Evaluating the Spillover Effects of Social Cash Transfer Programs

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From Protection to Production

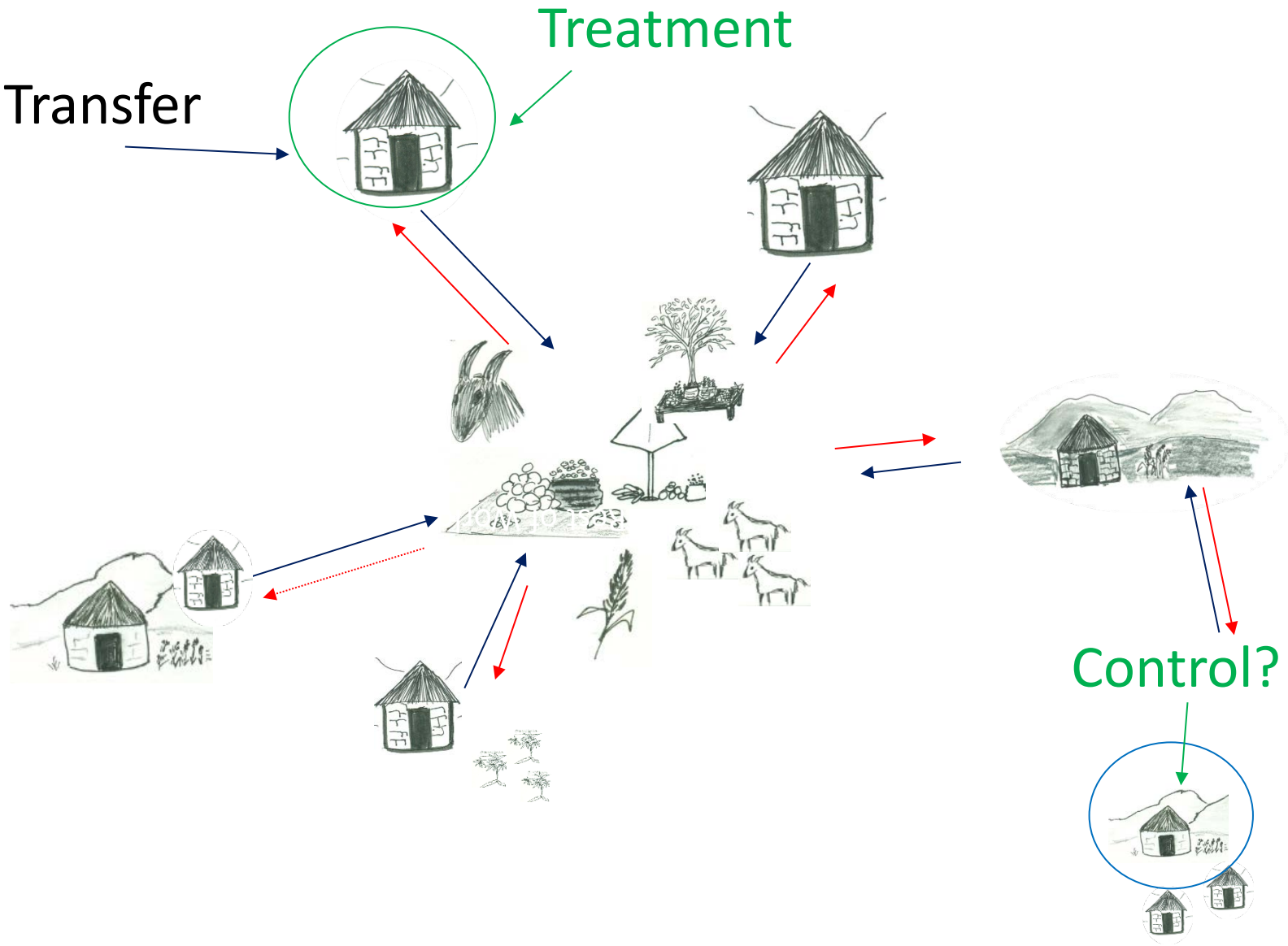
- Most evaluations look at the beneficiary households
- They are a conduit through which cash enters local economies
- Does the whole local economy, then, become a beneficiary of the SCT
  - …including those who do not get transfers?

Main Goals of SCTs are Social

- “Encourage fostering and retention of OVCs within their families and communities, and to promote their human capital development.”
- “Improve the living standards of Orphans and Vulnerable Children (OVC)”

Other Possible Economic Impacts

- Raises purchasing power of beneficiary households
- …thus demand in the local economy
- …supply must rise to meet this demand
  - otherwise, inflation
- Basic accounting identity


Treatment
Transfer
Control?

