DEEP WORKING PAPER 26

Poverty dynamics amidst intersecting crises in Tanzania

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Executive summary

Tanzania has seen a decreasing poverty rate since the turn of the century, from 84.0% in 2000 to 45.0% by 2018, when relying on the international US$ 2.15 poverty line, and from 35.6% to 26.4% relying on the national poverty line (WDI, 2024). However, the poverty rate using both the international and national poverty lines stalled during the last decade prior to the COVID-19 pandemic. For example, it hovered around 45% between 2011 and 2018 using the US$ 2.15 line. However, rising population trends meant that the absolute number of people in poverty substantially increased after 2011 by 4.9 million people to reach 26.1 million people by 2018. Moreover, the onset of the pandemic saw at least 3 million people pushed into poverty in Tanzania (World Bank, 2024).

This paper examines the presence of certain macro-level crises (climate-induced shocks and stressors, economic crises including during COVID-19, and political violence) and their relationship with household poverty dynamics in Tanzania using five large datasets:

- five waves of the Tanzania National Panel Survey (TNPS), from 2008 to 2019;
- the Global Flood Observatory yearly data, from 2008 to 2018;
- the Climatic Research Unit Time Series (CRU TS) yearly data on drought, from 2008 to 2021;
- the Armed Conflict Location & Event Data (ACLED) yearly data from 2008 to 2022; and
- the High Frequency Phone Surveys, comprising 17 rounds of data between 2020 and 2024.

Contextualising movements into and out of poverty within a backdrop of increasingly complex crises requires bringing together poverty correlates of 'people', focused on demographics and livelihoods, and 'place', related to the broader contexts that might inhibit poverty escapes, including crises. This approach is critical to ensure that pro-poor initiatives are sufficiently risk informed to help prevent impoverishment and propel escapes from poverty that can be sustained over time.

Key findings

Poverty dynamics and intersecting crises in Tanzania

Over one in five (12.5%) of households were living in relative[1] chronic poverty between 2008 and 2019. Nearly double that (22.6%) were impoverished or had escaped poverty only to fall back into it. There are strong subnational variations to these relative poverty dynamics, where, for example, rates of transitory poverty are highest in rural areas, highlighting continued precarity of wellbeing and livelihoods for many households.

[1] We adopt a relative definition given that the TNPS dataset is not used for official poverty estimates, and on account of limitations in ascertaining comparable monetary poverty estimates across survey rounds and when compared to the HBS (see Belghith *et al.* (2018) for a discussion).

Various crises contribute to this context of precarity and vulnerability. Households that experience both drought and economic shocks experienced a higher probability of chronic poverty and impoverishment than those experiencing just drought between 2008 and 2019. Economic shocks from the survey include price and revenue shocks, such as household business failure, loss of salaried employment, falls in sale prices for crops, or rises in the price of food or agricultural inputs. These types of economic shocks have also become especially pronounced in recent years: in 2024, 57% of households reported an increase in the price of food during the 12 months preceding the April/May 2024 survey, suggesting that inflation may be affecting people differentially.

A challenge is that drought and such economic crises frequently resulted in income loss or income going less far due to weakened purchasing power. Moreover, these self-reported consequences of these crises are strongest among those with limited resources to begin with. Indeed, by poverty trajectory, the share of households reporting the loss of both income and assets was most pronounced among households in relative chronic poverty, suggesting particularly severe effects of shocks experienced by the households persistently at the bottom of the welfare distribution.

Livelihood strategies amidst floods and intersecting crises

Livelihood diversification and asset accumulation are important pathways out of poverty during crises. Indeed, the regression results point to the associations of non-farm enterprises (NFEs) and consumer durable asset value with a lower probability of chronic poverty in the presence of drought, and in the presence of drought combined with economic shocks.

At the same time, there are some risks to diversification. Livestock ownership, as a form of diversification within agriculture, is associated with a low probability of chronic poverty but a high probability of transient poverty amidst drought. Nevertheless, its protective factor during situations of drought retains its significance amongst chronic poor households facing both economic shocks and drought.

Amidst intersecting crises, moreover, farming may represent a viable cushion for many households. For example, on the one hand, the household head's engagement in agriculture is associated with a higher probability of chronic poverty when faced with drought. However, amidst economic shocks on top of drought, households where the household head is engaged in agriculture is no longer a significant correlate of chronic poverty. This suggests that though agriculture may be inadequate in providing pathways out of poverty, it could be *relatively* less risky/a good fallback strategy amidst intersecting crises.

Coping responses amidst floods and intersecting crises

Pre-pandemic (between 2008 and 2019), asset sales and reducing consumption because of household shocks were much more common responses to negative shocks among the poorest households compared to other groups, pointing to erosive forms of coping that

could continue to drive not only persistent poverty over the survey period but also its intergenerational persistence. This also suggests that the effect of cash transfers and public works had not effectively kicked in. Over the same period, 10% of households experiencing floods or drought were able to take up more paid work; this figure was double the share of those experiencing climate-related disasters on top of economic crises. These results likely reflect conditions where labour markets are depressed amidst economic crises, with particularly severe effects on the poorest households. It also suggests a role for strengthening public works in response to economic crises, and for strengthening cash transfers and asset recovery grants for the poorest households.

Poor households and those experiencing crises may look to social assistance to support their wellbeing or cushion crisis effects. Yet into the pandemic in 2021, more than two in five households receiving assistance from the government reported that this income source had decreased. Perhaps as a result, loans were increasingly used to meet subsistence needs and health expenses. Together, these results point to the drying up of state support – part of which may be linked to the transition from Phase 1 to Phase 2 of the Productive Social Safety Net (PSSN) programme – and a reliance on largely survival strategies. It is then perhaps unsurprising that a larger share of households that reported experiencing both climate-related and economic crises thought they had become financially worse off during the year preceding the mid-2024 survey, compared to those experiencing singular crises.

Policy implications

Based on the research findings, examples of policy responses that could help strengthen people's ability to cope with drought in tandem with economic crises are as follows:

1. Improving the effectiveness of the National Food Reserve Agency (NFRA) to respond to both drought and food price inflation, for example through targeted subsidies to drought-affected areas for the price of grains coupled with improving the timeliness of NFRA activities and ensuring easy access for poorer households and communities.
2. Strengthen the PSSN's mechanisms for flexibility, for example by: a) ensuring regular and adequate adjustments to transfer amounts to help mitigate inflationary effects, and doing so while minimising delays during periods of heightened inflation; and b) supporting integration with other crisis-response programmes, such as linking with food distribution or relief programmes during drought or inflation-driven food shortages.
3. Support longer-term recovery to intersecting crises. This would require a basket approach and could include elements of: additional transfers, longer periods of regular cash transfers, measures to get children back in school, and additional health and agricultural budgets to cover people adequately and enable uptake of climate-smart practices.

Table of contents

Acknowledgements i
Executive summary ii
List of tables, figures, and boxes vi
Abbreviations vii
1 Introduction 1
2 Poverty amidst climate change, COVID-19, and insecurity in Tanzania: A review of the literature 3
3 Data and methods 5
4 Crises and poverty dynamics 8
4.1 Presence of poverty dynamics amidst crises 8
4.2 Poverty of people and place: Spotlight on livelihoods amidst drought and economic crises 13
4.3 Coping with intersecting crises 16
5 Conclusion and initial policy implications 20
References 22
Annex 26
A.1 By poverty trajectory of household 26
A.2 Multinomial logistic model regression results, outcome=poverty trajectory 27
A.3 Crises and poverty status, spatial and temporal differencing (100km) 31

List of tables, figures, and boxes

Table 1: Datasets and variables analysed 5

Figure 1: Poverty trend in Tanzania using the US$ 2.15 poverty line 1
Figure 2: Relative poverty trajectories, overall and by region, 2008–2019 8
Figure 3: Self-reported data on negative shocks across the survey period pre-pandemic (2008–2019) 9
Figure 4: Drought hazard in Tanzania 9
Figure 5: Self-reported shocks by survey period, 2020–2024 10
Figure 6: Violent fatalities in Tanzania, 2008–2023 11
Figure 7: Poverty dynamics amidst intersecting drought and other crises/shocks, 2008–2019 11
Figure 8: Self-reported consequences of shocks, 2008–2019, by intersecting crises (top) and poverty dynamics (bottom) 12
Figure 9: Relationship between crises (2008–2019) and poverty trajectories, by drought 13
Figure 10: Relationship between livelihoods, assets, and poverty trajectories, by drought or no drought 14
Figure 11: Relationship between livelihoods, assets, and poverty trajectories, by drought or no drought, among households reporting economic shocks 15
Figure 12: Consequences of coping responses to self-reported shocks, 2008–2019, by intersecting crises (top) and poverty dynamics (bottom) 17
Figure 13: Proportion of respondents saying income sources changed between Jan–Sep 2021 and Mar–Dec 2020 (%) 18
Figure 14: Purpose of loan (% of households with a loan) 18
Figure 15: Consequences of coping responses to self-reported shocks between May/Jun 2023 and Apr/May 2024, by intersecting crises 19
Figure 16: Economic sentiments disaggregated by climate and economic crises 19

Box 1: Methods of analysis 6
Box 2: Self-reported shocks between 2020 and 2024 10

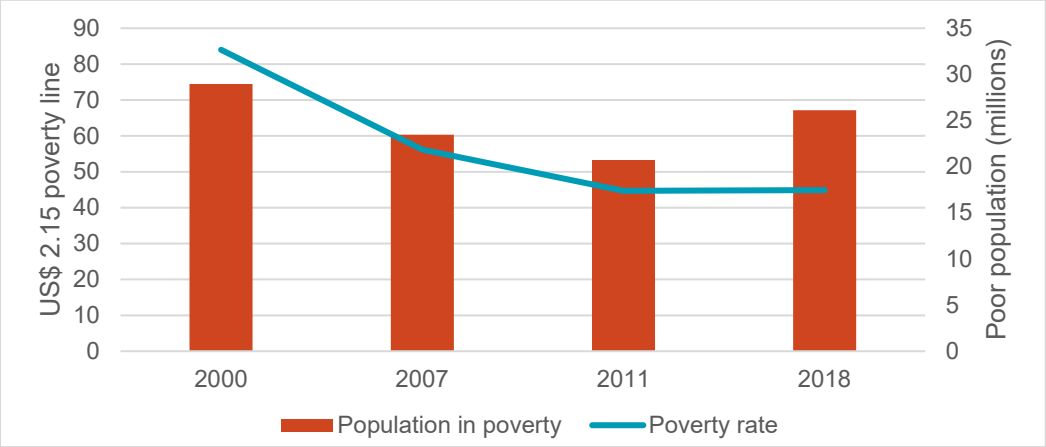
Abbreviations

ACLED	Armed Conflict Location & Event Data
CPAN	Chronic Poverty Advisory Network
CRU TS	Climatic Research Unit Time Series
DEEP	Data & Evidence to End Extreme Poverty
FCDO	Foreign, Commonwealth and Development Office
HFPS	High Frequency Phone Surveys
IDS	Institute of Development Studies
NFEs	Non-farm enterprises
NFRA	National Food Reserve Agency
NGOs	Non-governmental organisations
PET	Potential Evapotranspiration
PSSN	Productive Social Safety Net
SPEI	Standardised Precipitation Evapotranspiration Index
TASAF	Tanzania Social Action Fund
TNPS	Tanzania National Panel Survey

1 Introduction

Tanzania has seen a decreasing poverty rate since the turn of the century, from 84.0% in 2000 to 45.0% by 2018, when relying on the international US$ 2.15 poverty line, and from 35.6% to 26.4% relying on the national poverty line (WDI, 2024). However, the poverty rate using both the international and national poverty lines stalled during the last decade prior to the COVID-19 pandemic. For example, it hovered around 45% between 2011 and 2018. However, rising population trends meant that the absolute number of people in poverty substantially increased since 2011 by 4.9 million people to reach 26.1 million people by 2018 (Figure 1). Moreover, the onset of the pandemic saw at least 3 million people pushed into poverty in Tanzania (World Bank, 2024).

