

Extended Abstract

Please do not add your name or affiliation

Paper/Poster Title	The role of savings and credit to cope with shocks in Malawi. Considerations for nutrition.
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Abstract prepared for presentation at the 96th Annual Conference of the Agricultural Economics Society, K U Leuven, Belgium

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Abstract	<i>200 words max</i>
<p>To investigate the relationship between shocks, coping strategies, and food and nutrition security, this study implements a two stages least squared approach using a panel dataset collected in Malawi between 2010-2017. This study contributes to the literature by evaluating the effectiveness of savings and credit-based coping responses on food and nutrition security when shocks occur in a developing country setting. Our measures of food and nutrition security refer to the food consumption score and estimated calorie and micronutrient consumption per adult male equivalent per day.</p> <p>Our results suggest that the use of savings and credit acquisition do not fully protect households from declining food and nutrition security when shocks occur, as households tend to consume fewer food groups when shock strategies are used. Findings may aid policymakers developing adequate safety nets to allow households to build resiliency to shocks and achieve the sustainable development goal of 'Zero Hunger' by 2030.</p>	
Keywords	Food and nutrition security, shocks, savings, borrowing, Sub-Saharan Africa
JEL Code	D14 Household savings, I3 Welfare, Well-Being, and Poverty see: www.aeaweb.org/jel/guide/jel.php?class=Q
Introduction	<i>100 – 250 words</i>
<p>The Sustainable Development Goal (SDG) of Zero Hunger (SDG 2) aims to reduce hunger and all forms of malnutrition by 2030 (UN General Assembly, 2015). However, in many parts of the world rates of food insecurity are increasing. Malawi is impacted by a range of shocks that contribute to increased food and nutrition insecurity. These may include health shocks, such as malaria and HIV/AIDS (Asenso-Okyere et al., 2011) and price shocks, such as increases in the price of maize, which is an important staple crop in Malawi, in 2002, 2006, 2008, and 2010 (Caracciolo et al., 2014). Malawi also has an increased vulnerability to the impacts of climate change (Warnatzsch and Reay, 2019). In particular, the agricultural sector is extremely susceptible to the effects of a changing climate, due to a dependence on rain-fed irrigation, as well as, heat-sensitive crops, such as maize, and agriculture contributes 28% of total gross domestic product (GDP) (Serdeczny et. al., 2017; FAO, 2018).</p>	

However, food security is not only impacted by the direct effects of shocks but also by the coping strategies employed by the household. A developed body of literature identifies the coping strategies utilised by households when they experience shocks and whether such strategies enable households to smooth consumption (Yilma et al., 2014; DeLoach and Smith-Lin, 2018; Paumgarten et al., 2020). However, few studies estimate the effectiveness of savings and credit-based coping strategies on both food and nutrition security in terms of calories and the nutritional value of foods consumed.

Methodology

100 – 250 words

We implement a modified two stages least squared (2SLS) instrumental variables (IV) approach to assess the causal relationship between the choice of coping strategy and food and nutrition security. Calorie and micronutrient (iron, zinc, vitamin A, B2, folate, and B12) consumption per adult male equivalent per day, as well as the food consumption score were used as our dependent variables in regressions. The choice of the 2SLS IV approach is guided by the need to mitigate statistical endogeneity concerns (Angrist and Krueger, 2001). IVs include variables to identify if there is a savings or credit cooperative or a commercial bank operating within the district in which the household lives. We also include weather variables, socio-economic and farm-specific characteristics as additional covariates. Our econometric approach also uses a panel fixed effects model with robust standard errors clustered at the household level to control for cluster correlation and heteroskedasticity (Cameron and Trivedi, 2010, Cameron and Miller, 2015).

The dataset used for the empirical analyses in this paper has been constructed from two sources. Household food consumption data, socioeconomic variables, farm, and village specific characteristics, as well as information on the household's response to shocks, were obtained from three waves (2010/11, 2013, 2016/17) of the Integrated Household Panel Survey (IHPS) in Malawi. Weather variables have been constructed using data from the Climatic Research Unit (CRU) TSv4 dataset, which provide monthly precipitation and average monthly near-surface temperatures on a 0.5° latitude by 0.5° longitude grid (Harris et al., 2020).

Results

100 – 250 words

First-stage and second-stage 2SLS regressions are reported in tables 1 and 2. Table 1 shows IVs are statistically significant, and the F-statistics are high enough for these instruments to be considered appropriate. Second stage results reveal the impact of utilising own savings or credit on food and nutrition security are diverse. Households using this strategy to regain their former welfare level are



associated with the FCS declining by 96%, however, estimated consumption of vitamin A per adult male equivalent per day increased by 55%.

Table 1. Fixed effect IV estimation results – first stage regressions.

	Use of savings/obtaining credit
Access to savings or credit	0.261*** [0.048]
Access to bank	0.448*** [0.084]
Kleibergen-Paap Wald rk first stage F statistics for weak identification	15.69
Kleibergen-Paap rk LM first-stage Chi Squared statistics of under identification	Chi-sq(3)=42.215, p-val=0.000

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Only the instrumental variables are included, however, all control variables have been included in first stage regressions.

Table 2. Fixed effect IV estimation results – second stage regressions.

	Calories (kcal)	Iron (mg)	Zinc (mg)	Vit A (µg)	Vit B2 (mg)	Folate (µg)	Vit B12 (µg)	FCS
Use of savings/credit	0.015 [0.153]	-0.075 [0.212]	0.143 [0.152]	0.554* [0.266]	0.004 [0.107]	0.283 [0.188]	-0.157 [0.363]	-0.964** [0.173]

Notes: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Regression coefficients reflect a percentage change in the amounts of calories and micronutrients consumed per adult male equivalent per day, as well as the FCS. All control variables have been included in regressions but are not presented in this table.

Discussion and Conclusion

100 – 250 words

The impact of savings and credit-based coping strategies on the estimated consumption of vitamin A also have relevant policy contributions. Households engaging in this type of coping strategy to cope with shocks consume more vitamin A than households not engaging. This finding is particularly interesting, as deficiencies of vitamin A have historically been of great concern in Malawi, as well

as in other developing nations. Between 2000 and 2010, micronutrient surveys in Malawi identified a high prevalence of vitamin A deficiency (National Statistical Office Malawi et al., 2017). Several SSNs also have great emphasis on vitamin A, such as school feeding programmes (Williams et al., 2021).

Households may be using their savings and credit to purchase cereal-based foodstuffs, at the expense of more expensive but nutritious food items, to maintain consumption in terms of calories consumed but not the consumption of micronutrients. However, the successful implementation of national nutritional interventions and programmes enables households to increase their consumption of vitamin A but decreases their FCS and overall food security. Results suggest savings and credit do not enable households to purchase more expensive, better quality food items, in terms of nutritional content, and may promote reliance on lower quality foodstuffs.