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Welfare and vulnerability

Findings from the first round of the Myanmar Household Welfare Survey



Livelihoods and Food Security Fund



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ABSTRACT

The first round of the Myanmar Household Welfare Survey (MHWS), a nationally and regionally representative phone survey, was implemented between December 2021 and February 2022 with 12,100 households. This report discusses its findings related to shocks, livelihoods, coping strategies and food security. We find that almost 1 in 5 households experience physical insecurity, more than 1 in 10 were negatively affected by climatic shocks, and 3 in 5 experienced sickness or death of household members in the past three months. Two thirds of households reported a lower income in the beginning of 2022 compared to 12 months earlier, indicating widespread impacts of the pandemic, the political crisis, and the ensuing economic crisis. Ninety percent of households applied at least one coping strategy to deal with lack of food or money during the past month. More than half of all households lowered food and non-food expenditures. A large number of households also used more dramatic coping strategies, including high-risk income generating activities (4 percent), children working (3 percent of households), migration (1 percent), or selling of the dwelling or land (1 percent). Even though data were collected in the beginning of 2022 after the monsoon harvest and thus a relatively favorable time of the year for food security, still 9 percent of the households did not have an adequate food consumption pattern and 4 percent suffered from moderate or severe hunger. Violent events in the township, self-reported physical insecurity, climatic and health shocks all are strongly associated with negative outcomes for income, coping and food security. Chin and Kayah state experienced high levels of violence and consistently perform worse across the range of welfare indicators considered.

1. INTRODUCTION

Myanmar is facing a double crisis; coping with the impacts of the COVID-19 pandemic that started in early 2020 as well as with the consequences of the political crisis following the military takeover on February 1, 2021. The health impacts of COVID-19 were relatively mild during the first year of the pandemic. Yet while relatively few people were confirmed as being infected, many felt the economic consequences of the pandemic (Boughton et al. 2021; Diao et al. 2020). Starting in July 2021 however, the contagious COVID-19 delta variant spread rapidly throughout Myanmar and negatively affected the health of many, right at a time when many health workers were on strike or unable to work adequately due to the political setting. Early 2022, the omicron variant spread widely, though with less dramatic impacts.

The political crisis triggered major disruptions to public service delivery, including health and banking services, and, as the crisis continued, electricity provision faltered. Telecommunications were periodically disrupted for strategic purposes. While many foreign investors reduced or withdrew operations in the country, a stark depreciation of the Myanmar Kyat wrecked further havoc for businesses and consumers. Violent conflict and physical insecurity increased and affected areas that were not the scene of violent conflict prior to 2021, such as the townships at the borders of Sagaing and Magway Region in the Central Dry Zone. Other areas which suffered from high conflict intensity in the past, such as Rakhine State, experienced fewer problems in 2021 (Appendix figure A.1).

This note reports on households' experience of shocks, their economic status, the use of coping strategies and food insecurity in Myanmar. The findings are based on data from the first round of the Myanmar Household Welfare Survey (MHWS). MHWS is a nationally, urban/rural and state/region representative phone survey implemented for the first time between December 2021 and February 2022 with 12,100 households (MAPSA, 2022a).

The paper is organized as follows: Section two describes the data and methodology. Section three shows descriptive results, including shocks experienced, the main livelihoods of the population and changes in income, coping strategies that households employ, and food consumption patterns and the experience of hunger. In section four we explore characteristics associated with income changes, food consumption and coping. Section five provides a discussion and conclusion.

2. DATA AND METHODOLOGY

The analysis presented in this paper relies on data from the first round of the MHWS. The first round of MHWS collected data through phone survey interviews between December 2021 and February 2022 with 12,100 households. The survey intends to monitor household and individual welfare through a range of different indicators including wealth, livelihoods, food insecurity, diet quality, health shocks, and coping strategies. A novel sampling strategy in combination with the development of household and population weights allows for estimates that are nationally, regionally, and urban/rural representative (MAPSA 2022a).

The quantitative analysis is mainly descriptive and employs relatively straightforward indicators, though the indicators related to shocks, food consumption, and household hunger merit some elaboration. The shock indicators include self-reported shocks as well as a township-level indicator for violent shocks based on secondary information from the ACLED dataset¹. The latter is based on the sum of all battles, explosions, and violence reported in the ACLED dataset in the three months prior to the interview. As interviews were conducted in three different months, each observation is matched with the indicator that sums these events during the three months preceding the survey, i.e. September-November for interviews conducted in December, October-December for interviews in January, and November – January for interviews in February 2022.

The food consumption score (FCS) is a measure of dietary diversity and food frequency, taking into account the nutritional importance of the food consumed. It is calculated as the weighted sum of the frequency of food groups eaten in the past seven days (World Food Programme, 2018). A higher FCS is considered to be associated with a higher probability that a household's food intake is adequate. Based on the score, households are classified into three groups: poor (0-24.5), borderline (24.6-38.5), or acceptable food consumption status (>38.5). We follow the threshold values as typically agreed upon for Myanmar (Robertson et al. 2018). The questionnaire combined FCS questions with questions to assess diet diversity, therefore disaggregating food groups into additional sub-categories. Calculation of the FCS thus required regrouping of some of the food sub-categories to obtain the original 8 food groups. We use the maximum number of days reported within the sub-categories of each food group as opposed to the alternative option to sum of the sub-categories truncated at 7 days. Four percent of households have a lower food security status based on this method compared to the truncated method.

The household hunger scale (HHS) measures the experience of hunger in the household based on three questions related to the lack of food at home, going to sleep hungry, and going an entire day without food (Ballard et al. 2011). Answers to these questions are used to classify households into three groups: little to no, moderate, or severe hunger.

We also employ exploratory regression analyses to obtain a better understanding of which households are more likely experience negative welfare. These analyses are not intended to draw causal inferences, but they allow for a combined analysis of household and geographical characteristics. We rely on ordinary least squared (OLS) regression analyses for the estimations related to income reductions, being economically affected, using a minimum of one coping mechanism, and being food insecure. We apply a tobit model to estimate the number of coping mechanisms used and ordered probit models to estimate the food consumption and household hunger categories. Note that the size of coefficients are not comparable across different types of regression models.

¹ <https://acleddata.com/>

3. DESCRIPTIVE RESULTS

3.1 Shocks

Respondents were asked about a range of shocks that they themselves, their households, or their communities experienced. Our survey mainly captures household information on the three months prior to the interview, hence we also inquired about the respondent's experience of insecurity, climatic shocks and health shocks in these three months.

Nationwide, 19 percent of respondents reported feeling physically insecure in their area (Table 1). Urban respondents more often note feeling insecure compared to rural respondents (21 percent and 18 percent, respectively), but regional differences are much larger than the observed urban-rural difference (Table A.1). The three states or regions with the highest reported insecurity are Chin State (52 percent), Kachin State (40 percent) and Kayah State (39 percent). All these areas experienced active and intense fighting. The lowest levels of reported insecurity are in Nay Pyi Taw (8 percent), Bago (11 percent) and Ayeyarwady (12 percent) where little fighting took place in 2021. Twenty percent also felt that there were low levels of trust in their community, whereas 8 percent noted increased crime and 6 percent noted increased violence in the community. Urban residents more often experienced low levels of trust, an uptick in crime and violence compared to rural residents.