Figure 1: Poverty trend in Tanzania using the US$ 2.15 poverty line



Source: Author's visualisation of World Bank PIP data (2024)

The strong poverty reduction Tanzania displayed during the 2000s and 2010s was attributed to good implementation of her first and second National Strategy for Growth and Reduction Poverty (famously called MKUKUTA I and II) and the first and second Five-Year Development Plans, which included the well-resourced implementation of policies for infrastructure and agriculture and stronger non-governmental organisation (NGO) involvement in lending contributing to competition in finance (da Corta *et al*., 2018). Following this, however, poverty reduction stalled as funding for agriculture remained below the 10% of the national budget target outlined in the Maputo Declaration (Kessy *et al*., 2018). Insecurity stemming from farmer– herder conflicts, negative consequences of government relocation of people for land conservation, and land grabbing from widowed and separated women have also contributed to impoverishment during this period (da Corta *et al*., 2018).

Growth in recent years has been concentrated in sectors with few workers from poor households (e.g. mining, telecommunications, banking, real estate, and tourism), which contributes to the continued slowdown in poverty reduction. When further coupled with the COVID-19 pandemic and resulting global economic slowdown, the increasing frequency of climate-related disasters, continued population growth, and low public spending on goods and services, this situation has worsened.

This paper examines the presence of some of these key macro-level crises (climate-induced shocks and stressors, economic crises including those induced by the global response to COVID-19, and violence) and their relationship with household poverty dynamics in Tanzania. It is a part of a wider set of studies examining intersecting crises and poverty dynamics (Diwakar and Brzezinska, 2023; Diwakar and Brzezinska, 2024). To achieve its aims, this new analysis brings together five large datasets, comprising:

- five waves of the TNPS, from 2008 to 2019;
- the Global Flood Observatory yearly data, from 2008 to 2018;
- the CRU TS yearly data on drought, from 2008 to 2021;
- the ACLED yearly data from 2008 to 2022; and
- the High Frequency Phone Surveys, comprising 11 rounds of data between 2020 and 2024.

The results of this analysis point to a negative relationship between disasters and economic shocks, separately and together, with negative poverty trajectories (impoverishment, transitory poverty escapes, and chronic poverty). Violence is less prevalent and with more limited effects. Livelihood diversification in this context (e.g. through NFE ownership or building a durable asset base) is associated with a lower probability of chronic poverty. At the same time, there are risks to diversification, observed through livestock ownership being associated with a higher probability of transient poverty and no longer being a significant correlate of lower probability of chronic poverty for households facing both economic shocks and drought. Amidst drought and economic crises, moreover, results suggest that farming may represent a viable cushion for many households. This may be particularly salient in a context where government assistance is limited and people are relying on erosive coping responses as more positive coping strategies have been sequentially eroded as a result of repeated crises.

The next section summarises the literature on complex crises and their relationship with poverty in Tanzania. Section 3 then presents the datasets and methods used for the analysis. Section 4 presents descriptive statistics on poverty dynamics and multiple crises, as well as correlates of regression-based analysis of poverty dynamics, including especially the role of disasters and economic crises in these relationships. These crises are a focus given their salience in the data in Tanzania. The section also presents an analysis of how COVID-19 and continued economic crises have affected people's income and wellbeing across the welfare distribution, before assessing household coping strategies for these crises before and during the pandemic. Section 5 concludes with consideration of the policy implications of the study.

2 Poverty amidst climate change, COVID-19, and insecurity in Tanzania: A review of the literature

Climate-related disasters have been common in Tanzania's history, with frequency increasing especially over recent years. Floods have been the most prevalent type of disaster, comprising over two-thirds (67%) of all disasters between 1980 and 2022, while droughts comprised 13% of all disasters (IMF, 2022). Although floods have been more prevalent, drought has affected a much larger share of people. Moreover, the frequency of disasters has also been increasing in the country. The frequency of floods increased by 45% between 2010 and 2020 (IMF, 2022). Droughts are also becoming more protracted (World Bank, 2024).

Climate-related disasters frequently lead to an increase in poverty, while poor households are also more often at the mercy of these disasters. This is reflective of a bidirectional relationship between disasters and poverty. For example, analysis of self-reported drought and flood data from Tanzania between 2008 and 2012 indicates that floods are associated with a 45% increase in the odds of poverty persistence, relative to not experiencing floods. Drought is also associated with higher odds of food insecurity. Common consequences of environment-related shocks included a decrease in assets and revenue, as well as higher odds of food insecurity (Diwakar and Lacroix, 2022). Other analyses in the country have identified decreases in the value of crop production and in self-employment income for households living in flood-affected areas (Tiague, 2023; Letta *et al*., 2018). Finally, an investigation in Dar es Salaam found poorer households to be more exposed to and affected by floods and less likely to recover. However, they are not overrepresented among households that lost the most due to having fewer assets to begin with (Erman *et al*., 2019).

In addition to climate change, economic fluctuations have affected the welfare of Tanzanians in and near poverty. The COVID-19 pandemic, which was both a public health and an economic crisis, epitomises these adverse effects. Tanzania represents a departure from the international policy toolbox used to respond to the pandemic especially under the presidency of John Magufuli who, in April 2020, stopped the country from publishing data on COVID-19 cases and deaths. It was not until he passed away in March 2021 that his successor President Samia Hassan resumed publishing COVID-19 data and was committed to a vaccination programme against the pandemic (Da Corta *et al*., 2022a).

Analysis of the pandemic and poverty in Tanzania identifies that people in rural areas were often affected due to an inability to meet the high costs of practicing preventative measures, declining customers for businesses, and rising cost of inputs amidst international border closures (da Corta *et al*., 2022a; Aikaeli *et al*., 2021). However, the relative shortness of the lockdown that was imposed to control COVID-19, coupled with the small patches of land owned by many peri-urban and rural poor households, helped cushion the impacts of the

pandemic on poverty. Even so, urban informal workers suffered considerably, especially street vendors who saw customers declining and government regulations removing petty traders from streets mid-pandemic (da Corta *et al*., 2022b).

Climate change and government regulations have also contributed to farmer–herder conflicts, which are structural, representing the effects of medium- and long-term policy and societal and environmental changes, which have not yet seen an adequate response. Common narratives identify climate change contributing to environmental pressures that have intensified farmer–herder resource conflicts in the country (Blocher and Kileli, 2020). In addition to this, the marginalisation of pastoral and farmer community interests has also been a key driver of conflict (Walwa, 2019; AfCoP-MfDR, 2016). In response to past farmer–herder conflicts, the government has relocated people from the affected areas to create reserves, which has contributed to impoverishment (da Corta *et al*., 2018). Herders have often been relocated as part of this, and in turn have then grazed and watered their animals in relocated farming areas. Pastoral communities often complain that they are allotted grazing land in areas that are away from water sources and thus an inadequate solution for their livelihoods (Walwa, 2019). In addition, climate change has driven herders south as water and grazing has dried up in the north. This has been going on long term, with signs of increasing frequency in the last decade (Oakland Institute, 2022). The result has been continued and deeper deprivations, which in turn contribute to violence.

3 Data and methods

This section includes information on data, variables, and methods consistent across the set of emerging working papers on poverty dynamics and complex crises. It draws extensively (with minor adaptations) on the work presented in Diwakar and Brzezinska (2023). In terms of data, it brings together four datasets on poverty and crises, as well as secondary literature from a fifth dataset on poverty during the pandemic. The datasets and key independent and outcome variables are presented in Table 1, while the methods used are outlined in Box 1.

Table 1: Datasets and variables analysed

Datasets	Variables
Poverty: The TNPS is a nationally representative survey that includes data on demographics, labour, and welfare. The panel survey was conducted in 2008, 2010, 2012, 2014, and 2019. We rely on a balanced panel of 771 households available across all five survey rounds. **Covid-19:** In addition, to understand wellbeing dynamics during the pandemic, we rely on primary data analysis of the Tanzania High Frequency Phone Surveys (HFPS), especially the third (2021) and 11th (2024) rounds comprising shocks, economic sentiments, and subjective welfare modules.	Chronic poverty in our analysis refers to households under the relative poverty line (i.e. the bottom two quintiles) across waves. Transience refers to the process whereby a household that is non-poor subsequently slips into poverty—hence experiencing relative impoverishment, a transitory escape from poverty, or churning around the poverty line. Resilience refers to households that escape and remain out of relative poverty over the long term (a sustained poverty escape), or remain relatively never poor across survey waves. Source: adapted from Shepherd *et al*. (2014)
Armed conflict: Data from ACLED, containing geolocated conflict events and fatalities. We rely on data on political violence in Tanzania from 2008 to 2019.	Number of fatalities due to riots, armed clashes, violence against civilians, protests, and other political violence between 2008 and 2019. Number of fatalities in the year preceding and during the panel survey.
Floods: Data from the Global Flood Observatory. Estimates of flood are developed using nearly two decades of daily satellite imagery at 250 metre resolution. Estimates analyse over 913 large flood events from 2000 to 2018, estimating 2.23 million km^2 of flooded area and 290 million people directly affected (Tellman *et al*., 2021).	Household living in a union classified as flooded in the Global Flood Observatory between 2008 and 2018. Each grid cell has a binary variable indicating whether the area was flooded, flood duration, and population affected. Flood experience in the year preceding or during the panel survey.
Droughts: Data on global precipitation and potential evapotranspiration from the Version 4 CRU TS for the period 2008–2019. Monthly values of precipitation are derived from weather station observations globally. Potential Evapotranspiration (PET) considers mean temperature, vapour pressure, cloud cover, and average wind field values (Harris *et al*., 2020). The difference between monthly precipitation and PET gives the water balance that is the basis for Standardised	Drought intensity is measured using the SPEI (Vicente-Serrano, Beguería, and López-Moreno 2010).[2] We consider the presence of drought (SPEI <-1.5) over 2008–2019, covering a period just prior to and during the panel. Drought experience using SPEI<-1.5 in year preceding or during the panel survey.

[2] We define the SPEI from 2000–2018, relative to the reference from 1981 to the year for which SPEI is defined. We calculate the SPEI for each 0.5 x 0.5 degrees grid cell (about 55km at the Equator) and assign that value to every household that falls within that grid cell.

Datasets	Variables
Precipitation Evapotranspiration Index (SPEI) calculations.	