Transfer Scheme

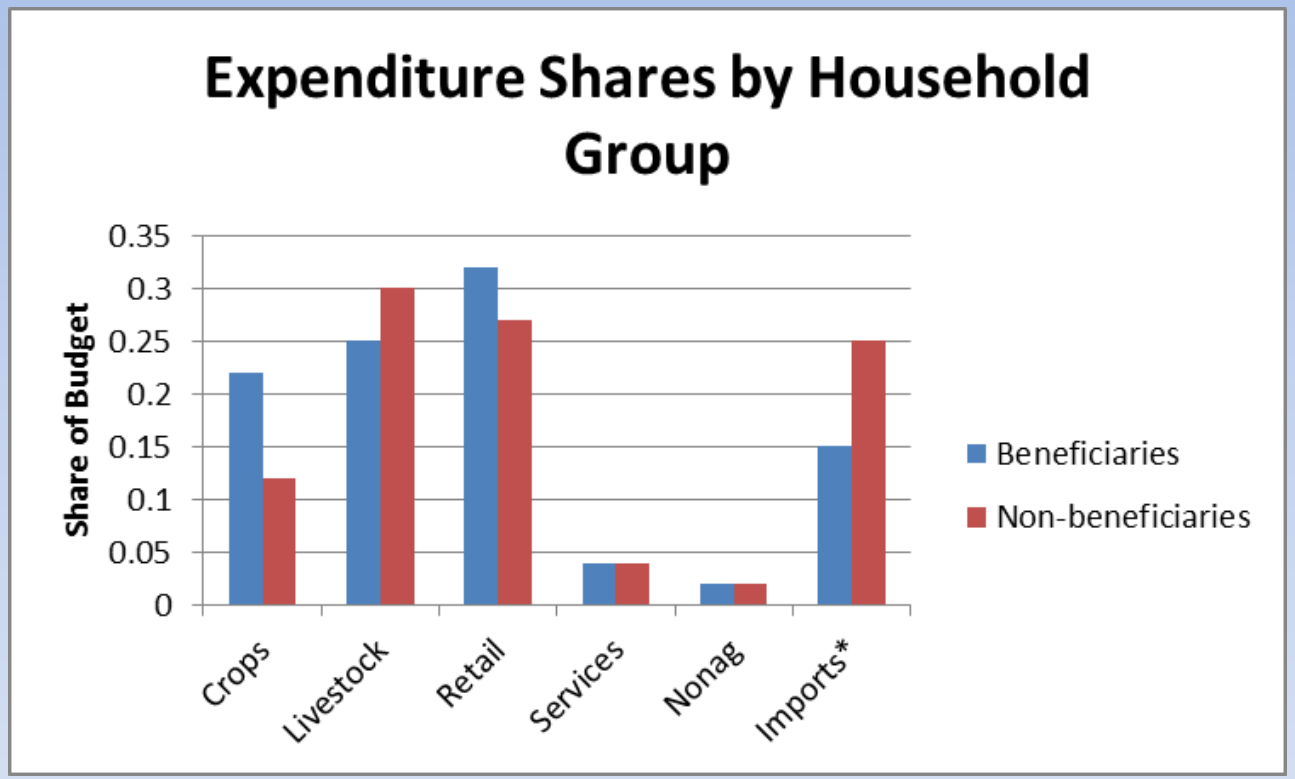
- **Unconditional cash transfers**

  Target poor and vulnerable households

  Not the most likely candidates to be productive

- **Often represents a significant share of income for the treated**
  - Infusion of cash into the treatment villages
  - …and ultimately, perhaps, into the control villages

Baseline Surveys Show How People Spend Their Cash



Lesotho CGP Evaluation

- Expenditures Transmit Impacts to Activities

Activities Purchase Inputs

Expenditure		Crops	Livestock	Retail	Services	Nonag
Local Goods	Retail			0.03	0.26	0.13
	Services			0.03		0.04
	Nonag					
Imports				0.82	0.16	0.59
Factor Incomes	Hired Labor	0.08	0.01	0.02	0.15	0.06
	Family Labor	0.24	0.43	0.02	0.13	0.05
	Land	0.23	0.24			
	Capital	0.28	0.3	0.09	0.31	0.13
Purchased Intermediate		0.18	0.01			

Lesotho CGP Evaluation

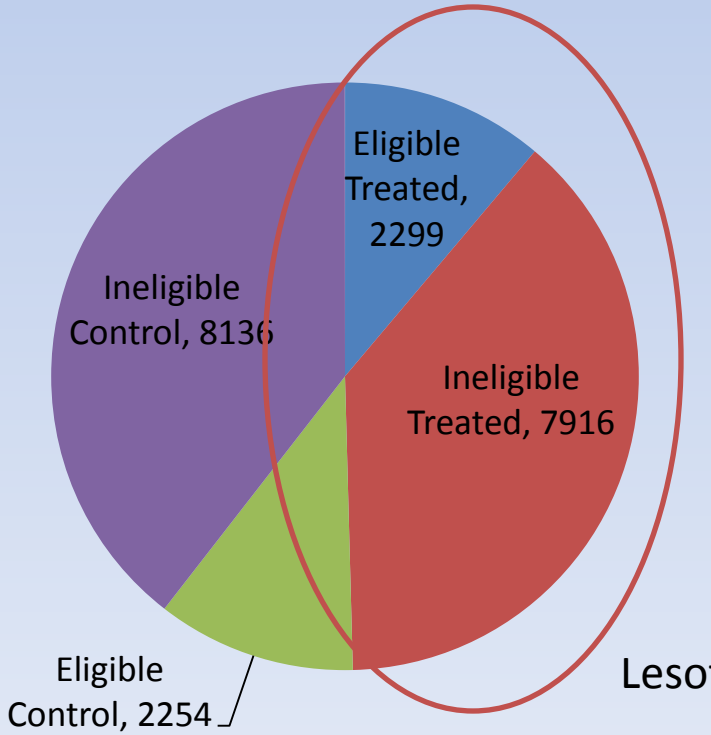
- Activities buy inputs from each other, pay wages, and make profits
  - which start a new round of income increases

Local Economy-wide Impact Evaluation (LEWIE)

