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Changes in and perceptions of wealth, equality, and food security in Karamoja, Uganda

Amudat, Kotido, Kaabong, and Moroto Districts, 2018-2022

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Executive Summary

This report reflects findings from a five-year research and learning study conducted by the Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University in partnership with Mercy Corps (MC) as part of the Apolou Activity funded by the United States Agency of International Development/Bureau of Humanitarian Assistance (USAID/BHA). The mixed methods study took place between 2018 and 2022 across four districts in the Karamoja sub-region of Uganda: Amudat, Kotido, Kaabong, and Moroto. The qualitative component includes four rounds of data collection with more than 75 young men and women as well as additional focus group discussions (FGDs) in the selected communities. The quantitative component included a three-year (2018, 2019, 2021/22) panel study that followed approximately 500 households across three rounds of data collection. While the two approaches did not aim to collect data from the same individuals, they were conducted in the same communities, and both the qualitative and quantitative methods utilized a longitudinal study design. The goal of the research was to better understand changes in and perceptions of wealth and equality in the selected communities, with considerations for food security and market access and quality, as well as Apolou programming.

The data indicate that the sample as a whole experienced an overall reduction in wealth across the study time period, particularly in regard to livestock and asset ownership. Many households moved into livelihood activities associated with poverty, including casual day labor, collection of bush products, and brewing and sale of traditional beer. Furthermore, there is evidence of growing inequality across the study area as a whole, particularly between communities in the same district and when measured by livestock wealth. However, a more long-term view presented by the qualitative data reflecting on the past 10 years (as opposed to just the research period) shows a more favorable picture, with growing wealth and equality as a result of better security and associated improvements in livelihoods

and economic opportunities.

The food insecurity data point to an overall deterioration between 2018 and 2021/early 2022, with an increase in the number of months a household experiences food insecurity as well as greater use of short-term coping strategies in response to food insecurity. For every year of data collection, food insecurity increased by half a month. However, that increase comes from greater food insecurity during the harvest period as opposed to what is traditionally labeled the “lean season.” Market quality also declined, with fewer goods available at the market. However, there were no significant changes, overall, in the time it takes to reach a market.

The trends in wealth, wealth equality, food security, and market access were very different across the four districts. For example, Amudat significantly increased in livestock-related wealth, had a large proportion of households move into more livestock-related livelihood activities, and reported a reduction by half in the time needed to reach the market. However, still in Amudat, food insecurity increased in terms of use of short-term coping strategies and number of months the household was food insecure. In Moroto, on the other hand, we see the greatest level of poverty as measured by livestock and assets and a move into livelihood activities corresponding to greater poverty, but greater equality and a perception of improved wealth on the individual level. Moroto is also the only district in which food security did not worsen. In Kaabong and Kotido, there is a large drop in both asset and livestock wealth across the three rounds of survey data collection, a movement into poverty-affiliated livelihoods, a perception of reduced wealth on the individual level, greater inequality, greater distance to markets and reduced quality of markets, and a significant increase in the number of food-insecure months reported in every round of data collection.

The by-district analysis as well as the regression

analysis further highlight that the relationship between wealth and food insecurity is not always consistent. There is some evidence that greater wealth is associated with the use of more long-term coping strategies, and a strong indication that wealth is *not* associated with food insecurity or changes in food insecurity. In general, we find that there is less change from year to year in wealth in a household 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.

The link between better outcomes and market access, on the other hand, is fairly consistent. Greater quality of markets—measured by number of goods available according to the respondent—is associated with fewer months of food insecurity, lower proportion of expenditure spent on food, and greater asset ownership. The increased availability of products at the market and hence likely greater choice does seem to directly improve wealth and decrease food insecurity.

Finally, while the study was not set up to be an impact evaluation, a triangulation across different approaches to determine the association between Apolou interventions and household outcomes does point to a positive impact. Apolou interventions were associated with fewer coping strategies used and lower odds of switching into poverty-related livelihoods. There is also some indication that layering improves outcome, with each additional Apolou intervention in a community being associated with fewer short-term coping strategies reported by the household. When looking at individual interventions, the impact on coping strategies came primarily from Apolou support to savings groups.