As summarised in Diwakar and Brzezinska (2023), where a similar combination of data was used, these datasets have advantages and limitations. A clear advantage is the geolocational data on crises, which is merged together at the union level with the household survey data, thus offering a granular analysis of relationships. Another key advantage is the panel construction of the dataset, which allows for dynamics to be assessed. Even so, there are limitations, including different degrees of precision across datasets, ranging from 250 metre resolution of flooding to 55km radii for the drought data. In addition, underreporting is also common in conflict data (Eck, 2012). Finally, the High Frequency Phone Surveys draw on households with access to phones and attempt to mitigate the bias toward richer households by adjusting weights. These surveys also have varying coverage of issues, where for example modules on Tanzania Social Action Fund (TASAF) were discontinued after the second of 11 survey waves. Our analysis of the phone data is thus in part driven by data availability and is somewhat descriptive, given the absence of consumption modules. We nevertheless can consider wellbeing in the context of intersecting self-reported crises for a more nuanced understanding. Moreover, we use attrition-adjusted weights in all of our analysis, and also adopt different measures of crises and other sensitivity analysis in the Annex to address or otherwise mitigate any related concerns.

Box 1: Methods of analysis

We first examine key correlates of poverty dynamics in Tanzania relying on the TNPS merged with conflict and disaster data. We rely on a multinomial logistic regression given the different poverty trajectories as our outcome. In the model:

$$Pr(Trajectory_{i,t} = 1 \mid \beta, v_{i,t}) = F(\beta_0 + \beta_1 Crises + \beta_2 Activity_{i,t} + \beta_3 Assets + \beta_4 Head_{i,t} + \beta_5 Area_{i,t})$$

where

$Trajectory_i$ is the probability of household i being chronically poor, experiencing poverty transience, or exhibiting resilience, where poverty status is defined in relative terms[3] (i.e. households belonging to the bottom two expenditure quintiles per wave);

$Crises$ is a vector capturing the presence of actual flooding, drought, and fatalities related to political violence, as well as self-reported price, revenue, and health shocks over the survey waves, thus capturing a range of crises as well as other shocks and stressors;

$Activities$ includes the economic activities of the household head (whether they work in agriculture, an NFE, or in wage or salaried employment);

$Assets$ are defined as the log of consumer durables and the ownership of cultivable land;

$Area$ is a vector covering whether the household resides in an urban or rural area, and the state-level unemployment rate; and

H is a vector of household and demographic controls (religion, gender, age and age-squared, education, and household size).

[3] We adopt a relative definition given that the TNPS dataset is not used for official poverty estimates, and on account of limitations in ascertaining comparable monetary poverty estimates across survey rounds and when compared to the Household Budget Survey (see Belghith *et al*., 2018, for a discussion).

In addition to our main model, we also examine interaction of crises with household livelihoods. This is to understand the extent to which disasters, political violence, and economic and health shocks might mediate the relationship between livelihood profiles and poverty dynamics. In our multinomial logistic models, we cluster standard errors at the level of the enumeration area. To further assess sensitivity alongside our multiple measures of crises, we also adopt different poverty lines and use a linear panel model with fixed effects estimators and exploiting spatial differences to examine correlates of changing poverty status. In all cases, we calculate the marginal effects of our variables.

Alongside the regression analysis of pre-pandemic welfare, we also examine changes over time during the pandemic, drawing on new analysis of the High Frequency Phone Surveys undertaken between 2020 and 2024. The purpose of this is to understand how COVID-19 and its aftermath may have affected some of the key activities that correlate with poverty, and thus acted as an additional crisis hypothesised to in turn affect wellbeing and poverty.

Finally, we explore how households have been coping prior to and during the pandemic, and amidst different shocks including conflict and disasters, to assess implications for their future wellbeing. Across models and methods, it is worth stressing that our analysis is not causal but descriptive and/or indicative of correlations between key variables. Even so, they remain important in providing insights into the presence of poverty dynamics and wellbeing amidst complex crises.

Source: Adapted from Diwakar and Brzezinska (2023)

4 Crises and poverty dynamics

4.1 Presence of poverty dynamics amidst crises

Key messages

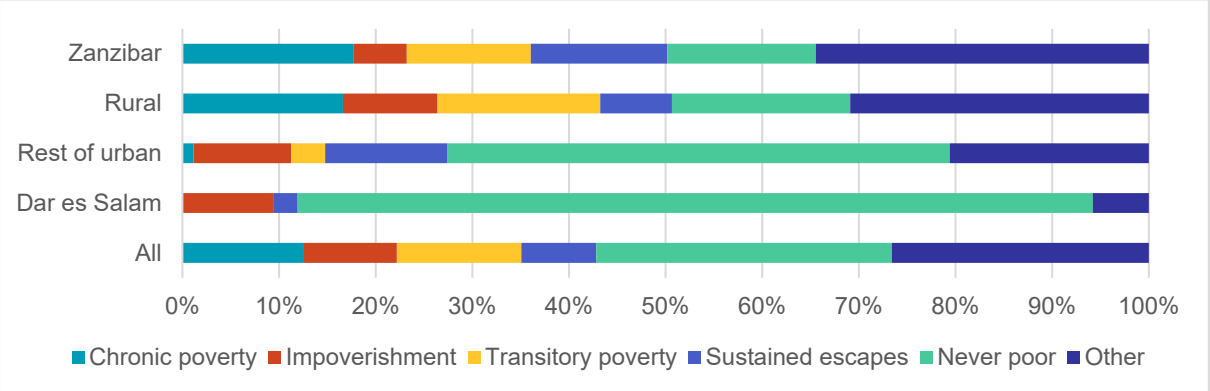
- Three in five households over the survey period experienced negative poverty trajectories (chronic poverty, impoverishment, or escaping but not sustaining an escape from poverty, e.g. due to transience or churning around the poverty line).
- Households that experience both drought and economic shocks experience a higher probability of chronic poverty and impoverishment than those who experience just drought.
- Drought and economic crises frequently resulted in income loss. By poverty trajectory, the share of households reporting the loss of both income and assets was most pronounced amongst households in relative chronic poverty, suggesting particularly severe effects of shocks experienced by households persistently at the bottom of the distribution.

4.1.1 High vulnerability with wide geographical differences

Three in five households over the survey period experienced negative poverty trajectories (chronic poverty, impoverishment, or escaping but not sustaining an escape from poverty, e.g. due to transience or churning around the poverty line). This includes 12.5% of households that were in relative chronic poverty between 2008 and 2019 (see Table 1 and Box 1 for definitions) and 22.6% that were impoverished or had escaped poverty only to fall back in by the end of the survey period. Across the panel, 69% of households were in poverty in some period, representing considerable vulnerability. Just 7.7% of households sustained escapes from poverty, all based on relative poverty status.

There are strong subnational variations to these relative poverty dynamics. Rates of relative chronic poverty are highest in Zanzibar, although this is also the site which holds the highest rates of households sustaining poverty escapes. This could reflect widespread inequalities in the region, where for example rural poverty (33.7%) was more than double that of urban poverty (15.5%) in 2019 (World Bank, 2022). **Rates of transitory poverty are highest in rural parts of mainland Tanzania**, highlighting continued precarity of wellbeing and livelihoods for many households.

Figure 2: Relative poverty trajectories, overall and by region, 2008–2019

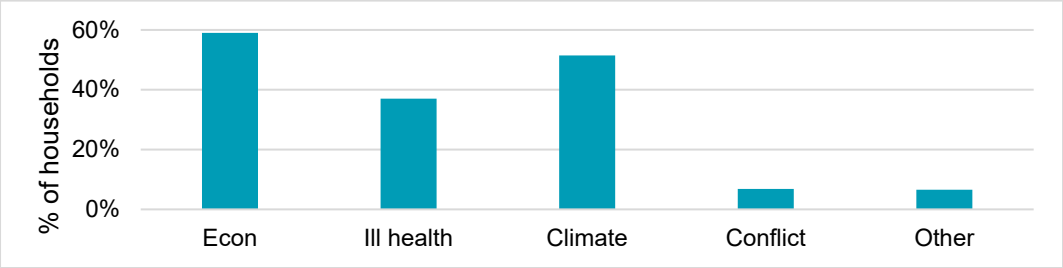


Source: Analysis of TNPS 2008/09–2019/20

4.1.2 Frequent crises over space and time

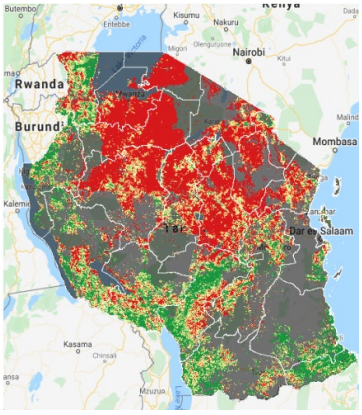
Nearly three in five households (59%) across the panel period identified economic shocks as negatively affecting them. These included revenue shocks such as household non-farm business failure and price shocks such as a large fall in sale prices for crops or a rise in the price of agricultural inputs and food, which continued into and beyond the COVID-19 pandemic (Box 2). This was followed by climate-related disasters (see Figure 4), though we are unable to disaggregate in the self-reported household survey data by whether this constituted mainly drought or floods. However, actual meteorological data suggest that floods have been the most prevalent disaster over the survey period, although droughts have affected more Tanzanians (IMF, 2022). Ill health was another common shock, affecting nearly two in five households. Conflict-related shocks were limited, affecting 7% of households across the survey period.

Figure 3: Self-reported data on negative shocks across the survey period pre-pandemic (2008–2019)



Source: Analysis of TNPS 2008/09–2019/20

Figure 4: Drought hazard in Tanzania



Source: CIWA (2020).

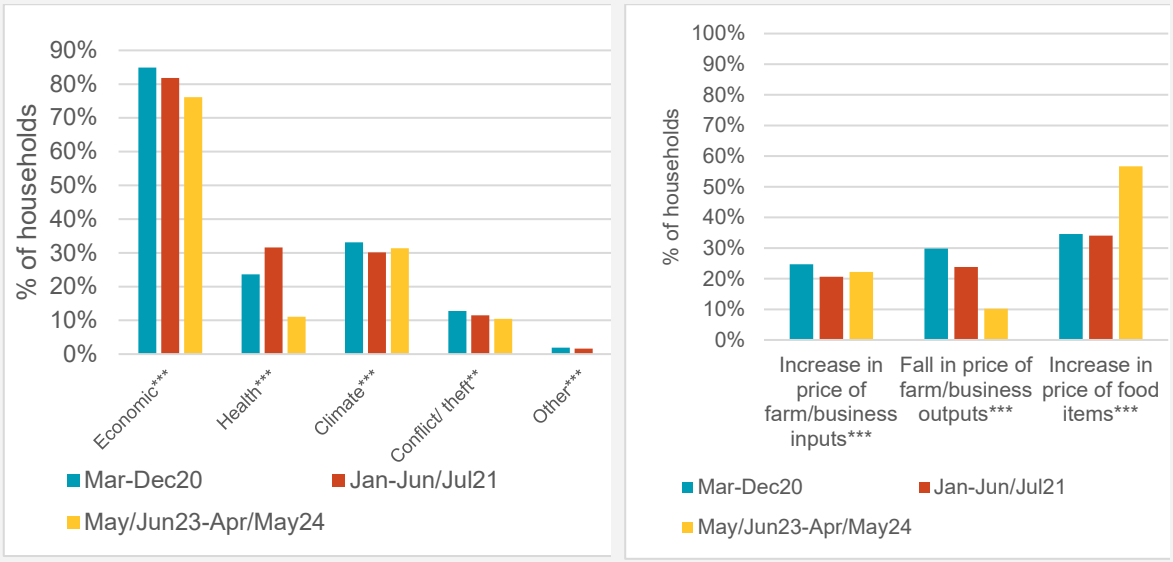
Note: Hazard is defined through meteorological and agricultural drought (Integrated Drought Severity Index).