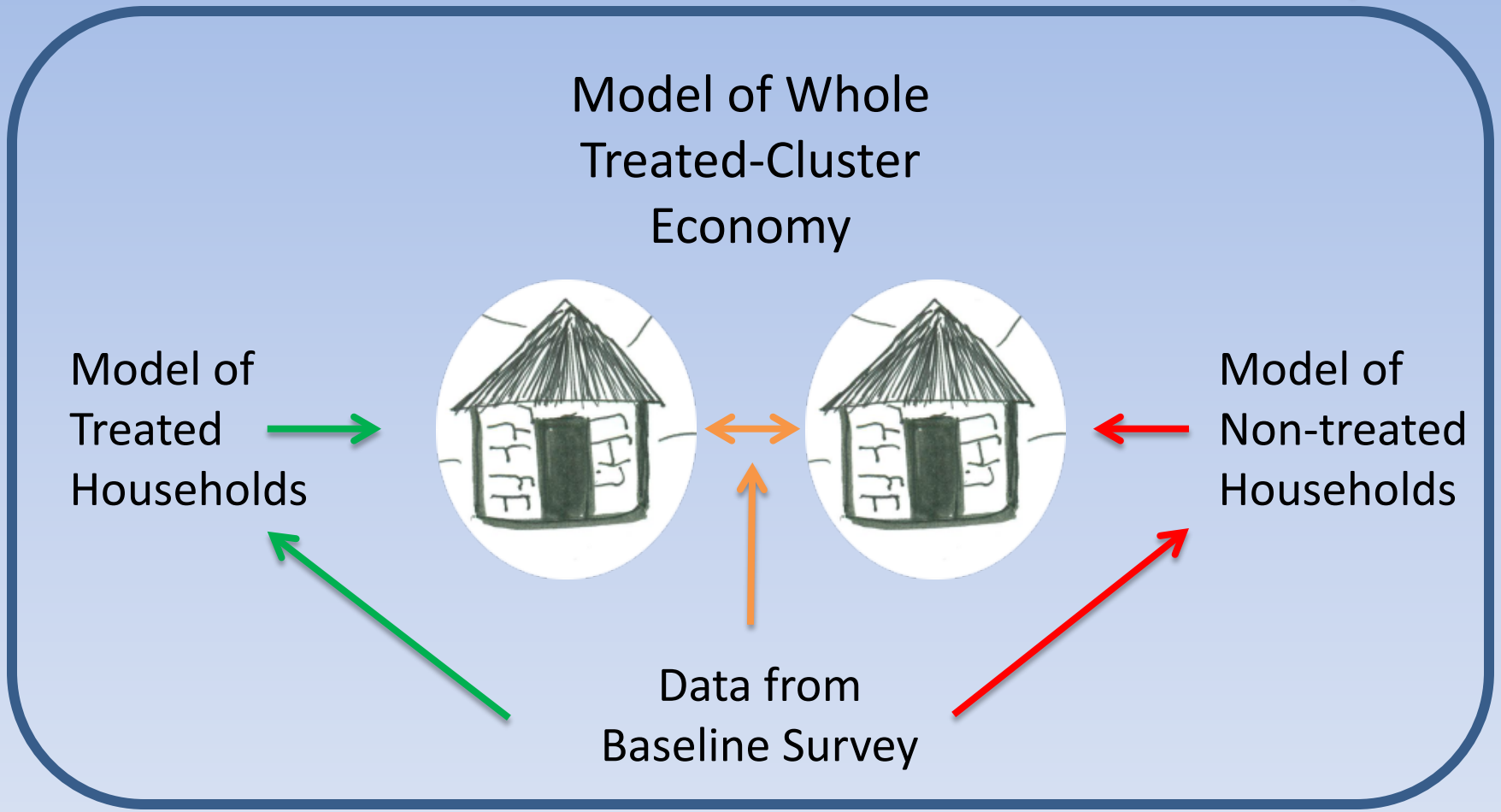
- A model of how the local economy works
- Estimated with data from the baseline surveys
- Used to simulate how transfers to ultra-poor households affect incomes and production
  - And how to make these impacts better
- Monte Carlo method to construct confidence intervals around simulated outcomes

Instead of Treatment and Control We Model Beneficiary and Non-beneficiary

- Beneficiary or “treated” village clusters
- 2 households in each cluster (Beneficiary/Non-beneficiary)