In this report, we begin with a brief introduction and a detailed description of the methodologies used. We then discuss the qualitative and quantitative findings around wealth and equality, distinguishing between district- and village-level findings and perceptions, versus household- and individual-level ones. For the latter, we specifically explore how these differences might be affected by the gender of the respondent. We then present the quantitative

findings on food insecurity, market access and quality, and the association of our outcomes with Apolou programming. We conclude the report by bringing the findings together, with a brief discussion of implications.

Introduction

This report marks the end of a five-year research and learning project by the Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University. Research took place from 2018 to 2022 in the Karamoja sub-region of northeastern Uganda as part of the Apolou Activity, a consortium led by Mercy Corps and funded by the United States Agency of International Development/Bureau of Humanitarian Assistance (USAID/BHA).¹ As part of Apolou, Feinstein’s mixed methods longitudinal research sought to understand the ways in which market expansion, including increased commoditization and monetization, have (or have not) provided opportunities for the population of Karamoja. This final report presents quantitative data from three rounds of data collection with over 500 households in the four Apolou districts of the sub-region and qualitative data from four rounds of data collection with more than 75 young men and women in these locations. Both components were longitudinal, meaning that the same respondents were interviewed in each round of data collection. This report revisits the original objectives of the study to analyze changes over time at the community, household, and individual level in relative wealth and equity. We also examine markets, food security, and the relationship between Apolou’s layering of interventions and household outcomes. Three additional briefing papers accompany this report and provide more detailed discussions on the experiences of women in Karamoja, changes in wealth and equity at the community level, and an analysis of youth economic status and for the future.

Methodology

This mixed methods study took place in four districts of the Karamoja sub-region: Amudat, Kaabong, Kotido, and Moroto. Kaabong District split into Kaabong and Karenga partway through the study.

For the purposes of consistency, we continue to compare our data and present our results across the four original districts, and label results in tabular form as “Kaabong/Karenga.”

Quantitative approach

In this section, we briefly describe the quantitative approach taken in this study. First, we explain the study design and sample size, followed by the variable construction, and then the analysis applied to the quantitative data.

Study design and sample size

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. This sample size was selected to be able to detect a difference in a mean increase of half a livelihood activity (0.3 standardized effect size) between two time periods accounting for the cluster effect with alpha 0.05 and beta 0.8. The sample size calculation was based on data from the Secure Livelihoods Research Consortium (SLRC) survey carried out in Northern Uganda. In the SLRC survey, the mean was approximately four livelihood activities (per household) with a standard deviation of 1.58 activities. In each village, households were selected using a spin-the-pen approach.

We followed the same households and respondents across the three years of data collection. While we experienced minimum attrition between 2018 and 2019, only 6% given that there was only one year between data collection, the attrition between the 2018 and 2021/2022 data collection was far greater, at 22% (Table 1). The largest attrition occurred in Amudat District (at 34%), with an average of 15% attrition across the remaining districts.

¹ In addition to Feinstein, Apolou partners include: Karamoja Peace and Development Agency (KAPDA), Nakere Rural Women Activist (NARWOA), Riamiriam, Save the Children, and Whave.

Table 1. Sample size by year of data collection

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

Another important distinction between the first two rounds of data collection and the third round relates to timing. While the first two rounds were carried out primarily in October and November, the third round had to be extended due to the added time it took to track the same households from the first two rounds. The delay resulted in all data collection in Amudat occurring in January of 2022, while data collection in the other districts was done in October, November, and December. Given the importance of seasonality in the Karamoja context, we control for month of data collection, along with round of data collection, in all of our models and comparisons.

To better understand how key outcome indicators might vary across Apolou villages with different numbers of interventions (or different “layering” of interventions), we randomly selected our communities from the full Apolou village list: 26 communities that only received one intervention from Apolou and 26 communities that receive more

than one intervention from Apolou at the time of the baseline. However, due to delays and changes in intervention implementation, the original village selection and layering distribution did not match up. Using more updated records of where and when interventions were implemented, we found that no villages had interventions at the time of the 2018 data collection. In 2019 and 2021/22, 71% of all villages had more than one Apolou intervention, 19% had only one Apolou intervention, and 10% had no Apolou intervention (Table 2). We will refer to these three groups as no intervention villages, light villages, and focus villages.

Variable construction

In this section we briefly describe some of the indexes used in the analysis. First, we define the variables constructed for proxying wealth and poverty. Then we describe how we quantify the level of wealth inequality in the sample districts and villages. Then we describe our measures of food

Table 2. Number of villages by Apolou layering category

Village type	Time			Total
	2018	2019	2022	
None	52	5	5	62
Light	0	10	10	20
Focus	0	37	37	74
Total	52	52	52	156

insecurity and market quality and access. Finally, we explain how we look at the association between MC's interventions and key outcome indicators.

