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Poverty Analysis for Social Protection: Interpretation and Use

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Chiang Mai, October 2019

Outline

- Lecture 1: Poverty analysis: Concepts and measures
- Lecture 2: Interpretation and use

Use and abuse of poverty measurement and analysis

The crux with statistics

- Never forget, poverty rates are **ESTIMATES**!
- Reliability of the results depends on the quality of the underlying data
- Poverty measures outcome, not input or output
  - ➢ Administrative data hardly capture individual welfare
- Results need to be understood (what do they say) and interpreted (what does it mean)

Robustness of poverty indices

- Sampling errors
- Measurement errors
- Equivalence scales
- Choice of poverty line

Sampling errors

- Results are based on survey data
- Surveys collect information from a sample of the population
  - Sample size
  - Representative
- Will results be the same if we draw a different sample?
  - Sample mean is a ‘random’ variable, an estimate of the ‘true’ mean
  - Difference is the sampling error
- Standard deviation and confidence intervals
  - The larger the sample, the smaller the standard deviation

Example:

	Estimate	Standard error	95% Confidence interval
Poverty rate	26.46%	0.68	[25.13% 27.80%]

So, how sure can we be?

Tajikistan 2007

	Headcount Rate(P0)	Poverty Gap(P1)	Squared Poverty Gap(P2)
Poverty Line = Total (139 Somoni)			
Urban	49.4	15.4	6.5
Standard Error	2.7	1.2	0.7
Rural	55.0	14.9	5.6
Standard Error	1.5	0.7	0.4
Total	53.5	15.0	5.8
Standard Error	1.3	0.6	0.3
Poverty Line = Extreme (89 Somoni)			
Urban	18.9	4.3	1.5
Standard Error	2.2	0.6	0.3
Rural	16.4	3.1	0.9
Standard Error	1.3	0.3	0.1
Total	17.1	3.4	1.0
Standard Error	1.1	0.3	0.1

Measurement errors

Underreporting

- Overestimation of poverty

Non-coverage of very poor groups in the sample

- Persons living in institutions rarely included in surveys
- Homeless persons
- Example: migrants in Vietnam
- Underestimation of poverty (?)

Choice of the poverty line and poverty measures

- Arbitrary
- If they all tell the same story, no problem
- Differences can be significant

  Policy A: redistribution from households around the poverty line to the poorest

  ➢ P_0 up, P_2 down

  Policy B: redistribution from poorest to those around the poverty line

  ➢ P_0 down, P_2 up
- Stochastic dominance test

Figure 5.1: *Poverty Incidence Curves for years 1 and 2*

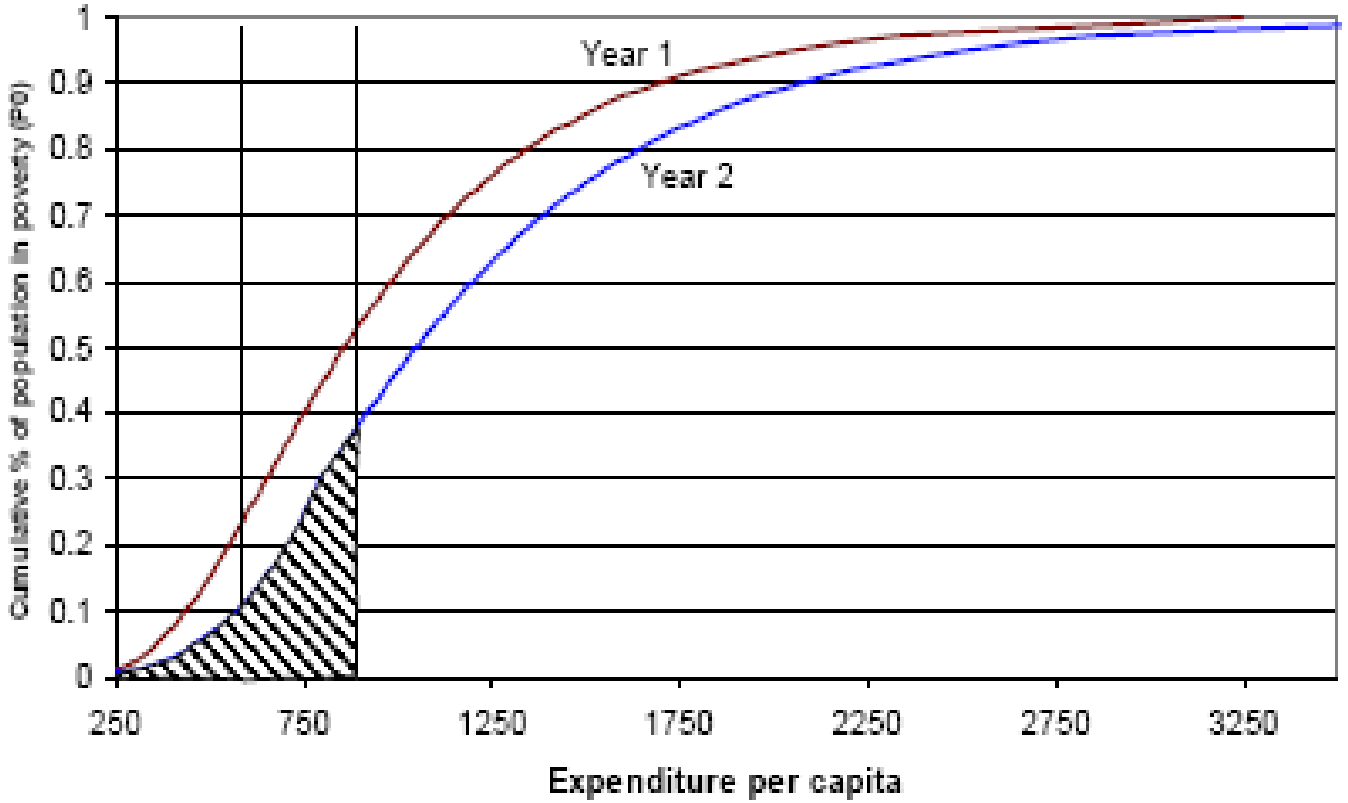
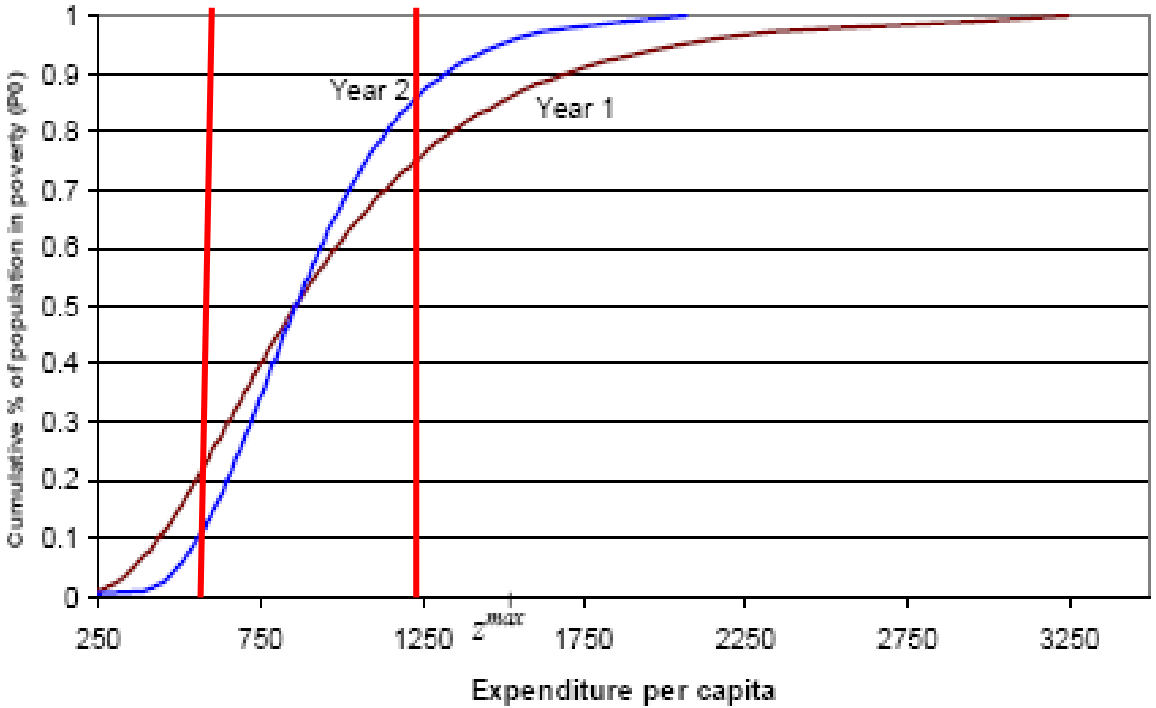