Box 2: Self-reported shocks between 2020 and 2024

The COVID-19 pandemic was a global health and economic crisis. Tanzania's unique policy response meant that curbing transmission rates was not a governmental priority. It is likely for this reason that we observe a spike in health shocks reported by households in 2020 into 2021. Indeed, **health shocks increased in prevalence between 2020 and the first half of 2021, likely capturing the transmission of the pandemic**, before decreasing substantially by 2024.

At the same time, the major household shocks recorded in Tanzania during and since 2020 have been economic shocks (Figure 5, left), as was the case with the insights observed from pre-pandemic data (Figure 3). This is unsurprising given the increased inflation and reduced revenues observed during the period. When disaggregating by type of economic shock (Figure 5, right), **price shocks were especially common during and since the pandemic, especially an increase in the price of food affecting 57% of households by 2024**. This represents a large increase from the 34–36% of households reporting an increase in food prices as a shock in 2020 or 2021 dominant in urban areas, pointing to the widening salience of economic crises affecting especially urban households. At the same time, a declining share of households reported a fall in the price of their business or farm outputs between 2020 and 2024.

Figure 5: Self-reported shocks by survey period, 2020–2024



Source: Author's analysis of HFPS balanced panel.

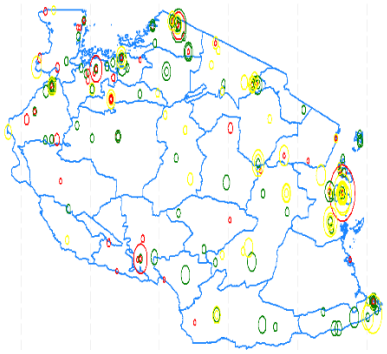
Note: Difference in means based on adjusted Wald test where *** *p<0.01*, ** *p<0.05*, and * *p<0.1*.

As noted above, climate-related disasters were common in the dataset. However, these had both subnational and temporal variations. For example, 21% of rural households live within a 20km radius of low precipitation reflective of severe drought conditions, compared to 73–77% in Zanzibar and Dar es Salam. The most intense drought over the survey period occurred in 2009, affecting almost one in three households (31%). However, when expanding the threshold to moderate drought, nearly four in five households (77%) lived within a 20km radius of low precipitation reflective of moderate drought conditions in 2012. Moreover, analysis of CRU TS data shows that **eight out of the 12 years between 2008 and 2019 saw households residing in drought-affected areas**.

Violent conflict measured through the presence of fatalities was present in certain areas of the country, albeit on a limited scale. **The political context over the survey period was marked by a decline in peaceful protests when Magufuli took office but a rise in politically**

motivated riots and civilian targeting by unidentified armed groups, likely on account of his suppression of public demonstrations 'limiting the ability for political opposition to express itself non-violently' (ACLED, 2018). At the same time, a key aspect of insecurity affecting poverty dynamics is likely to be farmer–herder conflicts, which suffers from poor reporting and has not yet exploded into inter-ethnic war, but could if the flames are fanned by politics (Walwa, 2019; Kratli and Toulmin, 2021).

Figure 6: Violent fatalities in Tanzania, 2008–2023

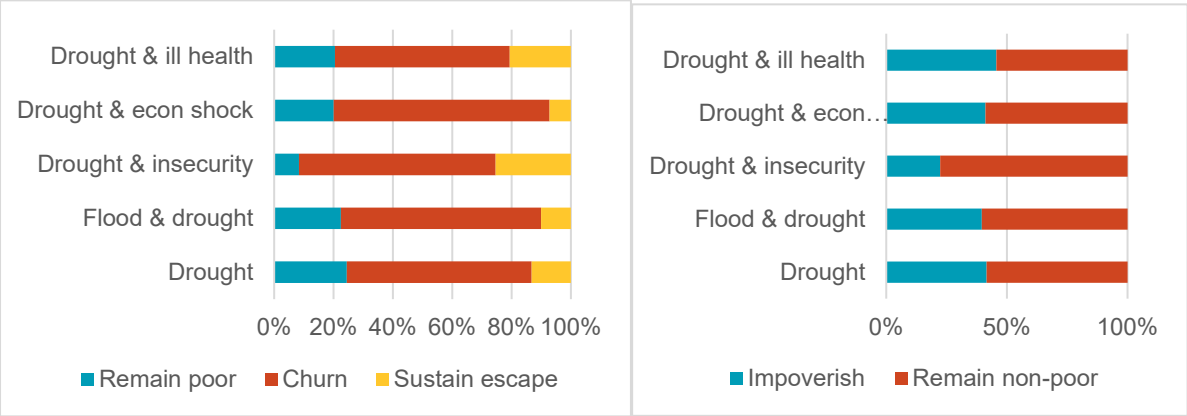


Notes: Red=riots, green=violence against civilians, yellow= other (e.g. battles/ explosions/ protests/ strategic developments).

4.1.3 Impoverishing effects of crises accentuated at their intersections

Many households in the sample lived within a 20km radius of low precipitation reflective of drought conditions, at some point over the survey period. This was true regardless of household poverty status. However, **households that began the period in poverty and experienced both drought and economic shocks were least likely to sustain escapes from poverty and most likely to have churned around the poverty line**, compared to households that experienced drought with other crises not related to climate change. Instead, starting off the period non-poor appears to possibly endow households with a degree of resilience, as there was no difference in rates of impoverishment between the share of households that experienced drought and those that experienced both drought and economic shocks.

Figure 7: Poverty dynamics amidst intersecting drought and other crises/shocks, 2008–2019



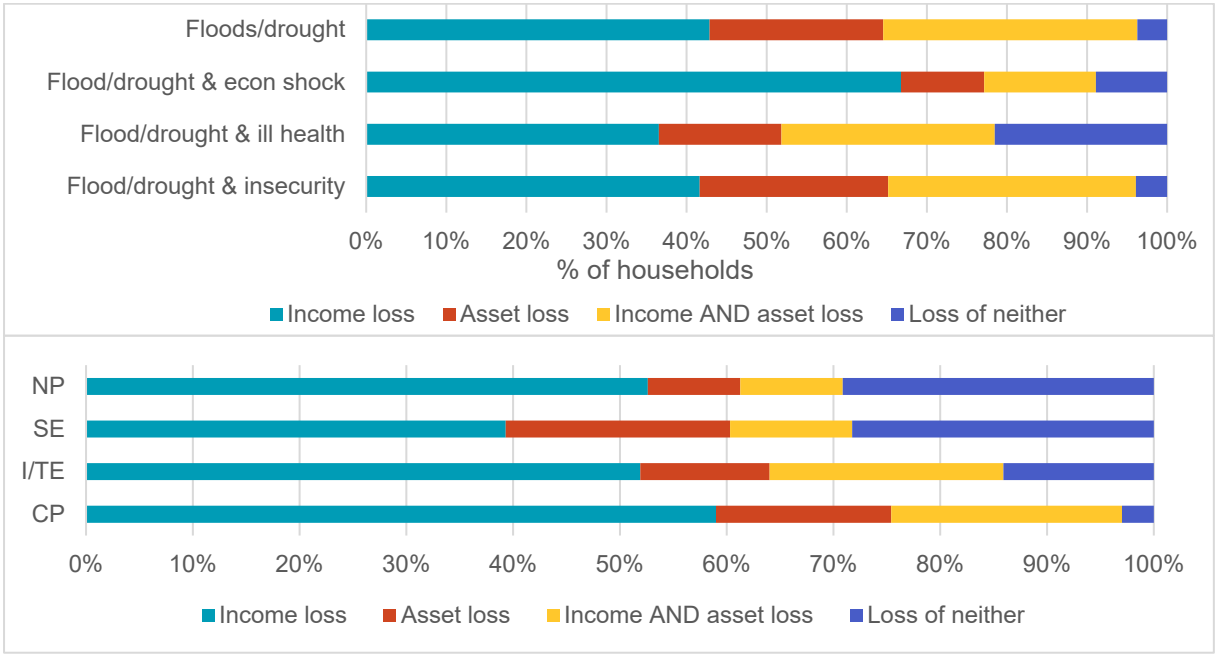
Source: Analysis of TNPS 2008/09–2019/20, and ACLED, CRU TS, and Global Flood Observatory data.

The impacts of shocks were far-reaching. **Households self-reporting climate-related disasters alongside economic shocks were more likely to report income loss as the main**

consequence of the shock. It could be for this reason that we see a high degree of churning around the poverty line among these households. A large share of households that self-reported drought or floods, and those that had additionally experienced insecurity, reported losing both income and assets because of the crisis.

The share of households reporting the loss of both income and assets was most pronounced among households in relative chronic poverty, suggesting that the poorest households experienced the most severe effects of shocks and crises. Instead, sustained escapers and never-poor households were more likely to not have to lose either income or assets because of crises. Even so, there is some indication that sustained escapers were able to draw on pre-existing assets to guard against crises. Indeed, 21% of sustained escapers experienced asset loss because of self-reported shocks.

Figure 8: Self-reported consequences of shocks, 2008–2019, by intersecting crises (top) and poverty dynamics (bottom)

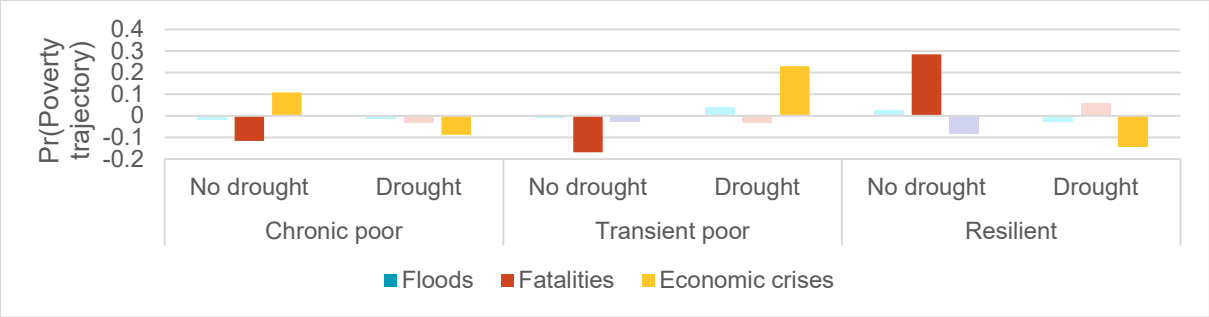


Source: Analysis of TNPS 2008/09–2019/20

Note: When assessing self-reported consequences we rely on a combined variable capturing self-reported flood/drought given that the TNPS shocks module does not allow us to disaggregate between these two climate-related disasters.

Finally, we also expand this to a multinomial regression framework to explore whether these relationships persist after controlling for other factors that affect poverty trajectories (Figure 9). **Households that experience both drought and economic shocks at some point over the 2008 to 2019 survey period experience a higher probability of chronic poverty and impoverishment than those who experience just drought**. Interestingly, conflict is associated with a lower probability of chronic and transient poverty and higher probability of resilience that is significant in the absence of drought, which could reflect the preponderance of fatalities in coastal areas. Overall, then, especially in relation to drought and economic crises, the results reinforce the presence of intersecting crises and their relationship with downward mobility.

