

TITLE: Unveiling Vulnerability: Exploring the Impact of Shock Exposure and Population Changes in Malawi

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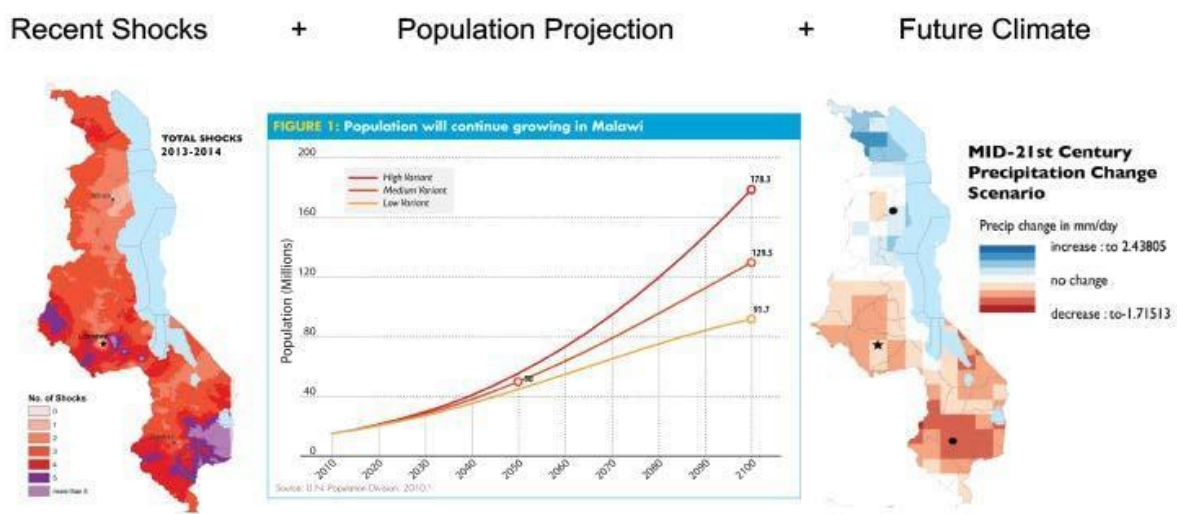
This paper includes shock analyses done by the USAID GeoCenter, Dr. Brent McCusker, and others.²

1. Significance/background

Malawi faces persistent high exposure to household shocks, exacerbated by climate change and population growth. Effective preparation for shocks necessitates a multifaceted strategy, encompassing both immediate humanitarian relief efforts and long-term development planning initiatives. Household shock analyses emerge as a pivotal tool. Using data from the Malawi Integrated Household Surveys, USAID's GeoCenter conducted comprehensive analyses across recent datasets. These analyses have been able to identify the underlying factors contributing to shock exposure. They reveal that not all shocks manifest uniformly across all locations and times, even within highly susceptible environments like Malawi. Exploring household shocks in Malawi unveils prevalent thematic patterns underlying the most widespread shocks, and these patterns can be disrupted in order to reduce vulnerability for the future.

3. Methodology

Using data sourced from Malawi Integrated Household Surveys (IHS), USAID's GeoCenter conducted a comprehensive analysis. Three IHS datasets were used: 2010-11, 2016-17-2019-20. The USAID GeoCenter analyzed each dataset to identify which shocks were most prevalent each year, and which households were most vulnerable. Each time the survey is deployed, it captures data on an average of 11,400 households. To ensure robust findings, contributing factors were selected based on their statistical significance, validated across three rigorous regression tests at a confidence level of 95%. The results of this analysis not only highlights the breadth of the challenge posed by shock vulnerability in Malawi but also offers insights into the complexity. By modelling recent shocks alongside projected population growth and anticipated climate change, the study sheds light on the multifaceted nature of this pressing issue.