Figure 5.2: *Poverty Incidence Curves for years 1 and 2*

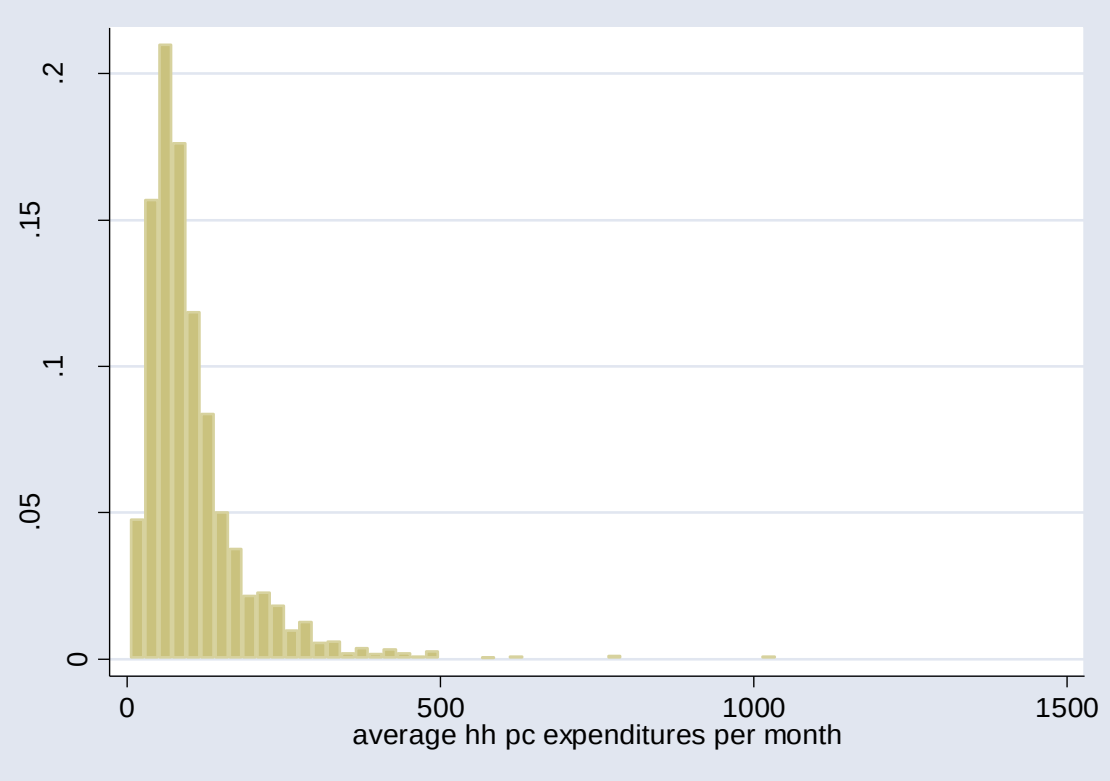


Sensitivity of the poverty line

Tajikistan 2007

	Poverty Incidence (P0)	Change from actual (%)
Poverty Line = Total (139 Somoni)		
Actual	53.5	*0.0*
+5%	58.6	*9.5*
+10%	62.6	*16.9*
+20%	69.4	*29.8*
-5%	49.0	*-8.4*
-10%	44.5	*-16.8*
-20%	33.8	*-36.9*
Poverty Line = Extreme (89 Somoni)		
Actual	17.1	*0.0*
+5%	20.2	*18.0*
+10%	23.3	*36.1*
+20%	29.7	*74.0*
-5%	14.4	*-15.7*
-10%	12.0	*-29.5*
-20%	7.4	*-56.9*

A typical income distribution



Comparing different households

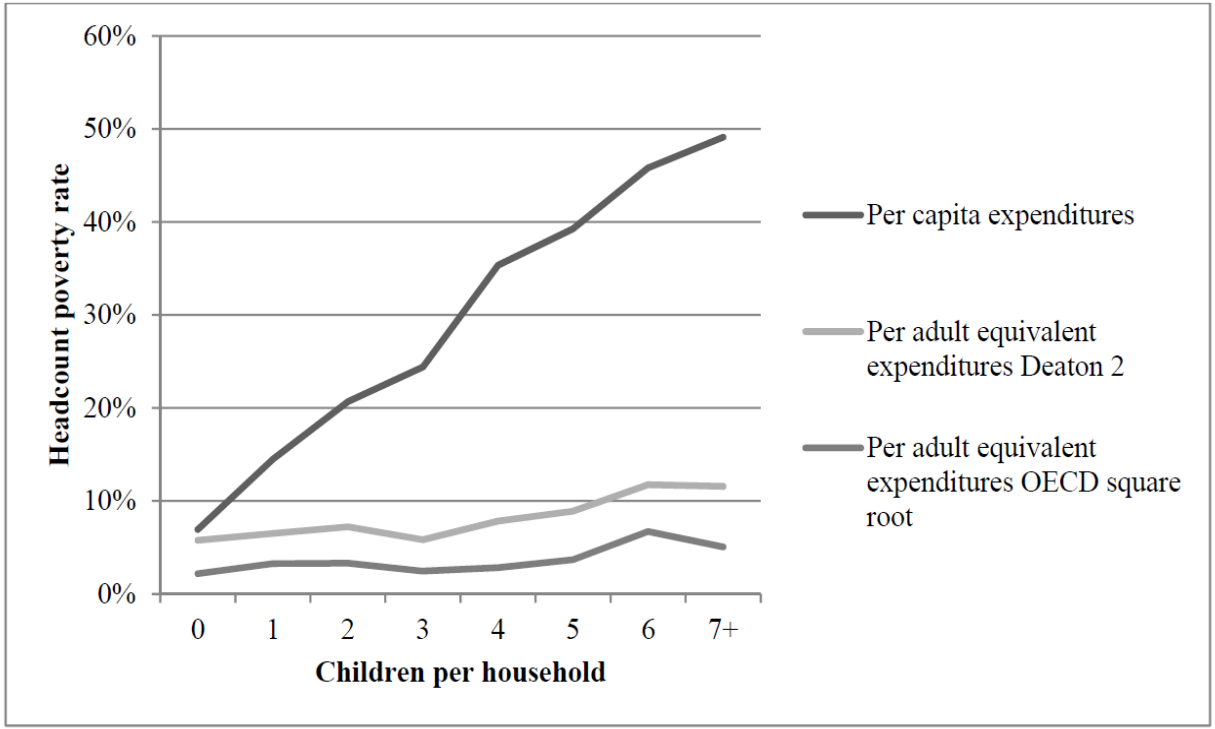
Household size	Equivalence scale				
	per-capita income	"Oxford" scale ("Old OECD scale")	"OECD-modified" scale	Square root scale	Household income
1 adult	1	1	1	1	1
2 adults	2	1.7	1.5	1.4	1
2 adults, 1 child	3	2.2	1.8	1.7	1
2 adults, 2 children	4	2.7	2.1	2.0	1
2 adults, 3 children	5	3.2	2.4	2.2	1
Elasticity[1]	1	0.73	0.53	0.50	0

Source: OECD, n.d.

Application of different equivalence scale may lead to different results, but generally, poverty profiles are quite robust in that respect

Impact of different equivalence scales: Ghana (Regier et al 2015)

Figure 5. Poverty rates of $1.25 per day by children per household



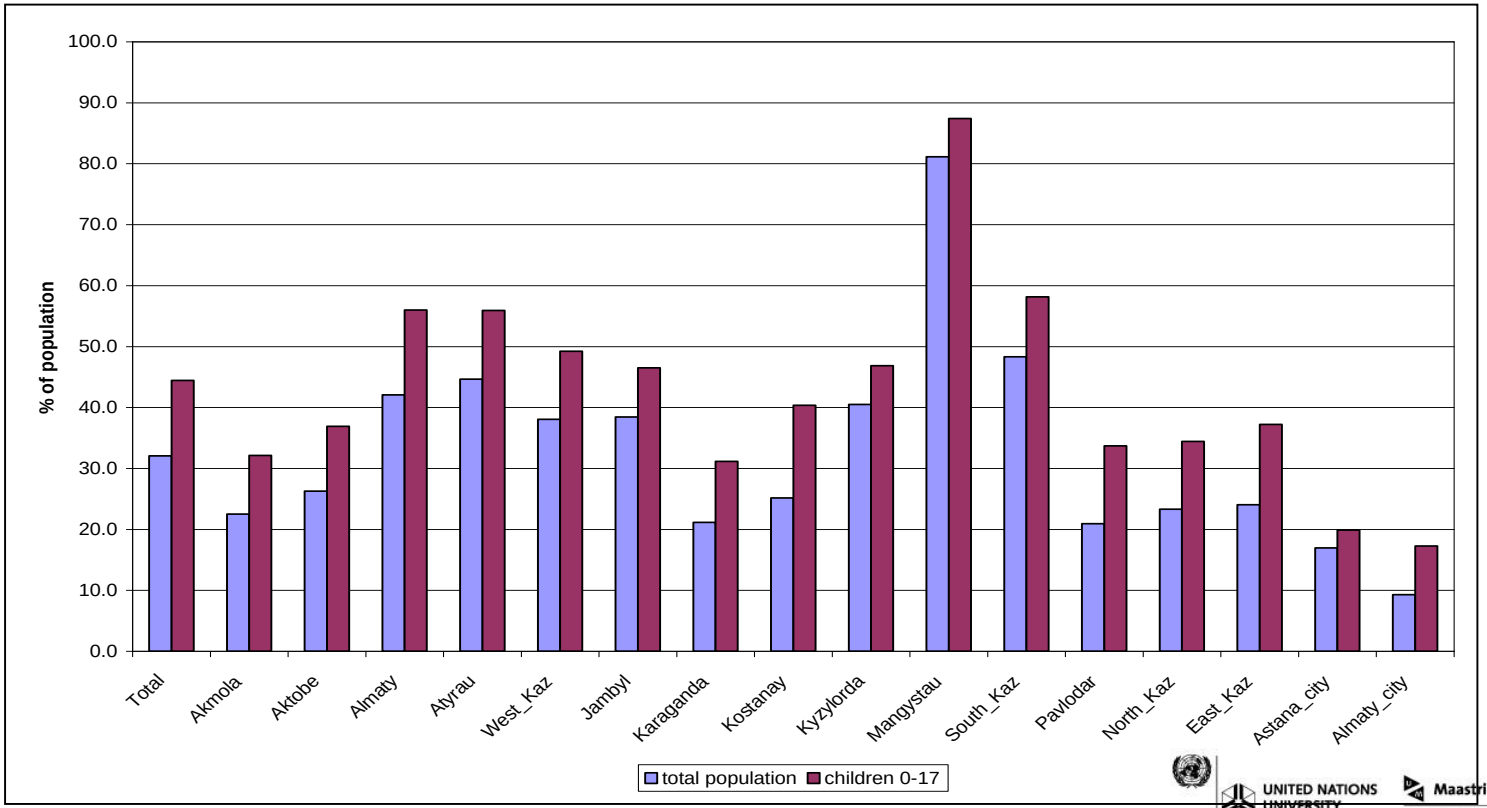
Note: n = 4365; household population size = 928,302

