


# An analysis of absolute wealth, equality, and food security among households and communities in Karamoja, Uganda: 2018–2022

A FEINSTEIN INTERNATIONAL CENTER BRIEF 

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## Key messages:

- There is a significant decrease in animal and asset wealth and movement into least-desirable livelihoods, indicating that the households in the sample are, on average, getting poorer.
- With the exception of Amudat, fewer people own livestock; hence household wealth in villages, in terms of livestock, is becoming more equal. In Amudat, absolute livestock wealth is increasing, but so is inequality around livestock ownership—meaning some households are increasing their livestock ownership while others are not.
- The difference between the village-level and district-level equality analysis shows that while households in villages are becoming more equal, the villages in the district are becoming more unequal when it comes to livestock ownership.
- There is a significant increase in food insecurity from 2018 to 2021/22.
- There is less change from year to year in household wealth compared to changes in food security. Food security is extremely variable from year to year, even though broader district-level data do not indicate a single year with emergency food security conditions.
- Livestock wealth is not associated with any measure of food insecurity or changes in food insecurity.

## Introduction

This briefing paper investigates the ways in which wealth, wealth equality, and food security have changed in a selection of villages in Amudat, Kotido, Kaabong, and Moroto Districts from 2018 to 2021/2022. The paper compares these outcomes across both districts and time and is focused on the household and community level. This output is part of a multiyear mixed methods study conducted by the Feinstein International Center, Friedman School

of Nutrition Science and Policy at Tufts University under the Apolou Activity, which was led by Mercy Corps and funded by United States Agency for International Development/Bureau for Humanitarian Assistance (USAID/BHA) in Karamoja. This briefing paper is one of three similar outputs, with the other two covering i) individual perceptions of relative wealth, livelihoods, and aspirations and ii) the specific experiences of women over the course of



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the study. These briefing papers, the accompanying larger report, and all other publications from this partnership are available on the [research project homepage](#) on the Feinstein website.

The data discussed in this briefing paper come from the quantitative component of the mixed methods study. We used a randomized cluster sample across 52 villages (10 households per village) within four districts in three time periods (October/November 2018, October/November 2019, and October 2021–January 2022), resulting in a sample size of 520, plus a margin for attrition (Table 1). In each village, households were selected using a spin-the-pan approach. We followed the same households and respondents across the three years of data collection so we could analyze household-related trends over time using panel analysis. A relationship is considered significant if the p-value is less than

0.05. It is also important to note that the sample is representative of the Apolou population in these districts, as opposed to the population in either the districts or the region as a whole.

Table 1: Sample size by year of data collection, number of households

District	Time			Total
	2018	2019	2021/22	
Amudat	172	153	113	438
Kaabong	120	112	100	332
Kotido	139	132	117	388
Moroto	90	91	77	258
Total	521	488	407	1,416

## Changes in absolute wealth from 2018 to 2021/22

From 2018–2021/22 there is a significant overall decrease in animal wealth and asset wealth, with no significant change in the proportion of income out

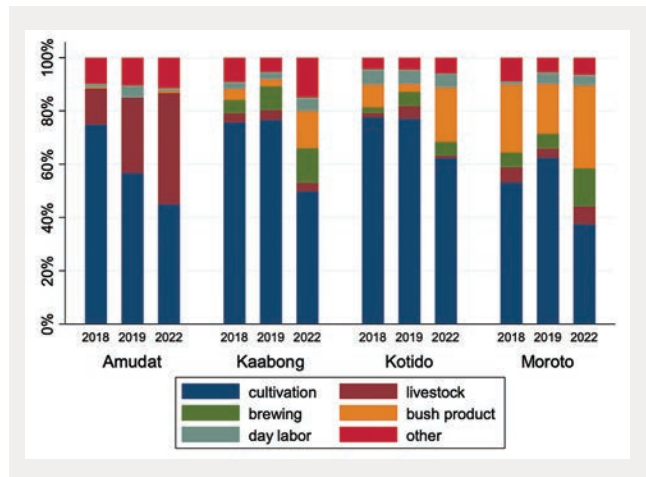
of total income spent on food (a proxy for wealth) for the sample as a whole. There is also a significant movement into less-desirable livelihood activities such as brewing, day labor, and collection and sale of bush products. However, these trends for the sample as a whole are not always replicated at the district level.