Table 1. Physical insecurity and trust in the community, climatic shocks, and health shocks in the past three months

	National (%)	Rural (%)	Urban (%)	
Feels physically insecure	18.6	17.6	21.1	***
Low levels of social trust in community	19.7	18.0	24.2	***
Increase in crime in community	7.7	5.7	12.6	***
Violence in community	6.3	4.8	10.3	***
Negatively affected by any climatic shock	10.9	13.2	5.0	***
Drought	1.7	2.3	0.2	***
Excessive rainfall	6.8	8.2	3.1	***
Irregular rainfall or temperature	2.5	3.0	1.5	***
Others	0.9	0.9	0.6	
Death/ sickness in household	58.5	60.5	53.1	***

Note: Asterisks show statistically significant differences between rural and urban households; * p < 0.10, ** p < 0.05, *** p < 0.01.

Myanmar is also prone to natural and climatic shocks. In the three months prior to the interview, 11 percent of households were negatively affected by climatic shocks. These were mainly excessive rainfall (7 percent), irregular rainfall or temperature (3 percent) and drought (2 percent). Rural households, which are typically more reliant on climatic factors for their livelihoods, are more often negatively affected than urban households (resp. 13 percent and 5 percent). Finally, 59 percent of all households reported sickness or death by at least one household member over the past three months.

3.2 Livelihoods and economic status

Households in Myanmar maintain a diverse portfolio of livelihoods across but also within households. The primary source of employment and income in the three month-recall period is working in an own or household non-farm enterprise – 44 percent of households have non-farm

enterprises and for 28 percent of households this is the main income source (Table 2). Crop farming is the second most common employment in the past three months. Approximately 37 percent of households working on their own farm, and this provides the main income source for 25 percent of all households. Other common forms of employment include non-agricultural salaried work (20 percent) and non-agricultural and agricultural wage work (24 percent each). Remittances supplement household incomes for 8 percent of all households and constitute the main income source for 3 percent of all households. Even after a comprehensive assessment of potential income and employment sources, 0.7 percent of households mentioned no employment or income at all in the past three months.

Table 2. All and main sources of household income or employment in the last three months

	Sources of income / employment				Main source of income / employment		
	National	Rural	Urban		National	Rural	Urban
Number of different income sources ^a	1.8	1.9	1.7	***			
<i>Self-employed</i>							
Own or household non-farm enterprise (%)	44.0	37.2	61.5	***	28.4	21.9	45.1
Own or household crop farm (%)	36.8	48.6	6.5	***	24.6	32.9	3.4
Own or household livestock business (%)	11.9	15.3	3.2	***	2.4	3.1	0.5
Own or household fishing or aquaculture business (%)	2.5	3.3	0.6	***	1.3	1.7	0.2
<i>Salaried employment</i>							
Salaried work– non-agriculture (%)	20.2	13.2	38.2	***	12.2	7.2	25.0
Salaried work– crop farming (%)	0.7	0.7	0.6		0.4	0.3	0.5
Salaried work– fishing or aquaculture (%)	0.4	0.4	0.2	**	0.2	0.3	0.0
Salaried work– livestock (%)	0.2	0.2	0.2		0.1	0.1	0.2
<i>Casual wage work</i>							
Wage work– non-agriculture (%)	23.7	21.4	29.8	***	13.6	12.1	17.4
Wage work– crop farming (%)	23.8	31.9	3.0	***	10.7	14.5	1.1
Wage work– fishing or aquaculture (%)	0.8	1.0	0.4	***	0.4	0.5	0.2
Wage work– livestock (%)	0.3	0.4	0.1	***	0.1	0.1	0.0
<i>Other incomes sources</i>							
Remittances (%)	8.2	8.6	7.2	**	3.0	3.4	2.1
Gifts, donations, pensions or other assistance (%)	7.6	6.2	11.3	***	1.3	1.2	1.8
Renting out of land or properties (%)	2.4	1.9	3.7	***	0.5	0.2	1.2
No employment and no income sources (%)	0.7	0.6	1.1	**	0.7	0.6	1.1
<i>Number of observations</i>	<i>12,100</i>	<i>8,491</i>	<i>3,609</i>		<i>12,100</i>	<i>8,490</i>	<i>3,610</i>

^a The different employment or income sources are specified according to the (sub-) categories shown in this table. Note: Asterisks show statistically significant differences between rural and urban households; * p < 0.10, ** p < 0.05, *** p < 0.01.

There are significant differences in livelihood patterns between rural and urban areas, the obvious being a larger engagement in the farm sector (crop farming, fishing and aquaculture, and livestock) among rural households (Table 2). Nevertheless, rural households also often rely on the non-farm sector for income and urban areas still include households active as either farmers

or farm workers. Remittances are significantly more likely among rural households compared to urban households (8.6 percent versus 7.2 percent), and remittances are also more often the main income source of rural households (3.4 percent versus 2.1 percent). Urban households more often receive assistance in the form of gifts, donations, pensions or other (11.3 percent of urban households vs. 6.2 percent of rural households). Still, a higher share of urban households (1 percent) reported no employment or income at all, as compared to rural households (0.6 percent).

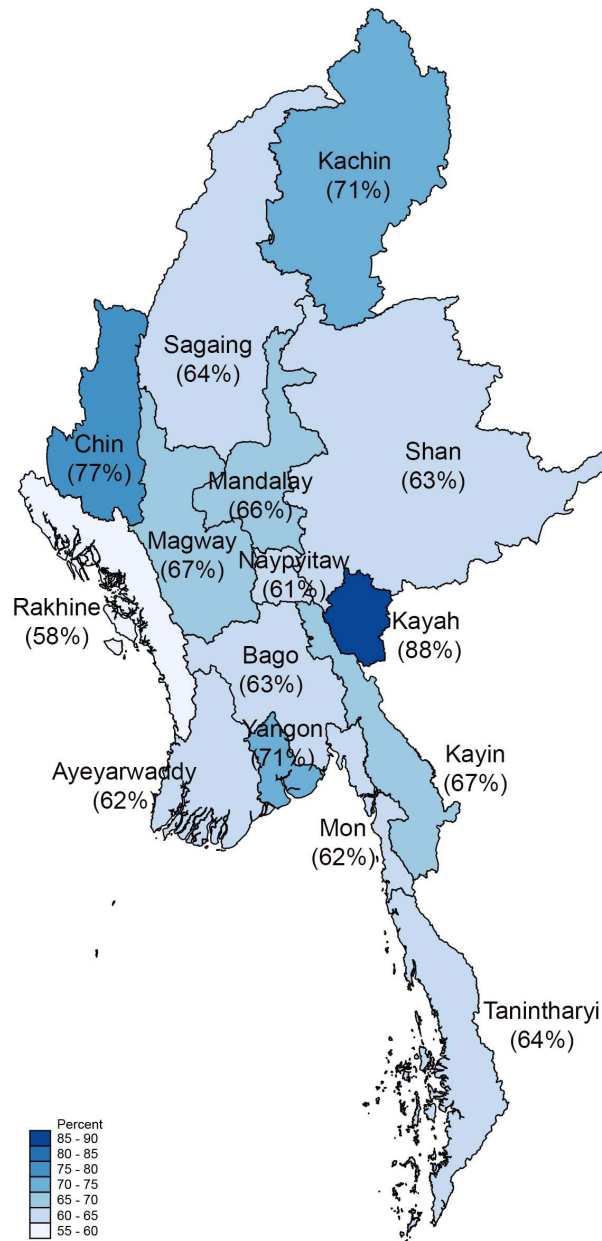
When asked how their total household income in the past three months compared to the total household income of the same period one year ago, the majority of households (65 percent) reported a reduction in income, with 20 percent experiencing a small reduction (≤ 20 percent less) and 45 percent a large reduction (>20 percent). When separating households by main source of income, we find that the experience of income reduction was common among all household types and experienced by more than half of the households (Table 3). Among households with farm and non-farm enterprises as main income sources, respectively 41 percent and 51 percent report major income reductions of more than 20 percent lower than last year's household income. Households with salaried workers as main income earners, though relatively uncommon, less often experience large income reduction, but still more than a third are affected. Households depending on farm wage (45 percent) and non-farm wage work (53 percent) have also frequently been affected by major income reductions. Given that we classify households based on their current main income source rather than their main income source one year ago, we potentially underestimate the impact that the crisis had on certain subgroups. This may particularly be the case for salaried workers who we expect to have faced large levels of job losses due to the economic and political crisis.