Absolute wealth

The way in which wealth is defined and understood in Karamoja differs by respondent group and is nuanced and evolving. Thus, we use three different measures of wealth: livestock ownership, productive asset ownership, and proportion of expenditure spent on food.

1. To understand **livestock ownership** as a measure of wealth, we looked at Tropical Livestock Units (TLUs). 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 = 0.01.²
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.
3. The final wealth measure—**proportion of expenditure spent on food**—is a common measure of poverty. The larger the yearly expenditure on food, the greater the household's level of poverty. To construct this

variable, we first summed the household's weekly expenditures (food purchases, water, *waragi*/alcohol, mobile credit, charcoal, soap, public transportation), monthly expenditure (utilities, fuel, batteries, loans, rent, agricultural inputs, minor health costs), and yearly expenditures (education, large appliances, small appliances, household furnishing, clothing, large health costs, funeral costs, marriage costs). Next, we multiplied the weekly costs by 52 and the monthly costs by 12. We then summed these with the yearly costs to get a total yearly expenditure figure. We multiplied weekly expenditure on food by 52 and divided this number by the total annual expenditure to get a very rough estimate of what proportion of total expenditure is spent on food.

Each one of these measures of wealth has its limitations and is not appropriate for each and every household. For example, households that are more reliant on subsistence agriculture might have overall low expenditure on food but are still likely considered poor, while households that move into farming might be wealthy but own very few livestock. In addition, we recognize that self-reporting of expenditures can be unreliable. Thus, we look at all three of these measures to help triangulate overall movements in wealth in Karamoja.

Wealth inequality

In order to look at inequality in the data set we used a measure 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

² Harvest Choice, "Tropical Livestock Units (TLU, 2005)" (International Food Policy Research Institute, Washington, DC and University of Minnesota, St. Paul, MN, 2015).

used for the Gini coefficient calculations, monetary income is not an appropriate wealth measure in the Karamoja context in which much of wealth is in the form of animals. Instead, we use livestock and asset ownership (as defined above) separately to calculate the Gini coefficient.

Food insecurity

Similar to wealth, we use multiple different measures of food insecurity to better understand changes over time and compare across the four districts in Karamoja.

The first measure we use is the inverse of the commonly used variable Months of in-Adequate Household Food Provisioning (MinAHFP). 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. We also break down this variable by month to better understand the seasonality of food insecurity Karamoja across the three rounds of data collection and between districts.

The second and third measures look at coping strategies in response to food insecurity. While the strategies were adopted from the Coping Strategies Index (CSI),³ the current calculations do not include weights based on severity of the coping strategies. Instead, we included questions on coping strategies as "yes" or "no" questions for the past 12 months rather than "number of days in the past seven days" that the coping strategies was used. The reason for this distinction from the more common CSI is that

we wanted to capture both reversible (short-term) and less-reversible (long-term) coping strategies in the analysis. Thus, we constructed two measures: a short-term coping strategy index⁴ and a long-term coping strategy index.⁵

Market quality and access

As a proxy for market quality, we look at the total number of different products available at the market according to the respondent. Specifically, we ask about the availability of lentils, cereals, fruits, oil, seeds, agricultural tools, livestock inputs, sheeting, and construction material. As a proxy for market access, we asked the respondent how many minutes it takes to reach the nearest market.

Apolou intervention layering

We use four different approaches to analyze the role of Apolou's layering of interventions in the study sites. First, we created a variable that designates each village by the extent of Apolou layering, including focus group villages with more than one Apolou intervention, light villages with one Apolou intervention, and villages without any Apolou interventions. Thus, each village is assigned as either having no interventions, being a light intervention village, or being a focus intervention village at each time point. Second, we look at the number of interventions a village has in any particular year and whether that is associated with improved outcomes (Table 3). In the third approach we look at whether any individual intervention is associated with improved outcomes. The specific intervention categories include a) savings groups of any type, b) economic empowerment for women or youth, c) Livestock Economic Groups (LEGs), d) adolescent safe spaces, and e) LEG plus water, sanitation and hygiene (WASH). For the third approach we include a dummy (yes/no) variable for whether the village

3 D. Maxwell and R. Caldwell, "The Coping Strategies Index: A Tool for Rapid Measurement of Household Food Security and the Impact of Food Aid Programs in Humanitarian Emergencies," Field Methods Manual, Second Edition (CARE, January 2008).

