MRR INNOVATION LAB PROJECT IN BRIEF

SMOOTHING SEASONAL HUNGER THROUGH PLANNING IN ZAMBIA

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Project Partners
Center for Effective Global Action (CEGA), Innovations for Poverty Action (IPA), UC Santa Barbara, University of Zambia, Zambia Ministries of Agriculture and National Development Planning

Development Innovation
Consumption planning

Commodity
Multiple

Targeted Population
Small-scale farmers

Country/Location
Eastern Province, Zambia

Timeline
2020-2021

Funding
$256,716 (USAID)

Consumption seasonality is prevalent across poor countries, particularly those with large agricultural sectors, often generating predictable, recurrent lean or "hungry" seasons. This project expands an ongoing randomized controlled trial in Zambia that tests a low-cost planning intervention that encourages families to save more of their harvest for the lean season. The project expansion tests whether the intervention leads to higher savings, its gender-differentiated effects on how families distribute household resources and whether the intervention changes how families make decisions at the next harvest.

The Challenge

The hungry season is the roughly three-month period of food shortages before the next harvest. In Zambia, over 60 percent of families report running out of food in that time. Only 36 percent report having enough food to eat all year.[1]

Struggling to make the harvest last has major implications. Households that run low on food reduce caloric intake, and these reductions particularly impact children. Over the long-term, children exposed to more seasonal fluctuations in diet are shorter as adults and attain less education.[2] In terms of gender equity, families give calories preferentially to sons when calories are limited.[3]

Seasonal hunger also has broader economic implications. Families work off the farm to buy food, forgoing work on their own farms, which lowers subsequent yields and potentially perpetuates poverty. When many households practice these strategies, they have important market-level effects. For instance, supplying labor lowers wages at a time when income is needed for consumption.[4] Sales of assets during the lean season depress prices when the cash is most needed.[5]

Research Design

This project extends a randomized controlled trial (RCT) involving farming households in Eastern Province, Zambia.

RESEARCH INNOVATION

At harvest time, farmers can be over-optimistic about how long their grain stores will last. This is consistent with a bias that research in psychology has called the "planning fallacy," which occurs across a range of contexts even outside of agriculture. Studies have shown that people can be over-optimistic even despite direct experience to the contrary.[1]

One way to overcome this bias is to ask people to "unpack" the elements of their plan.[2] The intervention in Zambia builds on evidence from psychology and economics that shows planning and debiasing in this way can substantially reduce over-optimism. Even minimal planning interventions have been shown to shift how people make decisions.[3]

Families participating in this project are guided in thinking through their consumption challenges and actively formulating a plan that anticipates future expenses and potential shocks. Through this "unpacking" exercise, families build a realistic annual budget and a plan to make their harvest last the full year.

[1] Kahneman D. 2011. *Thinking, Fast and Slow*. Macmillan
[2] Kruger J, et al. 2004. "If you don't want to be late, enumerate: Unpacking reduces the planning fallacy." *Journal of Experimental Social Psychology*.
[3] Milkman K.L., et al. 2011. "Using implementation intentions prompts to enhance influenza vaccination rates." National Academies of Science.

It tests a light-touch, low-cost planning intervention that encourages families to save more for the lean season. The intervention interrupts negative feedback between cognitive barriers to planning and infrequent income to improve consumption and resilience to shocks.

The intervention was designed to help families plan for six major expense categories: consumption, education, groceries and household assets, farm inputs, transfers and emergency expenses. In the treatment groups, families were guided through thinking about how to allocate their maize for each possible upcoming expense in every major category. They were given labels to attach to maize bags to visually represent their plan. Families in the control group were given the same labels to use at any time but were not guided through the same planning process.

The research team is conducting rolling surveys to evaluate the project's results. On consumption, the surveys establish food security and nutritional diversity during each period. The survey team is directly measuring remaining maize stocks and when a family's harvested maize runs out. For children's outcomes, the team is measuring health and school attendance. The team is also measuring impacts on farm investments, yields and profitability and labor supply.