Table 3. Percentage of households observing different total household income compared to one year ago, by main livelihood source

Main source of income in the past three months	Large reduction (>20%)	Small Reduction (1-20%)	No change (%)	Small increase (1-20%)	Large increase (>20%)
All households	45.4	19.5	21.4	10.2	3.5
<i>Self-employment</i>					
Farm (crops, livestock and aquaculture)	41.0	19.6	20.6	13.7	5.0
Non-farm (any other)	50.7	20.0	16.7	8.8	3.7
<i>Salaried employment</i>					
Farm (crops, livestock and aquaculture)	33.5	22.0	27.8	9.4	7.4
Non-farm (any other)	35.8	16.9	32.6	11.3	3.4
<i>Casual wage work</i>					
Farm (crops, livestock and aquaculture)	45.3	23.7	22.5	7.3	1.2
Non-farm (any other)	52.7	18.5	19.6	7.7	1.6
<i>Other incomes sources</i>					
<i>Remittances</i>	40.1	15.2	28.1	12.9	3.7
Gifts, donations, pensions, or other assistance	50.6	15.7	28.7	4.3	0.7
Renting out of land or properties	53.6	16.8	20.1	5.8	3.7

To enable a straightforward, simple comparison of households' economic vulnerability across states and regions we classify households as being economically affected if they experienced a large or small reduction in income or if they had no income at all in the past three months. Figure 1 and Table A.2 show the share of economically affected households in each State and Region of the country. Households in Kayah and Chin, both heavily affected by the conflict, also suffer from high economic vulnerability. They have the highest share of households who either had reduced income compared to last year or no income at all (resp. 88 and 77 percent). They also have the highest share of respondents without any income at all in the past three months (resp. 5 and 8 percent). This is much higher compared to the other States and Regions, where between 0 and 4 percent had no income at all. Rakhine has the lowest prevalence of reduced income compared to last year (41 percent). It should be noted, however, that the reference period for this indicator is within the last year, and Rakhine State had experienced less conflict in the last year as compared to the years prior. The comparison to last year likely masks the chronic precariousness and vulnerability of households' livelihoods in the Rakhine State.

Figure 1: Percentage of households who had no or reduced income in the past three months compared to one year ago, by State or Region.



3.3 Livelihood coping strategies

To mitigate the impact of reduced incomes during Myanmar’s protracted crises, households used a wide range of coping mechanisms. Questions on coping mechanisms covered the period of the last 30 days prior to the interview only. Overall, 90 percent of households used at least one coping mechanisms to deal with lack of food or money in the past 30 days (Table 4). The incidence is slightly but significantly more so among rural households (91 percent) as compared to urban

households (86 percent). On average, households reported using four different coping mechanism in that period.

Table 4. Coping mechanisms used to deal with lack of food or money in the past 30 days

	National (%)	Rural (%)	Urban (%)	
Uses at least one coping mechanism	89.8	91.1	86.4	***
Number of coping mechanisms used	3.7	3.9	3.2	***
<i>Coping mechanisms</i>				
Reduced non-food expenditures	62.4	62.6	61.8	
Reduced food expenditures	55.3	56.5	52.3	***
Reduced expenditures on health	35.8	37.2	32.3	***
Spent saving	50.4	49.4	52.8	***
Borrowed money	41.8	45.5	32.3	***
Purchased food credit or borrow	40.0	45.4	26.4	***
Mortgaged household assets (radio, furniture, television, jewelry, etc.)	18.8	19.4	17.0	***
Sold household assets (radio, furniture, television, jewelry, etc.)	15.9	14.6	19.2	***
Mortgaged non-agri productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, etc.)	0.8	0.6	1.1	**
Sold non-agri productive assets or means of transport (sewing machine, wheelbarrow, bicycle, car, etc.)	3.8	3.4	4.8	***
Engaged in high-risk activities	4.2	4.5	3.3	***
Children need to work (under 15)	3.2	3.8	1.7	***
Migrate entire HH	1.3	1.0	1.8	**
Mortgaged house	0.7	0.7	1.0	
Sold house	1.0	1.0	1.1	
Mortgaged land	0.2	0.3	0.0	***
Sold land	0.4	0.5	0.1	***
Mortgaged others ¹	0.8	0.5	1.5	***
Sold others ¹	0.9	0.9	0.8	
<i>Coping mechanisms specific to farm households</i>				
Reduced agri-input expense ²	54.0	54.7	41.6	***
Sold or consumed seed stocks ²	19.8	20.1	14.3	***
Sold agri productive assets ²	1.9	2.6	0.2	***

¹ These include crops, phones, hair, clothes and other utensils; ² Farm households only; 5465 observations

Note: Asterisks show statistically significant differences between rural and urban households; * p < 0.10, ** p < 0.05, *** p < 0.01.

Households primarily resort to reducing day-to-day expenditures as coping mechanisms. More than half of all households reduced non-food expenditures (62 percent of households) and food expenditures (55 percent). Moreover, a third (36 percent) reduced health expenditures. The share of rural households reducing food and health expenditures is higher than among urban households, but the differences are relatively small (5 percent). These coping mechanisms seem potentially less invasive, though a reduction in food and health expenditures may lead to acute and chronic health impacts.

Many households spend their savings (50 percent), borrow money (42 percent) or borrow food or purchase food on credit (40 percent). Differences between rural and urban households are more sizeable for these indicators. In particular, borrowing of money and food are more common in rural areas (resp. 46 and 45 percent of rural households) than in urban settings (resp. 32 and 26 percent). This is likely related to better social networks among rural communities which facilitate borrowing.

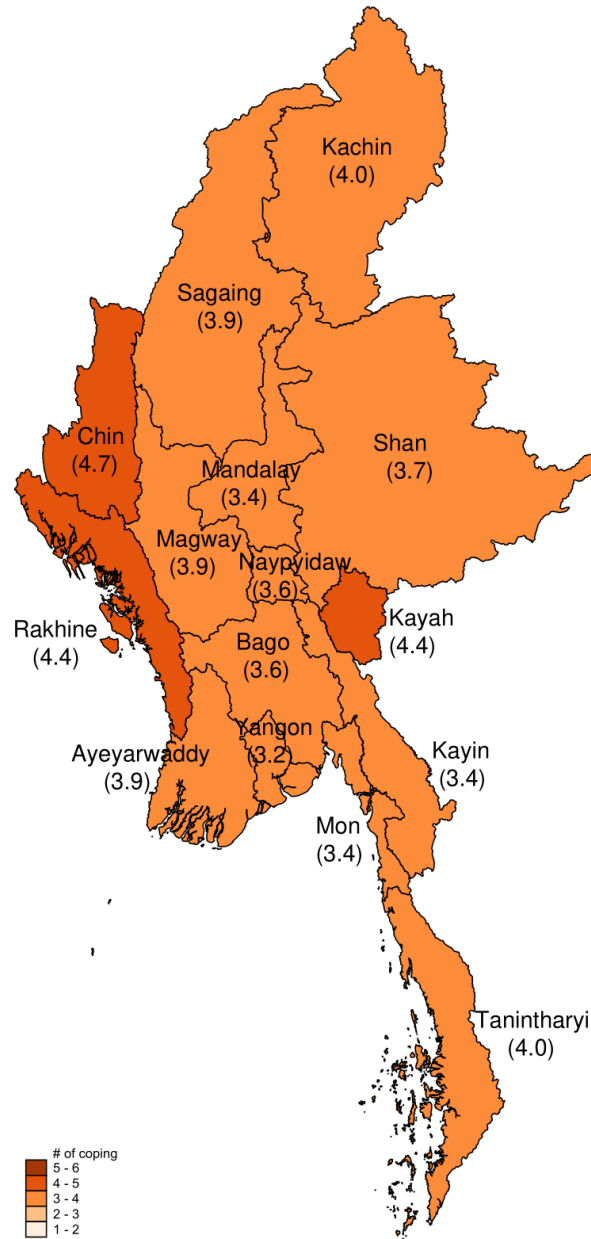
The above strategies may not suffice for some households, necessitating they resort to more severe coping mechanisms that include selling or mortgaging of assets. Whereas studies on coping often focus on selling of assets, we note that mortgaging is very common in Myanmar. This is also notable in Table 4. Nineteen percent of households mortgaged household assets to obtain money, and 16 percent sold household assets. Selling in particular is more frequent among urban households (15 percent of rural versus 19 percent of urban households), again pointing at different dynamics in urban and rural areas. Four percent of households sold non-agricultural productive assets, and one percent mortgaged such assets. Such strategy is alarming as it affects households abilities to generate income.