Use of poverty analysis

- Poverty profile
  - Identifying the poor
  - Comparison of poverty incidence, gaps, severity between groups
  - Incidence vs. structure
- Poverty determinants
  - Econometric models
- Assessing the poverty impact of public policies
  - Static microsimulation
  - Benefit incidence analysis
  - Sectoral analysis

Who and where are the poor?

Kazakhstan 2009



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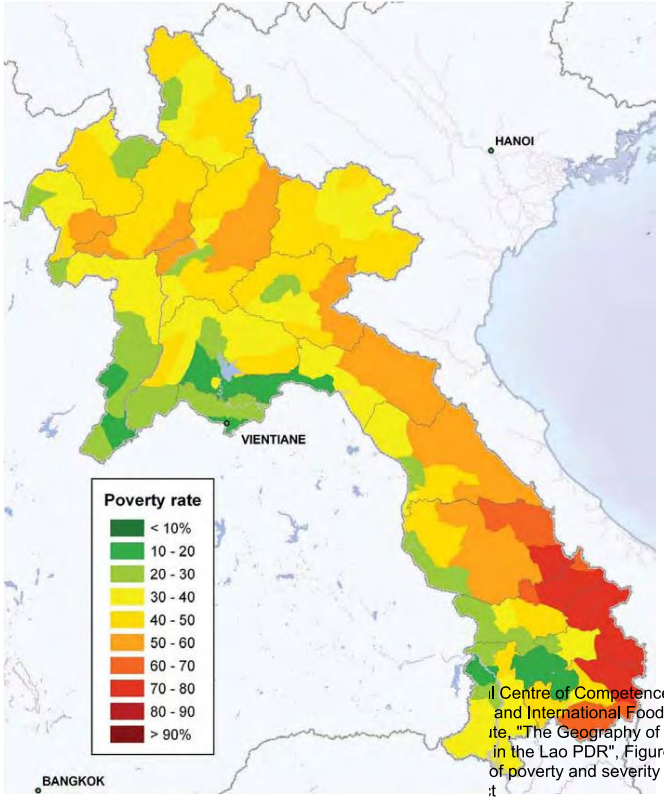
Poverty profile: monetary poverty

	Poverty rate (%)	Extreme poverty rate (%)	Poverty gap (%)	Share among the poor (%)	Share in population (%)
By economic status of household head:					
employed	22.8	0.3	3.4	45.2	50.8
unemployed	43.4	4.8	9.8	12.8	7.6
pensioner old age	27.6	0.9	4.4	28.5	26.4
pensioner disability	26.2	0.0	3.8	3.7	3.6
other	21.4	0.5	3.4	9.7	11.6
By number of children below 16 in household:					
none	4.8	0.1	0.0	3.6	19.2
one child	13.9	0.2	0.0	11.9	21.8
two children	25.7	0.7	0.0	25.1	25.1
three or more children	44.7	1.6	0.1	59.3	33.9

Kyrgyz Republic 2016

Poverty Headcount Ratio (%) by District (2002/03)



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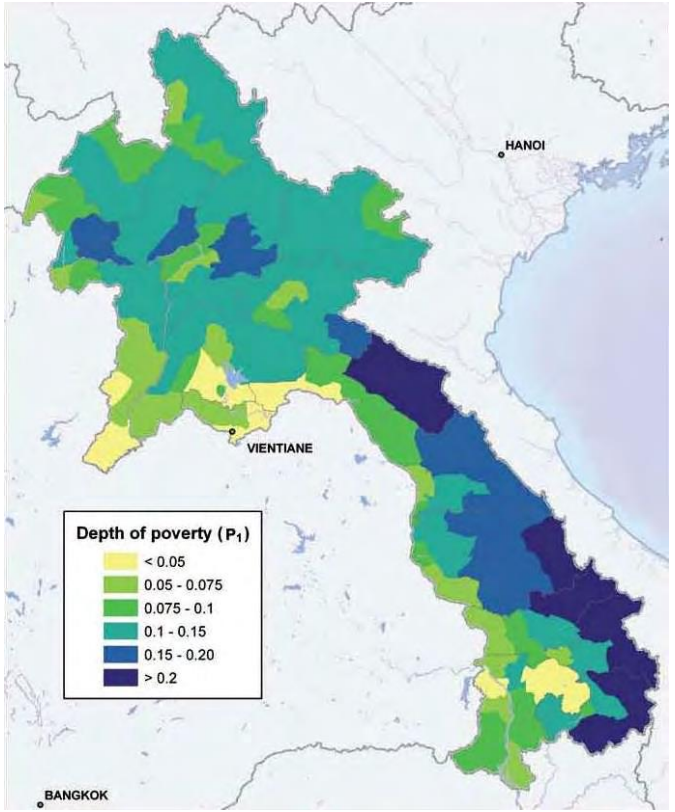
Poverty Gap Ratio (Poverty Depth) (%) by District (2002/03)



