

How Specific Resilience Pillars Mitigate the Impact of Drought on Food Security: Evidence from Uganda

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Introduction

Drought has affected more people across the world than any other natural hazard. Drought impacts food security through its negative effect on agricultural production and farm household incomes. The situation will likely worsen as climate change advances. In Africa, 14% of the population live under drought at any given time (Raffaello and Michael, 2016). In Uganda, drought is the most challenging climate hazard, as 70% population relies on farm production for their livelihood (FAO et al., 2015).

Resilience is defined as “the capacity that ensures that stressors and shocks do not have long-lasting resilience capacities allow a household to absorb the drought’s impact and carry on. They include availability of informal safety nets, access to remittances, and asset ownership. Second, adaptive capacities allow the household to change their behavior in ways that reduce the effects of the drought. These include availability of human capital, weather information, financial resources, and social capital. Third, transformative resilience capacities allow households to change their behavior in ways that make them more resilient to future shocks. These include availability of formal safety nets, access to remunerative markets, communal natural resources, and infrastructure. This paper also asks the question “which types of resilience capacities are the most important in mitigating the impact of drought on food security in Uganda?”

Key Facts

- Drought undermines food security for a majority of households by reducing per capital food consumption and the number of meals consumed per day.
- Current interventions occur only after the drought; programs that anticipate droughts (ex-ante policies) can help build resilience against drought among households.
- Household with stronger resilience capacity enjoy significantly better food security.
- Household resilience against drought can be increased by providing weather information and establishing early warning systems, improving access to communal land resources and providing extension services to households.

This study uses five rounds of nationally representative household panel data (Ugandan National Panel Surveys) covering the period from 2010 to 2019 and combines it with objective and reliable rainfall data. It classifies resilience as absorptive, adaptive and transformative capacities (Asmamaw et al. 2019) and provides empirical evidence on the effectiveness of each resilience capacity in mitigating the impact of drought on household food security.

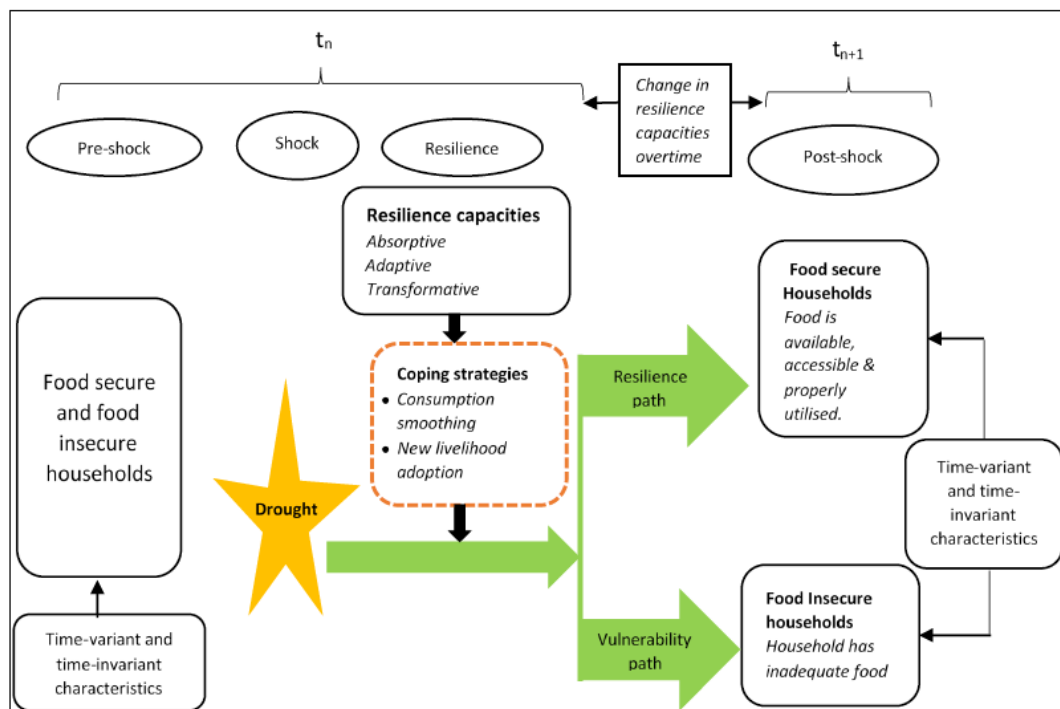
Our conceptual framework (Figure 1) approaches resilience as a dynamic factor that can change over time within households and across different households. In response to drought, households activate resilience mechanisms for consumption smoothing. These behavioral responses can make a household more vulnerable to future droughts (e.g. by selling assets) or improve its resilience to them (e.g. through access to basic social services). Government and other actors can also respond to drought in ways that help (e.g. positive institutional changes). The net effect on the household of these multiple responses to drought depends on their pre-drought food security status and their capacities to adapt, absorb, and transform in response to these shocks.