Figure 9: Relationship between crises (2008–2019) and poverty trajectories, by drought



Source: Analysis of TNPS (2008–2019), ACLED (2008–2019), Global Flood Observatory (2008–2018), and CRU TS (2008–2019).

Note: Average marginal effects are presented. The figure refers to three models, examining the intersection of drought with 1) floods, 2) fatalities, and 3) economic shocks. Highlighted bars refer to results that are statistically significant at conventional levels (p<0.1). All controls are the same as in the main equation presented in Box 1.

4.2 Poverty of people and place: Spotlight on livelihoods amidst drought and economic crises

Key messages

- The regression results point to the associations of NFEs and consumer durable asset value with a lower probability of chronic poverty in the presence of drought, and in the presence of drought combined with economic shocks, suggesting that livelihood diversification represents an important pathway out of poverty during crises.
- Livestock ownership is associated with a lower probability of chronic poverty but a higher probability of transient poverty amidst drought. Moreover, its protective factor for the chronic poor is no longer statistically significant for households facing economic shocks and drought.
- Amidst drought, the household head's engagement in agriculture is associated with a higher probability of chronic poverty. However, amidst economic shocks on top of drought, households where the head is engaged in agriculture is no longer a significant correlate of chronic poverty. This suggests that, although agriculture may be inadequate in providing pathways out of poverty, it could be a relatively less risky strategy amidst intersecting crises.

We next consider how livelihoods might moderate the relationships between drought, economic crises, and negative poverty trajectories. We focus on drought as a point of departure given other evidence pointing to the large number of drought-affected people in Tanzania (IMF, 2022) relative to other climate-related disasters, as well as its salience in our analysis above. We also focus on economic crises given that this was a key self-reported shock, compared to the relative lower prevalence of violence in the self-reported data and in the actual data on conflict fatalities.

4.2.1 Livelihood and asset-based strategies amidst drought

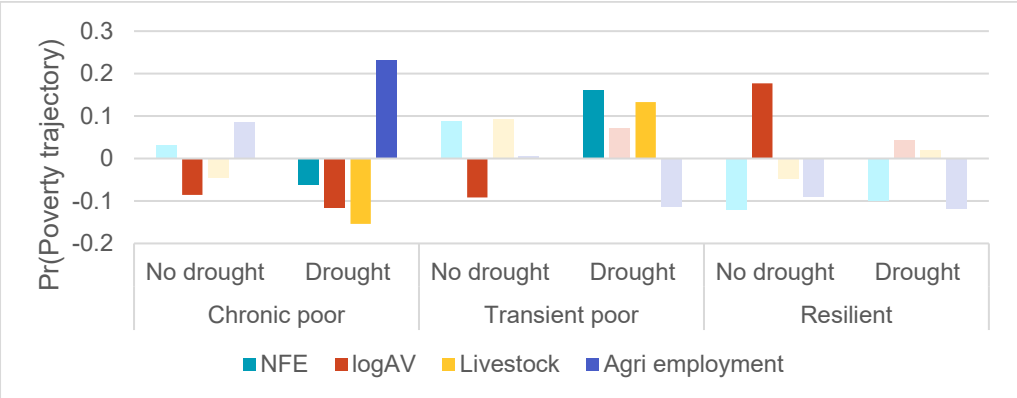
Livelihood diversification represents an important pathway out of poverty, including amidst drought. The regression results point to the associations of NFEs (predominantly retail trade), livestock, and consumer durable asset value with a lower probability of chronic

poverty. A higher asset value is also associated with a higher probability of household resilience (see Annex Table A.2, column 2). Promisingly, these relationships also hold in the presence of drought (Figure 10).

The specific relationship between livestock ownership and drought is varied, however. It is associated with a lower probability of chronic poverty as noted, but also a higher probability of transient poverty. This suggests that **livestock ownership is an effective livelihood strategy among the poorest, but is inadequate in mitigating poverty descents**. Goats and cows were the most common types of livestock. Nearly one in three (32%) chronically poor households in the latest survey wave reared goats, while 14% also reared cows. Instead, among sustained escapers, though a comparable share reared cows (12%) there was a clear switch away from rearing smaller ruminants like goats (9%) by the time of the latest survey wave. Moreover, sustained escapers and never-poor households saw their engagement in livestock rearing decline substantially (e.g. from 44% in 2012/13 to 18% in 2019/20 among sustained escapers, and from 28% to 13% over the same period among never-poor households). Instead, a consistently higher share of chronically and transient poor households raised livestock into 2019/20 (59% of chronically poor households and 36% of transient poor households). This may reflect limited livelihood opportunities among the predominantly rural chronic poor, but also its use in potentially helping stave off deeper poverty descents amongst the transient poor.

Besides rearing livestock, farming remains a mainstay of the rural poor. It is perhaps for this reason that the household head's employment in agriculture is associated with a higher probability of transient poverty and lower probability of resilience. The effect size of household headship in agriculture is larger for households residing in a drought-affected area over the survey period. In particular, household heads engaged in agriculture exhibit an 18 percentage point lower probability of resilience relative to not engaging in agriculture (see Annex Table A.2). Moreover, **amidst drought, the head's engagement in agriculture is associated with a 23 percentage point higher probability of chronic poverty. Together with the results above, these findings point to the inadequacy of agriculture and promise of diversification in enabling pathways out of poverty amidst drought**.

Figure 10: Relationship between livelihoods, assets, and poverty trajectories, by drought or no drought



Source: Analysis of TNPS (2008–2019), ACLED (2008–2019), Global Flood Observatory (2008–2018), and CRU TS (2008–2019).

Note: Average marginal effects are presented. The figure refers to four models, examining the intersection of drought with 1) NFEs, 2) log of the number of consumer durable assets, 3) presence of livestock, and 4) head's engagement in agriculture. The first three models rely on relative poverty lines, while the fourth relies on 1.5x the relative poverty line to achieve convergence. Highlighted bars refer to results that are statistically significant at conventional levels (p<0.1). All controls are the same as in the equation in Box 1.

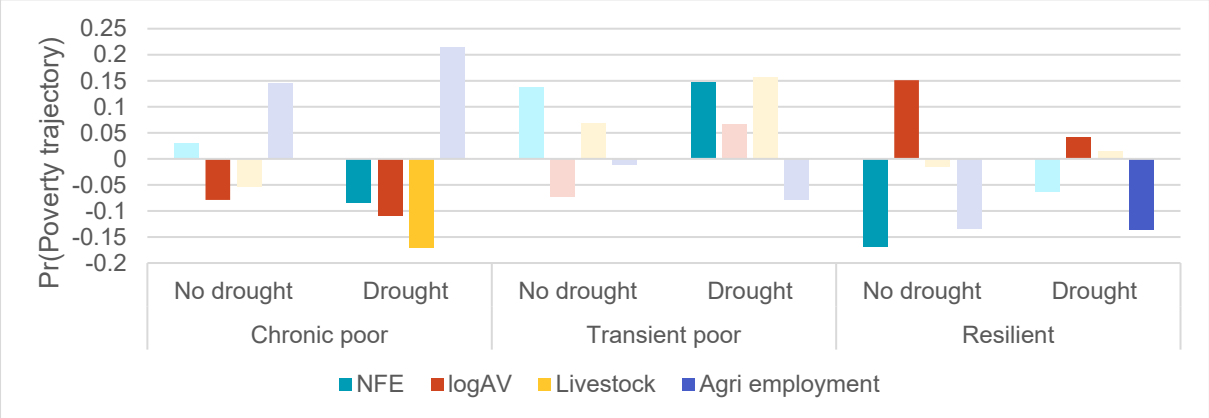
4.2.2 Livelihood strategies amidst drought and economic crises

We also consider whether these relationships persist amidst intersecting crises, focusing on the intersection of drought and economic shocks given its salience in the country over the survey period and its self-reported impacts on households in and near poverty. The relationships remain for NFEs and asset value. This points to **the continued effectiveness of NFEs among the poorest households even amidst the added challenge of price and revenue shocks**.

Moreover, livestock is no longer a significant correlate of a higher probability of transient poverty for households experiencing drought *and* reporting economic shocks. This suggests that **while livestock rearing may be an important means of smoothing consumption amidst drought, again the added challenge of revenue or price shocks that may have stronger effects on other sectors mean that livestock may be an important strategy in safeguarding household wellbeing at the bottom of the distribution**. This again could reflect households attempting to rely on livestock to help smooth consumption amidst intersecting crises.

Interestingly, amidst economic shocks, households where the head is engaged in agriculture and residing in drought-affected areas is no longer a significant correlate of chronic poverty. However, it is now associated with a lower probability of resilience, reflecting depressing effects in the upper part of the distribution. This suggests that, **although agriculture may be inadequate in providing pathways out of poverty, it could be relatively less risky than alternatives** and thus possibly a viable strategy for poorer households experiencing intersecting crises on account of its self-provisioning element.

Figure 11: Relationship between livelihoods, assets, and poverty trajectories, by drought or no drought, among households reporting economic shocks



Source: Analysis of TNPS (2008–2019), ACLED (2008–2019), Global Flood Observatory (2008–2018), and CRU TS (2008–2019).

Note: Average marginal effects are presented. The figure refers to four models, examining the intersection of drought with 1) NFEs, 2) log of the number of consumer durable assets, 3) presence of livestock, and 4) head's engagement in agriculture. The first three models rely on relative poverty lines, while the fourth relies on 1.5x the relative poverty line to achieve convergence. Highlighted bars refer to results that are statistically significant at conventional levels ($p<0.1$). All controls are the same as in the equation in Box 1.

4.3 Coping with intersecting crises

Key messages

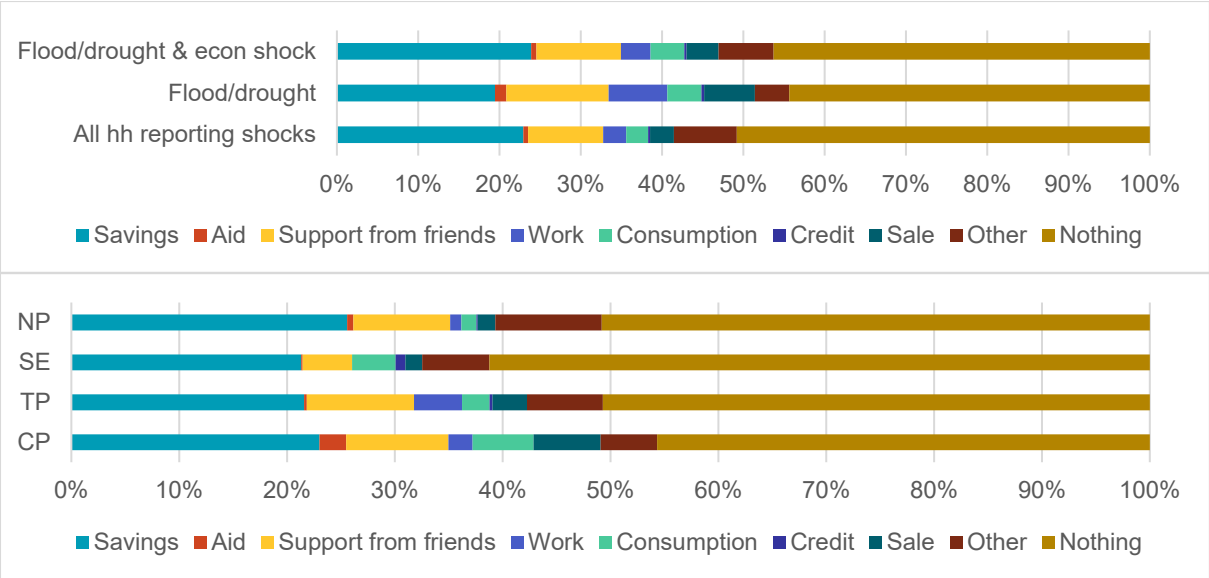
- Pre-pandemic, 10% of households experiencing only floods or drought were able to take up more work in response to the disaster; this share was double that of households experiencing climate-related disasters on top of economic crises. This likely reflects conditions where labour markets are even further depressed amidst economic crises on top of drought.
- Asset sales and reducing consumption as a result of household shocks were much more common among the poorest households compared to other groups, pointing to erosive forms of coping.
- The role of savings seems to have considerably diminished as a coping response into the pandemic. Moreover, more than two in five households receiving assistance from the government reported that this income source had decreased in 2021. Perhaps as a result, loans were increasingly used to meet subsistence needs and health expenses. Together, these results point to the drying up of state support and a reliance on largely survival strategies.
- Unsurprisingly, a larger share of households that reported both climate-related and economic crises felt they had become financially worse off between 2023 and 2024.

