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MRR INNOVATION LAB EVIDENCE INSIGHT

HOW A FOCUSED BUDGETING ACTIVITY INCREASED SAVINGS ACROSS THE HUNGRY SEASON IN ZAMBIA

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The hungry season, an annual period of food shortages leading up to the next year's harvest, affects rural families in many developing countries. This randomized controlled trial in Zambia tested a focused budgeting activity meant to address a root cause of annual food shortages. The budgeting activity increased savings by 20 percent by the start of the hungry season and increased annual crop output by 9 percent the following year. This kind of focused budgeting activity at the time of harvest could support rural families through cyclical food shortages while also establishing a foundation to improve their future welfare.

The hungry season—a period of shortfalls in food and savings before the following harvest—is a common feature of life for rural families in many developing countries. Households with limited means experience cycles that end with need. Many families experience food shortages leading up to the next harvest.¹

In rural Zambia, maize-farming households harvest their crops from April to June every year. Farmers sell some of their maize at harvest and store the remainder, typically in 50kg bags, for food and as a form of savings.

The stakes for budgeting a single harvest to cover the year's entire food and spending needs are high. During the hungry season, which in Zambia begins in January and continues until the next harvest, many farmers cut back on investments that could increase their yields or turn to casual wage labor to buy food. While both decisions may keep a family fed, they also

- One cause of shortfalls during the hungry season is “budget neglect,” which describes when people underestimate their future expenses, leading to over-optimistic beliefs about their ability to use savings to cover those expenses.
- In rural Zambia, a focused budgeting activity increased household savings by 20 percent entering the hungry season, an amount equalling roughly one month of spending. The activity also increased farm output by 9 percent in the following season by reducing off-farm labor and increasing investments in productivity.
- Treating seasonality as a savings problem can complement policies that seek to support families through cyclical food shortages while also establishing a foundation to improve their future welfare.

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compromise farming yields and income for the following year.²

One way to address these shortfalls is to address “budget neglect,” which describes when people underestimate their future expenses, leading to over-optimistic beliefs about their ability to use savings to cover those expenses. While maize-farming households in Zambia have lifetimes of experience managing annual budgets, hungry season shortfalls may be due in part to underestimating their spending needs.

Testing a Focused Budgeting Activity

In Zambia’s Eastern Province from 2019-2020, we tested whether a focused budgeting activity we designed would affect people’s savings across the year. All study participants derived the overwhelming majority of their yearly income from a single annual maize harvest. Our primary outcome of interest—household savings—equals the amount of maize in storage plus cash on hand.

The study was a randomized controlled trial (RCT) with 837 maize-farming households from 113 villages. Roughly half of participants, selected at random, took part in the focused budgeting activity immediately after harvest (treatment group) while the other half did not (control group). This design makes it possible to attribute any differences in household savings between the two groups by the end of the study to the budgeting activity itself.

Due to the COVID-19 pandemic, we suspended data collection in March 2020, then resumed that October approximately one year after the budgeting activity.

The focused budgeting activity involved recalling last year’s spending and then forecasting the coming year’s spending across seven major categories: food, school fees, household supplies, farm inputs, transfers to others, health shocks and other emergencies, and a residual “other” category. This focused budgeting approach draws from research in psychology³ showing that people are more likely to remember items in categories rather than as part of a whole. We provided no guidance or advice

to participants about how to allocate their spending across the categories. We only asked participants to think through their expenses within each category and to formulate their own spending plan based on their recent harvest.

We then gave participants thumbtacks equaling the number of bags of maize they currently had and asked them to allocate the thumbtacks across the seven categories on a budget board. This part of the activity visually depicted the year’s spending plan.

Participants in both the treatment and control groups were also offered labels corresponding to the seven spending categories and were offered help attaching the labels to their bags of maize. These labels were meant to serve as an additional reminder of the year’s spending plan.

Increased Savings and Productivity

We found that all participants were systematically over-optimistic about their budgets. Participants who did not take part in the focused budgeting activity overestimated their future savings by 81 percent, on average. Participants who took part in the focused budgeting activity updated their spending plan to include an average of 20-60 percent more non-food expenses than their initial forecast.

Two months after the focused budgeting activity, treatment-group households had 15 percent more in total savings than control-group households. Four months after the activity, treatment households entered the hungry season with 20 percent more in savings than control households. This difference was roughly one month of spending during the hungry season.

When we examined variation in these impacts, we found that people who were more likely to initially underestimate the year’s expenses experienced greater benefits. This finding supports the idea that the focused budgeting activity increased savings by correcting over-optimistic budgets at harvest.

Households who took part in the budgeting activity also had 9 percent higher farm output in the following year, a result

with two main causes. First, treatment households were 42 percent less likely to take off-farm labor jobs than control-group households who needed the wages to buy food. Second, treatment households spent more on hired labor, fertilizer and other inputs that increased their maize yields.

Budgeting for Seasonal Hunger

These results show that addressing biased beliefs with a focused budgeting activity can have substantial impacts on immediate as well as future welfare. In addition to measuring the activity’s impacts on savings, we identified the mechanisms through which it generated these impacts. Thinking through the year’s budget within specific categories and then comparing that budget against actual savings generated more realistic spending beliefs. These updated beliefs smoothed spending throughout the year, reduced the need to work for wages and increased investments in productivity.

The focused budgeting activity’s effect on spending appears to be immediate. Following the activity, we asked participants about their willingness-to-pay for a discretionary purchase, such as a piece of clothing. Treatment households, on average, would pay 34 percent less for the item than control-group households.


While the challenge of seasonality has previously been met with interventions that aimed at increasing income, such as credit or incentives for migration, our focused budgeting activity addresses one of seasonality’s root causes, which is savings. Treating seasonality as a savings problem can complement policies that seek to support families through cyclical food shortages while also establishing a foundation to improve their future welfare.

¹Abay, K. et al. 2017. “Does market access mitigate the impact of seasonality on child growth? Panel data evidence from northern Ethiopia.” *Journal of Development Studies*.

²Fink, G., et al. 2020. “Seasonal Liquidity, Rural Labor Markets, and Agricultural Production,” *American Economic Review*.

³Buehler, R., et al. 2010. “The Planning fallacy: Cognitive, motivational, and social origins.” *Advances in Experimental Social Psychology*.

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