

# Targeting Poor Households and Poor Individuals: Evidence for Africa

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Based on papers by Cait Brown, Martin Ravallion (Georgetown U) & Dominique van de Walle (World Bank)

# Two questions focused on the informational constraints to eliminating poverty

Part 1: *How well can we identify **poor households** with the type of data routinely used by policy makers?*

Part 2: *How well can we identify **poor individuals** using such data?*

In both cases, we focus on **Sub-Saharan Africa**; the region with highest poverty measures today + large expansion in social protection programs.

## Part1: How well can we identify *poor households*?

- Standard measures of economic welfare are not fully observed
- Governments often use proxies for “targeting” poor households given imperfect information (E.g. Location, family size, housing conditions)
- Households receive a “score” based on proxies = **Proxy Means Testing (PMT)**
- PMT: regression-based predictor of poverty based on observed covariates.
- Weights for the scores are set using a regression for (log) household consumption calibrated to survey data
- Scores are then used to make out-of-sample predictions
- Households with scores below some cutoff point are eligible recipients
- Used by World Bank, other donors, and many developing country governments

# This study...

Aims to provide a systematic assessment of econometric targeting as a tool for social policies aimed at reducing poverty. We:

- Study PMT in the context of 9 countries with recent LSMS-IZA surveys: Burkina Faso, Ethiopia, Ghana, Malawi, Mali, Niger, Nigeria, Tanzania, Uganda
- Assess the most common form: “Basic PMT”
- Consider alternative models using additional covariates: “Extended PMT”
- Consider **alternative estimation methods** more appropriate for the goal of poverty reduction
- Introduce **lags** in implementation
- Compare to **alternative targeting methods**: uniform transfers, categorical (elderly, widows, households with children etc.)

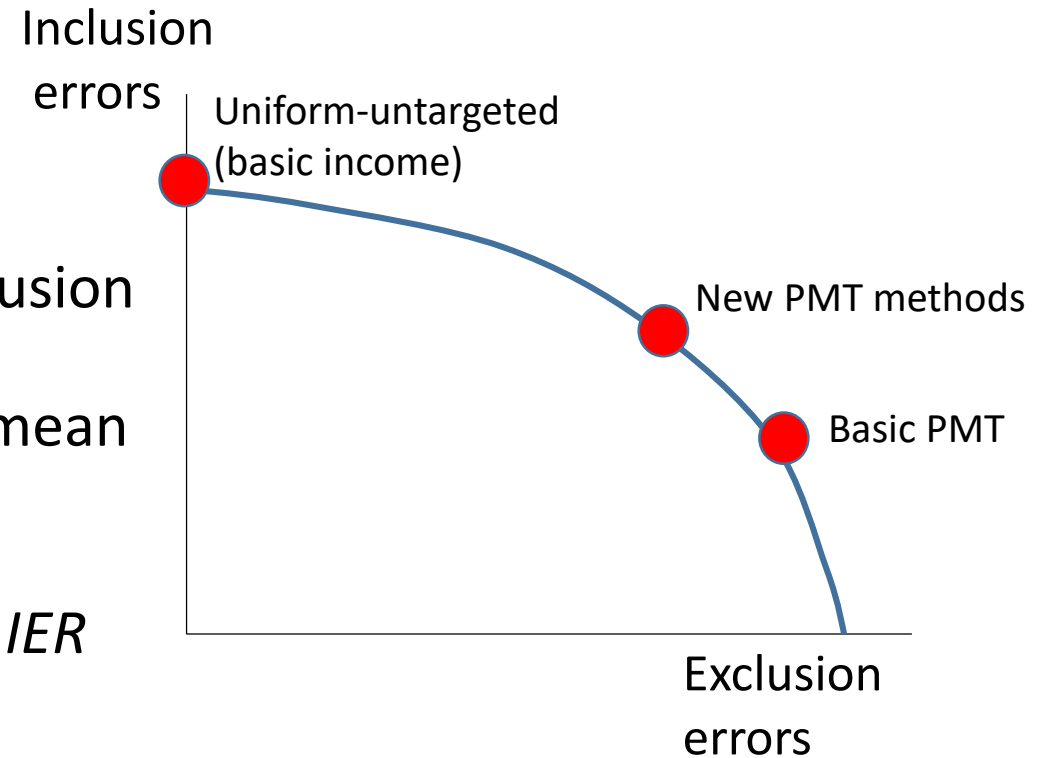
# To compare performance of PMT to that of other targeting methods...

