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# Assessing the targeting efficiency of the Social Cash Transfer in Zambia



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# Outline

- Intro and Motivation
- Targeting
- Zambian Context & MicroZAMOD
- Analysis: Targeting Efficiency || Reform Scenarios
- Financing?
- Way forward

# Intro and Motivation

- Assess the current targeting efficiency of the Social Cash Transfer.
- Use MicroSim model to assess targeting efficiency, subject to budgetary constraints, and with maximum poverty reduction in mind.
- So whilst draw from Zambian context where appropriate, approach is slightly more theory-driven.
  - *Interesting case study*
  - *Availability of Microsim Model*
  - *Open methodology*

# How to measure targeting efficiency?

- In brief:
  - Exclusion error: member of target group (e.g. poor) is excluded,
  - Inclusion error: member of non-target group (e.g. non-poor) is included.
- Poorly targeted programs can have large political and administrative costs:
  - Legitimacy, transparency, practicability etc.
  - Targeting methods often poorly understood by (non-) beneficiaries

*‘Well, some people wonder why they weren’t targeted even though they live in this same area. So we tell them that the Bible says that many are called but few are chosen.’ (Adato & Roopnaraine, 2004) [Nicaragua; Geographic]*

# How to measure targeting efficiency?

Efficiency of targeting varies widely:

- Inclusion/exclusion **errors are often substantial**: up to 95% (73%) of exclusion (inclusion) errors in some cases

		Non-poor	Poor
		According to actual consumption	
Ineligible ("Non-poor")	According to targeting method / criteria	Targeting success	<b>Exclusion error (Type 2)</b>
Eligible ("Poor")		<b>Inclusion error (Type 1)</b>	Targeting success

Source: Adapted from Narayan and Yoshida (2005)

# Zambian Context



- General background:
  - **Lower-middle income** country (USD1,270 GDP per capita).
  - Sustained **growth** btw 2005 and 2014 (over 7%), recent slow down.
  - **High poverty**: 41% extreme poverty (152ZMW/month [USD 15.50]), rural-urban divide. (63% v 14%). *Adult Equivalent Consumption*.
- Tax collection:
  - **Tax** collected is ~**13% of GDP**, major problems with budget deficit and payment arrears of the government, direct to indirect taxes about 50:50
- Social protection:
  - Social expenditures total 0.46% of GDP (for comparison: 4.5% in Ethiopia, Avg. of ~1.6% globally). Middle-income average of 2.8% of GDP.
  - Social benefits exist, “uncoordinated, fragmented and incoherent” (World Bank).

# Social Cash Transfer

- Focus here is **Social Cash Transfer (SCT)**
  - Began as pilot in 2003, gradually scaled up.
  - Still reliant on donor financing (DFID, Irish Aid, SIDA more recently), planned expansion to cover all districts in 2015 did not occur.
  - Covered around 50 districts in 2015, all in 2017?
  - Target group not clearly spelt out (at least from afar), has been interpreted as **extreme poor**.
  - Allocated at the **Household** level. Recipient households receive ZMW 70 per month (extreme poverty line ZMW152 per month [15.50**USD**])
    - Has since increased to ZMW90 per month in 2017

# Targeting of the SCT

Stage	Criteria	Type of targeting
1	<b>Residency:</b> HH must have resided in the same catchment area for 6 months.	Categorical
2	<b>Demographic Test:</b> HH must have a ratio of unfit to fit members $\geq 3$ .	Categorical
3	<b>Living conditions index:</b> Qualify based on cumulative score.	Proxy Means Test
4	<b>Disabled member of household (urban households only):</b> Must contain at least one disabled member (of any age).	Categorical

- **Mixed targeting** as common in many programmes.
- Zambian government is relatively transparent regarding the PMT (unlike other countries).

# Targeting of the SCT

- **Stage 2: Demographic Test / fitness for work.**
- To 'pass' this stage (be considered eligible), HH should have ratio of unfit to fit members  $\geq 3$ . (*intra-household dependency ratio*)
- "Fit"
  - Capable of work
  - Not disabled or chronically ill
  - Aged 16-64
  - Not attending school full time

# Targeting of the SCT

- **Stage 3: Proxy Means Test / Living Conditions Index**
  - Differs slightly rural/urban.
- **Components (rural):**
  - Highest level of education achieved by hh members.
  - Household assets (mattress, television, clock, iron, sofa),
  - Cooking fuel, source of lighting
  - Type of toilet, Type of roof.