Several coping strategies are less common but suggest that households are in a critical situation. This includes four percent of households that are engaged in income-generating activities that they themselves consider being risky, and three percent of households where children had to work to complement household incomes. More than one percent has migrated with the entire household to deal with the dire economic situation. Finally, some households also mortgage or sell critical assets such as their dwelling (1 percent) or agricultural land (less than one percent). While these percentages appear to be small, they are quite high considering that they are applied by more than one in a hundred households throughout the country, that they cover a short recall period of only one month, and that they have long-term consequences regarding households physical security and economic and living conditions.

Farm households were asked about a specific set of farm-related coping mechanisms. More than half of all farm households mentioned reducing expenditures on agricultural inputs (54 percent). Twenty percent of households consumed or sold their seed stocks, and two percent sold other agricultural assets. Each of these coping strategies jeopardize future agricultural production and the potential to generate income from agricultural activities.

Figure 2 and Table A.3 show coping vulnerability in each State and Region of the country. The dire situation of households in Kayah and Chin State, the two states most affected by new conflict in 2021, is immediately apparent. In Kayah State 97 percent of households used at least one coping mechanism in the past 30 days, and households used on average 5 to 6 different coping mechanisms. Similarly, in Chin State 95 percent of households applied at least one coping mechanism, and between 5 and 6 coping mechanisms. Rakhine, Tanintharyi and Kayin – three areas with historically high levels of precarity and conflict - also stand out as regions with over 90 percent of households having employed at least one coping strategy, and using on average more than four (Rakhine and Tanintharyi) or three (Kayin) strategies.

Figure 2: Mean number of coping mechanisms applied by households, by State or Region



3.4 Food consumption and hunger

The food consumption score (FCS) is a measure of dietary diversity and food frequency, taking into account the nutritional importance of the food consumed. Table 5 shows the food consumption score broken down by sub-categories. Rice is clearly the main staple and consumed

every day by nearly all households. There are however significant differences between urban and rural diets, with more diversity and higher food consumption scores among the former. The main differences are observed in the frequency of nutritious foods consumption such as meat, egg, and milk as well as unhealthy, sugary foods. Nationwide, a large share of households have borderline or poor food consumption (9.4 percent), and this share is significantly higher among rural households (10.7 percent) compared to urban households (6.2 percent).²

Table 5. Number of days consuming different food groups and FCS based on seven-day recall, nationwide and by urban/rural

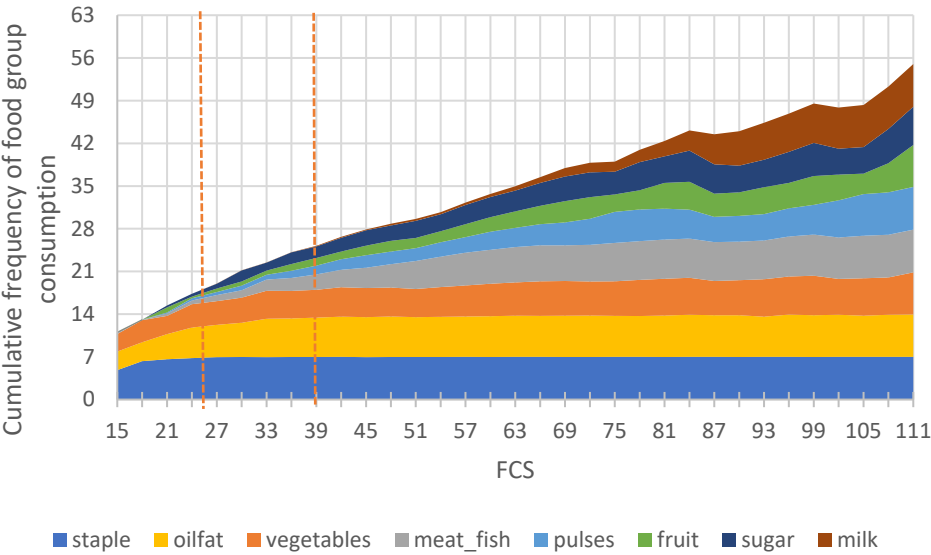
	National	Rural	Urban	Test
<i>Main Staples</i>				
Rice	7.0	7.0	7.0	
Breads/rotis, sweet potato, potato, noodles	1.9	1.7	2.7	***
<i>Pulses</i>				
Bean, peas or lentils	2.3	2.3	2.4	***
Nuts or seeds	2.1	2.1	2.1	
<i>Vegetables, leaves</i>				
Dark green leafy vegetables	4.6	4.6	4.5	**
Orange-colored vegetables or roots	1.6	1.5	1.8	***
Other vegetables	4.1	4.1	4.2	
<i>Fruits</i>				
Orange or dark yellow colored fruits	1.3	1.2	1.5	***
Other fruits (incl. regular banana, pineapple, watermelon, avocado etc.)	2.0	1.8	2.3	***
<i>Meat and fish</i>				
Fish, canned fish, dried fish, prawn, dried prawn or other seafood	4.2	4.2	4.0	***
Poultry, pork, mutton, beef or other meat or organs	2.4	2.1	3.3	***
Eggs (chicken, duck, quail)	2.6	2.4	3.0	***
Milk and other dairy products	1.2	1.0	1.9	***
Sugar and sugar products, soft drinks	3.3	3.0	4.2	***
Oils, fats and butter	6.6	6.5	6.7	***
Food Consumption Score ¹	60.9	59.2	65.3	***
Acceptable food consumption (FCS>38.5) (%)	90.6	89.3	93.8	***
Borderline food consumption (24.5≤FCS≤38.5) (%)	8.9	10.1	5.8	***
Poor food consumption (FCS<24.5) (%)	0.5	0.6	0.4	
<i>Number of observations</i>	<i>12,100</i>	<i>8,491</i>	<i>3,609</i>	

¹ Food groups that were administered in sub-categories are aggregated based on the maximum frequency of its subcomponents. Note: Asterisks show statistically significant differences between rural and urban households; * p < 0.10, ** p < 0.05, *** p < 0.01.

