Integrating Simulation and Experimental Approaches to Evaluate Impacts of SCTs: Evidence from Lesotho

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What about non beneficiary households?

- Most of our discussion for the next few days will be focused on the impacts of SCTs on beneficiary households (eligible, or treated)
- Good reasons to believe impacts on non beneficiary households as well
  - Beneficiary households are part of a community, not isolated families. Economic, social and cultural linkages
  - Buying of goods and services with cash
  - The good example of behavioral change (schooling, spending on children, nutrition, etc)
  - Existing informal networks of reciprocity
- We may be missing a lot of impact

How do we measure impact on non beneficiary households?

- Experimental and non experimental methods
  - Compare non beneficiary households in treatment and control communities (or clusters)
  - Necessary data are not usually collected (Transfer Project countries no exception)
    - The sample of ineligible households (sometimes collected at baseline, rarely collected at follow up)
  - Relatively few examples in the literature:
    - Mexico's PROGRESA (Angelucci and De Giorgi, 2009)
- Simulation models, including general equilibrium techniques
  - This is the Big innovation of the Transfer Project
  - LEWIE—using village CGE models to simulate the local economy income multiplier in each country
    - Demand and supply linkages within and without the local economy
  - Shortcoming—a simulation, describes potential; assume that behavior does not change as a result of the programme
  - Led to epic Ed vs. Ashu debates


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The one Transfer Project exception—Lesotho CGP

- Experimental data on both to evaluate impact of SCTs on income for
  - Beneficiary, or eligible households, in treatment communities, and
  - Non beneficiary, or ineligible households, in treatment communities
- Variation in impact across
  - Sources of income (livestock, wage, crop and self employment)
  - Distribution of income (Quantile Treatment Effects (QTE))
- Compare experimental results with LEWIE simulation results from Filipski et al. (2015)—who was right…..Ed or Ashu?

Actually, positive multiplier effects on the local economy

Lesotho's Child Grants Programme

- Unconditional cash transfers to poor households with children
- In 5 districts reaching almost 50,000 children

- *Baseline* collected in *2011*, *follow up* in *2013*
- Data on both eligible and ineligible households
- Final panel consists of 2,150 hhs and 10,456 individuals

CGP Experimental Design

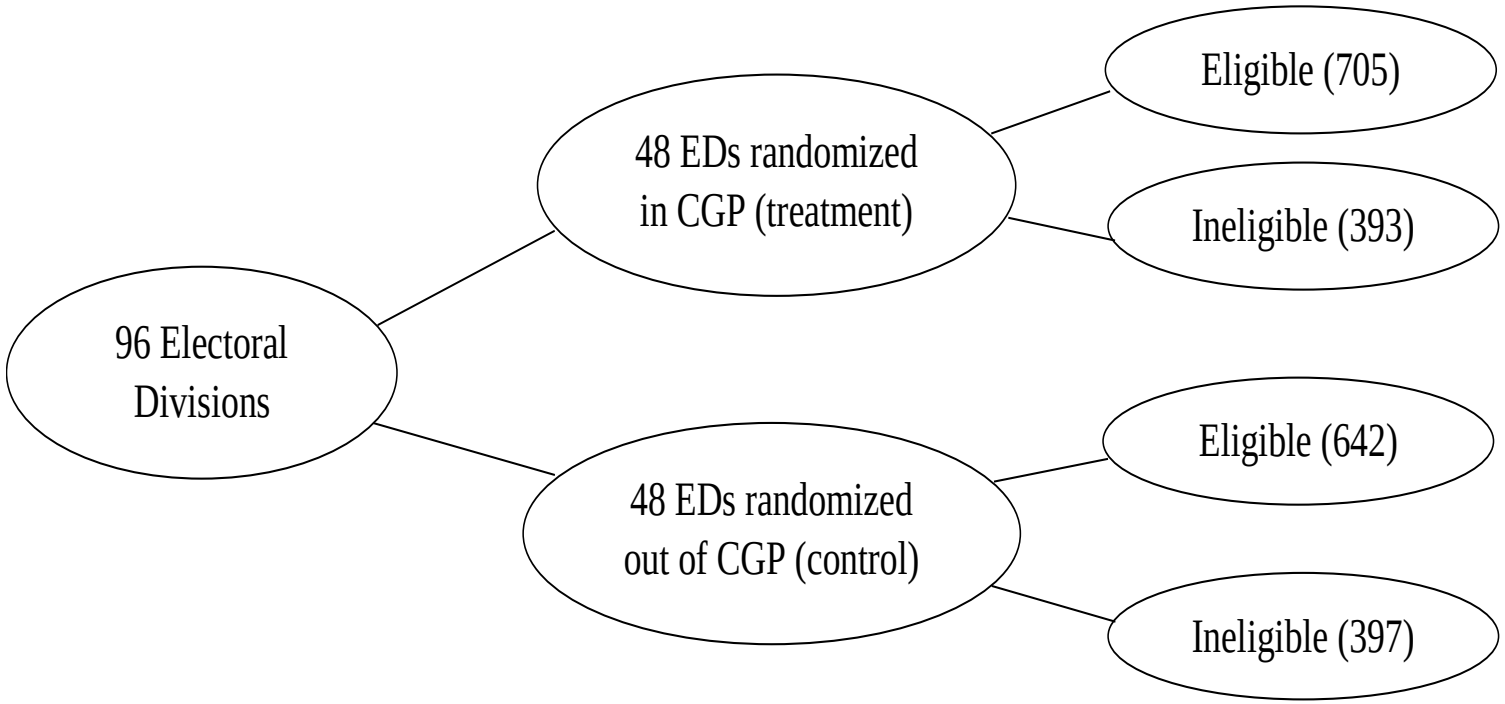

Figure 1: Lesotho CGP Experimental Design

Numbers in parenthesis give the sample size in each group in each round of survey.