# Targeting of the SCT

- **Stage 3: Proxy Means Test / Living Conditions Index**
  - Differs slightly rural/urban.
- **Components (urban):**
  - Highest level of education achieved by hh members.
  - Household assets (**bed, computer, dining table**, iron, sofa),
  - Cooking fuel, source of lighting
  - Type of toilet, Type of floor, type of **dwelling**

# Targeting of the SCT

- **Stage 3: Proxy Means Test / Living Conditions Index**
- In theory: uses OLS regression of Log expenditure on aforementioned variables; coefficients used to compute scores

Does this household own a mattress?	No	-296
	Yes	191
Does this household own a sofa/lounge suit?	No	-115
	Yes	511

Categories	Contr. scores
No education	-542
Year 1-3	-364
Year 4-6	-223
Year 7	-70
Year 8-9	95
Year 10-12	280
Above	511

# Targeting of the SCT

- **Stage 4: Disability Requirement (urban only)**
  - HH contains at least 1 disabled member.
- In *both rural and urban areas*, households containing 1+ disabled persons receive double the amount
  - Thus in urban areas, only possible to receive double. (140ZMW per month).
- Thus: *Multiple* targeting methods: Categorical + Proxy-Means-Test

# Methodology

Use **tax-benefit microsimulation model for Zambia (MicroZAMOD)**:

Relatively straightforward(?) exercise:

1. Simulate national coverage of SCT in 2015.
  2. Check efficiency of SCT, identify strengths / weaknesses of different components of targeting.
  3. Compare with outcomes of other potential methods.
  4. Explore financing options.
- Static exercise, no behavioural changes taken into account (at this point...)
- So far, mostly worked on 1. and 2.

# Methodology

- Data underpinning *MicroZAMOD* comes from Living Conditions Monitoring Survey 2015.
- Nationally representative survey of 12,251 households.
- Target group (“poor”) is the extreme poor (<152 ZMW month)
- We simulate national coverage of the SCT – rolled out to all districts
  - Other benefits not simulated due to data limitations

# Targeting efficiency of the current SCT format

		Non-poor	Poor
		According to actual consumption	
Not eligible for SCT ("Non-poor")	According to targeting method	66.4% Targeting success	75.5% Exclusion error (Type 2)
Eligible for SCT ("Poor")		33.6% Inclusion error (Type 1)	24.5% Targeting success

- Program performs reasonably well in terms of inclusion errors.
- But large number of exclusion errors ( > ¾ of Poor households excluded).

# Targeting efficiency of the current SCT format

- **Overall**

- Inclusion errors of 33.6%; Exclusion errors of 75.5%.
- Most 'poor' households excluded at the *demographic test* stage (Stage 2) (72.9%).
  - Starting point for exploring reforms.
- PMT does relatively well

# Options for reform: Microsimulation Results

- Parameters for assessing performance
  - Targeting errors
  - Poverty reduction (Poverty headcount and Poverty gap)
  - Cost (% of GDP)
    - Can we achieve better targeting outcomes for same (lower) cost?
    - What is an appropriate cost restriction? MIC Avg? Current Spend?
- Thus (obviously) searching for lowest-cost, best-targeted approach leading to highest reduction in poverty rates.

# Options for reform: Microsimulation Results

Scenario	Incl. Errors	Excl. Errors	Cost (% GDP)	Poverty (FGT(0))	Pov Reduction (%)
Baseline	0.00	100.0	0	42.44	
Current SCT	33.6	75.5	0.45	41.29	-2.71
<b>UBI</b>	<b>62.1</b>	<b>0.0</b>	<b>2.05</b>	38.60	-9.05
<b>Just PMT</b>	<b>38.5</b>	<b>15.1</b>	<b>1.05</b>	39.57	-6.76
<b>PMT + Old Age</b>	<b>41.0</b>	<b>12.0</b>	<b>1.53</b>	38.55	<b>-9.17</b>
Random	62.8	86.4	0.28	41.96	-1.31
<b>Perfect Target</b>	<b>0.0</b>	<b>0.0</b>	<b>0.77</b>	20.62	-51.41
<b>Categ: Old</b>	<b>51.3</b>	<b>84.0</b>	<b>0.30</b>	41.68	-1.79
<b>Categ: Child</b>	<b>86.1</b>	<b>7.5</b>	<b>1.74</b>	38.97	-8.18