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.

5 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.

received that intervention and see if and how it is associated with our outcomes or any improvements in our outcomes over time. And fourth, in the third round of data collection, we asked respondents what type of intervention support they have received. If they mentioned Apolou, we explore whether that is associated with better outcomes (in the third round only).

Quantitative analysis

For all of the analysis we use fixed and random effects models, specified according to the distribution of the variable to better understand individual- and population-level trajectories over time. For highly skewed outcomes—TLUs, total asset ownership, long-term coping strategies—we use negative binomial fixed and random effects models; for normally distributed outcomes—proportion of income spent on food, months of inadequate household food production, number of overall coping strategies used, number of short-term coping strategies used—we use linear regression fixed and random effects models. We include village random effects, as well as control for the data collection round and month of data collection across all of the analysis. The latter allows us to control for the fact that in the third round of data collection, data were

collected over four as opposed to two months given the increased effort it took to track households.

Qualitative approach

Feinstein conducted individual in-depth interviews with a cohort of young people in four districts in 2018, 2019, 2020, and 2021.⁶ Respondents ranged in age from mid-teens to mid-20s at the start of the study. We created the sample for the qualitative work by selecting 24 of the total villages from the quantitative sample, seeking to balance characteristics such as size, access to markets, access to towns, access to roads, and availability of services. In each of these 24 villages we selected four young people—two males and two females—for an initial cohort of 96 respondents in 2018. Our goal was to have data across the time period (2018–2021) on 75 individuals, and hence we started with a higher number knowing that we would lose some participants over time. In 2019 we were able to find 86 of the previous year’s participants, of which 45 were female and 41 were male. In 2020 we were able to track 83 of the original respondents, 43 female and 40 male. Finally, in 2021, we interviewed 77 youth: 40 female and 37 male respondents. See Table 4.

Table 3. Number of interventions per village across data collection years

# of interventions	2018	2019	2021/2	Total
0	52	5	5	62
1	0	10	10	20
2	0	17	17	34
3	0	12	12	24
4	0	3	4	7
5	0	5	4	9
Total	52	52	52	156

6 Each period of data collection took place late in the year listed. In 2018, 2019, and 2021, we extended into January of the next year for data collection in Amudat District and tracking of respondents (in 2019 and 2021). This means that technically our data collection windows were late 2018/early 2019, late 2019/early 2020, late 2020, and late 2021/early 2021. For simplicity of reporting the results, we refer to these data collection periods by the year in which the majority of the data were collected.

Table 4. Qualitative respondents over time across districts

District	2018	2019	2020	2021
Amudat	24	19	20	19
Kaabong/Karenga	24	23	21	20
Kotido	24	24	19	18
Moroto	24	20	23	20
Total	96	86	83	77

In the first year (2018), the open-ended qualitative interviews with respondents were wide-ranging, focusing on life experiences, livelihoods, aspirations, interactions with markets, and position in the community, to mention but a few. For the second, third, and fourth years, we tailored each interview based on what the specific respondent had told us the previous year. This allowed us to discuss changes and life events in an informed and meaningful way and to have a much better understanding of the nature of change over time. In the final year (2021), we added questions about how the respondents felt that their relative economic status within their communities had changed over the previous four years. We used a simple triangle diagram divided into five sections to facilitate this discussion. Calling the triangle “a mountain” that represented economic status within their community, we asked each youth respondent to indicate where he or she felt they had been on this mountain four years earlier (i.e., “when you first agreed to participate in our study”). We then asked them to indicate where they were today, and how and why this change—if any—had occurred. Importantly, these views of wealth are based entirely on subjective individual perceptions. We did not

push respondents to qualify the characteristics of their wealth, although a number did provide details on what wealth meant to them.

In 2021 we also introduced a community-level participatory exercise to gather data on perceptions of changes in wealth and equity over time. The purpose of this exercise was to triangulate findings from the quantitative data as well as to provide context for the experiences of the youth respondents in these specific communities. In each qualitative community (n = 24) we convened a focus group of adult men and women ages approximately 40 and above.⁷ Unlike the individual interviews that used the four-year study as the timeframe for reference, we needed to select a date or time window that stood out in people’s minds. We thus used the end of the most intense period of the most recent disarmament, in approximately 2010–2012 (depending on location), as the comparative “before” period.⁸ This became a “10 years ago” reference point that was easy for respondents to recall and reflect upon.