How To Make a LEWIE*

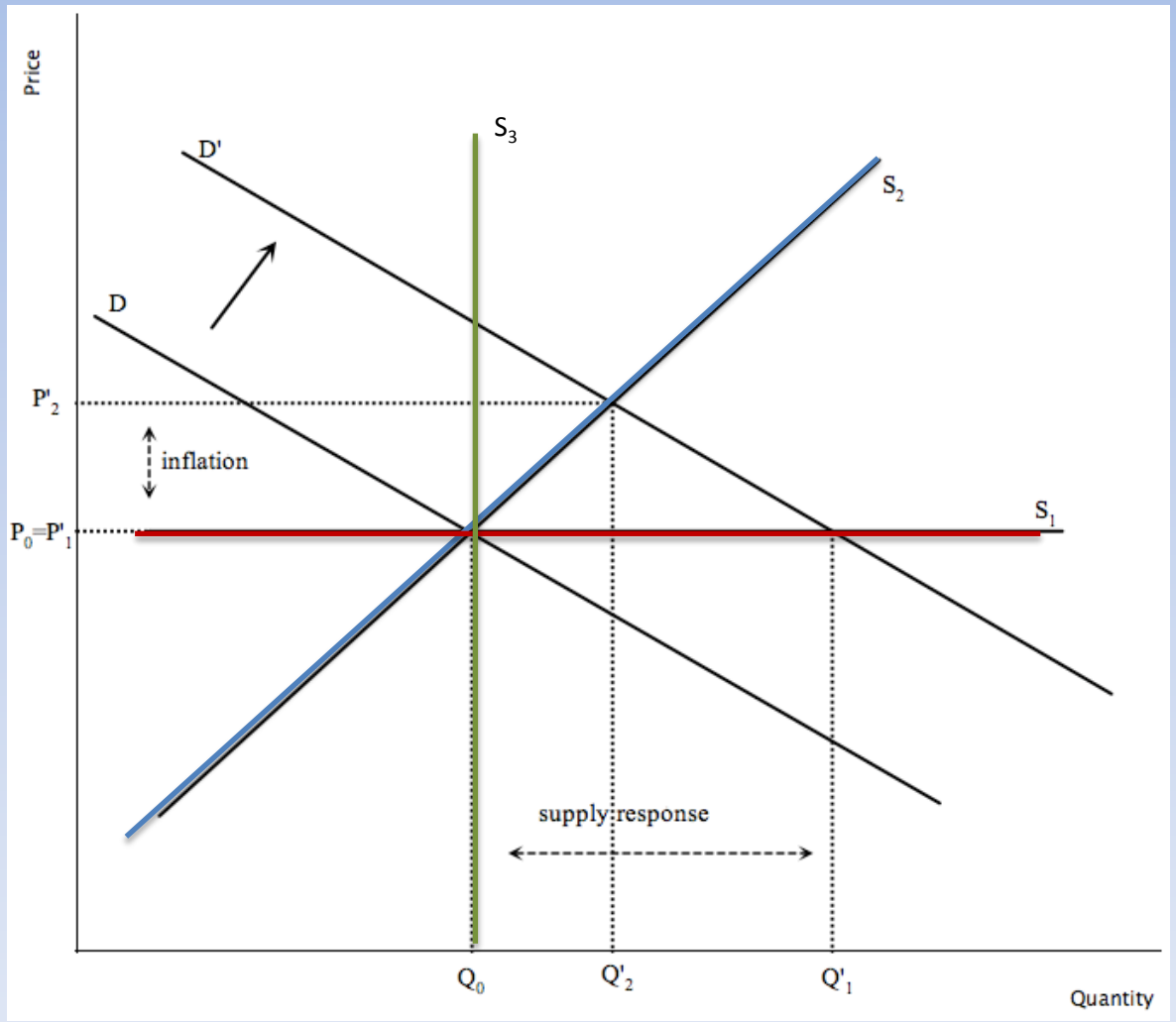


* Local Economy-wide Impact Evaluation Model

Spillover Mechanism

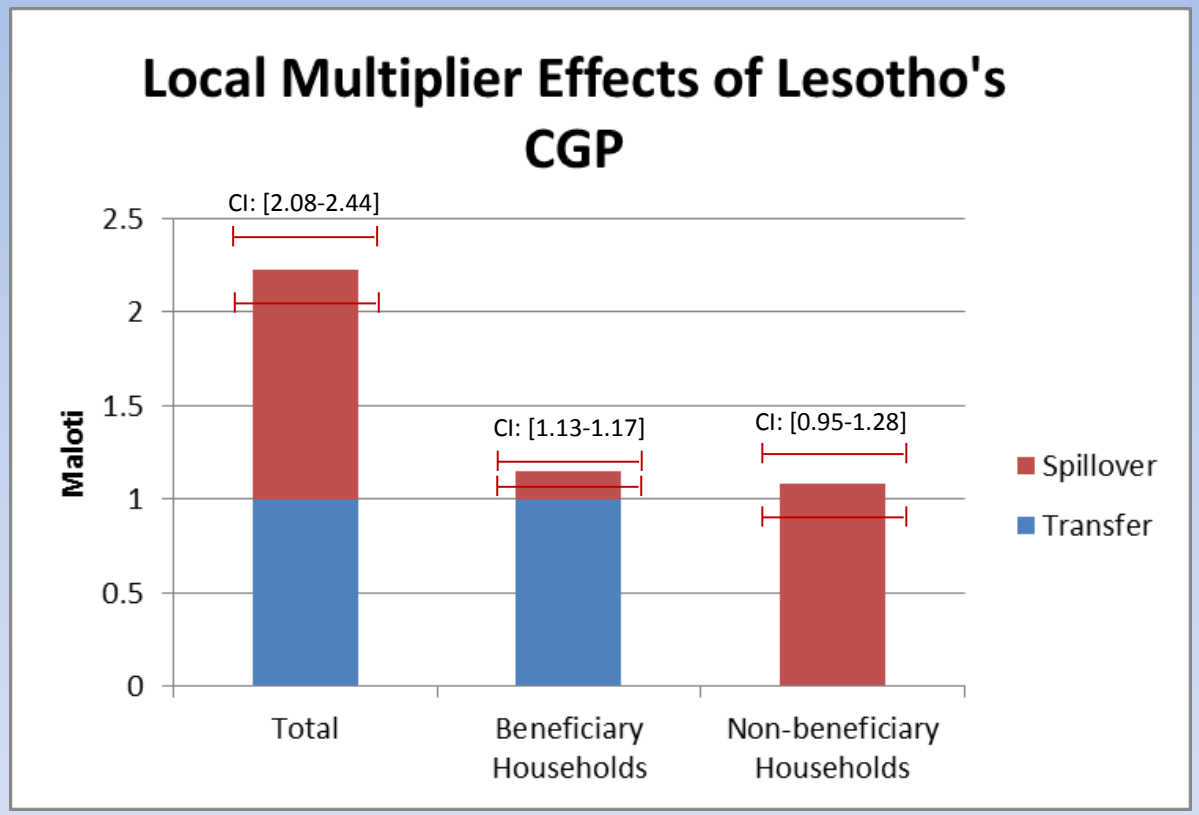
- Increase in demand leads to increase in price
- Final price and supply response depend critically on supply elasticities
  - Responsiveness of supply depends, in turn, on input supply constraints
- Space matters
  - Where are prices determined?
  - May be single greatest challenge to LEWIE (but central to any economics story)