² The questionnaire combined FCS questions with questions to assess diet diversity, therefore disaggregating food groups into additional sub-categories. Calculation of the FCS thus required regrouping of some of the food sub-categories to obtain the original 8 food groups. We use the maximum number of days reported within the sub-categories of each food group as opposed to the sum of the sub-categories truncated at 7 days. Four percent of households have a lower food security status based on this method compared to the truncated method.

Figure 3 shows how diets become more diversified among households with a higher FCS and helps to visualize the composition of diets of households within each category. Staples, mainly rice, form the basis of the diet for all households. These are then first supplemented by oils and fats and vegetables, after which then other food groups are added somewhat proportionally as the FCS increases. At the threshold from poor to acceptable food consumption (FCS=24.5), an average household consumes staples daily, oils and fats nearly every day and vegetables every other day. Yet, more nutritious foods such as meat or fish, pulses, fruit or milk are rarely consumed. At the threshold of acceptable to adequate food consumption (FCS=38.5), households consume staples and oils and fats every day, yet still do not consume vegetables at each day of the week nor consume meat or fish at least half of all days in the week. The thresholds set for adequate food consumption thus still allow for relatively little diet diversity.

Figure 3: Evolution of frequency of consuming different by food groups with increasing food consumption scores



Note: Orange vertical lines indicate thresholds of poor to acceptable, and acceptable to adequate dietary intake.

Within a recall period of seven days, 12 percent of households had no food of any kind in the house on at least one day, in 5 percent of households at least one member went to sleep hungry on one or more days, and in 2 percent of households a member went at least one whole day and night without food (Table 6). Combined with the frequency of occurrence, this amounts to 4.2 percent of the population considered to experience moderate hunger and 0.2 percent experiencing severe hunger. The incidence of hunger is significantly higher in rural areas (4.7 percent of households) as compared to urban areas (3.9 percent).

Figure 4 shows a regional overview based on a classification of food insecure households, and details can also be found in Table A.4. For this figure, we classified households as not food secure if they either had inadequate food intake (based on FCS categories), experienced moderate or severe hunger (based on HHS categories), or both. Chin and Kayah State have the highest share of households who are food insecure, resp. 40 and 29 percent. This is much higher than the

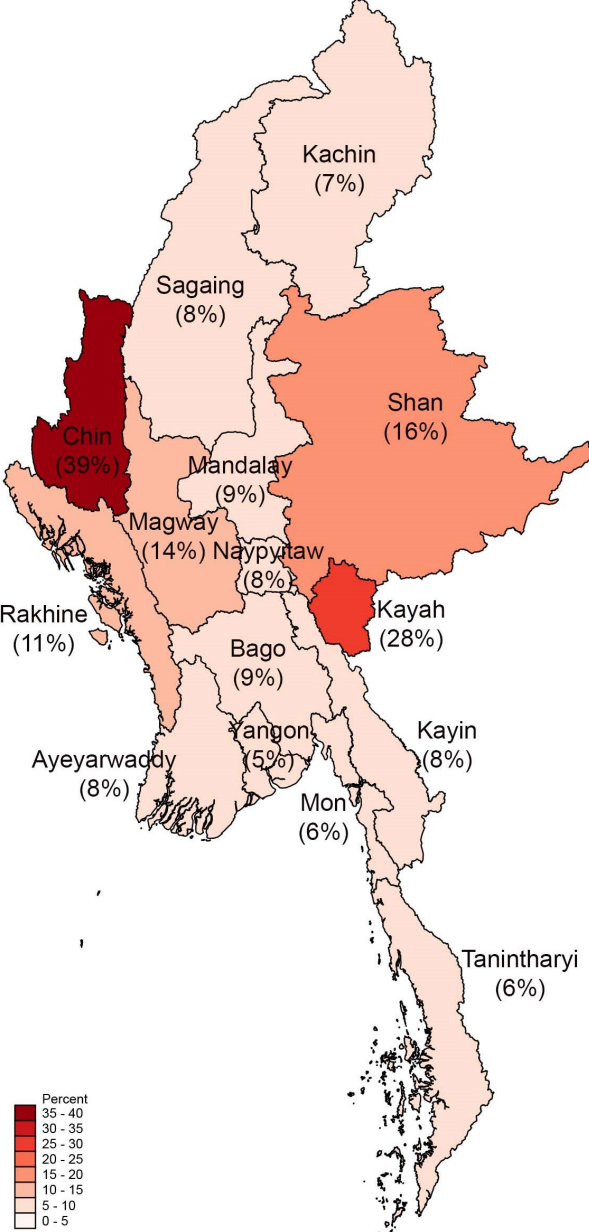
prevalence of food insecurity in other States and Regions (5 to 14 percent). Yangon region, including the main city and the largest urban population in the country, has the lowest share of households who are food insecure (5 percent).

Table 6. 7-day recall questions and composite categories of HHS, percentage of households

	National (%)	Rural (%)	Urban (%)	Test
7-day recall questions, yes/no				
There was no food of any kind the house	11.6	12.2	9.8	***
No	88.5	87.8	90.2	***
Rarely (1-2 times)	5.6	6.0	4.5	***
Sometimes (3-10 times)	5.5	5.9	4.7	**
Often (more than 10 times)	0.4	0.3	0.6	
A household member went to sleep hungry				
Yes	4.9	5.3	4.1	**
No	95.1	94.7	95.9	**
Rarely (1-2 times)	2.3	2.5	1.7	**
Sometimes (3-10 times)	2.5	2.6	2.1	
Often (more than 10 times)	0.2	0.1	0.2	
A household member went a full day and night without food				
Yes	2.1	2.3	1.7	
No	97.9	97.7	98.3	
Rarely (1-2 times)	1.0	1.1	0.7	**
Sometimes (3-10 times)	1.1	1.1	0.9	
Often (more than 10 times)	0.1	0.1	0.2	
Categories based on HHS				
Little to no hunger	95.6	95.4	96.1	
Moderate hunger	4.2	4.5	3.6	*
Severe hunger	0.2	0.2	0.3	
<i>Number of observations</i>	<i>12,085</i>	<i>8,482</i>	<i>3,603</i>	

Note: Asterisks show statistically significant differences between rural and urban households; * p < 0.10, ** p < 0.05, *** p < 0.01.

Figure 4: Share of households who are food insecure from the perspective of inadequate food consumption or experience of hunger, by State or Region



4. VULNERABILITY ASSESSMENT

We further explore which household characteristics (economically, use of coping strategies, food insecurity) are positively or negatively associated with vulnerability through regression analysis (Table 7). The analyses capture associations with climatic shocks in the past three months (mainly drought), sickness or death among household members in the past three months, the number of violent events in the township in the past three months and the self-reported feeling of physical insecurity. Respondents experiencing climatic shocks or health shocks in the past three months

more often report income losses, increased usage of coping mechanisms, increased usage of more types of coping mechanisms, and more often experienced hunger. Self-reported physical insecurity and the number of violent events in the township during the past three months are also significantly associated with these same outcomes. It is notable that self-reported physical insecurity is significantly associated with all outcome indicators and that the coefficient of this indicator is larger than for the aforementioned climatic and health shocks. Whereas there was no significant association with the other shock variables, food consumption (in terms of the FCS category) is significantly lower among those who feel insecure.

We also explore the relationship between household characteristics with households' income generating activities. Households engaged in farm activities less often experienced an income drop, are associated with better food consumption patterns, and have lower levels of hunger. This points to the strength and resilience of the farm sector. However, farm households were also more likely to have used coping strategies and mentioned more coping strategies. Several of these farm-specific coping strategies – lowering expenditures on agricultural inputs, depleting seed stocks and selling agricultural productive assets – also threaten future productivity. Households with non-farm enterprise income are more likely to report a reduction in household income, yet they less often apply and use fewer coping strategies. Similar to households with farm income, they are, however, associated with better food consumption patterns and lower levels of hunger.

