceptual difference between focusing on counts of poor people (following in the footsteps of Bowley and others) versus focusing on the level of living of the poorest, in the spirit of Gandhi's talisman or the Rawlsian difference principle.

- Both perspectives are evident in past thinking and policy discussions.

- Both have been advocated as development goals, although the counting approach, as implemented in various poverty measures, has long monopolized the attention of economists and statisticians monitoring progress against poverty.

Measuring success at leaving no-one behind

- Our success in assuring that no-one is left behind can be readily monitored from existing data sources under certain assumptions.

- The proposed approach recognizes that there are both measurement errors and transient consumption effects in the observed data.

- However, the data are assumed to be reliable enough to assure that it is more likely that the person with the lower observed consumption is living at the floor than anyone else.

- That assumption can be questioned.

Key findings 1: Counting approach

- Over 30 years we have seen an unambiguous reduction in absolute poverty by the counting approach over all lines and all standard poverty measures.

- Huge progress in reducing the number of people living close to the floor.

Key findings 2: Rawlsian approach

- The increase in the level of the floor seen over the last 30 years or so has been small—far less than the growth in mean consumption.

- The modest rise in the mean consumption of the poor has come with rising inequality, leaving room for only a small gain in the level of living of the poorest.

- The bulk of the developing world's progress against poverty has been in reducing the number of people living close to the consumption floor, rather than raising the level of that floor.

Poverty and growth

- Standard poverty measures have responded to economic growth, and that holds for lines well below $1.25 a day (corresponding to the poorest 20% in 2010).
    - Indeed, the bulk of either the inter-temporal or the cross-country variance in rates of poverty reduction for either $1.25 or $2.00 a day is accountable to progress for those living under $0.87 or even $0.77 a day.
- Growth in mean consumption has been far more effective in reducing the incidence of poverty than raising the consumption floor.
- In this sense, it can be said that the poorest have indeed been left behind.

Implications for monitoring

- While it would be ill-advised to look <u>solely</u> at the level of the floor, it can be acknowledged that this has normative significance independently of attainments in reducing the numbers of people living near that floor.

- The thesis of this paper is <u>not</u> that progress against poverty should be judged solely by the level of the consumption floor, but only that the latter should no longer be ignored.

- That would also assure more consistency between how we monitor poverty and how we think about social protection policies.

Thank you for your attention!