For the participatory exercise, we provided the group

7 Given time constraints, we were only able to conduct one such focus group discussion (FGD) per community, which is why we sought to combine males and females in one group. Given gender dynamics and the fact that the researchers conducting this exercise were both male, we assume a bias towards the male perspective in these data. Additional biases in this exercise include a tendency to romanticize the past, a selection bias based on who had the time and inclination to participate, the possibility of under-representing wealth in hopes of receiving more assistance or project interventions, and the intentional or inadvertent exclusion of information regarding the most marginalized households.

8 The experiences during the most intense period of disarmament were extremely memorable for communities—in large part because of their brutality as well as their impacts upon livestock-based livelihoods—making this an effective point of reference in a recall exercise. Human Rights Watch, “Get the Gun! Human Rights Violations by Uganda’s National Army in Law Enforcement Operations in Karamoja Region” (Human Rights Watch, New York, 2007); E. Stites and D. Akabwai, “‘We Are Now Reduced to Women’: Impacts of Forced Disarmament in Karamoja, Uganda,” *Nomadic Peoples* 14 (2): 24–43.

of respondents with 50 small stones and asked them to arrange these on the same simple triangle diagram divided into five horizontal sections that we described in the personal wealth section above. Explaining that the triangle was a “mountain” that represented strata of their community according to wealth, we asked participants to arrange the stones to show distribution by wealth quintile of the households in their community 10 years earlier (“after the height of disarmament had passed”). Through discussion, participants arranged and rearranged the stones until there was broad agreement within the group as to their distribution. After recording and photographing this result, we then asked respondents to discuss the different characteristics of the households at the different levels of the mountain, offering prompts around variables such as demographics, predominant and secondary livelihood activities, household size, asset holdings, livestock ownership, and any other characteristics participants deemed relevant. We then drew a second “mountain” with five quintiles that represented “today” and asked respondents to again agree on a distribution of the 50 stones. Differences between the two diagrams allowed for a discussion of why households might move up or down as well as why and how the characteristics of wealth (or poverty) had changed over the past decade. This allowed for a thorough conversation of both opportunities and shocks at the community level. We quantified the results of the “mountain” exercise and used the data to generate a Gini coefficient of equality as well as a rough measure of absolute wealth across the two time periods.⁹ As discussed in more detail below, both the qualitative measures of wealth (at the individual and community level) capture perceptions of relative wealth over time. These perceptions help situate both the quantitative findings and the broader individual trends that emerge from the qualitative cohort.

The qualitative longitudinal model provided us with the unique opportunity to build rapport with

respondents. Because we based each individual conversation off of the previous year’s discussion, we were able to adjust the topics covered based on the respondent’s life events, aspirations, and experiences that we had talked about in prior interviews. This helped to make the discussion more natural and indicated to the respondent that we were paying attention to his or her story. Another benefit of having annual conversations at approximately the same time each year was that they served as place holders in time. Respondents were able to readily recall past discussions and events that had transpired in the interim.

Analysis of the qualitative data entailed transcription and coding using both deductive and inductive codes and the use of Dedoose, a qualitative software program. Four researchers worked on the data analysis and engaged in regular conversations about codes, themes, and patterns to ensure consistency of approach and analysis.

⁹ Our rough calculation of absolute wealth entailed assigning each stone in a quintile a relative weight, i.e., all stones in the lowest category were assigned a value of one, all stones in the highest category we assigned a value of five, etc. Using these values, we summed all the stones in a given quintile and across the “mountain” to show overall changes in absolute wealth.

Wealth and Equality

In this section, we present findings related to wealth and equality. We draw on qualitative findings from 2021 when we introduced community-level exercises to gather information on perceptions of changes in wealth and equality over the past 10 years, as well as the quantitative longitudinal surveys to explore changes from 2019–2021/22 in wealth and equality. We describe how the definition of wealth has evolved in Karamoja and then use that evolving definition of wealth to better understand changes in wealth and equality across the past 10 years (using the qualitative data) and across the three rounds of data collection (using the quantitative data) on the district and village level. Next, we explore what is associated with wealth and changes in wealth across the four districts on the household and individual level. We follow this section with a discussion of why the results sometimes diverge when comparing the qualitative and quantitative data. Finally, we present a brief summary of the findings around wealth and equality.