Those with casual farm and non-farm wage employment are worse off compared to other households. They are more likely to report a drop in income, are more likely to use coping strategies, have worse food consumption patterns, and are more likely to experience hunger. An opposite effect is seen for those with income from salaried employment and those receiving remittances.

Women adult only households differ from other households only in their association with worse food consumption scores. Households with young children and larger households report somewhat better food consumption scores but are more likely to apply coping strategies. Respondents with lower education levels are much more likely to report food insecurity across all indicators, as expected. Women are also more likely to report a reduction in incomes and the use of stress and crisis coping but report higher FCS. Given their roles in managing the household budget (Lambrecht and Mahrt 2019, Carnegie et al. 2020) and main role in cooking, they may be more aware of changes in the household income and use coping mechanisms to mitigate impact on food consumption.

A final set of indicators comprises geographical indicators: whether the household lives in a rural setting as opposed to an urban setting plus state or region indicators with Ayeyarwady as the base category. Despite the inclusion of the aforementioned socio-economic indicators, we find significant differences among households in rural areas compared households in urban areas. Rural areas are associated with lower levels of economic vulnerability, yet also with higher levels of food insecurity. We also find significant differences across several states and regions in several regression analyses. All else equal, households in Kayah and Chin State were still more likely to be worse off in nearly all indicators. Households in Rakhine State more often apply coping mechanisms and have poor diets. Compared to other States and Regions, Yangon most strongly associates with lower incomes.

Table 7. Exploratory regression analysis of characteristics associated with economic status, coping and food consumption

	Lower income ¹	Economically affected ¹	Min. 1 coping ¹	# Coping strategies ²	Food Consumption Category ³	Household Hunger Scale ³	Food insecure ¹
Climatic shock	0.054***	0.053***	0.046***	0.806***	-0.066	0.275***	-0.007
Health shock	0.050***	0.050***	0.072***	0.807***	-0.056	0.204***	-0.007
Violent events in township	0.002***	0.002***	0.001***	0.006***	0.001	0.001	0.000
Experienced physical insecurity	0.102***	0.101***	0.062***	0.912***	0.064	0.355***	0.012*
Farm	-0.051***	-0.060***	0.022***	0.338***	-0.231***	-0.565***	-0.039***
Non-farm enterprise	0.042***	0.035***	-0.018***	-0.223***	-0.313***	-0.309***	-0.043***
Farm wage	0.033***	0.028**	0.053***	0.705***	0.215***	0.219***	0.044***
Non-farm wage	0.041***	0.035***	0.031***	0.437***	0.013	0.266***	0.000
Salary	-0.135***	-0.141***	-0.044***	-0.463***	-0.235***	-0.235***	-0.029***
Remittances	-0.064***	-0.067***	-0.013	-0.255***	-0.129*	-0.223**	-0.019**
Female respondent	0.021**	0.020**	0.028***	0.313***	-0.002	0.074	0.001
Low education	0.025***	0.023**	0.020***	0.266***	0.243***	0.266***	0.035***
Women adults only	0.016	0.019	-0.004	-0.086	0.173**	0.047	0.033***
Young children in household	0.000	-0.001	0.024***	0.313***	0.049	0.123**	0.008
Adult equivalents	0.013***	0.013***	0.003**	0.048***	-0.025**	0.036***	-0.003**
Rural	-0.034***	-0.033***	-0.003	0.019	0.089*	-0.039	0.014**
Kachin	0.019	0.023	0.003	-0.101	0.117	-0.573***	0.008
Kayah	0.162***	0.172***	0.016	0.386*	0.679***	-0.162	0.134***
Kayin	-0.015	-0.014	0.007	-0.644***	-0.072	-0.16	-0.011
Chin	0.092**	0.107***	-0.009	0.069	0.840***	-0.051	0.157***
Sagaing	-0.027	-0.024	-0.017	-0.294***	-0.126	-0.667***	-0.019*
Tanintharyi	0.009	0.008	0.034*	0.162	-0.094	0.067	-0.016
Bago	0.030*	0.03	0.007	-0.047	0.042	-0.354***	0.007
Magway	0.020	0.023	-0.019	-0.255***	0.219***	-0.180*	0.035***
Mandalay	0.013	0.013	-0.015	-0.364***	0.071	-0.380***	0.008
Mon	-0.036	-0.036	-0.012	-0.337***	-0.076	-0.235*	-0.01
Rakhine	-0.018	-0.017	0.038**	0.492***	0.222**	0.056	0.040***

Yangon	0.087***	0.085***	0.016	-0.121	-0.089	-0.249***	-0.008
Shan	-0.006	-0.006	-0.005	-0.275***	0.400***	-0.375***	0.066***
Naypyitaw	0.029	0.029	-0.01	0.085	0.022	0.006	0.005
Constant	0.518***	0.532***	0.775***	2.189***			0.089***
<i>Number of Observations.</i>	11,859	11,950	12,100	12,100	12,100	12,100	12,100

¹ Ordinary least squared (OLS) analysis; ² Tobit regression model; ³ Ordered probit regression model
Note: Asterisks show coefficients significant at p-values * p < 0.10, ** p < 0.05, *** p < 0.01.

5. DISCUSSION AND CONCLUSION

The food and nutrition security situation in Myanmar is worrisome, especially in light of the rapid increase in food price inflation in recent months (MAPSA, 2022b). Using data from the MHWS, a representative national household survey conducted in the beginning of 2022, we find that 65 percent of households said their income over the past three months was lower than their income during the same period last year. Ninety percent of households were using coping mechanisms to deal with a lack of food or money in the 30 days before the survey, including severe coping mechanisms such as high-risk activities (4 percent), child work (3 percent), migration (1 percent), or selling of agricultural land (1 percent). Shortly after the monsoon season harvest and at a peak time for remittances, still nine percent of the households did not have an acceptable food consumption status and four percent experienced hunger. The prevalence of food insecurity is higher in rural areas as compared to urban areas.

Health shocks, climatic shocks and conflict are strongly correlated with income losses, the use of coping strategies, and food insecurity. Among these, however, conflict and physical insecurity appear especially strong predictors of these problems. This is evident when considering geographical differences, for example with Chin and Kayah State – both heavily affected by conflict - consistently performing worse than others; as well as from exploratory regression analyses that control for several respondent, household, and geographical characteristics.