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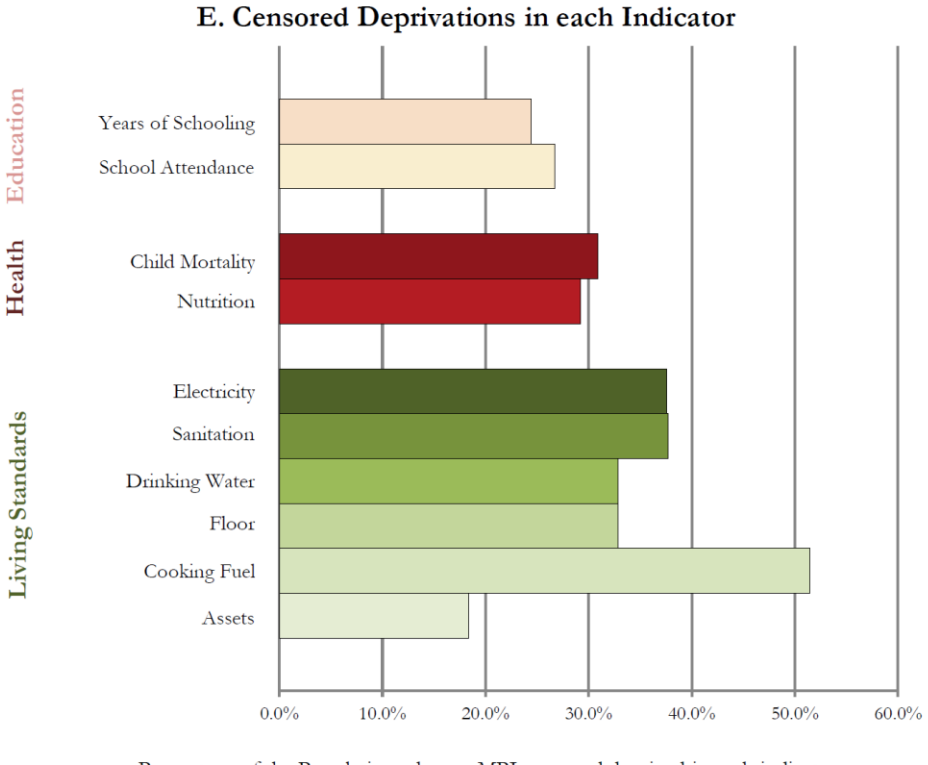
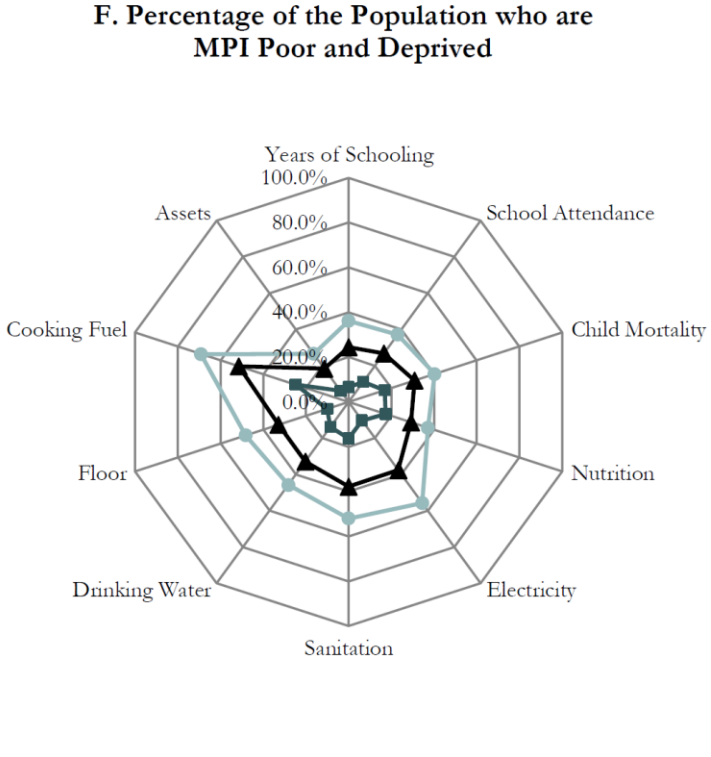
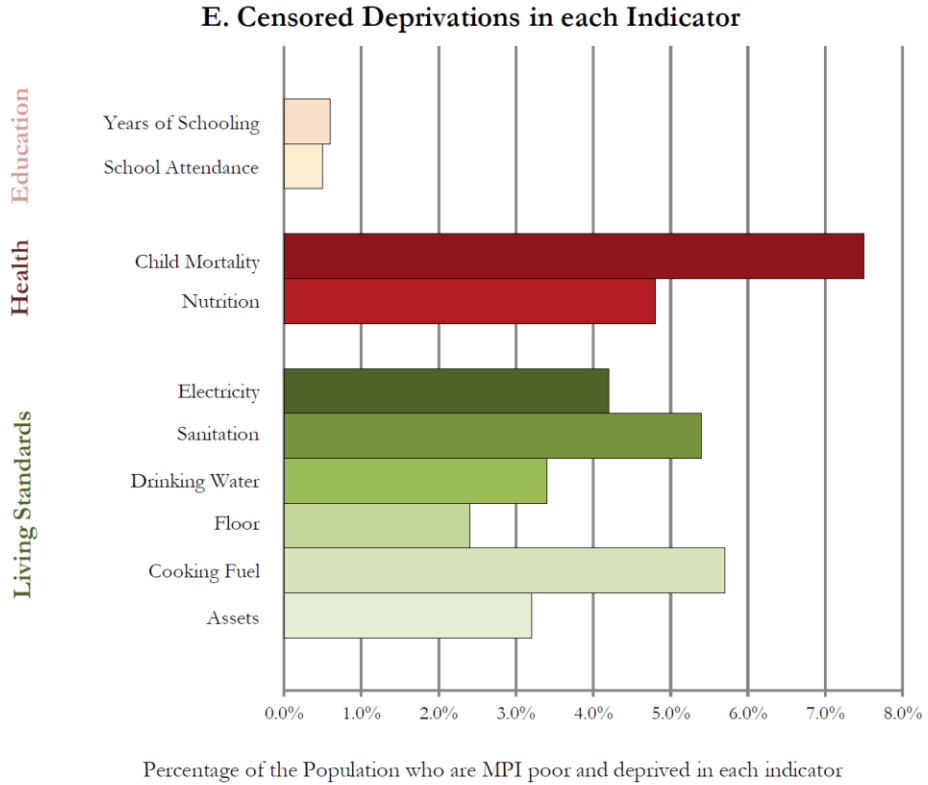
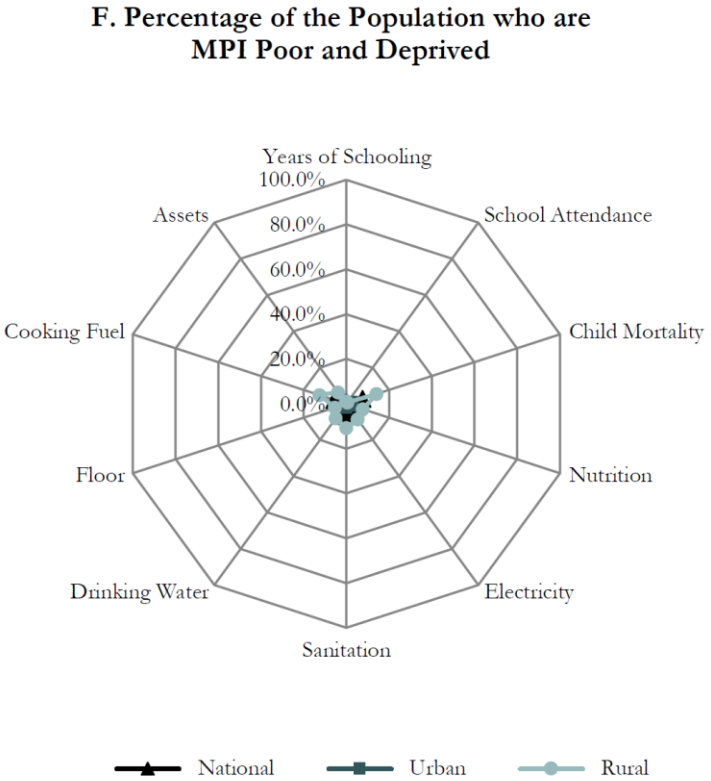
Multidimensional poverty: Nigeria (2013)