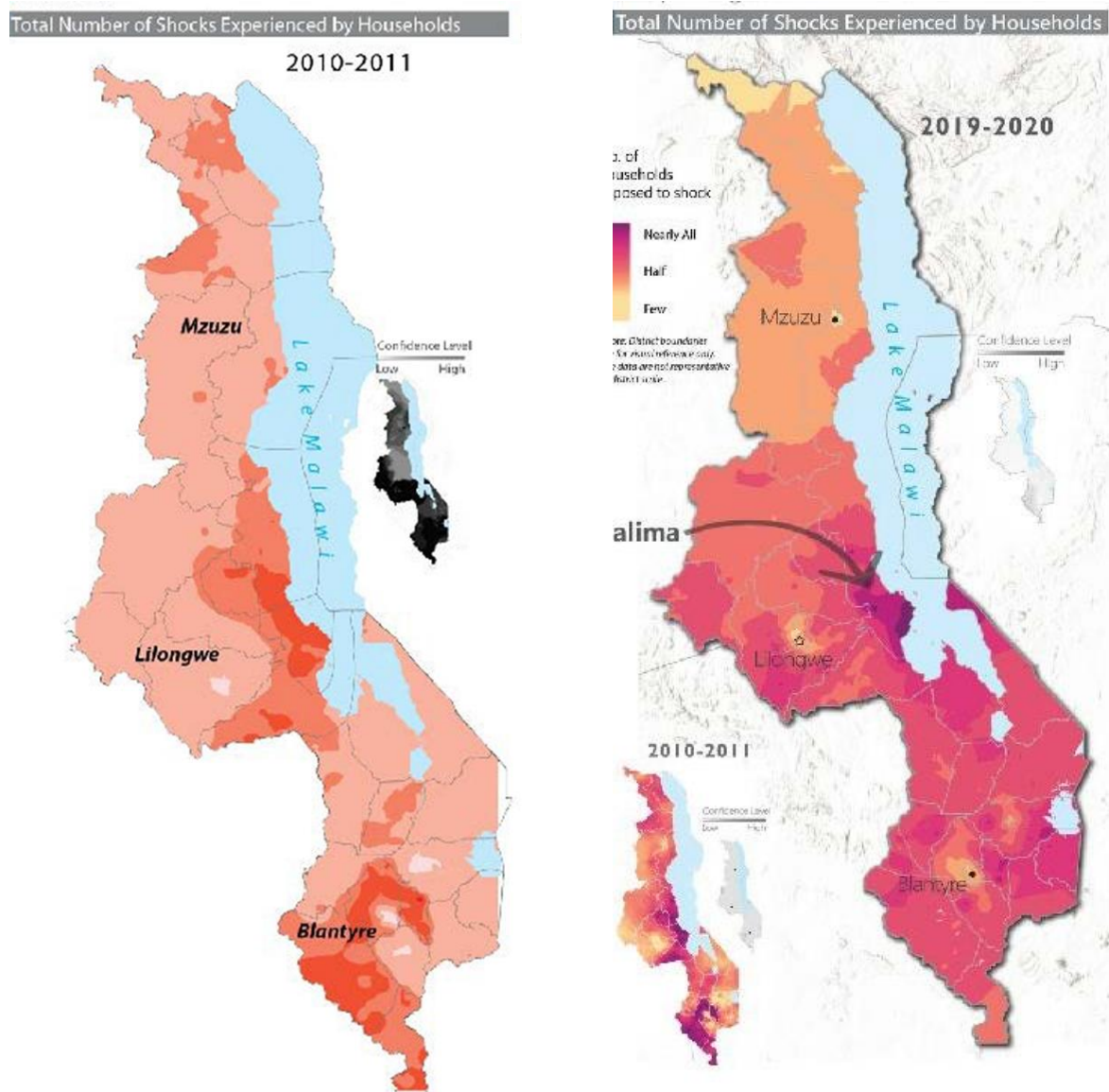
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4. Results/key findings

Shocks are disruptions to household income or subsistence as reported by the household itself. 'Total Shocks' refers to a comprehensive spectrum of disturbances reported by households across various domains, including but not limited to fluctuations in food prices, agricultural challenges, environmental hazards, health crises, and other unforeseen circumstances. Analyses reveal that the severity of shock exposure is most pronounced in the southern regions and along the central lakeshore of Malawi. Notably, the most impactful among these shocks are attributed to natural hazards that include droughts, floods, landslides, and earthquakes.



The mix of shocks across the maps shows the geography of vulnerability and how they have intensified over time. Shocks in Malawi can manifest in two distinct ways: co-variant shocks, which affect all households within a geographic area, and idiosyncratic shocks, which are specific to individual households. Co-variant shocks in Malawi predominantly refers to natural disasters and fluctuations in food prices, affecting broad swathes of the population. Conversely, idiosyncratic

³ Salima is marked to indicate the area of greatest shocks in 2019-2020.

shocks include a diverse array of challenges such as health crises, financial instability, and conflicts, impacting households on a more personal and individualized level.

In the most recent data available (2019-2020), Malawian households persistently grapple with a multitude of shocks. These shock occurrences were notably concentrated in Salima and the southern regions. Key determinants contributing to shock exposure, in general, include **literacy (including in English), possession of agricultural assets, quality of dwelling infrastructure, and urban or rural residence**. While there was a slight decline in the number of households reporting shocks compared to the previous period (2016-17), the figures remain alarmingly high relative to the baseline of 2010-11. Notably, health-related shocks were consistently low over the years.