We examine:

- inclusion (IER) and exclusion (EER) errors.
- Impacts on poverty for stylized transfer programs:
  - setting the budget at each country's aggregate poverty gap, we compare how well allocation according to PMT and other methods reduce poverty
  - Assume a poverty line set at  $H=20\%$
  - Assume a uniform per capita transfer to all households predicted to be below poverty line

# Targeting errors

- PMT reduces inclusion errors at a cost of exclusion errors
- For  $H=20\%$  & fixed line, the mean  $IER=50\%$ ; mean  $EER=80\%$
- Considerable variation across countries, with  $IER$  ranging from 33 to 100%, and  $EER$  from 55 to 100%
- Regression-based calibration of the PMT score **tends to overestimate living standards for the poorest.**
- The choice of method ultimately rests on the weight policy makers give to these two sources of errors, as well as the costs associated with different methods



# Impacts on poverty rate (H=20%)

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	Mean
<b>Universal (basic income)</b>	0.171
<b>Basic PMT covariates</b>	
Basic PMT	0.163
Using means from panel data	0.159
Poverty quantile regression	0.155
Poverty weighted: Poor only	0.170
Poverty weighted: Poor + 20	0.162
PMT with Urban/Rural	0.159
<b>Extended PMT covariates</b>	
Extended PMT	0.154
Using means from panel data	0.155
Poverty quantile regression	0.154
Poverty weighted: Poor only	0.168
Poverty weighted: Poor + 20	0.157

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**Even with sufficient budget to eliminate poverty with full information, none of the methods bring the poverty rate below 75% of its initial value.**

## Part 2: *How well can we identify poor individuals?*

Even if we can reach poor households, that does not guarantee that we will reach poor individuals.

- Heterogeneity in factors influencing individual poverty: local health environment
- Intra-household inequality in resource allocations and outcomes; & discrimination against some members.
- Such heterogeneity diminishes the scope for reaching poor individuals by targeting poor households.
- *How much does this matter empirically? Is the wealth effect on individual nutritional status strong enough to allow satisfactory targeting of vulnerable women and children?*

**Difficult to test given missing data problem.**



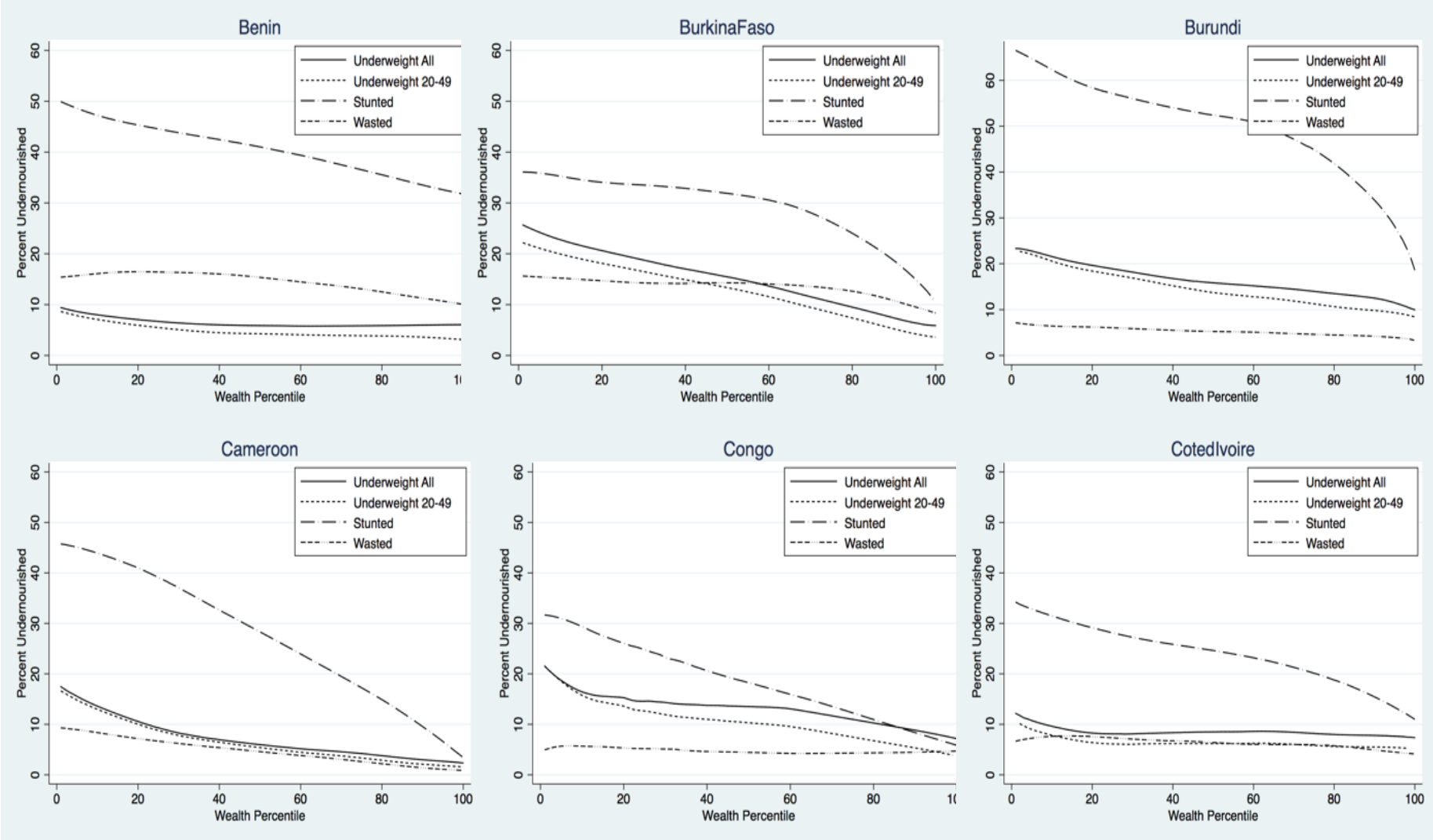
# One clue to individual poverty: nutritional status