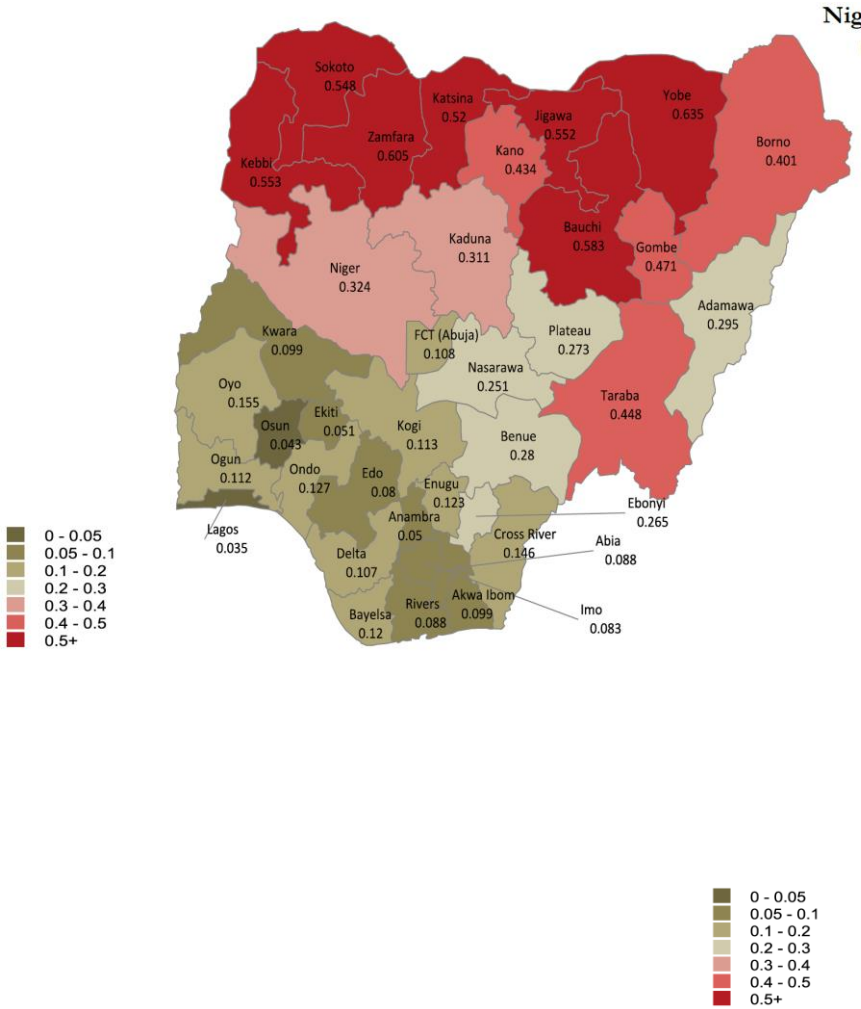


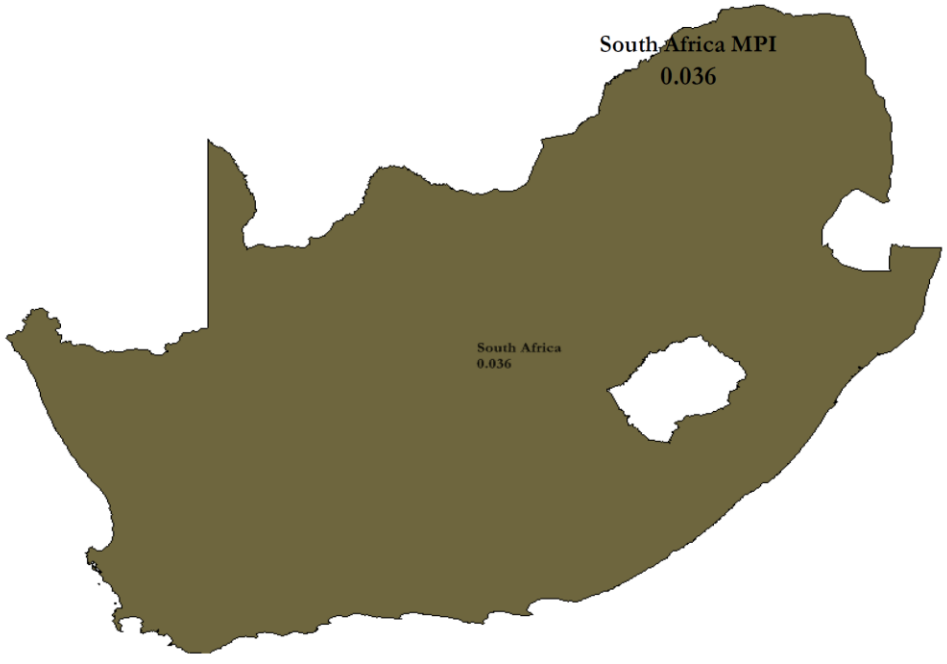
Multidimensional poverty: South Africa (2014/15)



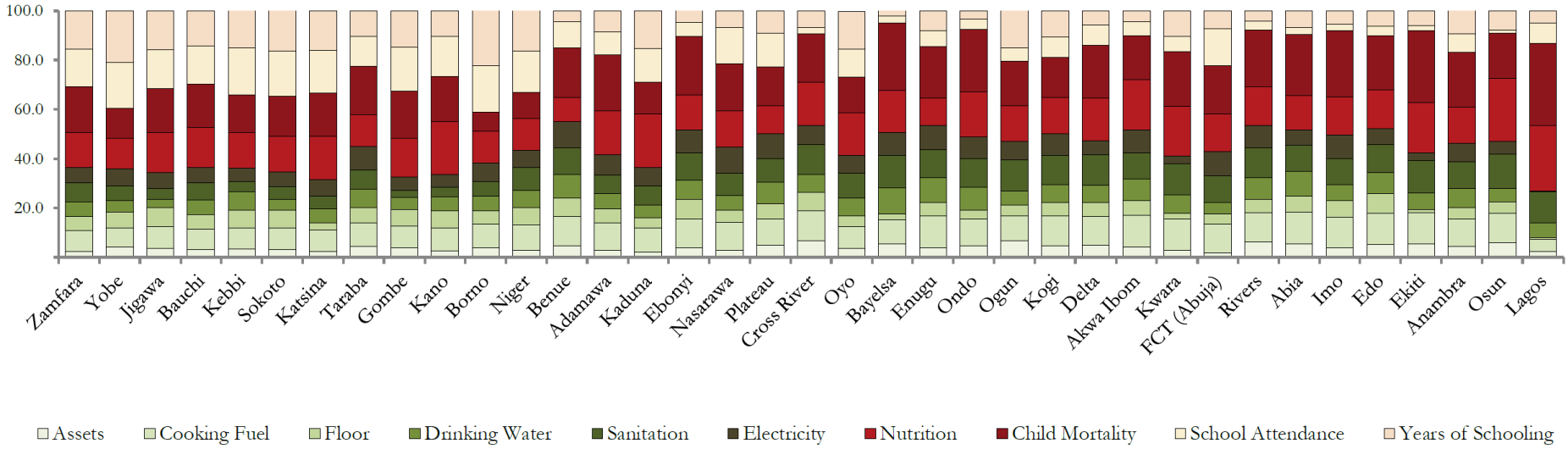


Regional disaggregation



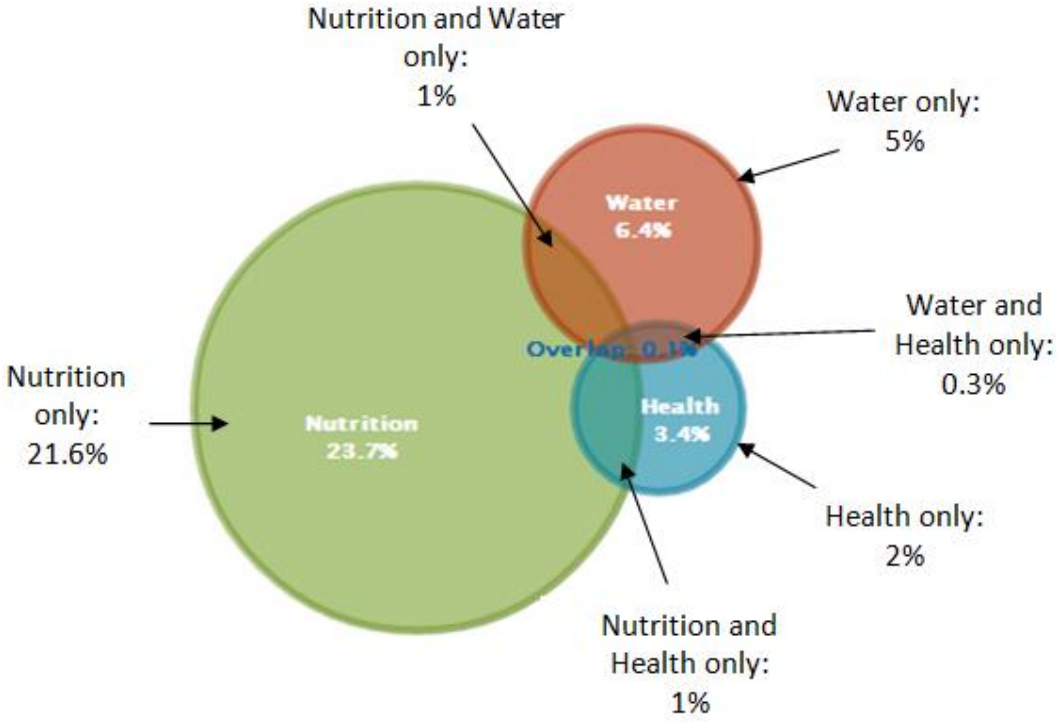


Nigeria: Contribution of deprivation dimensions to multidimensional poverty



Multidimensional analysis: overlap of 3 dimensions

Deprivation overlap of nutrition, health and water dimensions for children <5 in Tunisia



Monetary vs multidimensional poverty

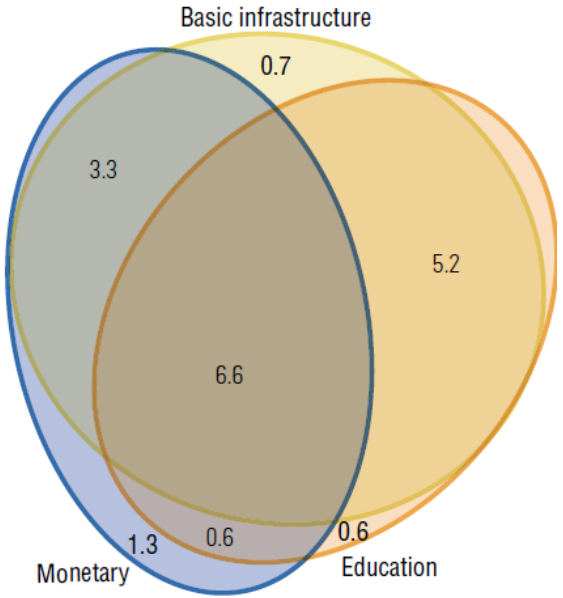
TABLE 4.4 People Living in Monetary or Multidimensional Poverty, 119 Economies, circa 2013

Region	Monetary		Multidimensional		Number of economies	Population coverage (%)
	Headcount ratio	Share of the poor (%)	Headcount ratio (H)	Share of the poor (%)		
East Asia and Pacific	5.3	8.1	7.5	7.3	13	28.9
Europe and Central Asia	0.3	0.4	1.1	0.8	17	90.0
Latin America and the Caribbean	3.9	5.7	6.1	5.8	17	91.5
Middle East and North Africa	3.2	2.2	5.9	2.6	9	72.1
South Asia	11.9	12.3	26.6	17.7	5	23.0
Sub-Saharan Africa	44.9	70.9	64.3	65.4	29	60.7
Rest of the world	0.5	0.5	0.5	0.3	29	39.6
Total	11.8	100.0	18.3	100.0	119	45.0

Source: Estimates based on the harmonized household surveys in 119 economies, circa 2013, GMD (Global Monitoring Database), Global Solution Group on Welfare Measurement and Capacity Building, Poverty and Equity Global Practice, World Bank, Washington, DC.
Note: The reported multidimensional headcount ratio is estimated on the basis of three dimensions—monetary, education, and basic infrastructure access, as defined in table 4.1—and an overall poverty cutoff of one-third of the weighted deprivations. The data are derived from household surveys conducted in about 2013 (+/–3 years). Because of the unavailability or incomparability of data, analysis does not include all countries. The last column shows the percentage of regional or global populations covered by the surveys. Percentages may not sum to 100 because of rounding.