MRR funding adds two additional rounds of data collection to measure whether the benefits of the intervention sustain through the end of the hungry season. The data will also make it possible to measure gender-differentiated effects on how families allocate their resources in the household as well as how they make decisions leading up to the subsequent harvest.

Development Impact

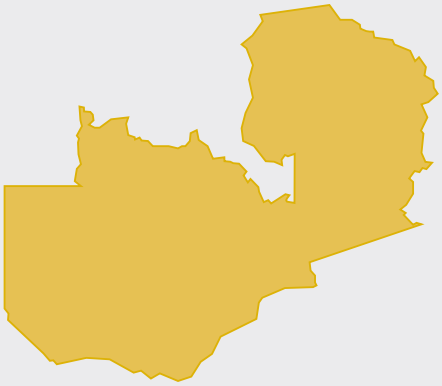
This project is aligned with the objectives of reducing poverty, improving health and nutrition and supporting smallholder farmers that mark recent Feed the Future and USAID initiatives, such as the Feed the Future Mawa Project and the First 1,000 Most Critical Days Program. Specifically, this project helps rural farmers utilize their harvest for improved health and nutrition outcomes, targeting the needs of young children who may be particularly vulnerable to seasonal fluctuations in consumption.

Pilot evidence from this project is promising. Families who participated in the planning intervention forecast that they will have less maize available in the future and increase how much they believe they need to allocate to non-consumption expenditures. These families also reduced the amount they are willing to spend on "luxury" items by 34 percent.

Agricultural extension officers already work with farmers to try and ensure that they budget for agriculture-related expenditures. In a future government-implemented version of our intervention, extension officers would conduct the planning activity and construct labels with families for an easy, low-cost activity that they could build into their existing field visits.

This planning approach is cheaper and easier to scale than other approaches to address seasonal hunger, such as encouraging seasonal migration, subsidized credit markets and improved grain storage. Given that consumption seasonality and small-scale farming are widespread across Sub-Saharan Africa, scaling this intervention could benefit millions of rural families.

[1] Jolejole-Foreman M.C., et al. 2016. "Associations between Food Scarcity during Pregnancy and Children's Survival and Linear Growth in Zambia." AAEA.
[2] Christian P., et al. 2018. "Growing and learning when consumption is seasonal: long-term evidence from Tanzania." *Demography*.
[3] Behrman J.R. 1988. "Intrahousehold allocation of nutrients in rural India: Are boys favored? Do parents exhibit inequality aversion?" Oxford Economic Papers.
[4] Jayachandran S. 2006. "Selling labor low: Wage responses to productivity shocks in developing countries." *Journal of Political Economy*.
[5] Anagol S. 2017. "Adverse selection in asset markets: Theory and evidence from the Indian market for cows." *Journal of Development Economics*.



Development Opportunity: Zambia

17.4 : Population in millions (2018)
54.4% : Poverty rate at $1.90/day, 2011 PPP (2015)
9.8 : Rural population in millions (2018)
48.8% : Total employment in agriculture (2019)
46.7% : Prevalence of undernourishment (2017)
34.6% : Prevalence of stunting for children under 5 years (2018)

Source: World Bank

One of the goals of the Zambian government is to try to guarantee food security and increased agricultural production for small-scale farmers. In Zambia, 95 percent of farmers are classified as smallholders, and almost 80 percent have maize shortages during the hungry season.

A large share of Zambia's annual budget funds fertilizer subsidies for farmers, and the government maintains a minimum support price for maize purchased at harvest time. The Ministry of Agriculture has also launched programs that promote literacy and budgeting among farmers. These programs, as well as the Ministry's package of training materials delivered by extension workers, emphasize farm investments and saving for seeds, fertilizers and chemicals.

[1] Fink G, et al. 2018. "Seasonal Liquidity, Rural Labor Markets and Agricultural Production." NBER.

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