4.3.1 Coping responses pre-pandemic

Coping responses in the last three pre-pandemic survey waves varied depending on the presence of climate-relate disasters and economic crises (Figure 12, top). Around 26% of households experiencing floods or droughts over the survey period relied on savings, while another 19% relied on support from family, friends, the government, or NGOs in response to climate-related disasters. **Around 10% of households experiencing floods or drought were able to take up more work in response to the disaster; this share was double that of households experiencing these climate-related disasters on top of economic crises. This likely reflects conditions wherein labour markets are depressed amidst economic crises**, thus limiting livelihood opportunities and their potential to offer pathways out of poverty.

By poverty trajectory (Figure 12, bottom), unsurprisingly, never-poor households were more able to rely on savings to mitigate the effects of shocks. Chronically poor households were relatively more able to rely on NGO or government aid compared to other groups, although this still represented a coping response among just 3% of chronically poor households experiencing shocks. This is very low given the effort that is going into social assistance in Tanzania, suggesting that reliance on this form of support is less effective during times of crises. Instead, **asset sales and reducing consumption were much more common among the poorest households compared to other groups, pointing to erosive forms of coping** that could continue to drive not only persistent poverty over the survey period but also its intergenerational persistence.

Figure 12: Consequences of coping responses to self-reported shocks, 2008–2019, by intersecting crises (top) and poverty dynamics (bottom)



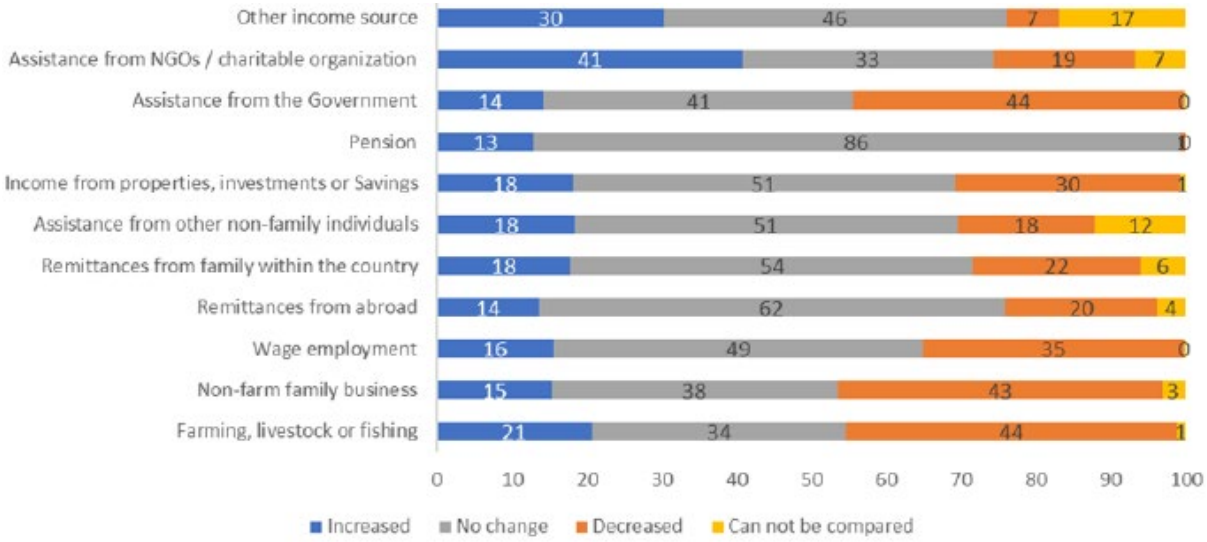
Source: Author's analysis of NPS 2008-19

Note: The top figure relies on a combined variable capturing self-reported flood/drought given that the TNPS shocks module does not allow us to disaggregate between these two climate-related disasters.

4.3.2 Coping during and beyond COVID-19

Poor households and those experiencing crises may look to social assistance to support their wellbeing or cushion crisis effects. However, into the pandemic in 2021, the governmental response to the pandemic was notably limited, likely reflecting the government's reluctance to acknowledge COVID-19 under former President John Magufuli. Social assistance expansion, observed as a nearly universal policy response to mitigate the negative socioeconomic impacts of the pandemic on people in and near poverty, was largely absent in Tanzania. Its expansion was instead restricted to waiving PSSN conditionalities in August and October 2020 and vertically expanding the social pension. Moreover, by the subsequent year **in 2021, although two in five households receiving assistance from the government reported that this income source had increased, more than half of households receiving this assistance saw no change or a decrease in its receipt (Figure 13), pointing to the inadequacy of state support during times of heightened need.**

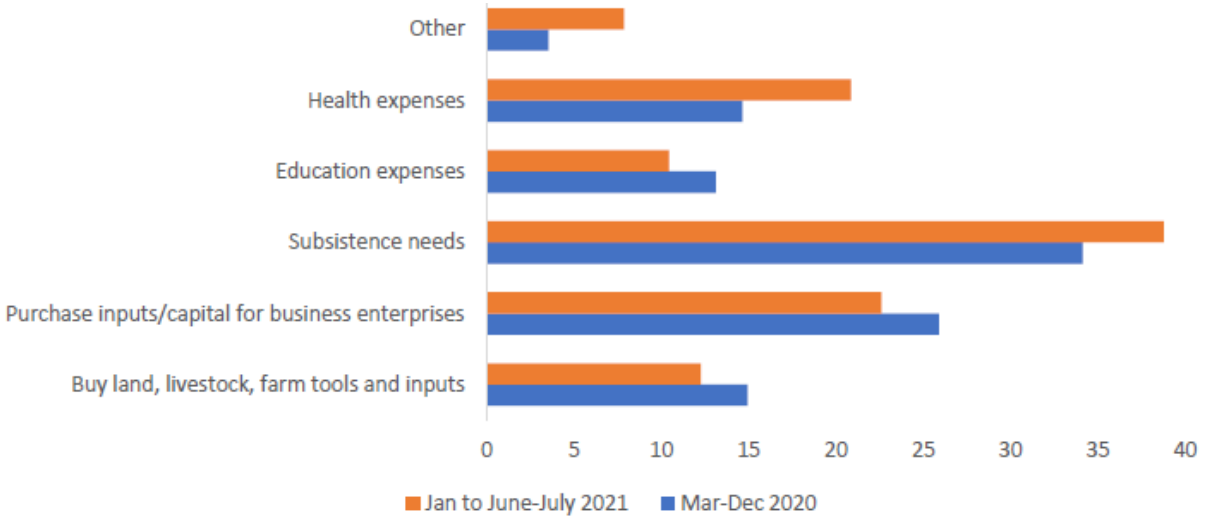
Figure 13: Proportion of respondents saying income sources changed between Mar–Dec 2020 and Jan–Sep 2021 (%)



Source: World Bank (2022)

Over a similar period comparing 2020 to 2021, the source of loans that households obtained shifted from banks (24% between Mar–Dec 2020 down to 13% between Jan–Jun/Jul 2021) to family and friends (46% up to 57% over the same period) (Figure 14). This may reflect a context where asset sales were prevalent especially among poorer households and so collateral may not have been readily available. Moreover, loans were increasingly used to meet subsistence needs and health expenses, whereas loans for business enterprises or for agriculture reduced during these months. This could understandably be linked to the context of limited and declining social assistance to meet household needs discussed above. Together, these **results point to households resorting to largely survival strategies during the pandemic, which further limited pathways out of poverty.**

Figure 14: Purpose of loan (% of households with a loan)

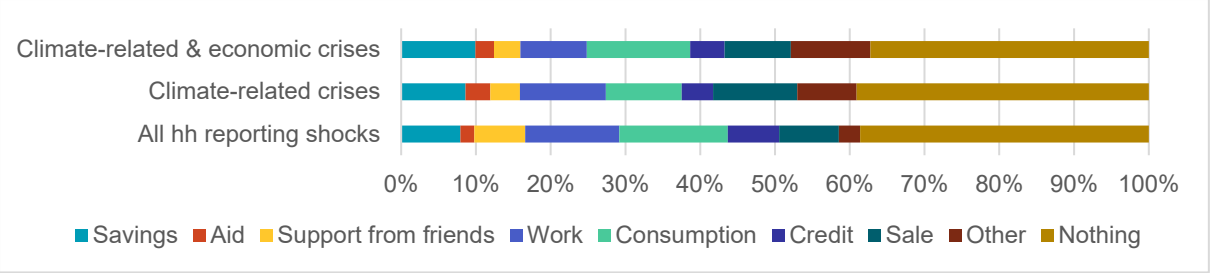


Source: World Bank (2022)

Finally, considering coping responses more recently in the 12 months leading up to April/May 2024, the role of savings seems to have also considerably diminished as a coping response (Figure 15). This may reflect a context where **savings have been sequentially**

eroded amidst multiple, intersecting crises. Moreover, support from friends as a coping mechanism is less prevalent among households facing both climate and economic crises compared to households experiencing crises more broadly. This could reflect the continued effects of these covariate shocks and macro-level crises on entire communities, which may mean that the ability to rely on communities for support is instead drying up.

Figure 15: Consequences of coping responses to self-reported shocks between May/Jun 2023 and Apr/May 2024, by intersecting crises

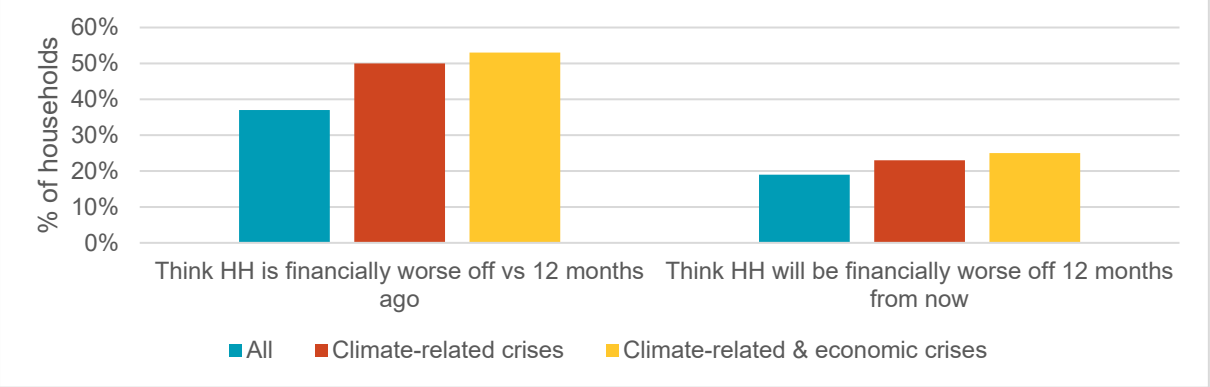


Source: Author's analysis of HFPS balanced panel

Note: This figure relies on a combined variable capturing self-reported flood/drought and other climate-related crises given small sample sizes.