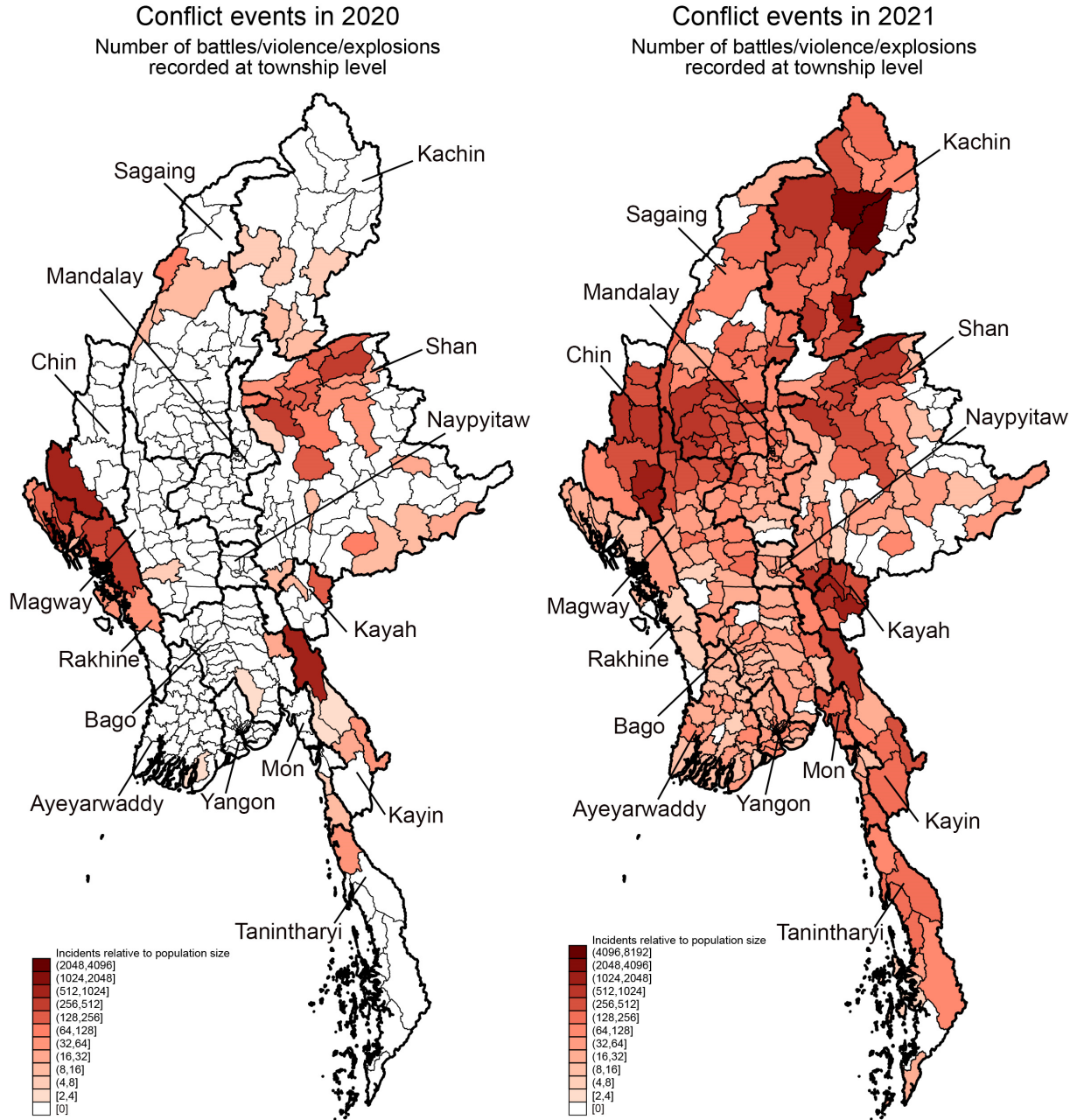
The outlook for Myanmar households is much worse than what is described above. This partly relates to the timing of the survey, which took place at a favorable time of year. Despite its good geographic spread and favorable composition of the sample, it is also likely that households in particularly precarious conditions – such as internally displaced persons - are underrepresented. The reference period for some indicators such as lower household incomes is 2021, already one year into the pandemic and thus a year where many households experienced lower-than-usual incomes. More worrisome though are the added threats in 2022 of rapidly increasing food and fertilizer prices because of the conflict in Ukraine.

REFERENCES

- Ballard, T., Coates, J., Swindale, A., and Deitchler, M. (2011). Household Hunger Scale: Indicator Definition and Measurement Guide. Washington, DC: Food and Nutrition Technical Assistance II Project, FHI 360.
- Boughton, D., Goeb, J., Lambrecht, I., Headey, D., Takeshima, H., Mahrt, K., Masias, I., Goudet, S., Ragasa, C., Maredia, M., Minten, B., Diao, X. (2021). Impacts of COVID-19 on agricultural production and food systems in late transforming Southeast Asia: The case of Myanmar, *Agricultural Systems*, 188, 103026
- Carnegie, M., Cornish, P.S., Htwe, K.K., and Htwe, N.N. (2020). Gender, decision-making and farm practice change: An action learning intervention in Myanmar. *Journal of Rural Studies* 78: 503-515.
- Lambrecht, I., Mahrt, K. (2019). Gender and assets in rural Myanmar: A cautionary tale for the analyst. IFPRI Discussion Paper 1894. Washington, DC: International Food Policy Research Institute (IFPRI).
- MAPSA (2022a). Phone surveillance, from scratch: Novel sample design features of the nationally representative Myanmar Household Welfare Survey (MHWS). Myanmar SSP Working Paper 16. Washington, DC. International Food Policy Research Institute (IFPRI).
- MAPSA (2022b). < Need food vendor reference here > Washington, DC. International Food Policy Research Institute (IFPRI).
- Robertson, B., P. Young, J. Kristensen, K. Mar Cho, H. Myo Thwe, M. Pannchi, and T. Chin Sung (2018). Strategic Review of Food and Nutrition Security in Myanmar: In support of Sustainable Development Goal (SDG) 2 - Roadmap to 2030. Yangon, Myanmar: Myanmar Institute for Integrated Development (MIID).
- World Food Programme (2018). Calculation and use of the food consumption score in food security analysis. WFP VAM. Rome.

APPENDIX FIGURES

Figure A.1: Violent events per million inhabitants in 2020 (left) and 2021 (right), by township³



³ We rely on the ACLED dataset and include the sum of all battles, explosions and violence.

APPENDIX TABLES

Table A.1 Experience of physical insecurity in the past three months, by State or Region in percentage of households

	Kachin	Kayah	Kayin	Chin	Sagaing	Taninth	Bago	Magway	Mdy	Mon	Rakhine	Ygn	Shan	Ayeyarw	Npt
Hh member passed away due to COVID-19 (%)	0.9	1.2	0.5	0.0	0.9	2.9	0.6	0.4	1.1	0.9	0.1	1.2	0.7	1.2	2.0
Hh member passed away due to other causes (%)	4.3	0.5	5.1	0.9	5.1	5.5	2.8	5.2	4.3	5.7	3.6	3.5	4.1	4.3	3.2
Feels physically insecure	39.8	39.3	29.2	51.6	22.9	14.5	10.9	14.4	17.4	19.2	20.0	23.2	17.5	12.4	7.9
Low levels of social trust in community (%)	19.5	40.3	28.8	37.0	16.1	21.0	12.5	14.3	16.8	23.5	15.3	27.1	23.3	19.5	21.2
Increase in crime in community (%)	23.1	23.3	8.0	28.2	7.6	6.5	3.3	3.5	6.5	3.9	4.0	15.0	8.2	3.4	6.7
Violence in community	9.6	23.6	2.1	28.7	7.7	8.5	2.9	4.5	7.9	4.1	1.7	11.8	6.9	1.2	5.0
Negatively affected by any natural or climatic shock (%)	11.7	12.3	12.2	13.3	13.1	8.4	11.1	20.0	8.9	6.5	12.3	3.4	11.9	15.2	5.3
Drought (%)	3.6	8.0	0.7	0.2	4.3	0.0	1.6	5.6	1.0	0.1	0.5	0.0	3.0	0.5	0.9
Excessive rainfall (%)	5.8	4.0	8.9	7.0	6.6	6.8	5.9	12.5	6.3	4.5	8.6	2.4	6.8	9.9	3.0
Irregular rainfall or temperature (%)	2.5	0.0	1.9	3.1	1.6	0.4	4.0	2.0	1.9	1.0	3.1	1.0	3.7	5.0	1.4
Others (%)	0.9	0.3	0.7	3.7	1.3	1.5	0.4	0.9	0.9	1.4	2.9	0.3	0.2	0.7	0.2
Death/ sickness (%)	55.2	63.6	58.9	59.4	59.6	61.1	58.4	62.1	58.2	56.4	68.2	54.6	48.6	63.0	60.0