Source: World Bank (2018)

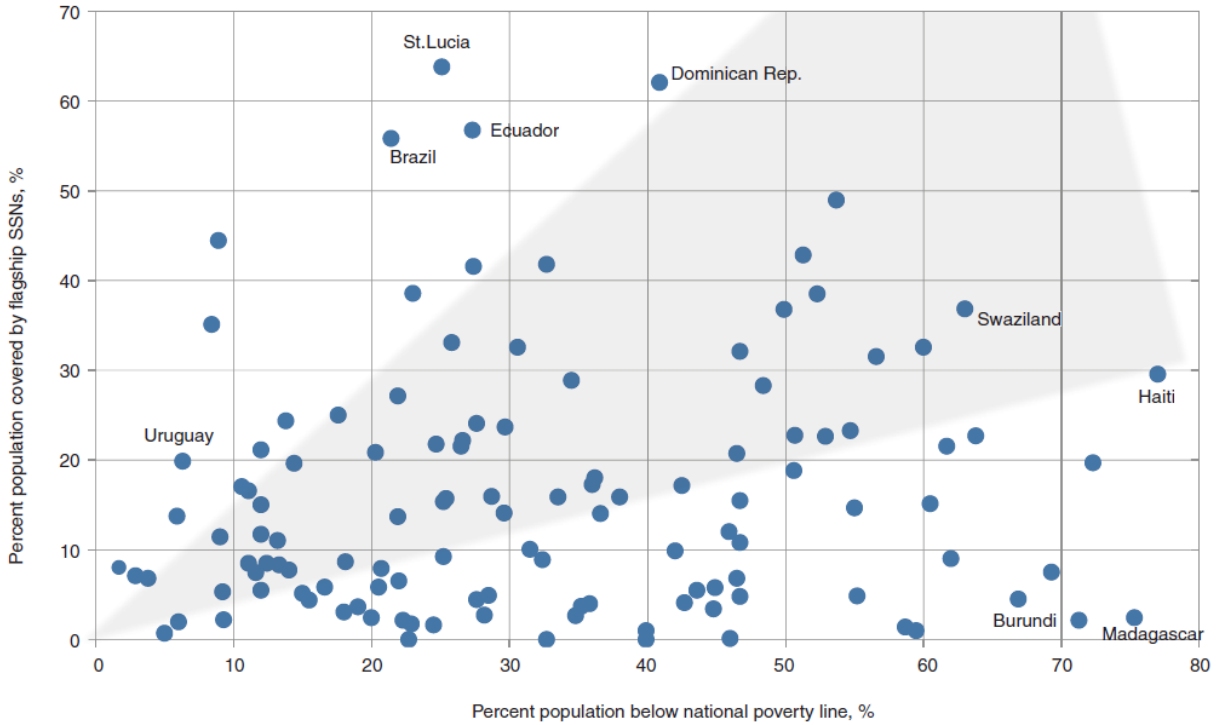
FIGURE 4.1 Individuals in Multidimensional Poverty, 119 Economies, circa 2013



Source: Estimates based on the harmonized household surveys in 119 economies, circa 2013, GMD (Global Monitoring Database), Global Solution Group on Welfare Measurement and Capacity Building, Poverty and Equity Global Practice, World Bank, Washington, DC.
Note: The diagram shows the share of population that is multidimensionally poor, and the dimensions they are deprived in. For example, the numbers in the blue oval add up to 11.8 percent, which is the monetary headcount. Adding up all numbers in the figure results in 18.3 percent, which is the proportion of people that are multidimensionally deprived.

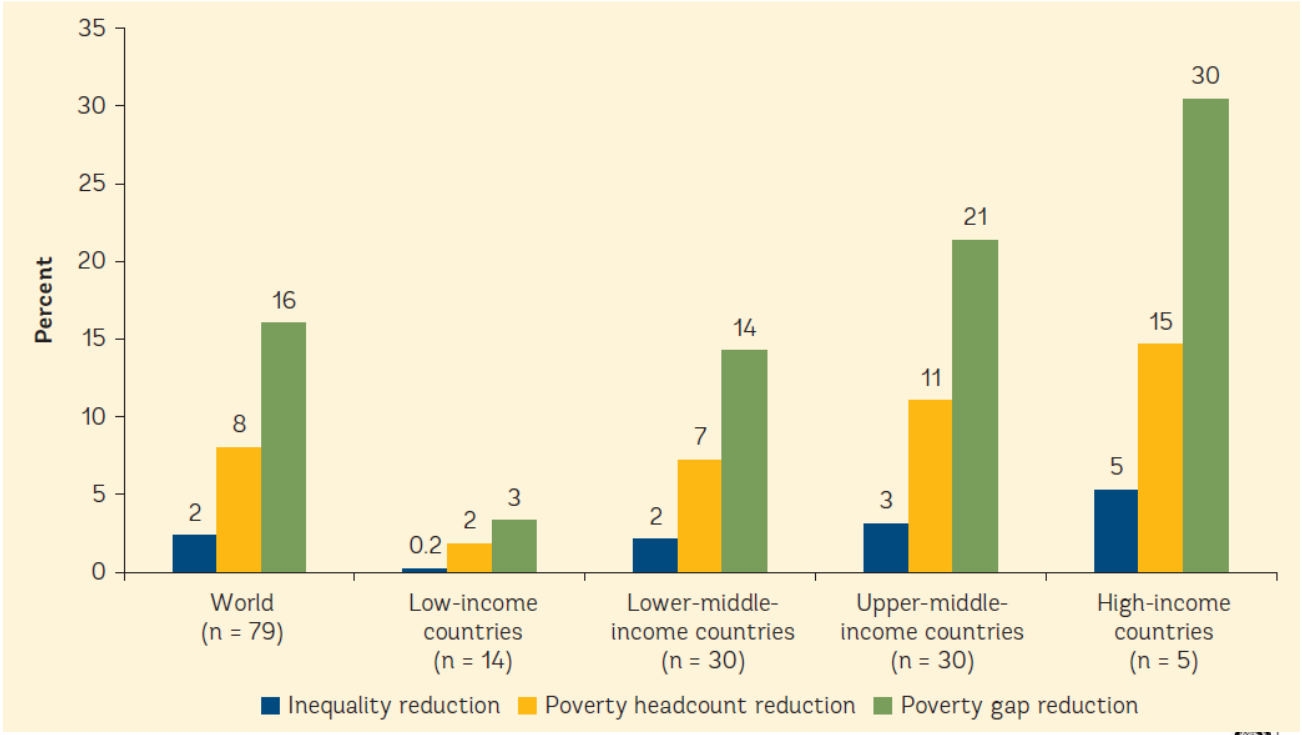
Relating poverty with social assistance coverage

FIGURE 3 Flagship Social Safety Net Programs Often Do Not Meet the Scale of the Poverty Challenge