What we found

We found that households exposed to drought experienced a 21% lower per capital food consumption on average, compared to households who did not experience drought. Drought-affected households are also more likely to consume fewer meals. We find this latter result whether we use self-reported drought data or satellite rainfall data in the analysis. Since Uganda can quickly import food from the region in the event of a shortage, the estimated impact of drought on meals consumed by households suggests that drought in Uganda mainly affects own food production, compared to food purchases. Given that a majority of households rely on their own food production in addition to market purchases, drought can have devastating effects on food security.

The results also show that the impact of drought on food security decreases with an increase in drought duration. This finding is driven by the fact that government puts interventions in place to help households mitigate the effects of the drought only after the incidence of drought has begun. This points to the fact that using ex-ante policies, put in place before a drought begins, instead of relying so heavily on ex-post policies, can help mitigate the initial impact of the drought. Current policies are only ex-post or reactionary to the drought, and they

Figure 1. Conceptual framework linking drought, household resilience and food security



Source: Author's own construction (2020) based on the ideas of FAO (2016b) and Frankenberger et al., (2012)

cannot build household resilience against drought before it begins.

The descriptive analysis highlights three points. First, household resilience capacity has stagnated over time which suggests that households resort to negative coping strategies, such as selling of assets, to deal with climate shocks. Second, adaptive capacity varies enormously across households. Third, the current resilience capacity of a majority of households is very low and hence, most households have great scope for improving resilience. We find from our econometric analysis that access to informal safety nets - such as women's groups and savings groups - is the most important in building absorptive capacity. Similarly, the availability of financial services and information are most salient in building adaptive capacity, while transformative capacity is mainly driven by access to communal resources, markets and extension services. These results suggest that the adverse effects of drought can be tackled in a sustainable way through ex-ante policies such as providing weather information and establishing early warning systems, using informal networks instead of relying solely on government departments for reaching beneficiaries, improving access to communal land resources and providing extension services to households.

There is also light at the end of the tunnel because empirical results show that every one percentage-point gain in resilience capacity leads to a 7% to 8% increase in per capita food consumption on average, clearly pointing towards the potential improvement in welfare from building resilience capacities. Absorptive capacities lead to the largest increase in per capita food consumption but adaptive and transformative capacities also play an important role. This result suggests that households with high adaptive capacities are more likely to resist the adverse impacts of drought.

Conclusion

This study provides important insights into the effect of drought on food security in Uganda.

- Households are highly vulnerable to the adverse impact of drought on food security.
- Building resilience can mitigate the impact of drought on food security.
- There is massive room for improvement in resilience capacity of Ugandan households.
- Some resilience capacities matter more than others. In particular, access to information, informal safety nets such as women groups and youth groups and savings groups, availability of services (in particular, extension) and infrastructure, and access to communal resources such as land are the most important factors in enhancing resilience capacity of households against drought.
- Policy should focus on building ex-ante resilience such as early warning systems and availability of climate related information.
- Results also suggest that informal networks are better at building resilience, compared to government working directly with beneficiaries.

References

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