Why the Local Supply Response Matters



RESULTS

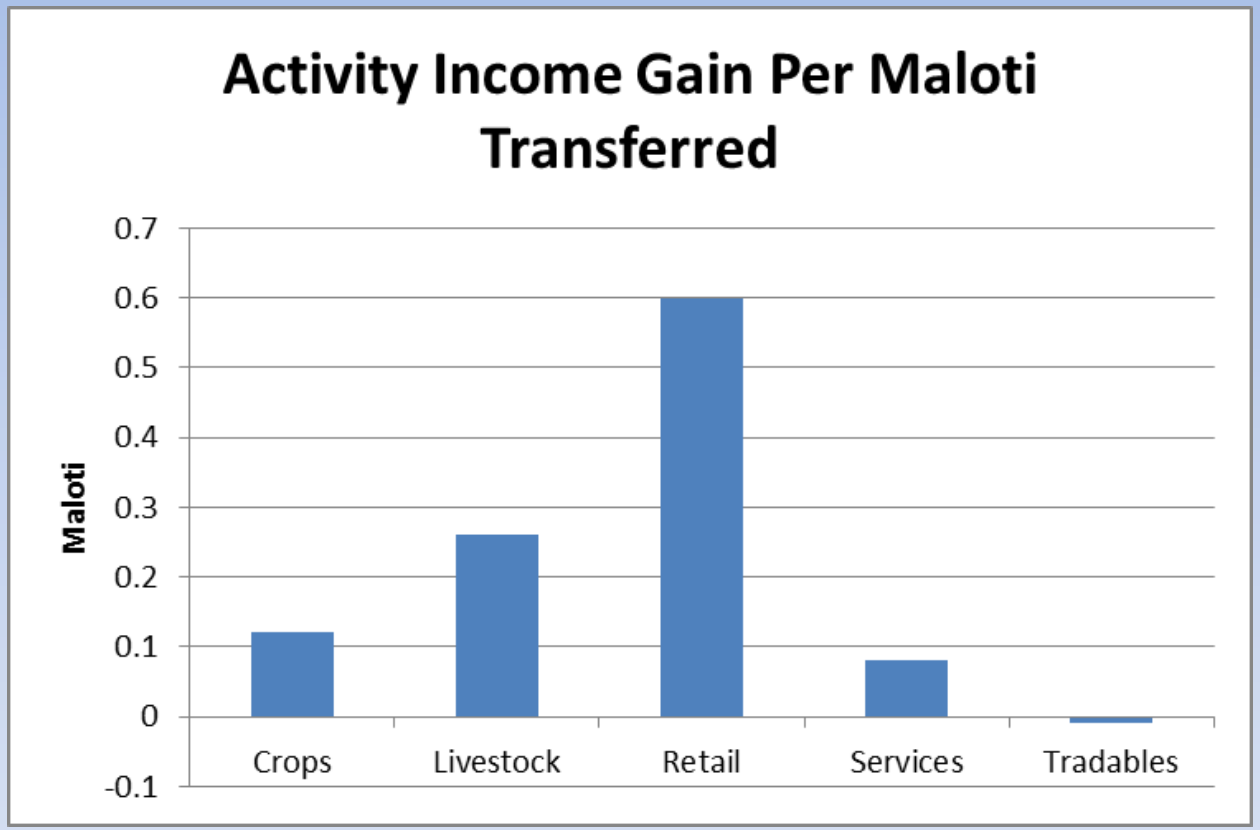
Spillovers Create Income Multipliers



Lesotho CGP

- The CGP transfer (blue) creates a spillover (red) of 1.23 *per maloti transferred*.
- Of this, 1.08 go to non-beneficiary households

Higher Demand Stimulates Production



Lesotho CGP

- The largest productive impact is on retail, but other activities gain, as well.

Most of the Productive Impact is in the Non-beneficiary Households

Production multiplier for:	Beneficiary Households	Non-beneficiary Households
Crop	0.03	0.15
Livestock	0.02	0.26
Retail	0.07	0.52
Services	0	0.08
Other Production	0	0
TOTAL	**0.13**	**1.01**

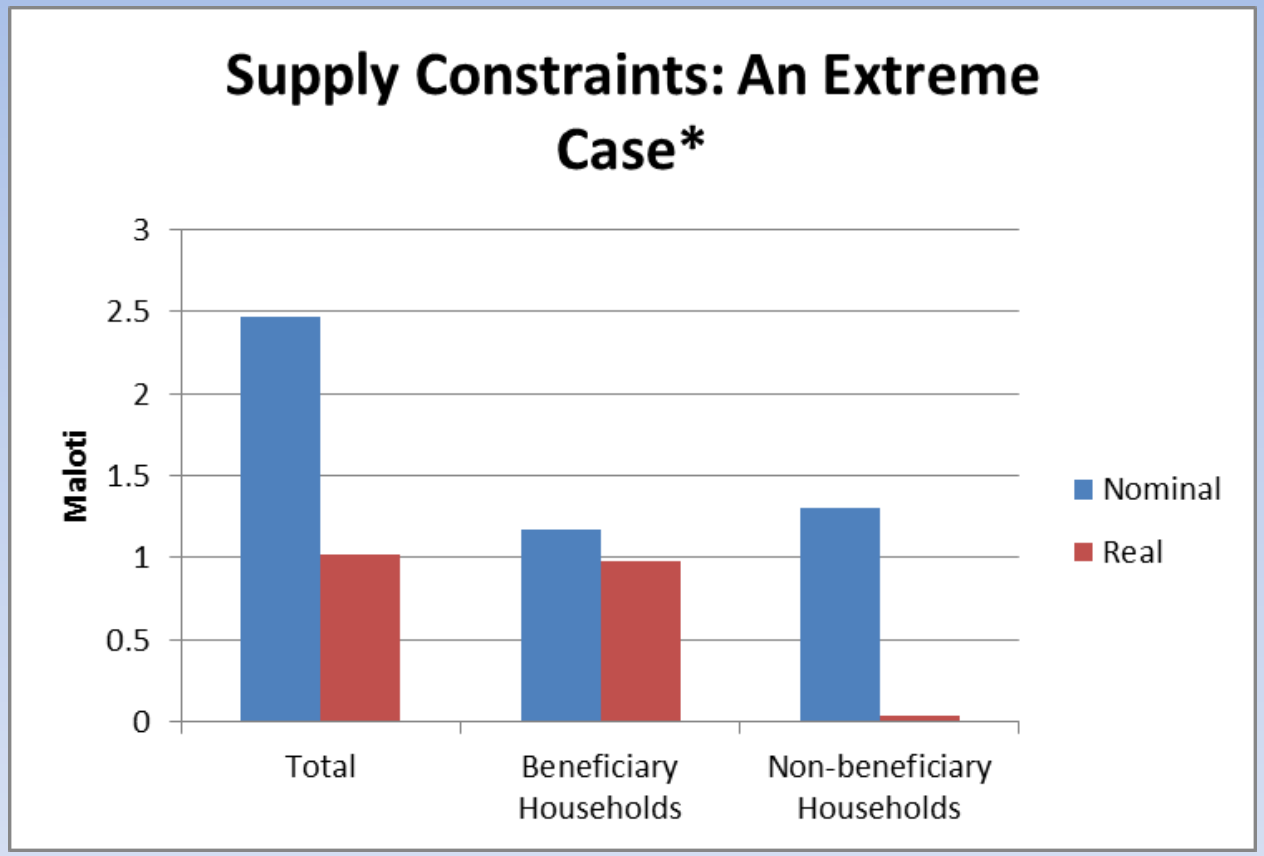
Lesotho CGP

$$\frac{1.01}{0.13 + 1.01} = 89\%$$

But There's a Catch

- Local supply has to respond to meet the new demand
- If it does not, there will be inflation
- Capital, liquidity, and labor constraints can limit the supply response

Higher Prices May Erode Real Benefits



Lesotho CGP

* From model with capital and liquidity constraints and inelastic labor supply

Here, 95% CI (0.94-1.09) contains 1.0; can't reject null hyp. of no spillover

Most Likely Scenario

- Capital and land constraints (?)
- Liquidity constraints on purchasing inputs (?)
- Elastic labor supply (unemployment)
- Still big differences across countries
- They reflect:
  - Openness of local economy
  - Parameters of functions describing production and expenditure behavior in treated and non-treated households (estimated from surveys)