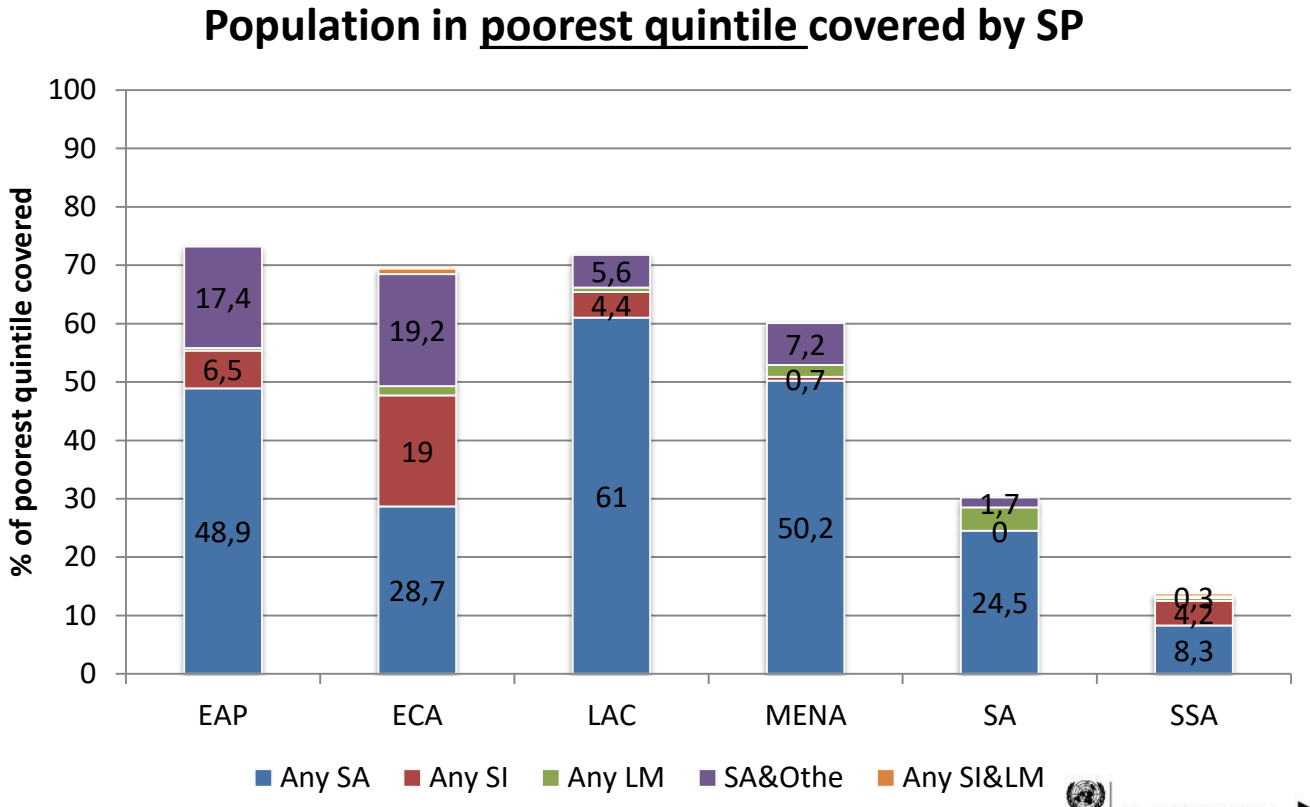
Source: World Bank, 2014

SP transfers can effectively reduce poverty



World Bank, 2018b

Social protection analysis: Coverage of the poor



Source: ASPIRE (accessed 3/2019)

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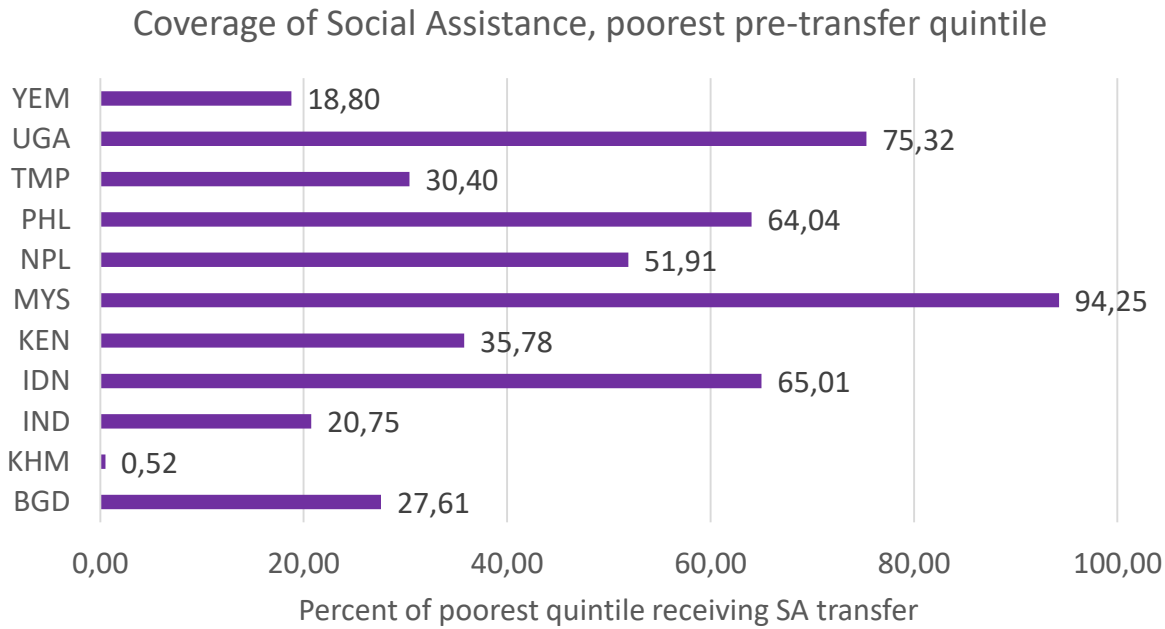
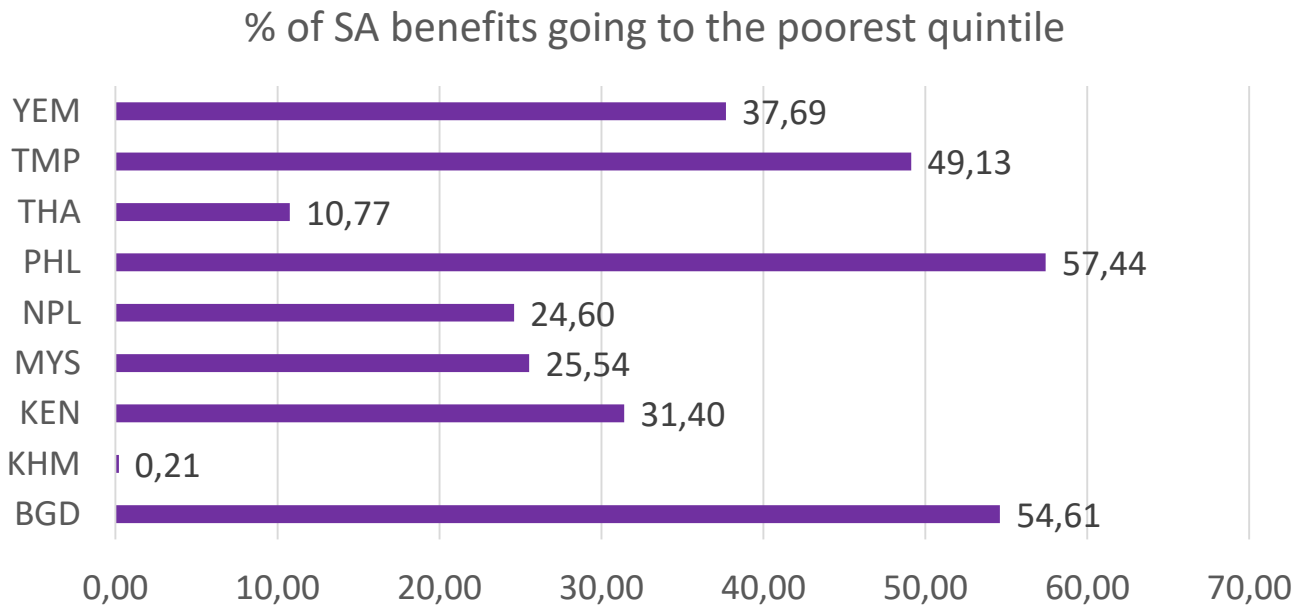
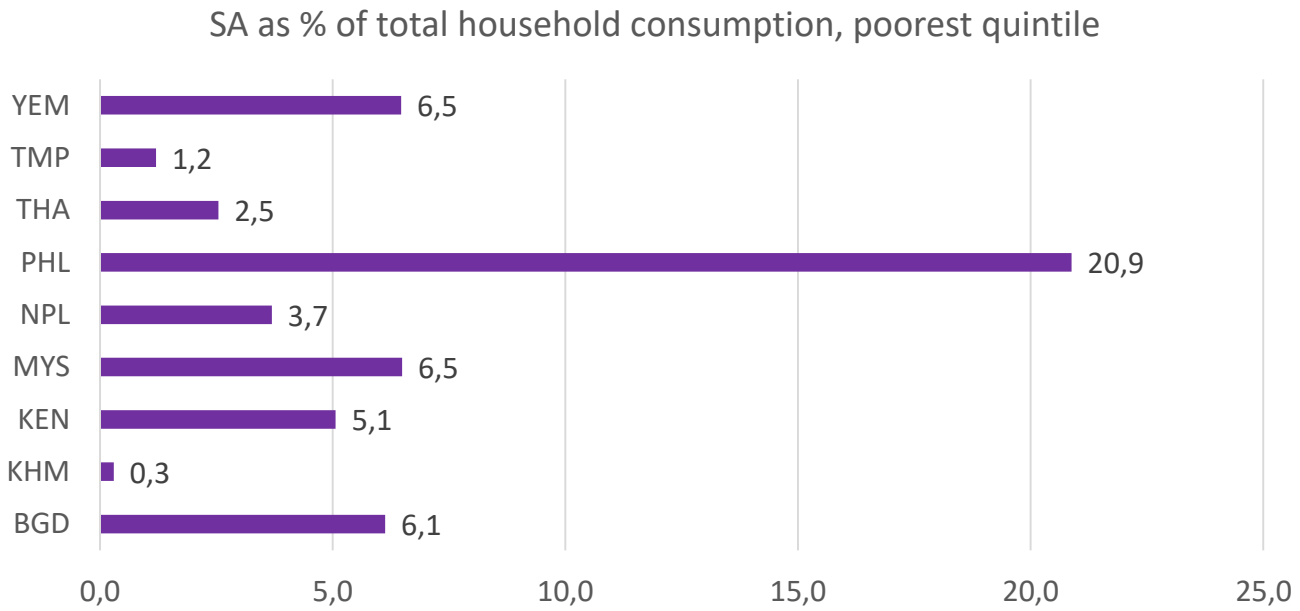
Benefit incidence (WB 2015)