Evolving definition of wealth

The participatory FGDs investigated participants' interpretations of wealth as well as how these had changed over time. Given the rapid economic and livelihood changes in Karamoja, we feel that these interpretations shed light on livelihood shifts and aspirations for communities. For instance, we see that some components of wealth remain consistent over time—such as the importance of bridewealth payments in an economic portfolio—while others became more complex and nuanced, such as whether having many wives and children contributes to wealth or poverty.

We began with descriptions of households in the five sections of the “mountain” in the period after the peak of disarmament (i.e., 10 years prior to the data collection). Respondents across all districts reported the following as common characteristics of the **wealthiest households**:

- Multiple wives;
- Multiple children;

- Large livestock herds;
- Access to large productive assets, including tractors, *boda bodas* (motorcycles used as taxis), and property that could be rented;
- Often owned the land they farmed;
- Used advanced farming technology, such as tractors.

In contrast, the household characteristics of those at the lowest level of the mountain— the **poorest households**-- after the peak of disarmament were:

- Unmarried or married unofficially (i.e., no bridewealth exchanged);
- Few children;
- Little to no livestock;
- Reliance on sale of bush products (firewood, building poles, thatch, etc.) and *leje leje* (casual daily labor) for survival;
- Did not own or have access to productive assets;
- Did not use advanced farming techniques to farm.

We see interesting evolutions in characteristics of wealth and poverty when comparing the above data to the descriptions of the different economic strata today. Critically, participants viewed having numerous wives and children more ambiguously today than 10 years ago. Households in the lowest quintile 10 years ago were said to have few wives and children, whereas today many of the poorest households were said to have *many* wives and children. Indeed, some participants mentioned that having *fewer* wives and children could—in the present time—be a marker of wealth. This shift is due to the fact that it is very difficult economically to support large families, especially given the decrease in numbers of households that own sizeable livestock herds.

In contrast, being officially married (i.e., through the exchange of bridewealth, usually in cattle) continued to be a marker of wealth across both time periods. Being unofficially married (i.e., cohabitating or having children without full bridewealth payment)

was associated with being in the lowest quintile in both time periods. (To note, a man may still have multiple “wives” even without official bridewealth transfers.) Although we know that young people are increasingly renegotiating the terms of marriage,¹⁰ official marriage as an institution persists as an indicator of wealth, and especially livestock wealth.

Further, while livestock remained a central component of wealth in the present day, there was evidence of a broader interpretation of what constituted wealth. Participants described many households in the higher quintiles in the present day as having the following characteristics:

- Salaries;
- Having educated children or being educated themselves;
- Working for non-governmental organizations (NGOs);
- Owning more expensive assets, such as vehicles and grinding mills;
- Having savings;
- Owning businesses;
- Receiving rental income.

The above list contrasts greatly from that describing wealth 10 years ago and illustrates a society shifting more towards livelihoods that include education, the service sector, and financial investments. In addition, wealthier households appear to be embracing cash-based assets, meaning that both livestock and asset ownership are signifiers.

In contrast to the changes seen in descriptions of wealth, the characteristics associated with poverty remained relatively consistent over time. A notable change was the addition of brewing as a livelihood activity to the list, which existed alongside collection of sale of bush products and engagement in casual labor (*leje leje*).

Changes in village and district level: absolute wealth

We used the “mountain” exercise during focus group discussions in late 2021/early 2022 to collect

rough qualitative data on absolute wealth. We then converted the participatory rankings to numbers and examined absolute wealth, as well as equality (discussed in more detail below). This analysis showed an increase in absolute wealth in all study villages over the approximately 10-year period, with the greatest increase in Amudat (followed by Moroto, Kotido, and Kaabong respectively). Using our rough calculation of absolute wealth, the wealthiest overall district was also Amudat (followed by Kotido, Kaabong, and Moroto).