Comparison of Transfer Multipliers

Household or Sector		Lesotho	Kenya R1	Kenya R2	Zambia*
Income multipliers					
A. Total					
	Nominal	2.23	1.34	1.81	1.29
	Real	1.25	1.08	1.23	1.14
B. By Household					
A	nominal	1.15	1.00	1.05	1.03
	real	1.01	1.00	0.98	1.01
C	nominal	1.08	0.34	0.76	0.26
	real	0.23	0.08	0.24	0.14
Production Multipliers					
	crop	0.12	0.01	0.08	0.15
	livestock	0.26	0.01	0.02	0.02
	retail	0.60	0.80	0.98	1.11
	services	0.08	0.10	0.16	0.10
	tradables	-0.01	-0.01	-0.09	0.00

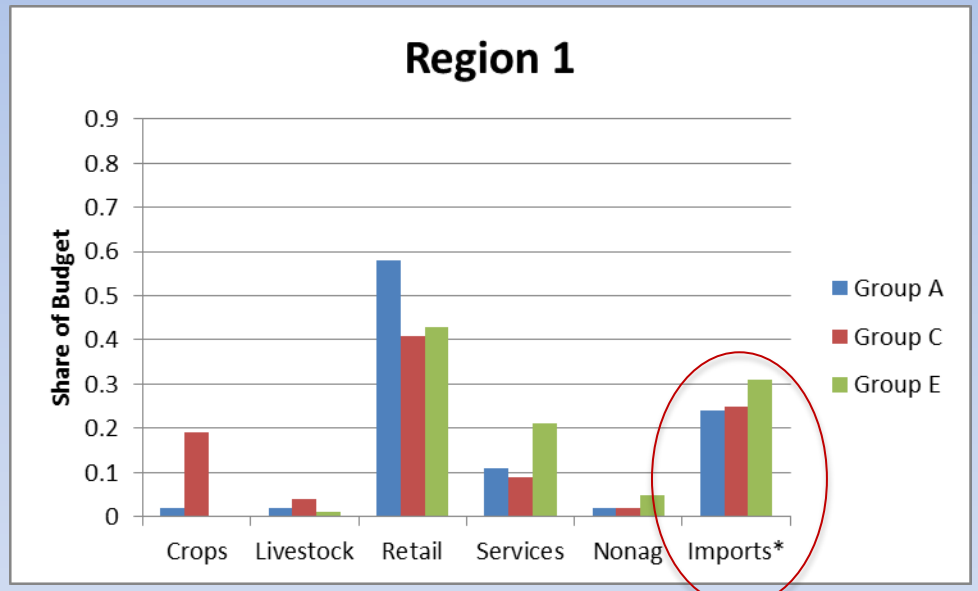
Numbers in parentheses are 90% confidence intervals

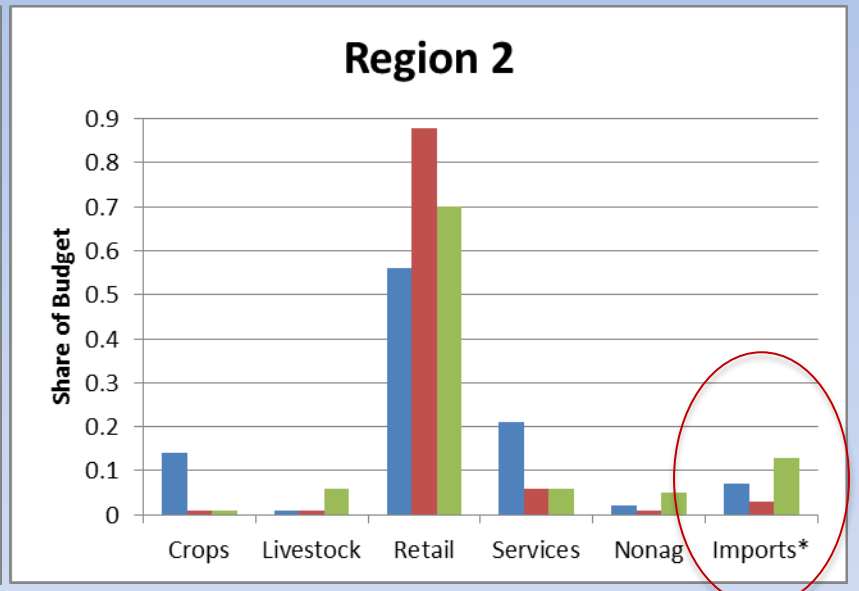
* Zambia multipliers are partial and preliminary

Assumptions: Labor supply elasticity = 100; capital and liquidity constraints.

Leakages

Kenya Region 1 Households Spend a Smaller Share of Their Budget Locally

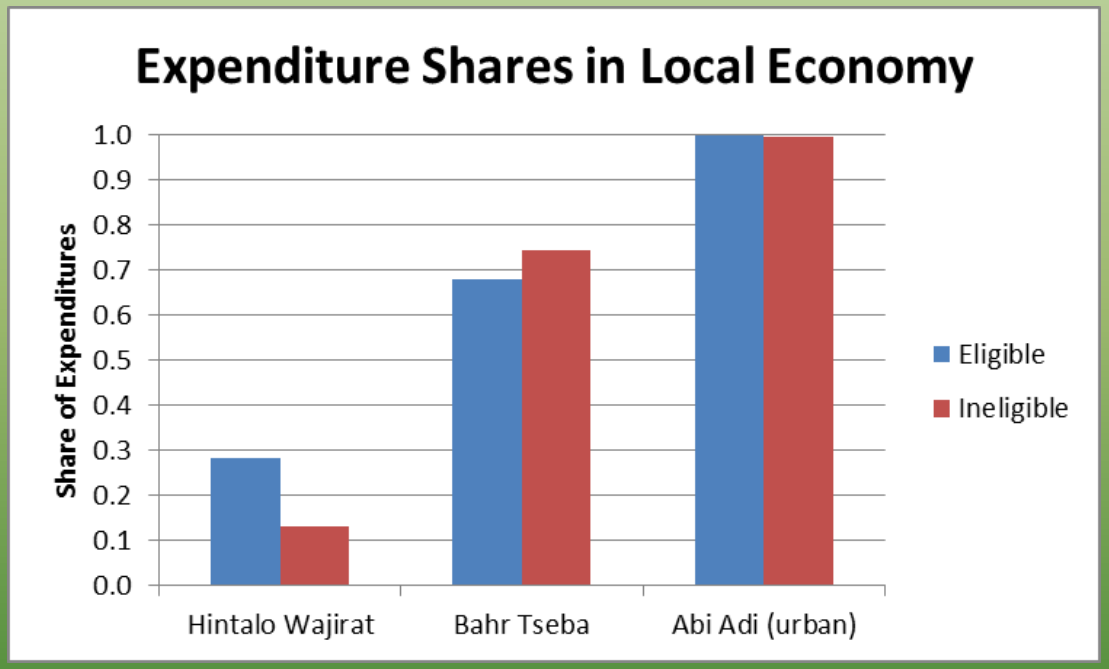




* Goods purchased outside project area

- Local expenditures Transmit Impacts to Activities
- Periodic markets may transmit impacts to other villages