Table 2. Median Tropical Livestock Units, average asset ownership, and proportion of expenditure spent on food (%) by district and time

	Time	Amudat	Kaabong	Kotido	Moroto	All districts
Median Tropical Livestock Units	2018	4.25	0.625	2.22	3.5	2.85
	2019	3.8	0.77	2.455	2.8	2.8
	2021/22	5	0.03	0.2	0.31	0.8
	All years	4.21	0.375	1.425	2.315	2.265
Average asset ownership	2018	4.05	4.56	4.41	4.81	4.39
	2019	3.11	2.6	3.38	3.35	3.11
	2021/22	3.76	2.96	3.53	2.9	3.34
	All years	3.65	3.42	3.79	3.72	3.65
Proportion of expenditure spent on food (%)	2018	41.8	36.3	40.2	43.6	40.4
	2019	40.8	38.7	43.9	48.4	42.5
	2021/22	40.6	44	40.3	47.3	42.6
	All years	41.1	39.5	41.3	46.4	41.8

When it comes to animal wealth, measured using Tropical Livestock Units (TLUs),<sup>1</sup> Amudat not only shows an increase in ownership over time, unlike the other three districts, but also shows the highest livestock ownership by household of the four districts. The difference in the median number of TLUs owned between the districts by 2022 is particularly staggering. In 2021/22, 50% of the Amudat sample reported owning at least 5 TLUs, compared to less than 1 TLU owned by 50% of the sample in each of the other three districts (Table 2). Asset ownership,<sup>2</sup> on the other hand, significantly declined across the entire sample and in each district independently, with the largest decline in Kaabong.

Figure 1. Main source of income or food for income by year and district.



To better understand changes in poverty, we employ a variable that looks at what proportion of total household expenditure is spent on food. The greater the proportion, the greater the overall poverty. By this measure, there is a non-significant small increase in poverty across the sample over time (Table 2). However, as with much of our analysis, the level of poverty and importantly the

trend over time are not consistent across districts. Moroto has significantly higher poverty based on the food expenditure variable compared to Kaabong and Kotido. For example, in the 2021/22 data, on average, households in Kaabong and Moroto spent almost half of their annual expenditure on food. We see the greatest increase in poverty in Kaabong and Moroto; however, the change is not significant.

The definition of wealth has evolved over time in Karamoja. The qualitative focus groups identified engaging in alcohol brewing, collection and sale of bush products, and *leje leje* (daily casual labor) as indicators characterizing households that were poor. Using this classification of activities often performed by poor households, we see that the increase in poverty and the differences in that increase by district are even more stark than when using livestock, assets, or income as measures of wealth. In the first round of quantitative data collection, 72% of households reported own cultivation as their primary source of income or food. However, that proportion has steadily gone down, dropping to 50% of households by the third round. Each round of data collection was associated with a 32% significant reduction in the odds that a household reported cultivation as their primary livelihood source. At the same time, the proportion of households reporting brewing alcohol as their main livelihood activity increased from 3% to 7%, and collection and sale of bush products increased from 8% to 15% (but not significantly). Another way to describe this massive increase is that every round of data collection was associated with 78% greater odds that a household reported brewing alcohol. Because the qualitative discussion points to heavy reliance on brewing as an indicator of poverty at the household level, we can assume that this sharp increase in odds corresponds to a rise in the number of poor households.