Table A.2 Economically affected, by State or Region in percentage of households

	Kachin	Kayah	Kayin	Chin	Sagaing	Taninth	Bago	Magway	Mdy	Mon	Rakhine	Ygn	Shan	Ayeyarw	Npt
Large income change (%)	46.9	77.5	48.0	56.5	47.6	44.6	38.8	48.8	46.1	41.4	40.0	52.6	43.7	37.3	43.0
Small income change (%)	20.0	5.4	17.6	12.8	14.7	19.5	24.4	17.2	18.9	20.0	17.7	18.1	18.8	24.8	17.6
No income at all (%)	3.8	5.4	1.1	7.7	1.5	0.2	0.3	1.2	0.5	0.3	0.6	0.3	0.2	0.1	0.4
Economically affected (sum) (%)	70.8	88.3	66.7	77.0	63.8	64.3	63.4	67.2	65.6	61.6	58.3	71.1	62.8	62.2	61.0
<i>Number of observations</i>	385	132	354	159	1312	328	1169	963	1483	480	526	1826	1156	1538	289

Table A.3 Summary of coping strategies employed, by State or Region in percentage of households

	Kachin	Kayah	Kayin	Chin	Sagaing	Taninth	Bago	Magway	Mdy	Mon	Rakhine	Ygn	Shan	Ayeyarw	Npt
Uses min. 1 coping mechanism (%)	91.0	96.7	91.9	94.8	91.6	92.6	89.2	90.0	88.1	88.4	93.6	87.8	89.6	90.0	87.3
# coping mechanisms used	4.0	4.4	3.4	4.7	3.9	4.0	3.6	3.9	3.4	3.4	4.4	3.2	3.7	3.9	3.6
Reduced non-food expense (%)	69.5	75.2	60.5	73.6	62.3	68.3	59.2	64.8	55.9	60.3	65.2	63.9	64.5	63.4	56.7
Reduced food expense (%)	64.2	64.9	57.7	68.8	55.2	64.1	50.6	57.5	53.3	52.2	64.4	53.1	52.0	57.4	49.3
Reduced expense on health (%)	41.2	58.9	32.7	62.5	36.3	40.0	34.0	41.9	30.7	38.3	41.0	32.2	36.3	34.7	37.2
Spent saving (%)	46.8	58.9	48.6	57.4	58.4	55.2	46.6	43.1	51.4	47.8	53.3	52.0	54.2	45.9	44.8
Borrowed money (%)	44.4	47.6	43.1	52.9	39.8	46.2	42.6	42.8	36.9	39.9	53.1	34.4	40.4	49.7	37.5
Purchased food credit or borrow (%)	45.4	38.9	44.3	64.6	42.8	50.4	41.7	46.2	33.4	37.5	57.1	27.7	35.4	45.3	36.0
Mortgaged household assets (%)	14.2	5.5	8.7	5.6	12.5	8.3	26.2	19.9	17.3	12.9	28.2	19.0	6.3	27.8	36.8
Sold household assets (%)	16.1	16.0	12.9	9.5	15.4	16.7	14.9	13.4	18.0	19.3	20.5	18.0	11.9	14.2	20.9
Mortgaged non-agri productive assets or means of transport (%)	0.3	0.4	0.4	0.0	0.4	0.0	1.0	0.7	1.2	1.6	0.5	0.4	1.2	0.9	1.2
Sold non-agri productive assets or means of transport (%)	9.1	3.7	6.2	2.4	3.1	4.9	3.6	3.2	5.0	3.3	1.5	3.5	3.5	3.2	4.7
Engaged in high-risk activities (%)	8.2	10.7	2.7	5.9	4.5	4.5	2.8	1.7	5.3	3.9	8.7	2.2	4.0	5.0	3.6
Children need to work (under 15) (%)	3.3	4.9	1.8	5.2	4.7	3.1	3.0	5.9	2.4	2.6	2.0	2.1	3.5	3.2	2.9
Migrate (%)	1.1	10.7	1.7	4.0	1.3	0.1	0.9	1.1	0.7	0.9	0.4	2.0	1.8	0.9	1.3
Mortgaged house (%)	0.6	0.9	0.9	1.3	0.5	2.6	1.0	0.6	0.6	0.9	0.8	0.8	0.7	0.6	0.2
Sold house	0.4	1.8	0.7	0.5	0.9	2.8	1.1	1.0	0.8	1.1	1.4	1.1	1.2	0.5	2.2

Mortgaged land (%)	0.2	0.0	0.0	0.0	0.3	0.7	0.2	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.0
Sold land	1.3	0.0	0.4	0.0	0.5	0.1	0.4	0.8	0.0	0.5	0.3	0.2	0.6	0.4	0.3
Mortgaged others ¹ (%)	0.0	0.0	0.0	0.8	0.1	0.7	0.3	0.7	0.3	1.6	0.2	2.3	0.4	0.9	0.0
Sold others ¹ (%)	1.1	2.4	0.3	0.0	0.9	0.0	0.4	0.6	0.7	0.3	1.6	1.1	1.6	0.9	0.6
Reduced agri-input expense ² (%)	55.5	41.3	36.5	58.7	58.2	43.8	52.4	57.0	50.7	42.6	59.2	43.8	59.1	53.6	53.4
Sold or consumed seed stocks ² (%)	14.4	22.9	10.5	16.8	18.1	24.3	21.9	27.3	22.0	19.2	23.4	9.9	19.1	17.1	22.9
Sold agri productive assets ² (%)	4.3	1.3	1.1	3.1	4.1	2.1	2.3	2.4	2.6	0.6	1.6	0.3	1.6	1.7	0.3

¹ These include crops, phones, hair, clothes and other utensils; ² Farm households only

Table A.4 Food consumption, by State or Region in percentage of households

	Kachin	Kayah	Kayin	Chin	Sagaing	Taninth	Bago	Magway	Mdy	Mon	Rakhine	Ygn	Shan	Ayeyarw	Npt
Food consumption score	63.2	48.7	62.2	47.4	63.5	63.5	60.4	59.6	60.3	62.9	59.4	65.0	57.2	58.7	61.9
Poor food consumption (%)	0.6	1.0	0.5	4.2	0.0	1.1	0.2	2.2	0.4	0.0	0.0	0.1	1.5	0.4	0.0
Borderline food consumption (%)	6.5	27.5	7.0	35.1	7.4	4.9	8.6	12.1	8.7	6.2	11.0	4.9	14.8	7.8	8.0
Acceptable food consumption (%)	92.9	71.5	92.4	60.7	92.6	93.9	91.2	85.8	90.8	93.8	89.0	95.1	83.7	91.8	92.0
HH hunger score	0.2	0.3	0.3	0.4	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2
Little or no hunger (%)	96.6	95.4	94.0	93.7	98.6	94.4	97.2	93.8	96.2	94.5	93.9	96.1	96.4	93.4	93.0
Moderate Hunger (%)	3.4	4.6	5.3	6.3	1.2	5.6	2.6	6.0	3.6	5.5	5.6	3.8	3.2	6.4	7.0
Severe hunger (%)	0.0	0.0	0.8	0.0	0.2	0.0	0.2	0.2	0.2	0.0	0.5	0.1	0.4	0.2	0.0
Food insecure (poor, borderline food consumption or hunger) (%)	7.1	28.5	7.9	39.3	7.6	6.1	8.9	14.3	9.4	6.2	11.5	5.1	16.3	8.3	8.0
Number of observations	385	132	354	159	1312	328	1169	963	1483	480	526	1826	1156	1538	289

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