

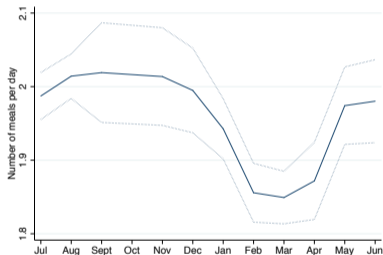
Budget Neglect in Consumption Smoothing: A Field Experiment on Seasonal Hunger

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Supreet Kaur (UC Berkeley), Felix Masiye (UNZA),
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Predictable recurrent consumption cycles

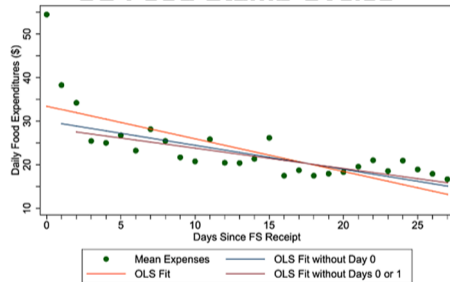
Zambia Hungry Seasons



Source: Fink et al. 2020

Harvest maize once per year, consume over year
8-10% decline in meals per day

US Food Stamp Cycles



Source: Kuhn 2018

Receive food benefits at start of month
10-15% drop in calories across month

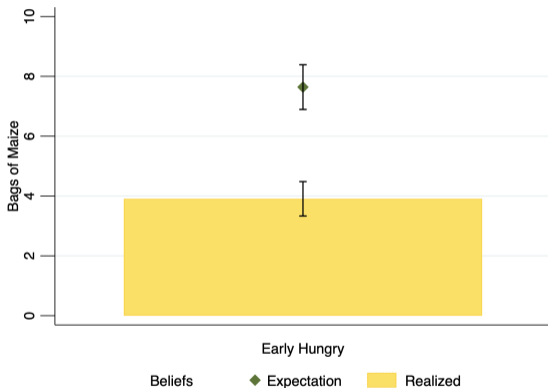
Systematic Overoptimism

Despite experience, individuals believe this cycle will be different

- In Sept, ask HHs to predict maize stocks in:
 - 3 months (early hungry season)
- Incentivized: payment at revisit if within $\frac{1}{2}$ a bag

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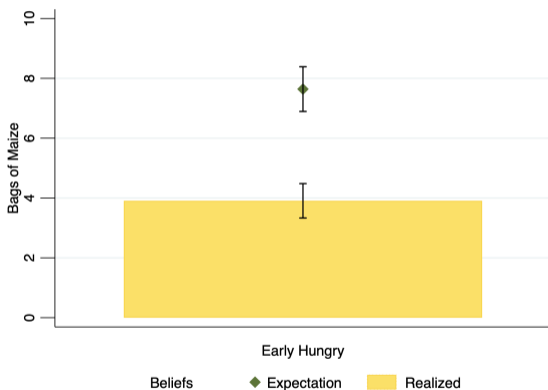


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- 80% over-optimistic about maize in 3 months

Notes: N=210 households

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- 80% over-optimistic about maize in 3 months
- 65% have less than “worst case scenario”

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Consumption Smoothing Problem

- What mechanism gives rise to overoptimism? Does it meaningfully alter consumption smoothing behavior?
- Our hypothesis: "Budget neglect"
 - Agent may neglect some future expenditures when constructing plan
 - E.g., remember car payment (but not gas); fertilizer (but not herbicide)

Consumption Smoothing Problem

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 - E.g., remember car payment (but not gas); fertilizer (but not herbicide)
 - Contrast with present bias: time preference vs. misunderstanding budget set

→ Improved attention to budget items will alter beliefs and consumption path

Outline

- 1 Introduction
- 2 Context**
- 3 Model and Results
- 4 Results: Why Does Budget Neglect Persist?
- 5 Conclusion

Context

- Setting: maize farmers in rural Zambia
- Harvest maize once per year – store at home in 50kg grain bags
- “Eat the pie” problem – allocate stock over rest of year
 - Consumption
 - Expected expenditures (e.g., school fees, inputs)
 - Unexpected shocks (e.g., health, funerals)
 - Large array of potential expenditures and shocks

Model: Intuition

- Our model of behavior: agents forget future expenditures
- Our treatment - make agents think through their consumption plan
- We test four predictions:
 - ① Agents remember more expenditures
 - ② Agents feel poorer - reduce expenditures today
 - ③ Save more post harvest
 - ④ Consume and spend more in later months

Budgeting Intervention: Think through Expenditures

ZOFUNIKA KU SUKULU 	ZOBWERA MWADZIDZI  
KATUNDU OSIYANA-SIYANA 	
ZOLIMIRA 	
ZOPATSA 	

7 categories (based on fieldwork):

- 1 Consumption in each month
- 2 School fees
- 3 Households supplies
- 4 Farm inputs
- 5 Transfers
- 6 Health shocks and emergencies
- 7 Other

Note: No coaching or assistance provided

Intervention: Implementation

Planning exercise embedded in baseline survey with head of household

Treatment group

- Construct budget for coming year — allocate available harvest to categories
- Offered labels for maize bags (visual record of plan; delivered 2 months later)

Control group

- Offered same colored labels (delivered 2 months later)
 - Told that some HHs use labels to record expenditure plan

Sample and Data Collection

- N = 837 households, 113 villages
- Household-level randomization
 - Treatment and control HHs in same village
 - Note: Spillovers (budgeting knowledge or kin pressure for food) will only weaken treatment effects