The extent of livelihood transformation and the likely implications vary by district (Figure 1). In Amudat,

1 Using TLUs allows for weighting to differentiate between larger and more expensive animals (i.e., cattle or camel) and smaller ruminants and poultry. The TLU index can distinguish between a household with 10 heads of cattle and one with 10 chickens, which otherwise would have appeared as equal, with each having “10 animals.” To convert individual livestock ownership into TLUs, we used the following standard conversion factors according to the relative value of animals: cattle = 0.7, sheep = 0.1, goats = 0.1, pigs = 0.2, chicken = 0.01. Harvest Choice, “Tropical Livestock Units (TLU, 2005)” (International Food Policy Research Institute, Washington, DC and University of Minnesota, St. Paul, MN, 2015).

2 Asset ownership as a measure of wealth is simply a summation of whether the household owns, in working condition, at least one of the following: radio, mattress, solar panel, wheelbarrow, bicycle, motorbike, ox plow, *panga*, grinding mill, and cart. Thus, this measure ranges from 0 (none of these assets owned) to 10 (at least one of each of these assets owned). The majority of these assets, other than mattress, are specifically productive assets.

the move out of cultivation is primarily into livestock as a main livelihood activity, while in Kaabong, Kotido, and Moroto the switch from cultivation is into the livelihood activities associated with poverty: brewing, casual day labor, and collection and sale of bush products. Thus, while there is only a small difference in wealth as measured by expenditure on food, livestock ownership (TLUs), and asset ownership, given the extent of livelihood transformations that appear to be taking place, it is likely that over time the households making these shifts in Kaabong, Kotido, and Moroto are slowly regressing into greater poverty and are using less-than-ideal livelihoods to buoy their wealth.

## Changes in wealth equality from 2018 to 2022

We go a step beyond wealth in our analysis to look at wealth equality or how wealth is distributed across households in villages and districts. In order to look at wealth equality we used a common indicator called the Gini coefficient. The Gini coefficient represents the level of inequality of wealth within a national or social group by comparing the proportion of the population that lies in a certain income bracket versus the distribution of that income. For example, a Gini coefficient of 0 expresses perfect equality, where the bottom 10% of the population owns 10% of the income, the bottom 20% of the population owns 20% of the income, etc. In contrast, a Gini

coefficient of 1 expresses maximal inequality, where 1 person/household owns 100% of the income. While income is commonly used for the Gini coefficient calculations, monetary income is not an appropriate wealth measure in the Karamoja context. Instead, we use livestock and asset ownership separately to calculate the Gini coefficient.

Across all districts we see a slight move towards greater equality within villages using the TLU and a slight move away from equality within villages when it comes to asset ownership (Table 3), but the change is minimal. However, there are differences observed by districts. While Amudat has the most equal distribution of livestock ownership within a village, it is in the other three districts where we see a greater shift towards equality on the district level. Although more equal, households within villages are more equal in that they have *fewer livestock* (see absolute wealth analysis above). When it comes to asset ownership, inequality is increasing across all districts.

Unlike the within village level trend discussed above, livestock and asset equality within districts is decreasing (Table 4). While we still find that Amudat is the most equal and Kaabong is the least equal in terms of livestock ownership, district-level inequality is increasing in Kaabong and Kotido, staying relatively similar in Amudat, and only decreasing in Moroto. Hence, while there is some evidence that households are becoming more similar to each other within a village (village-level analysis in Table 3)

Table 3. Village-level Gini coefficient using Tropical Livestock Units and asset ownership

	Time	Amudat	Kaabong	Kotido	Moroto	All districts
Using Tropical Livestock Units	2018	0.418	0.533	0.484	0.507	0.479
	2019	0.495	0.528	0.463	0.473	0.490
	2021/22	0.446	0.388	0.461	0.463	0.439
	All years	0.452	0.484	0.469	0.482	0.470
Using total asset ownership	2018	0.218	0.259	0.232	0.225	0.233
	2019	0.281	0.316	0.282	0.308	0.293
	2021/22	0.283	0.309	0.267	0.264	0.280
	All years	0.262	0.295	0.262	0.267	0.270

when it comes to livestock ownership, villages are becoming more dissimilar (district-level analysis in Table 4).