The qualitative data regarding positive changes in wealth contrast with the results of the quantitative data. Looking at the quantitative data and changes in wealth from 2018–2021/22, we see an overall decrease in animal wealth, although with significant differences by district (Table 5). With the exception of Amudat, we see a decline in animal wealth across all districts that follow the same “relative” order as in the qualitative data ($p < 0.01$). Importantly, Kaabong not only started with significantly lower animal wealth compared to the rest of the districts ($p < 0.05$) but shows one of the biggest declines in animal wealth over the three survey rounds. The difference in the median number of TLUs owned between the districts by 2022 is particularly staggering. In 2021/2, 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: Kaabong, Kotido, and Moroto (Table 5).

We also looked at total asset ownership across district and time in the quantitative data (Table 6). Across the entire sample, asset ownership has significantly declined ($p < 0.01$). The significant decline is observed in each district independently, with the largest decline in Kaabong.

To better understand changes in poverty, we employ a variable that looks at what proportion of total 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 7).

10 T. Atim, M. Seaman, and E. Stites, “Navigating and Negotiating Livelihoods and the Transition to Adulthood in Karamoja, Uganda” (Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, 2022).

Table 5. Median Tropical Livestock Units by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	4.25	0.625	2.22	3.5	2.85
2019	3.8	0.77	2.455	2.8	2.8
2021/2	5	0.03	0.2	0.31	0.8
All years	4.21	0.375	1.425	2.315	2.265

Table 6. Average asset ownership by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	4.05	4.56	4.41	4.81	4.39
2019	3.11	2.6	3.38	3.35	3.11
2021/2	3.76	2.96	3.53	2.9	3.34
All years	3.65	3.42	3.79	3.72	3.65

Table 7. Average proportion of expenditure spent on food (proxy for poverty) by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	41.8	36.3	40.2	43.6	40.4
2019	40.8	38.7	43.9	48.4	42.5
2021/2	40.6	44	40.3	47.3	42.6
All years	41.1	39.5	41.3	46.4	41.8

However, as with much of our analysis, the level of poverty and importantly the trend over time is not consistent across districts. Overall, Moroto has significantly higher poverty based on the food expenditure variable compared to Kaabong and Kotido ($p < 0.05$). For example, in the 2021/2022 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.

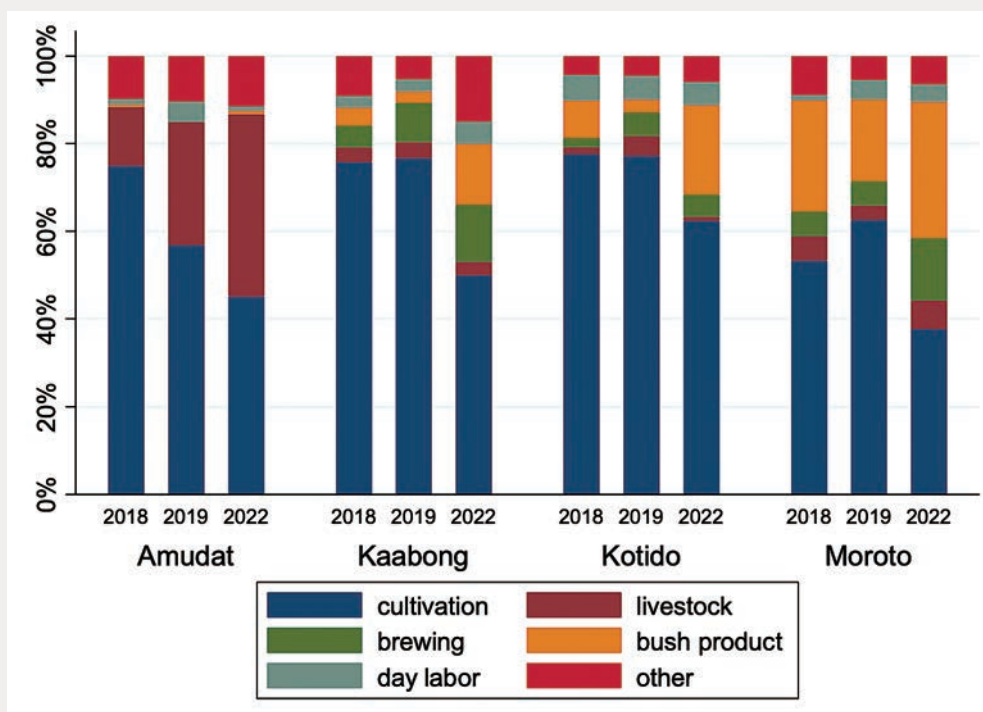
As discussed above, the definition of wealth has evolved over time in Karamoja. And while in the quantitative data we primarily focus on three measures of wealth—TLUs, productive asset ownership, and proportion of expenditure spent on food—households also used livelihoods to describe the state of wealth. As detailed above, 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 poverty based