Tigray, Ethiopia
Expenditure Shares in Local Economy



- Abi Adi: Urban Locality (overwhelmingly retail

Factor Intensity of Local Activities

- Local retail is largely a leakage-sector
  - Most of goods on shelves are “imports”
  - It does create value-added, though
- Livestock production creates little employment
- Most staple production produces a lot
- …so do cash crops
- Which activities people spend income on matters

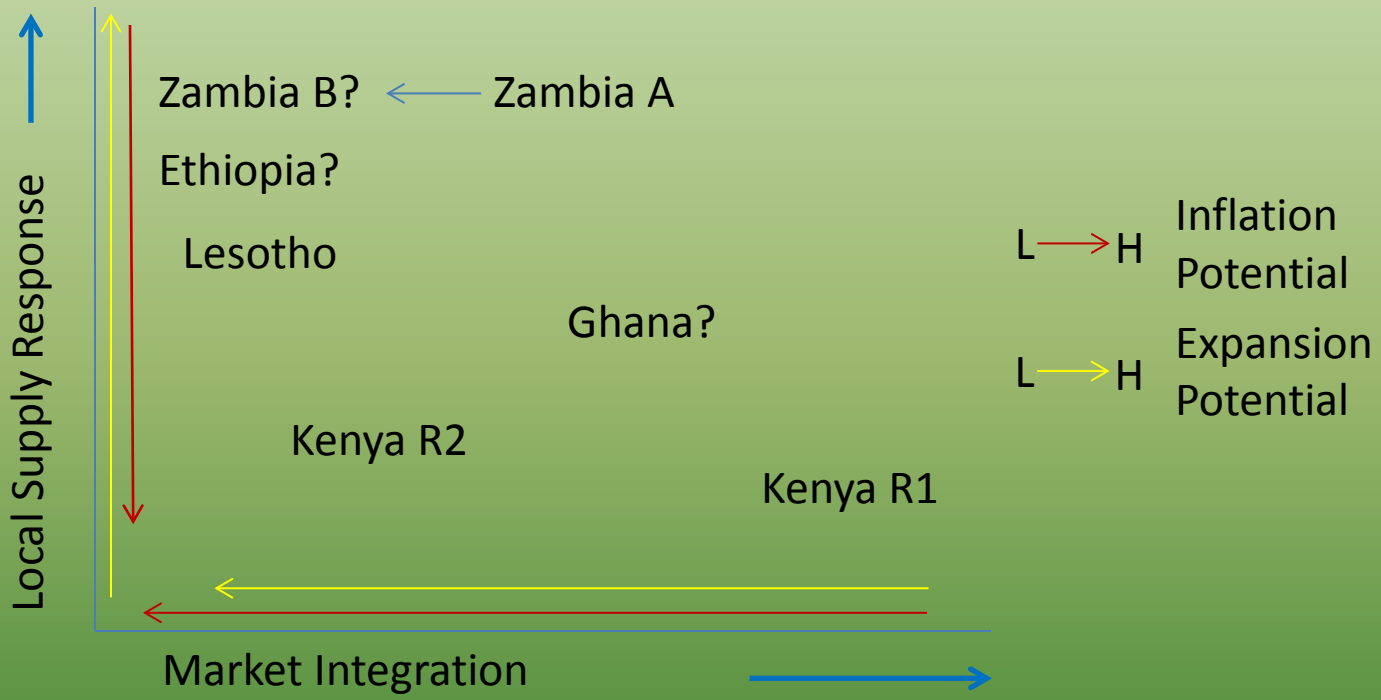
Program Size

- If SCTs are small compared to local economy, they are less likely to “move” prices
- Prices transmit influences of projects through an economy
- This doesn’t mean CTs are inflationary; this depends on…

…Local Supply Response

- The higher the local supply response, the more increases in demand lead to
  - Real expansion in the local economy
  - …instead of higher prices
- If supplies of goods and factors are perfectly elastic, real and nominal multipliers are equal
  - …and we will not see prices change

Tradeoff Between Expansion and Inflation Potential



- Market integration reduces local income multipliers
- Local supply response strengthens them

CONCLUSIONS

Results Summary

- Spending by beneficiary households creates multipliers in the economy
  - The transfer “treats” the local economy, not only the beneficiary households
  - Multiplier effects as high as >2.0
- Most of the spillovers are in non-beneficiary households

    - E.g., in Lesotho, non-beneficiary households get

        24% of income impact

        88% of productive impact

Good News

- The economic impacts of social cash transfers are likely to significantly exceed the amount transferred
- There may be less of a tradeoff between protection and production than we once thought
- Non-beneficiaries should be interested in seeing the transfer programs continue—and expand

A Caveat

- Positive spillovers depend on having a good supply response
- Interventions may be needed to make sure this happens
  - Micro-credit, extension, etc.
- Programs like “Linking Food Security to Social Protection” in Lesotho may hold promise here
- …but it may be necessary to target productive programs to the non-beneficiary households, too

Thank you!
Ke a leboha!
Asante!