It is perhaps as a result of this erosion of coping mechanisms that we observe limited recovery for many households, especially for those self-reporting intersecting crises. Indeed, **a larger share of households that reported experiencing both climate-related and economic crises thought that they had become financially worse off during the year preceding the survey**, compared to those that experienced only climate-related crises (Figure 16). Moreover, they perceived their prospects for the future as more subdued, as these households were also more likely to believe their household would be financially worse off 12 months into the future (mid-2025).

Figure 16: Economic sentiments disaggregated by climate and economic crises



Source: Author's analysis of HFPS balanced panel

5 Conclusion and initial policy implications

The current study has highlighted a negative relationship between disasters, economic shocks, and political violence with negative poverty trajectories, with challenges amplified especially at the intersection of climate-related disasters and economic crises. At the same time, although violent conflict was not prevalent in the data, farmer–herder conflicts have a long history and have not yet seen an adequate response. Solutions need to be found now before these issues become even more damaging, and further research is needed in this vein.

In contexts of economic crises and drought, livelihood diversification represents an important pathway out of poverty at the bottom of the distribution, especially where households own a (predominantly retail-based) NFE and are able to build up their asset base. Even so, certain forms of diversification can pose risks, where for example livestock ownership is associated with a higher probability of transient poverty and is no longer a significant correlate of lower probability of chronic poverty for households facing economic shocks and drought. In contexts of intersecting crises, moreover, farming may represent a viable cushion for households, especially where assets and savings have been eroded and government assistance appears to be on the decline.

Since drought is so universal, and floods also have significant effects on those affected, a policy implication is to enable farmers to develop climate-smart agriculture. This is not only about information provision but also public investment in agriculture research and extension, as well as public and private investment in irrigation, mechanisation, and livestock development (Kurgat *et al*., 2020; Jones *et al*., 2023). A combination of these practices is likely needed (Bongole *et al*., 2022). Already, the government is promoting greenhouses with drip irrigation in urban/peri-urban agriculture, which may be better suited to middle-class farmers.

Policy responses to the overlap of drought with economic crises are also needed. Another attempt to address this intersection of crises at least implicitly is through the NFRA, which holds grain reserves partly to stabilise the supply of food during times of drought and releases these supplies at subsidised prices to help curb food price inflation. However, evidence of the impact of the NFRA suggests that it only accounts for a small portion of maize purchases, many farmers end up being unpaid for produce for months post-harvest, selling points are far from villages, and smaller quantities of grains provided to the NFRA by smallholder farmers are indirectly discouraged through delays in their assessment (Katera and Mmari, 2018; Doyle, 2015). Accordingly, improving the effectiveness of the NFRA to respond to both drought and food price inflation would require a mix of targeted subsidy for the price of grains coupled with improving the timeliness of NFRA activities and ensuring easy access for poorer households and communities. This may also require a larger fund to purchase, store, and then dispose of grain, so that the NFRA can have more than a marginal effect on prices during times of agricultural disruptions.

Beyond this, Tanzania's landmark PSSN can also be strengthened to improve its ability to respond to intersecting crises. The programme provides cash transfers and is also designed to scale up in response to large shocks, which can help expand coverage to reach vulnerable populations not otherwise within its remit. Evidence from its first phase between 2016 and 2020 pointed to a reduction of income poverty, lower food insecurity, and increased productive investments by households (Rosas *et al*., 2019). However, data from the COVID-19 period indicate that nearly half of households (44%) that received assistance in 2020 subsequently experienced a decrease in the amount of assistance received by the following year. Part of this may be linked to negotiations between the government and the World Bank during the PSSN's transition between Phase 1 and Phase 2 (Zuilkowski and Palmero, 2021).

Improving the PSSN's ability to scale up even further during intersecting crises of drought and food price inflation is necessary. As part of this, ensuring regular and adequate adjustments to transfer amounts to help mitigate inflationary effects will be important. Although PSSN II does include annual reviews of the daily transfer rate as part of its roll-out plan (World Bank, 2019), there is scope to further improve the flexibility of this to ensure rapid adjustments without delay during periods of heightened inflation. Reducing payment delays is also an important component to ensuring timely assistance, including during crises (Zuilkowski and Palermo, 2021). Already, TASAF's focus on digitisation and efficiency enhancements in the PSSN can offer an important backdrop to support flexible inflation adjustments. Integration with other programmes aimed at responding to crises can also help its potential to strengthen risk management, for example linking with food distribution or relief programmes during drought- or inflation-driven food shortages.

In all of this, a central policy implication of the research results is that recovery programming should be a focus for the next two years for multiple institutions: the PSSN, banks and other lending organisations, NGOs, the NFRA, and possibly also local authorities if the central government could channel additional resources to them. Longer-term recovery from intersecting crises would require a basket approach that could include elements of additional transfers, longer periods of regular cash transfers, measures to get children back in school, and additional health and agricultural budgets to cover people adequately and enable the uptake of climate-smart practices. This would require building recovery components into general programmes going forward. A more risk-informed approach to pro-poor policymaking that acknowledges the contexts of uncertainty and macro-level crises in which people in and near poverty reside can help improve the effectiveness of anti-poverty programming.

References

ACLED (2018) 'Magufuli's no Mwalimu: The New Nationalism and Repression in Tanzania'. ACLED. https://acleddata.com/2018/12/07/magufulis-no-mwalimu-the-new-nationalism-and-repression-in-tanzania/

AfCoP-MfDR (2016) 'Managing Farmer–Herder Conflicts in Tanzania'. Africa for Results Initiative. https://elibrary.acbfpact.org/acbf/collect/acbf/index/assoc/HASH01ad/ce036c44/23b754d4/6942.dir/AfCoPCaseStudy075.pdf

Aikaeli, J., Garces-Hrzainqui, D., and Mdadila, K. (2021) 'Understanding poverty dynamics and vulnerability in Tanzania: 2012–2018'. *Review of Development Economics* 25(4), 1869–1894. https://onlinelibrary.wiley.com/doi/full/10.1111/rode.12829

Belghith, N., Lopera, M., Ndip, A., and Karamba, W. (2018) 'Analysis of the mismatch between Tanzania Household Budget Survey And National Panel Survey data in poverty & inequality levels and trends'. World Bank Group. https://documents1.worldbank.org/curated/en/463841524640972668/pdf/125678-NWP-PUBLIC-POV145-PRWP8361.pdf

Blocher, J. and Kileli, E. (2020) 'In Relatively Peaceful Tanzania, Climate Change and Migration Can Spur Conflict'. Migration Policy Institute. www.migrationpolicy.org/article/tanzania-climate-change-migration-conflict

Bongole, A., Hella, J., and Bengesi, K. (2022) 'Combining climate smart agricultural practices pays off: evidence on food security from Southern Highland Zone of Tanzania'. Frontiers in Sustainable Food Systems 6: www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2022.541798/full

CIWA (2020) 'Drought resilience profiles: Tanzania'. CIWA. www.ciwaprogram.org/wp-content/uploads/SADRI_Drought_Resilience_Profile_Tanzania.pdf

Da Corta, L., Kayunze, K., Kahamba, J., Simba, C., Shepherd, A., and Mangi, H. (2022a) 'Covid-19 monitoring in rural Tanzania: The pandemic exacerbated pre-existing factors negatively affecting wellbeing'. CPAN PMI Bulletin. www.chronicpovertynetwork.org/resources/2022/11/7/covid-19-monitoring-in-rural-tanzania-the-pandemic-exacerbated-pre-existing-factors-negatively-affecting-wellbeing

Da Corta, L., Kayunze, K., Kahamba, J., Simba, C., Shepherd, A., and Mangi, H. (2022b) 'Tanzania Covid-19 Poverty Monitor: Urban and peri-urban areas'. CPAN PMI Bulletin. www.chronicpovertynetwork.org/resources/2022/11/7/tanzania-covid-19-poverty-monitor-urban-and-peri-urban-areas

Da Corta, L., Kessy, F., Ruhinduka, R., Shepherd, A., and Scott, L. (2018) 'Resilience and sustainable poverty escapes in Tanzania'. USAID. https://pdf.usaid.gov/pdf_docs/PA00TM2S.pdf

Diwakar, V. and Lacroix, A. (2021) 'Climate shocks and poverty persistence: Investigating consequences and coping strategies in Niger, Tanzania, and Uganda'. *Sustainable Development 29*(3): 552-570. https://onlinelibrary.wiley.com/doi/full/10.1002/sd.2200?saml_referrer

Doyle, A. (2015) 'What is the evidence on the economic impact of Tanzania's National Food Reserve Agency (NFRA) on smallholder maize famers in Tanzania?' Oxford Policy Management. https://www.gov.uk/research-for-development-outputs/what-is-the-evidence-on-the-economic-impact-of-tanzania-s-national-food-reserve-agency-nfra-on-smallholder-maize-famers-in-tanzania

Druckenmiller, H., and Hsiang, S. (2018). Accounting for unobservable heterogeneity in cross section using spatial first differences. NBER working paper 25177. https://www.nber.org/papers/w25177

Eck, K. (2012). In data we trust? A comparison of UCDP GED and ACLED conflict events datasets. *Cooperation and Conflict, 47*(1), 124-141.

Erman, A. *et al*. (2019) 'Wading Out the Storm: The Role of Poverty in Exposure, Vulnerability and Resilience to Floods in Dar Es Salaam'. World Bank Policy Research Working Paper No. 8976. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3436477

Harris, I., Osborn, T. J., Jones, P., and Lister, D.: Version 4 of the CRU TS monthly high-resolution gridded multivariate climate dataset, Scientific Data, 7, 109, https://doi.org/10.1038/s41597-020-0453-3, 2020.