The qualitative focus group discussions also indicated increased similarity across households within villages, with all but three out of 24 villages in the qualitative sample reporting greater equality over the past 10 years. This is in line with the quantitative findings that households within villages appear to be becoming similar over time, even while there are greater differences between villages.

### Changes in food insecurity from 2018 to 2022

The number of food-insecure months experienced in a 12-month period significantly increased by an average of 1/3 month across the period of data collection (Table 5). However, as with much of the analysis, the trend was not uniform across districts. In Amudat, Kaabong, and Kotido, food insecurity significantly increased by an average of about half a month across each of the three data collection periods. However, in Moroto, there was

no significant change over time. Comparing overall food insecurity across districts, Kaabong has the lowest food insecurity (i.e., is the best off by this measure), followed by Amudat, Moroto, and Kotido. Of note is that the difference in food security across the districts does not line up with the differences in wealth discussed above: Amudat outperforms the other districts in wealth, but not in regard to food security.

The difference in food insecurity by month and district indicates a change in seasonal patterns of food insecurity (Figure 2). April through June—the rainy and pastoralist lean season—is still the worst time of year for almost all households in all years. However, the drivers of the changes in the months of food insecurity data are related to changes in food insecurity in October through December, which is the harvest period. Thus, it appears the changes related to food insecurity are driven by cereal-related harvests and possibly terms of trade of livestock to cereal, as opposed to changes in food insecurity during the lean season.

There is a significant reduction over time in the use of long-term coping strategies<sup>3</sup> and no significant change in short-term coping strategies<sup>4</sup> across time

Table 4. District-level Gini coefficient using Tropical Livestock Units and asset ownership

	Time	Amudat	Kaabong	Kotido	Moroto	All districts
Using Tropical Livestock Units	2018	0.497	0.674	0.642	0.596	0.594
	2019	0.513	0.681	0.627	0.579	0.605
	2021/2	0.498	0.734	0.685	0.56	0.651
	All years	0.505	0.721	0.67	0.584	
Using total asset ownership	2018	0.365	0.391	0.388	0.375	0.353
	2019	0.351	0.425	0.329	0.38	0.387
	2021/22	0.322	0.419	0.371	0.381	0.389
	All years	0.346	0.413	0.363	0.381	

3 The long-term coping strategy measure is a summation of the following strategies: did the household have to sell livestock, did the household have to slaughter livestock, did the household have to take children out of school so they could work, did the household have to sell productive assets, did the household have to sell regular assets, did the household have to take a loan out from a lender, did the household have to marry a daughter at a younger age than they planned, and did the majority of the household have to migrate.

4 The short-term coping strategy measure is a summation of the following strategies: did someone in the household migrate, did the household send a child to live with a non-relative, did the household reduce consumption, did the women in the household reduce consumption, did non-working members reduce consumption, did someone in the household have to skip a meal, did someone in the household have to consume wild food, did the household have to harvest crops early, did the household have to consume seeds that were supposed to be used for farming, and did someone in the household have to take up new wage labor.

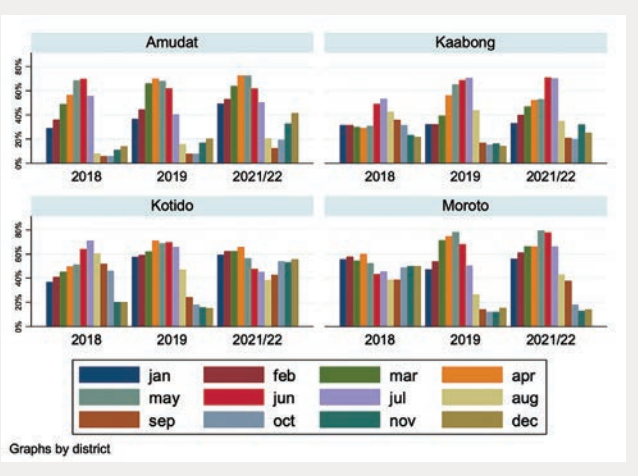
Table 5. Food insecurity by district and time