Extra Slides

Household-farm economy

$$FD_{h,\,factor} = \frac{P_{h,good} \cdot QP_{h,good} \cdot \beta_{h,\,factor}}{P_{h,\,factor}}$$

$$QP_{h,good} = A_h \cdot \prod_{f \in Factors} \left(FD_{h,f} \right)^{\beta_{g,f}}$$

FD, QP
Y, QC

$$Y_h = \sum_{Factors} \text{Value of Endowment}$$

$$QC_{h,good} = \frac{\alpha_{h,good}}{P_{h,good}} Y_h$$

Getting confidence bounds on results

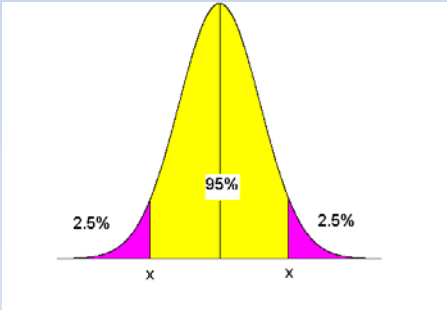
Labor 0.2 +/- 0.01
Capital 0.4 +/- 0.05
Land 0.3 +/- 0.1
Purchased 0.1 +/- 0.02

$$QP_{f,g,h} = A_{g,h} \cdot \prod_{F} FD^{\beta_{f,g,h}}$$

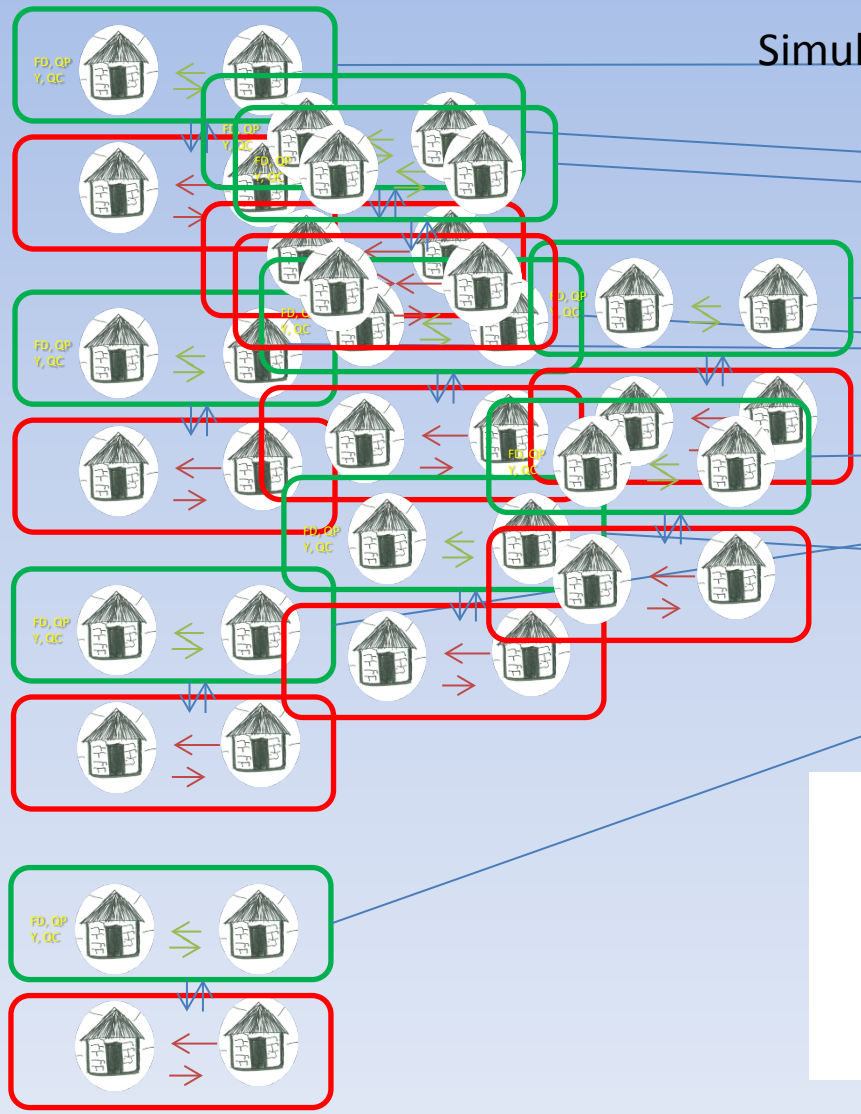
$QP +/- QP_{s.e.}$

4.5 +/- 0.5

And the same for all variables in the model



Getting confidence bounds on results



Simulation

ΔY

ΔY^{i}

ΔY^{i}

ΔY^{i}

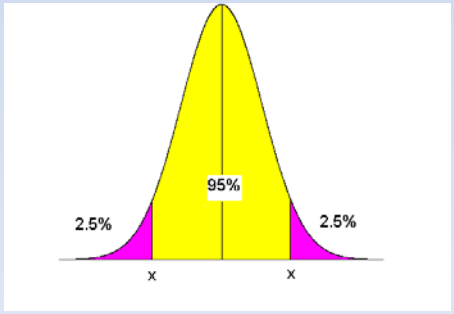
$\Delta Y'$ ΔY^{i}

$\Delta Y''$ ΔY^{i}

ΔY^{3}

ΔY^{i}

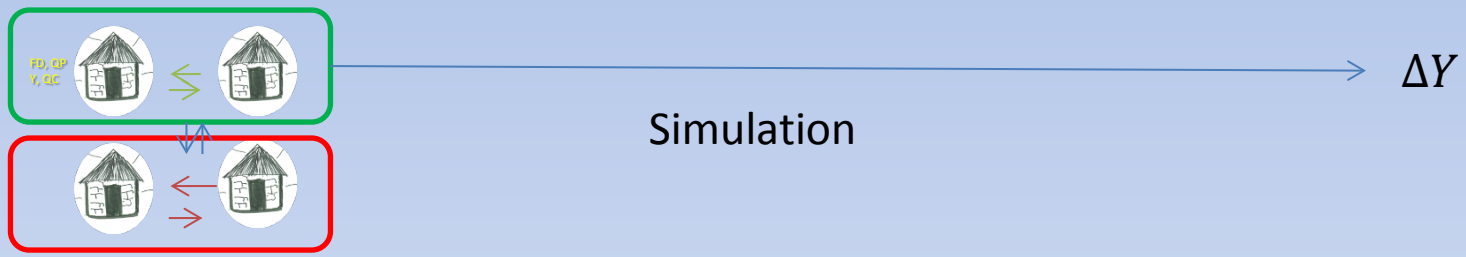
Distribution of ΔY



$\Delta Y \in [6.89; 8.06]$
with 90% confidence

Simulating with confidence

- **Treatment:** 3m Loti to Household A.



- **Results:** $\mathbf{\Delta Y = 7.3m\ Loti}$ (Total Nominal Income)