- Anthropometric data at individual level
- Nutritionally-vulnerable women and children are a high priority for social policies
  - Malnutrition has both immediate and long-term social and economic costs
- Nutritional status is only one dimension of individual level poverty but an important one
- Key question: **is household-level targeting effective at reaching poor individuals as indicated by nutritional status?**

# Data Sources

- Use data from Demographic and Health Surveys (DHS) for 30 countries in Africa
  - 350,000 women 15 to 49, and children under 5
  - Nutritional outcomes: BMI, height-for-age (stunting) & weight-for-height (wasting)
  - DHS wealth index: constructed using variables related to a household's welfare (assets, housing construction materials, access to water and sanitation etc.)
- Household consumption may be a better indicator of nutritional status?
  - Also use LSMS surveys (7 countries with nutritional data)
- Focus on bottom 20% and 40% of households based on wealth or consumption

# Nutritional Outcomes and Household Wealth



# Proportion of undernourished individuals in the poorest 20% and 40% of the household wealth distribution

	Poorest 20% of households			Poorest 40% of households		
	Underweight women	Stunted children	Wasted children	Underweight women	Stunted children	Wasted children
Benin	0.248	0.233	0.223	0.444	0.446	0.464
Burkina Faso	0.307	0.242	0.224	0.551	0.458	0.433
Burundi	0.276	0.249	0.281	0.464	0.451	0.506
Cameroon	0.396	0.326	0.364	0.637	0.594	0.630
Congo	0.221	0.310	0.232	0.460	0.534	0.465
Cote D'Ivoire	0.226	0.289	0.240	0.414	0.516	0.447
DRC	0.252	0.247	0.209	0.521	0.482	0.442
Ethiopia	0.235	0.218	0.259	0.461	0.445	0.534
Gabon	0.246	0.434	0.206	0.422	0.634	0.388
<b>Mean (all)</b>	<b>0.275</b>	<b>0.255</b>	<b>0.240</b>	<b>0.500</b>	<b>0.487</b>	<b>0.461</b>

# Most of Africa's nutritionally vulnerable women and children are not found in poor households

- On average, 75% of undernourished individuals are not found in the poorest 20% of households using household wealth
- About half of undernourished women and children are not found in the bottom 40%
- Similar results using consumption
- Joint probabilities of being poor, given that a woman is underweight or a child is wasted are close to zero
- This varies with the rate of undernutrition in a country (with higher undernutrition increasing the share found in non-poor households).
- Adding variables (e.g. household & individual-level), improves targeting performance, but still misses many.

# Part 1: Summary of findings on targeting poor households

- PMT filters out the nonpoor but excludes many poor people, thus diminishing the impact on poverty (relative to untargeted transfers).
- More data and better methods do better, but the gains to the poor are typically modest.
- In some cases, much simpler targeting methods using scorecards dominate.
- Simpler methods may dominate once the broader costs of PMT are taken into account e.g. transparency (social acceptability), admin. cost, lags, political economy
- However, no method performs well when poverty reduction is the goal.
- Prevailing methods are especially deficient in reaching the poorest.

## Part 2: Policy conclusions

- Household wealth and consumption cannot be used to reliably identify undernourished individuals
- We cannot rule out that household level data are more revealing for other non-nutrition dimensions of poverty
- Less progress in understanding why, but intra-household inequality appears to be important factor.
- Results question the growing interest in integrating nutrition programs within anti-poverty policies based on targeting poor households
- Efforts to address undernutrition and, by extension, individual poverty, require broader coverage rather than being subsumed within household targeted interventions

Thank you for your attention!

Merci de votre attention!

Caitlin Brown, Martin Ravallion and Dominique van de Walle, “Poor Means Test? Econometric Targeting in Africa” World Bank WP 7915

“Are Poor Individuals Mainly Found in Poor Households? Evidence using Nutrition Data for Africa” WP 8001