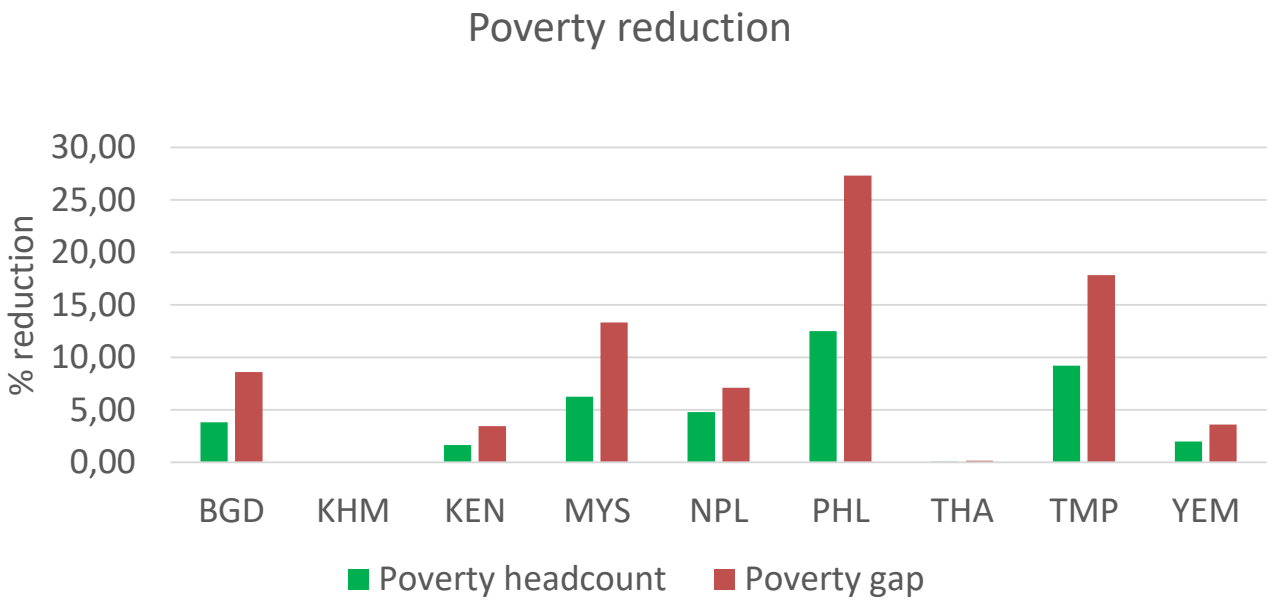
Benefit distribution (…and inclusion errors) (WB 2015)



Adequacy of Social Assistance (WB 2015)

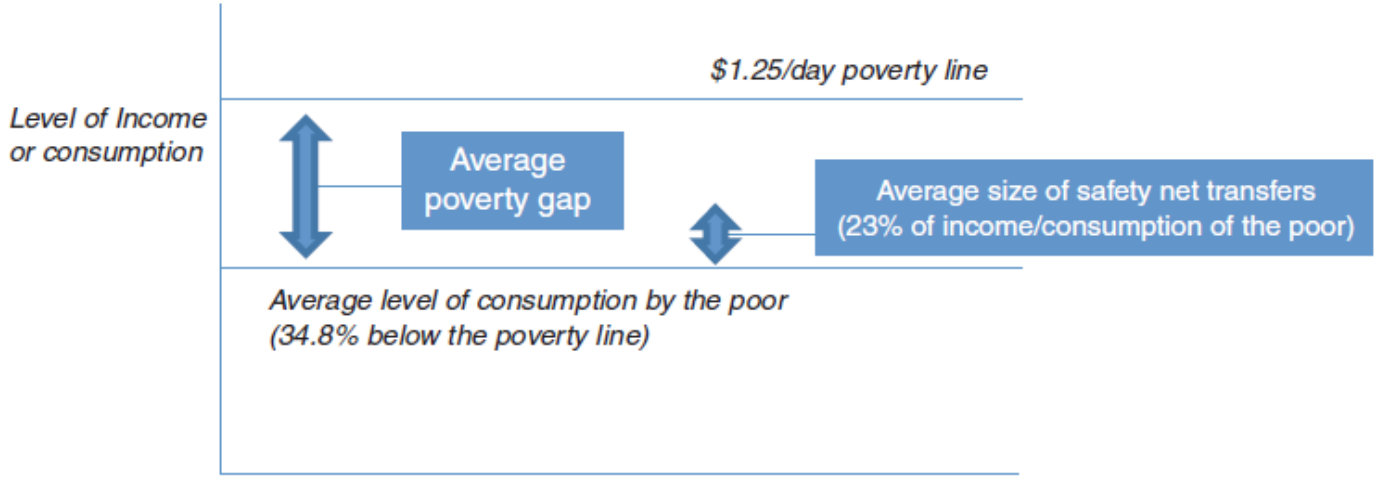


Impact of social assistance on poverty (WB 2015)



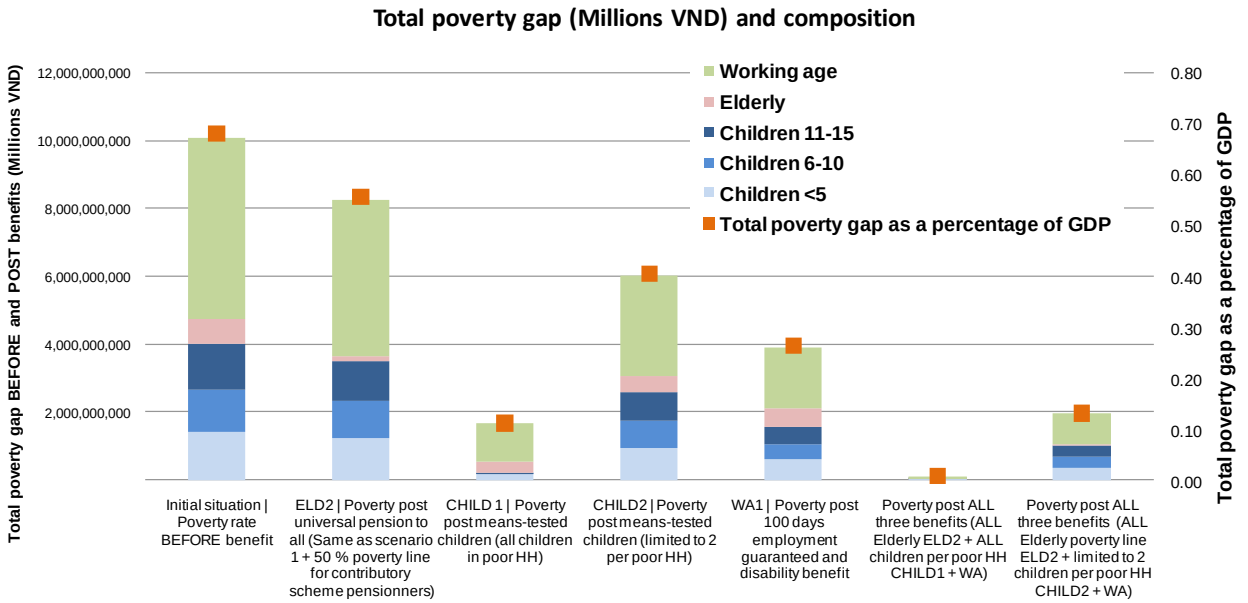
Identifying performance gaps

FIGURE 19 The Average Size of Transfers Does Not Fill the Poverty Gap



Source: World Bank 2014

Example: Assessing potential poverty impacts (poverty gap in % of GDP) in Viet Nam



Source: Compatibility analysis of the national Social Protection Strategy and the UN Social Protection Floor Initiative: Costing and financial projections to implement social protection policies 2011-2020 (Draft), ILO, Geneva.

Use

- Advocacy
- Allocating resources
- Targeting

→Different stakeholders use the results for different purposes

Not use: Why?

- It is irrelevant
  - The problem will disappear when we get richer
  - Poverty is a temporary status
  - It's the poor's own fault
- It is morally not right or justifiable to hand out money to the poor
- It is not affordable; the problem is too big

Abuse

- How to lie with statistics…
- Forget the many choices we made when calculating poverty
  Indicator, data, poverty line, equivalent scale, inflation correction, …
- Forget that it is an estimate
  Survey design, measurement errors, …
- Interest groups
  Elderly, employers, racists, …

Concluding

- Poverty analysis is a powerful tool for the design and evaluation of poverty reduction policies
- Methodological instruments range from rather simple, straightforward to highly sophisticated tools
- Most of the survey data is cross-sectional, limiting the insights from analysis in terms of causal relationships
- Understanding poverty, its causes and effects, is the first step in the poverty reduction policy making process and the design of appropriate social protection measures.