- Households with both baseline and follow-up data included in estimations
- Reduction in ineligible sample in 2013 due to budgetary constraints

The CGP Transfer

Table 1: Distribution of Eligible Households in Treated Clusters by CGP Transfer Amount

CGP Monthly Transfer	Number of Children	% of Total Eligible Households
120 LSL ($12)	1-2	51.2
200 LSL ($20)	3-4	38.8
250 LSL ($25)	5+	10.0

- All eligible households started getting LSL 120 after baseline data collection in 2011
  - payments made quarterly
- Later payments were indexed by number of resident children
- Top up from Food Emergency Grant
- Average transfer level LSL 164 ($16.4)

Agriculture is fundamental part of livelihoods of beneficiary households

- Large majority are agricultural producers
  - 78% produce crops; over 60% have livestock
  - Almost 90% have kitchen plots
  - Women predominate in crop production, men in livestock production
  - 75% reported crop failure in 2011
- Most grow local maize and sorghum, using traditional technology and few modern inputs
- Few report sales of crop or livestock production
- Relatively low levels of assets
  - Most have hoe, plough

Livelihoods are diversified, and informal

- 43% of adults worked in wage labor (higher share men)
- 36% of children worked at least in part on family farm
  - nearly 50% of boys
- 7% own off farm enterprise
- 13% receive other kinds of public transfers
- 1 in 5 receive private transfers
- Little access to formal institutions
  - Few formal sources or forms of credit, savings and insurance
- Widespread use of informal sources and social networks
  - Most credit from family, friends and neighbors; purchasing on credit
  - Provision of food, sharing of labour and tools via social networks
  - Burial society most common form of saving

How are non beneficiary households different from beneficiary households?

- Greater levels of
  - livestock ownership and production
  - income from private transfers (remittances)
  - income from public transfers (primarily pension)
- Similar participation in off farm enterprise, but higher returns
- Lower participation in wage labour, but great income
- Greater ownership of implements; more borrowing and sharing
- Less risk averse

How do we measure impact on income?

- OLS Difference in Difference, using experimental design
  - Comparing randomized treatment and control households, over time
- Big difference with rest of studies—include ineligible households
- Quantile Treatment Effects to look at impact across the income distribution
- By income source
- Overall average impact as well as by transfer size

CGP led to income multiplier among eligible households and spillovers to ineligibles

	Impact on nominal income	Impact on real income	Nominal increase over transfer	Real increase over transfer	Nominal Multiplier	Real Multiplier
Eligible with 120 LSL	216***	175***	80%	46%	1.8	1.46
Eligible with 200 LSL	382***	309***	91%	55%	1.87	1.52
Eligible with 250 LSL	486***	394***	94%	57%	1.91	1.55
Eligible with 164 LSL	307***	249***	87%	52%	1.94	1.57
Ineligible	144**	116**			0.88	0.71
* p < 0.10, ** p < 0.05, *** p < 0.01						

- All specifications **control** for *baseline household characteristics, district fixed effects, cluster eligibility ratio*

- Eligible household level multiplier is greater than one

Experimental impact comparable to simulated impact

Estimation metod	Real multiplier	Nominal multiplier
Experimental	1.86	2.2
	(1.81, 1.91)	(2.14, 2.26)
LEWIE simulation	1.53	2.21
	(1.43, 1.62)	(2.07, 2.39)
confidence interval in parentheses		

- Real multiplier from *experimental* data similar to that from *simulations*
- Difference due to different deflators and LEWIE model assumption that capital stock, behavioral parameters, production technologies and local market structures are unaffected by the CGP
- We have finally resolved and put to rest the epic Ed vs Ashu debate

Impact on eligible and ineligible households comes through different sources of income

Impacts on Real Income	Income from Livestock	Income from Wage Work	Income from Only Crop and Self-employment
Eligible with 120 LSL	-0.6	-9.1	112.8
Eligible with 200 LSL	-0.1	32.7	268.6***
Eligible with 250 LSL	0.2	58.9	365.9***
Eligible with 164 LSL	-0.3	13.8	198.3**
Ineligible	48.6***	18.73	-121.6
N	2487	1430	882

* p < 0.10, ** p < 0.05, *** p < 0.01

- Impact on ineligible households are through Livestock Income
- Impact on eligible households through Self-employment and crop income
- Impact on eligible households increase with larger transfer amounts

Impact varies across income distribution for both eligible and non eligible households

Dependent Variable: Real Income	*Quantile = 0.25*	*Quantile = 0.50*	*Quantile = 0.75*
Eligible with 120 LSL	261.5***	141.6***	132.9*
Eligible with 200 LSL	341.3***	327.0***	331.4***
Eligible with 250 LSL	391.2***	442.8***	455.5***
Eligible with 164 LSL	305.3***	243.3***	241.8***
Ineligible	0	77.39*	159.4**

* p < 0.10, ** p < 0.05, *** p < 0.01

- At lower transfer levels, highest impacts on households in bottom quantile
- No spillover effect on bottom quantile of ineligible households

Why are these results important?

1. Ed and Ashu, and experimentalists and simulationists everywhere, can live in peace and harmony
    1. Corroborate the ex-ante simulations produced by LEWIE
2. Illustrate the relevance of collecting data on ineligible households (at least occasionally) at both baseline and follow up—we are missing a lot of impact and policy relevance and lessons if we don't
3. Illustrate the relevance of collecting information on income as well as consumption (sources of income, different time periods)
4. Local economy effects are real, confirms the importance of considering livelihoods and economic impacts

¿ Questions ?