# Options for reform: Microsimulation Results

- Costs:
  - Only the transfer costs considered yet.
  - High inclusion errors (e.g. UBI) Politically costly.
  - High exclusion errors (poor targeting design), administratively costly
- Admin costs of targeting depend on method. Assumedly higher for PMT, perfect target, low for UBI.

# Options for reform: Future work

- Alter PMT approach itself: Brown *et al.* (forthcoming) JDE
  - Comparison of generic PMTs (using OLS) with PMT using Quantile Regression (using poverty rate as the quantile)
  - Poverty-quantile method performs best in terms of exclusion errors;
  - But a basic income /demographic scorecard does just as well in terms of poverty reduction, limited impact on poverty nevertheless.
- Current roadblock: Process unclear in Zambian SCT.

# Options for reform: Future work

- Model different targeting methods further (score card, quantile regression approach etc.)
- To what extent does the fixed transfer amount constrain or limit the impact on poverty?
- Consider financing side: Use MicroZAMOD again
  - Keeping the expenditure constant or the targeting variables constant?
  - Income tax vs VAT financed
  - *Try to model a revenue – neutral reform?*

# Financing: Who should pay for social protection?

- **Theoretical considerations:**
  - Raise only from those considered non-poor by developed country standards (Ravallion, 2010)
- **Behavioural considerations:**
  - (e.g.) Increase of income tax in formal sector may lead to labour supply response: decrease of formal sector work
  - (e.g.) Increase of VAT may increase informally traded goods/barter trade. Potentially regressive

# Conclusions / Caveats / limitations

- Current approach: PMT itself does relatively well but undermined by categorical component.
- Cost considerations important: any improvement in targeting will entail increase in costs. But still well below the MIC average.
- Unclear PMT methodology.
- MicroZAMOD...
  - Doesn't simulate full range of benefits – *we must examine the SCT in isolation*
  - Simulates only a small amount of taxes collected vs reality // Quality of income (consumption) data.
  - Doesn't model behavioural responses to changes in tax policy



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# Targeting efficiency of different SCT components

- **Stage 2 Demographic Test:**

Almost  $\frac{3}{4}$  of poor HH screened out;  
 Around  $\frac{1}{2}$  HH included are non-poor

		Non-poor	Poor
		According to actual consumption	
Not eligible for SCT ("Non-poor")	According to targeting method	Targeting success	72.9% Exclusion error (Type 2)
Eligible for SCT ("Poor")		47.2% Inclusion error (Type 1)	Targeting success

# Targeting efficiency of different SCT components

- **Stage 3 Proxy-Means Test: (Rural)**

Of those HH passing Stage 2...  
PMT does pretty well

		Non-poor	Poor
		According to actual consumption	
Not eligible for SCT ("Non-poor")	According to targeting method	Targeting success	1.3% Exclusion error (Type 2)
Eligible for SCT ("Poor")		32.3% Inclusion error (Type 1)	Targeting success

# Targeting efficiency of different SCT components

- **Stage 3 Proxy-Means Test: (Urban)**

Of those HH passing Stage 2...  
PMT does pretty well

		Non-poor	Poor
		According to actual consumption	
According to targeting method	Not eligible for SCT ("Non-poor")	Targeting success	3.4% Exclusion error (Type 2)
	Eligible for SCT ("Poor")	60.1% Inclusion error (Type 1)	Targeting success

# Targeting efficiency of different SCT components

- **Stage 4 Disability criteria: (Urban)**

Of those HH passing Stage 3...  
Disability criteria screens out 2/3  
poor

		Non-poor	Poor
		According to actual consumption	
Not eligible for SCT ("Non-poor")	According to targeting method	Targeting success	66.5% Exclusion error (Type 2)
Eligible for SCT ("Poor")		53.2% Inclusion error (Type 1)	Targeting success