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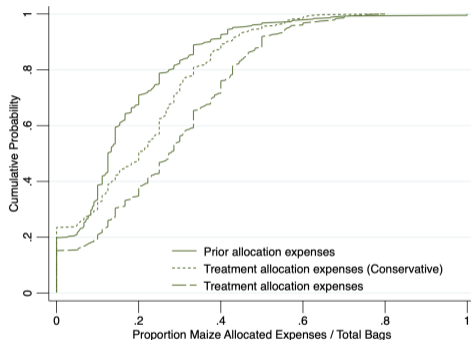
1) Immediate Impacts: Higher Expected Expenditures

Prediction 1:

Increase in expected expenditures

Measurement: Treatment group only

- 1 Before budgeting: How many bags of maize will you need to sell for expenditures?
- 2 Post budgeting: Bags of maize allocated for expenditures



Treated HHs estimate they will need 20-60% more maize for future expenditures than they realized (p-value <.01)

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2) Immediate Impacts: Preference for Less Consumption Today

Prediction 2:

Intended consumption plan changes: less consumption today (tighter perceived budget)

Measurement: Willingness to pay for discretionary consumption

- Elicit willingness to pay in maize for chosen good from both Treatment and Control at end of baseline survey (after budgeting)

Note: replicates common transaction - "briefcase buyers" come to village to sell goods for maize

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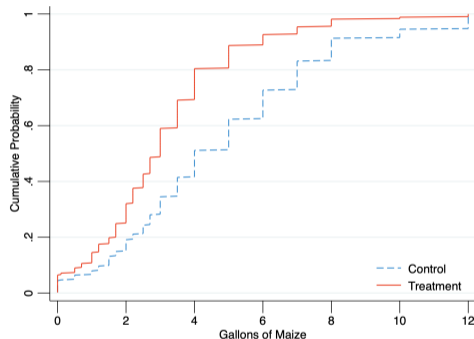
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Treated HHs: 34% lower willingness to pay for discretionary consumption (p-value <.01)

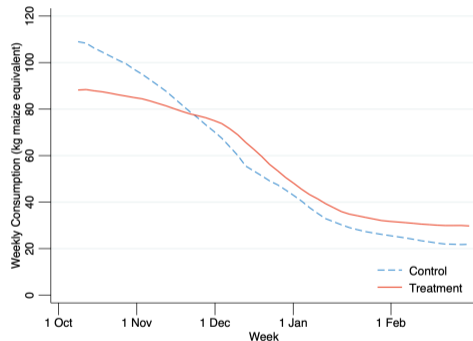
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3-4) Smoother Consumption Profile over the Year

Prediction 3:

- Reduce consumption by 15% in early months (p-value <.01)
- Reduction prior to application of labels



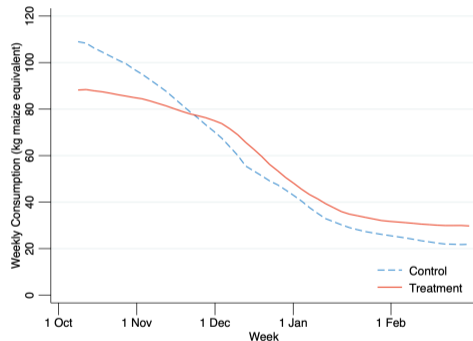
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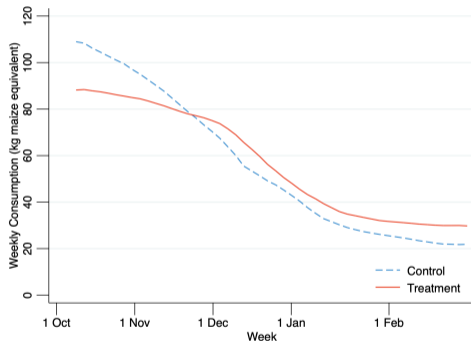
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Impacts of higher savings:

- Reduce off-farm labor and increase on-farm investments → 9% greater harvest revenue (p-value=.09)



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Forecasts draw on one or more of the following:

- ① Forward looking (analytical forecasting)
- ② Use past experience to forecast future (recall based forecasting)

Impediments to Belief Updating

Forecasts draw on one or more of the following:

- ① Forward looking (analytical forecasting)
 - Approach in this paper but cognitively challenging
 - Less than 2% say they have done such detailed budgeting in past
 - Endline: 90% of treatment group willing to pay to receive intervention again
- ② Use past experience to forecast future (recall based forecasting)

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Biased (Rosy) Memory

Year 2 follow-up (control HH only)

- Recall maize amount left last year on date X
 - Date corresponds to their first incentivized forecast last year
 - Relatively salient date
- Vary incentives: 1-4 day's wages

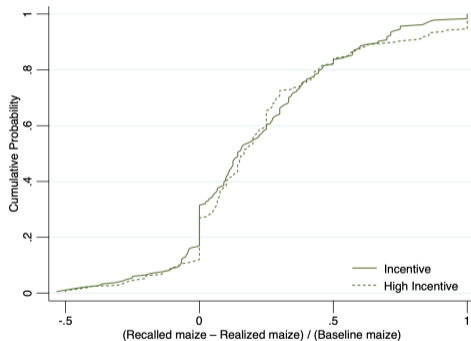
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Agents have overly rosy memory

- 71% recall past being better than it was
 - Corresponds to 80% of forecast error
 - Little change with higher incentives
- Dampens ability to learn from your past



Conclusion

- Systematic over-optimism despite experience
- Simple planning exercise to recall and budget future expenses has large effects
 - 15% increase in savings over next 2 months
 - Households enter hungry season with 1 month more of food stocks
 - Improved investment in hungry season improves crop revenue
- Suggestive evidence that individuals' memory and beliefs make it difficult to learn and update from past cycles
- Suggests alternative interventions and policy to improve consumption smoothing