The agriculture sector emerged as the most susceptible to shocks, with the highest incidence reported. Within this domain, agricultural shocks included crop failure and insufficient access to fertilizer. Notably, while food price shocks had previously dominated, the most prevalent agricultural shock in 2019-2020 was attributed to input prices. Factors contributing to shock exposure within the agriculture sector included marital status, wealth index, and the possession of agricultural assets

There's a need for a transition away from maize cultivation, given that merely 2.5% of Malawi's population inhabit areas suitable for such production, while a staggering 15% reside in regions entirely unsuitable for maize farming. Despite this stark reality, an overwhelming 89% of Malawians depend on maize as their primary staple, often coupled with *ganyu* labor, an informal labor exchange system. This prevailing reliance on maize, without many other livelihood strategies, underscores the nation's vulnerability. Notably, both impoverished households and those in the middle-income bracket are overly reliant on *ganyu* labor, while others depend on crop sales. Such a lack of livelihood diversity exacerbates chronic vulnerability across all income strata.

In 2019-2020, food price shocks emerged as the second most prevalent shock. Food price shocks are particularly difficult for households to manage as they have fewer coping mechanisms than when faced with agriculture shocks. Moreover, they signal underlying issues with market functionality. Contributing to vulnerability are factors such as the amount of available female labor within households, the amount of livestock holdings, the possession of agricultural assets, and the literacy level of head-of-household head.

In the dataset from 2016-17, natural hazard shocks appeared to be more severe compared to the more recent data from 2019-2020, yet they continue to significantly disrupt lives and livelihoods. These shocks exhibit a varying pattern and do not adhere to a consistent trend. Floods, predominantly occurring in the southern regions, emerged as the most prevalent type and location of natural hazard shocks. Factors contributing to the vulnerability to such shocks include the proximity to a road, the abundance of durable items within households, and the level of infrastructure present.

The incidence of health shocks remained relatively low but exhibited a fairly even distribution across the surveyed population.⁴ Health shocks include events ranging from births and deaths⁵ to injuries and illnesses.⁶ Despite their comparatively lower intensity, health shocks are pervasive and influenced by various contributing factors. These include household size, as well as the availability of both female and male labor within the household.

⁴ Health shocks do not include chronic conditions.

⁵ In the last 3 years.

⁶ In the two weeks prior to the survey.

The food consumption score (FCS) is a measure of the quality and quantity of food a household consumes.⁷ An FCS score of 42 is considered acceptable. Malawi's FCS has been very consistent over the years of IHS data analyzed, with most geographies above 42. Cities in the north have high scores; rural areas and the south have low scores. While these results suggest that, overall, the food security situation in the country is currently stable, with households able to maintain adequate consumption levels, there are signs of a slight deterioration, as households are increasingly resorting to negative coping mechanisms, a trend typically observed before a reduction in consumption occurs.

5. Program implications/lessons

In conclusion, the total exposure to shocks in Malawi remains persistently high and continues to escalate across various sectors. These multi-sectoral shocks are compounded by the looming threat of climate change and population growth, which not only exacerbates their frequency but also hampers the country's ability to thrive under such pressures.

The impact of climate change is poised to reshape migration patterns within Malawi, with central regions becoming hotspots for climate-induced in-migration while southern areas are anticipated to witness out-migration, potentially towards central and northern regions. Particularly alarming is the projected surge in population density across the country, projected to surpass many other East African nations. In 2010, only urban areas exceeded 300 people per square kilometer, yet modelling predicts that by 2050, nearly the entire nation will reach a high population density threshold and will be classified as "urban".

Addressing this multifaceted challenge demands a comprehensive approach. To mitigate the frequency of shocks experienced by Malawian families annually, concerted efforts must build sources of resilience and target all contributing factors, with a particular emphasis on enhancing literacy, bolstering agricultural assets, improving dwelling infrastructure, and addressing disparities between urban and rural areas. When the UN released their updated World Population Prospects report,⁸ they made a severe point to say that programs designed by governments to reduce fertility will likely *not* have much impact on population growth, counter to what is a cornerstone of Malawi's population policy. While family planning programs continue, additional efforts are needed to bolster resilience against shocks by intentionally programming to strengthen sources of resilience. Fertility is not included in the various shock vulnerabilities mentioned in this paper, even though fertility reduction, through a multisectoral approach, would have a positive impact. In addition to looking at population projections, budgets and interventions should be strategically directed towards sectors that bolster resilience against shocks. This includes keeping kids in schools, job creation (creating employment opportunities rather than displacing labor), and a health system that is responsive to the growing population. Since agriculture livelihoods are globally one of the riskiest livelihoods, and this analysis also found them to be most vulnerable to shock, Malawi needs support to diversify its income base and increase growth in other industries while moving people away from subsistence agriculture. Diversifying the economy also strengthens Malawi's economic resilience. Malawi must plan interventions in anticipation of 3-5 shocks per household per year, predominantly linked to agriculture. Furthermore, integration across interventions is imperative, recognizing that each contributing factor influences multiple vulnerabilities, concurrently. This vulnerability analysis can help Malawi and development partners like USAID know what to focus on.

⁷ [Source](#)

⁸ United Nations Department of Economic and Social Affairs, Population Division (2022). World Population Prospects 2022: Summary of Results. UN DESA/POP/2022/TR/NO. 3.