	Time	Amudat	Kaabong	Kotido	Moroto	All districts
Average months of inadequate household food provisioning <sup>5</sup>	2018	4.79	4.28	5.62	6.53	5.2
	2019	5.06	4.97	5.88	5.35	5.32
	2021/22	5.86	5.14	6.61	5.98	5.92
	All years	5.17	4.77	6	5.94	5.46
Average short-term coping strategies	2018	1.11	1.03	1.18	0.96	1.08
	2019	1.15	0.76	0.88	0.93	0.95
	2021/2	0.98	0.69	0.9	0.64	0.82
	All years	1.09	0.84	0.99	0.86	0.96
Average long-term coping strategies	2018	2.03	3.95	4.33	3.68	3.38
	2019	2.78	3.87	3.69	3.92	3.3
	2021/22	3.12	3.2	4.79	3.81	3.75
	All years	2.57	3.7	4.24	3.46	3.46

in the sample as a whole. The change over time in Amudat is significant, with the number of short-term coping strategies increasing by half a strategy with every round of data collection. In absolute values, households in Amudat reported using the fewest coping strategies compared to the other

districts. Thus, while Amudat is a district where we find the greatest equality, higher and growing livestock wealth, and fewer households switching into livelihood strategies associated with poverty, it is also the district that simultaneously is showing the greatest *increase* in food insecurity.

Figure 2. Monthly food insecurity by district and time.



Unlike wealth, food insecurity is highly variable over time. We find that the variability within households (meaning the change in food security over time within the same household) is higher than the variability in food insecurity between households in the same round of data collection. This means that household food insecurity oscillates over time, as opposed to wealth in the form of asset and livestock ownership. More so, wealth was not a good predictor of food insecurity. If households increased their wealth across any of the three wealth variables, they were also significantly more likely to increase the number of long-term coping strategies used. Greater asset ownership was associated with the use of significantly fewer coping strategies and fewer months of food insecurity, but changes in asset ownership were not associated with changes

5 We asked the respondent to think back to the 12 months prior to the data collection and list which months they did not have enough food to meet the family's needs. Thus, this variable ranges from 0 to 12, with 0 meaning that the household had enough food to eat throughout the entire past 12 months and 12 meaning there was not a single month (in the past 12 months) when they had enough food to eat.

in the number of coping strategies used. Livestock ownership or the proportion of expenditure spent on

food over the course of a year had no correlation to any of the food security measures.

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## Conclusions and implications

Overall, the data capturing the state of wealth and food insecurity from 2018 through 2021/early 2022 among the study communities in Karamoja show a picture of declining wealth, increasing inequality, movement into livelihood strategies associated with poverty (brewing, casual day labor, and exploiting bush products), growing food insecurity, and significant volatility in food security. These changes occurred in a context of a global pandemic, locust invasion, and minimal-to-critical—but not emergency—levels of regional food insecurity associated with an extended drought.

Throughout the analysis, we observe significant differences across our sample by district. This indicates that any programming carried out by national or international actors needs to be tailored to the specific location or livelihood specialization as opposed to being designed for Karamoja as a whole.

The differences across districts also illustrate one of the main findings in the research: the differences between food security and wealth, particularly livestock wealth, were not always in the expected direction. Greater wealth in terms of livestock or lower proportion of total expenditure spent on food was not associated with fewer months of food insecurity or fewer short-term coping strategies used; neither was an improvement in these measures of wealth associated with an improvement in food security. Thus, at least on the micro-level, investment in greater wealth does not necessarily translate into improved food security.

In addition, food security was incredibly volatile in this context, even in the absence of a serious drought or price hikes. The variability in food security over time for individual households was greater than the variability between households at any point in time. On the other hand, wealth varied very little for households over time. In addition to any programming around wealth improvements, an investment is needed in the provision of social safety nets to reduce the extremely high variability in food security that households experience year in and year out.

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