IMF (2022) 'Building resilience to climate change: Tanzania'. IMF, URT. https://www.elibrary.imf.org/view/journals/002/2023/154/article-A002-en.xml

Jones, K. *et al*. (2023) 'Evidence supports the potential for climate-smart agriculture in Tanzania'. *Global Food Security* 36: 100666. www.sciencedirect.com/science/article/pii/S2211912422000566

Katera, L. and Mmari, D. (2018) 'National Food Reserve Aency (NFRA) not for smallholder farmers'. Repoa Brief PB 4/2018. www.repoa.or.tz/wp-content/uploads/2020/07/NFRA_not_for_Smallholders.pdf

Kessy, F., Ruhinduka, R., Kayunze, K., Massito, J., and Songole, A. (2018) 'Understanding and supporting sustained pathways out of extreme poverty and deprivation in Tanzania: a quant-qual approach'. CPAN Working Paper. Overseas Development Institute. https://odi.org/en/publications/understanding-and-supporting-sustained-pathways-out-of-extreme-poverty-and-deprivation-tanzania/

Kratli, S., and Toulmin, C. (2021) 'Farmer–herder conflict in sub-Saharan Africa? IIED Report'. www.iied.org/sites/default/files/pdfs/2021-01/10208IIED.pdf

Kurgat, B., Lamanna, C., Kimaro, A., Namoi, N., Manda, L., and Rosenstock, T. (2020) 'Adoption of climate-smart agricultural technologies in Tanzania'. Frontiers in

Sustainable Food Systems 4. www.frontiersin.org/journals/sustainable-food-systems/articles/10.3389/fsufs.2020.00055/full

Letta, M., Montalbano, P., and Tol, R. (2018) 'Temperature shocks, short-term growth and poverty thresholds: Evidence from rural Tanzania'. *World Development* 112: 13–32. www.sciencedirect.com/science/article/abs/pii/S0305750X18302420

Oakland Institute (2022) 'Flawed plans for relocation of the Maasai from the Ngorongoro Conservation Area'. Oakland Institute. www.oaklandinstitute.org/sites/oaklandinstitute.org/files/flawed-plans-maasai-ngorongoro.pdf

Rosas, N., Zaldivar, S., and Ngowi, E. (2019) 'Evaluating Tanzania's Productive Social Safety Net: Findings from the Midline Survey'. World Bank Group. https://documents1.worldbank.org/curated/en/150071582090321211/pdf/Evaluating-Tanzania-s-Productive-Social-Safety-Net-Findings-from-the-Midline-Survey.pdf Shepherd, A., Scott, L., Mariotti, C., Kessy, F., Gaiha, R., da Corta, L., Hanifnia, K., Kaicker, N., Lenhardt, A., Lwanga-Ntale, C., Sen, B., Sijapati, B., Strawson, T., Thapa, G., Underhill, H. and Wild, L. (2014) *The Chronic Poverty Report 2014–2015: The road to zero extreme poverty*. London, UK: ODI

Tellman, B., Sullivan, J.A., Kuhn, C. *et al.* Satellite imaging reveals increased proportion of population exposed to floods. *Nature* **596**, 80–86 (2021). https://doi.org/10.1038/s41586-021-03695-w

Tiague, B. (2023) 'Floods, Agricultural Production, and Household Welfare: Evidence from Tanzania'. *Environmental and Resource Economics*, 85, 341–384. https://link.springer.com/article/10.1007/s10640-023-00769-3

Vicente-Serrano SM, Berguería S, López-Moreno JI (2010) A multi-scalar drought index sensitive to global warming: the standardized precipitation evapotranspiration index - SPEI. Journal of Climate 23 (7): 1696-1718.

Walwa, W. (2019) 'Growing farmer–herder conflicts in Tanzania: the licenced exclusions of pastoral communities interests over access to resources'. *The Journal of Peasant Studies* 47(2), 366–382. www.tandfonline.com/doi/full/10.1080/03066150.2019.1602523

WDI (2024) 'World Development Indicators' database. World Bank. https://databank.worldbank.org/source/world-development-indicators

World Bank (2019) 'IDA project appraisal document on a proposed credit in the amount of SDR 323.7 million to the United Republic of Tanzania for the PSSN Project II'. World Bank Group. https://documents1.worldbank.org/curated/fr/798681568599240846/pdf/Tanzania-Second-Productive-Social-Safety-Net-Project.pdf

World Bank (2022) 'Towards a more inclusive Zanzibar Economy: Zanzibar Poverty Assessment 2022'. World Bank Group. https://documents1.worldbank.org/curated/en/099755011022231706/pdf/P1753400df8a050240810307f8599187b46.pdf

World Bank (2024) 'Tanzania economic update: overcoming demographic challenges while embracing opportunities'. World Bank Group. https://documents1.worldbank.org/curated/en/099031124044543127/pdf/P1796101f356d10fa1b47215b969e1205b2.pdf

World Bank PIP (2024) 'World Bank Poverty and Inequality Platform' database. https://pip.worldbank.org/

Zuilkowski, S., and Palermo, T. (2021) 'Participant experiences with Tanzania's Productive Social Safety Net 2019 Payment Delays'. The Transfer Project. https://transfer.cpc.unc.edu/wp-content/uploads/2021/07/PSSN-Payments-report-16.03.2020.pdf

Annex

A.1 Summary statistics, by poverty trajectory of household

Variable		Chronic poor	Transient poor	Sustained escaper	Never poor
Crises and shocks	Any floods, 2008–2019	72.4%	77.0%	75.0%	82.5%
	Any drought, 2008–2019	21.9%	30.2%	20.0%	36.5%
	Any violence-related fatality, 2008–2019	2.1%	11.9%	26.4%	50.1%
	Any economic shock, 2008–2019	89.6%	88.7%	69.4%	90.0%
	Any health shock, 2008–2019	56.7%	56.4%	64.5%	73.8%
Household head	Age (years)	45.4	47.6	49.7	44.7
	Primary education completion	47.8%	48.0%	47.7%	81.0%
	Head is a woman	14.1%	30.4%	22.5%	28.1%
Household activities	log(asset number)- consumer durable goods	3.0	3.6	3.7	4.2
	Head in agriculture	95.6%	84.9%	81.0%	34.7%
	NFE	6.2%	11.1%	4.4%	12.2%
	Any remittances	40.3%	51.3%	41.7%	31.8%
	Ownership of livestock	19.5%	36.5%	35.8%	32.2%
Household demographics	Household size	7.4	6.2	5.8	5.2
	Urban	1.3%	13.9%	27.4%	56.2%

Source: Author's analysis of TNPS (2008–2019) dataset.

Notes: Baseline values presented unless stated otherwise.

A.2 Multinomial logistic model regression results, outcome=poverty trajectory

Variables	Outcome trajectory	Main model without controls (1)	Main model with controls (2)	1.5x poverty line (3)
Any fatalities from violence	Chronic poor	-0.1484***	-0.0921***	-0.1251**
		(0.0273)	(0.0275)	(0.0623)
	Transient poor	-0.3436***	-0.1080*	-0.0157
		(0.0555)	(0.0652)	(0.0664)
	Resilient	0.4920***	0.2001***	0.1408**
		(0.0577)	(0.0700)	(0.0657)
Any drought	Chronic poor	-0.0117	-0.0490	0.0786
		(0.0394)	(0.0303)	(0.0780)
	Transient poor	0.0900	0.1151**	-0.0436
		(0.0619)	(0.0531)	(0.0670)
	Resilient	-0.0783	-0.0661	-0.0349
		(0.0628)	(0.0507)	(0.0479)
Any flooding	Chronic poor	-0.0452	-0.0240	-0.0384
		(0.0386)	(0.0308)	(0.0509)
	Transient poor	-0.0470	-0.0044	0.0411
		(0.0814)	(0.0685)	(0.0642)
	Resilient	0.0922	0.0284	-0.0026
		(0.0843)	(0.0729)	(0.0481)
Any price/revenue shock	Chronic poor		0.0497	0.1147*
			(0.0508)	(0.0596)
	Transient poor		0.0380	-0.0600
			(0.0840)	(0.0862)
	Resilient		-0.0877	-0.0547
			(0.0617)	(0.0643)

Variables	Outcome trajectory	Main model without controls (1)	Main model with controls (2)	1.5x poverty line (3)
Any health shock	Chronic poor		0.0178	0.0348
			(0.0421)	(0.0495)
	Transient poor		-0.0241	0.0030
			(0.0578)	(0.0552)
	Resilient		0.0063	-0.0378
			(0.0445)	(0.0445)
Household size	Chronic poor		0.0158***	0.0405***
			(0.0057)	(0.0104)
	Transient poor		0.0109	-0.0253*
			(0.0092)	(0.0130)
	Resilient		-0.0267***	-0.0152**
			(0.0087)	(0.0078)
Woman-headed household	Chronic poor		-0.0604	-0.0621
			(0.0570)	(0.0605)
	Transient poor		0.1063*	0.0460
			(0.0638)	(0.0679)
	Resilient		-0.0459	0.0161
			(0.0465)	(0.0431)
Head completed primary education	Chronic poor		-0.0125	0.0328
			(0.0316)	(0.0524)
	Transient poor		-0.0968	-0.0576
			(0.0616)	(0.0812)
	Resilient		0.1093**	0.0249
			(0.0496)	(0.0640)
Head engaged in agriculture	Chronic poor		0.0175	0.0879

Variables	Outcome trajectory	Main model without controls (1)	Main model with controls (2)	1.5x poverty line (3)
			(0.0993)	(0.0735)
	Transient poor		0.1291	-0.0207
			(0.1000)	(0.0828)
	Resilient		-0.1466**	-0.0672
			(0.0658)	(0.0569)
NFE ownership	Chronic poor		-0.0239	-0.1015*
			(0.0601)	(0.0613)
	Transient poor		0.1361*	0.1719**
			(0.0764)	(0.0710)
	Resilient		-0.1122*	-0.0704
			(0.0656)	(0.0456)
Log (asset number)	Chronic poor		-0.0962***	-0.1454***
			(0.0240)	(0.0237)
	Transient poor		-0.0366	0.0492
			(0.0415)	(0.0414)
	Resilient		0.1327***	0.0962**
			(0.0308)	(0.0385)
Any livestock	Chronic poor		-0.0623	-0.0313
			(0.0496)	(0.0513)
	Transient poor		0.0710	0.0818
			(0.0599)	(0.0520)
	Resilient		-0.0087	-0.0505
			(0.0491)	(0.0435)
Received remittances	Chronic poor		-0.0143	0.0447
			(0.0474)	(0.0473)
	Transient poor		0.0657	-0.0222

Variables	Outcome trajectory	Main model without controls (1)	Main model with controls (2)	1.5x poverty line (3)
			(0.0538)	(0.0602)
	Resilient		-0.0513	-0.0226
			(0.0429)	(0.0428)
Urban residence	Chronic poor		-0.1054***	-0.1818**
			(0.0306)	(0.0759)
	Transient poor		-0.0162	0.0577
			(0.0676)	(0.0968)
	Resilient		0.1216*	0.1241
			(0.0712)	(0.0759)
Region controls		No	Yes	Yes
Head controls		No	Yes	Yes
Observations		771	754	754

Notes: Head controls include age and age-squared; region controls include region of residence; standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

As a robustness check, following the approach taken in Diwakar and Brzezinska (2023; 2024), we implemented a fixed effects regression, with year and household-level fixed effects, on data that were spatially differenced within a 100km and 50km radius in each year. Taking first differences between observational units close in physical space can control for unobserved heterogeneity in contexts where data have sufficient spatial variation (Druckenmiller and Hsiang, 2018).

Results for a 100km spatial differencing are shown in Table A.3. In all cases, we include region and year controls, as well as independent variables related to demographic characteristics of the household and its livelihood activities. We find that the presence of droughts and violence is positively related with poverty. This effect is largest for droughts.

A.3 Crises and poverty status, spatial and temporal differencing (100km)

Variables	(1)	(2)	(3)
Drought presence (100 km)	0.119*** (0.018)		
Flood presence (100 km)		-0.0002 (0.008)	
Violence presence (100 km)			0.067*** (0.013)
Region and year controls	Yes	Yes	Yes
Demographic controls	Yes	Yes	Yes
Observations	2,659	2,659	2,659
R-squared	0.924	0.922	0.923

Notes: Outcome is poverty status. *p<0.1; **p<0.05; ***p<0.01. Standard errors are clustered at the household level in all specifications.