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Relevance of linkages between Zambia's social cash transfer and agriculture: market participation and farmers' efficiency

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The context

- Most beneficiaries of the Zambia Social Cash Transfer (SCT) live in rural areas, are engaged in agriculture and work for themselves
  - >80% produce crops; >50% have livestock
- Most grow maize, cassava or rice and use traditional technology and low levels of modern inputs
  - Most production consumed on farm
- Most have low levels of productive assets
  - ½ hectare of land, a couple of chickens, basic tools, low levels of education
- Engaged on farm, non farm business (40%), casual wage labour (25%)
- About 50% of children work on the family farm

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The Zambia Child Grant (CG) model of the SCT in a nutshell

- **Objective**: alleviating poverty among the poorest and block its intergenerational transmission
- **Targeting mechanism:**
  - *Categorical*: reaching any household with a child under 5
  - *Geographical:* in three districts with highest rates of mortality and morbidity among children under 5
- Payments **unconditional** and **flat**, ie regardless of household size (55,000 Zambian kwacha, increased to 60,000 in 2013)
- Impact evaluation designed as a **longitudinal RCT** with two levels of random selection of participants, at the Community (CWAC) and household level.
- Baseline conducted in 2010, follow-up in 2012

Evidence from impact evaluation

- Child Grant model had positive impacts on agriculture (AIR, 2013;2014; Daidone et al., 2014)
- Impacts large and significant, especially for livestock accumulation and investment in crop inputs
- Labour supply switched from off-farm casual labour to on-farm agriculture and off-farm non agricultural businesses

Questions

1. How did the Child Grant contribute to market participation?

2. Did the Child Grant contribute to enhance crop production efficiently?

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How did the Child Grant contribute to market participation?

Commercialization of smallholders

- Little or no connection to output and input markets.
- High costs to move out of self sufficiency.
- What is holding them back from participating in market exchange?

Barriers to trade

- Food self-sufficiency as insurance mechanism
- Food security concerns
- Lack of liquidity to invest in storage facilities
- Transaction costs

Transaction costs

- The observable and unobservable costs associated with arranging and carrying out a market transaction
- Tend to be household specific, stemming from differential access to assets, market information and infrastructure
- Proportional (PTCs) or fixed (FTCs)

Role of cash transfers

- The extra income offered by CTs may be used by farmers to cover transaction costs and overcome entry barriers to goods markets.
  - Covering transportation costs
  - Allowing farmers to purchase communication tools and services. These entail better and timely access to market information
  - Enhancing the social status of the beneficiary in the community fostering access to local social networks in which ideas and information are exchanged
  - Buying membership in formal marketing and farming organizations

Main results

- **Output markets**: increase in the share participating as a seller by 12.7 percentage points (pp) and in the amount sold by 202,000 ZMK.

- **Input markets**: increase in the share participating as buyers only by 8.3 pp. Increase in quantity purchased not statistically significant.

Results by sub-groups

- Cash transfers produce higher impacts, both in terms of participation and volume of revenues and expenditure for households that face more binding costs.
- The program had larger impact for beneficiaries relatively more land endowed who were already selling large quantities of crop in the market.
- For seeds purchases the bulk of the program impacts are concentrated near the center of the distribution. This results in limited distributional impacts of the program.

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Farmers' technical efficiency

What is Technical Efficiency (TE)?

Input approach: the ability to **minimise inputs** keeping outputs fixed.

Output approach: the ability to **maximise outputs** keeping inputs fixed.

A relative concept: we compare production with a theoretical maximum, the frontier, given the existing technology

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How do we expect cash transfers to improve technical efficiency

- Release liquidity constraints:
  - Purchase/rent of better inputs/assets
  - Overcome entry barriers in labour market
- Higher labour productivity through:
  - Improved nutritional status of family members
  - Better health and education
- Knowledge
  - Proportions of inputs change

How do we expect cash transfers to reduce technical efficiency

- Income effects:
  - Reduction of household labour supply
  - Crowding out of private transfers
- More off-farm opportunities subtract time to farm management
- Knowledge
  - Proportions of inputs change

Ambiguous impact on TE

Summary of Results

- Average technical efficiency is 48 percent
- CGP increased inefficiency by 23 percent (control households efficiency increased much more than treatment)
- A decrease in inefficiency for:
  - Households with income above the median
  - Households that have received other government programs apart from CGP

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Take-away message: articulating social protection and agriculture

- Cash transfers are useful but not a magic bullet
- Agricultural programmes are necessary to address structural constraints
- Long-term, predictable package of social protection and complementary measures

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Working Papers

1. Stuck exchange: can cash transfers push smallholders out of autarky?

2. Impact of Cash Transfers on Technical Efficiency of Agricultural Households in Zambia: A Stochastic Frontier Analysis

Thank you !!!

Empirical strategies

- Smallholders commercialization:

- Heckman selection model for both sellers and buyers
- Interaction terms and quantile regressions for heterogeneity analysis

- Farmers' efficiency:

- Stochastic frontier methods, netting out unobserved heterogeneity from efficiency
- Interaction terms for heterogeneity analysis