on different livelihood activities and examining the qualitative and quantitative data in tandem, we see that the increase in poverty and the differences in that increase by district are even more stark. 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% reduction in the odds that a household reported cultivation as their primary livelihood source ($p < 0.01$). At the same time, the proportion of households reporting brewing alcohol as their main livelihood activity increased from 3 to 7%, and collection 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 78% greater odds that a household reported brewing alcohol ($p < 0.01$). 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 varies by district (Figure 1). In Amudat, the move out of cultivation is primarily into livestock as a primary livelihood, 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 and greater poverty and are using less-than-ideal livelihoods to buoy their wealth.

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



Changes in village and district level: equality of wealth

Just looking at absolute wealth on its own is not sufficient. We need to better understand how that wealth is distributed across households in villages and districts, i.e., wealth equality. The qualitative data from the FGDs reveal that all but three of the total villages became *more equal* since the end of disarmament.¹¹ We aggregated the data for all villages in each district, though stress that the findings from this aggregation are not representative of the districts themselves and simply reflect changes in the study sites. When aggregated, the Amudat study villages show the greatest *shift* towards equality over the past 10 years, followed by Kotido, Moroto, and Kaabong, in that order. When we look instead at absolute terms, Amudat is still the most equal in 2021, but the order that follows is Kotido, Kaabong, and Moroto.

We also looked at equality using the quantitative data across the three rounds of data collection. As discussed earlier, we applied the Gini coefficient to assess changes in equality. The Gini coefficient is usually constructed out of income data; however, income is not an appropriate measure for wealth in the context of Karamoja, so instead we construct the Gini coefficient twice, first using livestock ownership (based on TLUs) and second using asset ownership.

When looking at village-level equality over time via the first measure—i.e., the Gini coefficient within each village using TLU (Table 8)—we find that equality is *increasing* overall over time (meaning the Gini coefficient is getting smaller) in line with the qualitative data. When using the second measure—equality by asset ownership—on the other hand, we find that village-level equality is slightly *decreasing*. Across both livestock and asset measures, the changes in equality vary by district. We find the exact same district-level comparison as shown by qualitative data when it comes to livestock: Amudat is the most equal (Gini is closest to 0), followed by Kotido, Moroto, and Kaabong. However, while Amudat is the most equal overall, of the three districts, Amudat is the only district where village-level equality in livestock is slightly decreasing. The Gini coefficient based on ownership of productive assets indicates much greater village-level equality in asset ownership, compared to livestock ownership, with the average Gini coefficient being 0.470 for TLUs as opposed to 0.270 for assets. See Table 9. We find very small differences across districts; however, there is a slight indication that asset ownership equality in the villages is decreasing (as opposed to livestock ownership equality, which is increasing) in all districts over time. This is illustrated in the two tables below, with a reminder that a lower (closer to 0) Gini coefficient indicates greater equality.

Table 8. Village-level Gini coefficient using Tropical Livestock Units

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	0.418	0.533	0.484	0.507	0.479
2019	0.495	0.528	0.463	0.473	0.490
2021/2	0.446	0.388	0.461	0.463	0.439
All years	0.452	0.484	0.469	0.482	0.470

¹¹ The three villages that became less equal (i.e., increased inequality) were Lomunyekipurat in Moroto, Kalarlar in Kaabong, and Abdi in Amudat. However, respondents still reported growth in absolute wealth in these locations and felt that the situation in their village had improved over time.

Table 9. Village-level Gini coefficient using asset ownership

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	0.218	0.259	0.232	0.225	0.233
2019	0.281	0.316	0.282	0.308	0.293
2021/2	0.283	0.309	0.267	0.264	0.280
All years	0.262	0.295	0.262	0.267	0.270

In summary, within villages, the distribution of livestock looks more similar over time when we sum the four districts as well as separately in the districts of Kaabong, Kotido, and Moroto. Taken together with the data on absolute wealth, the changes in equality reflect the fact that fewer people are owning livestock in these three districts—i.e., more people own fewer animals, hence they are more equal to each other. Amudat tells a different story—absolute wealth is increasing, but so is inequality—meaning some households are increasing their livestock ownership while others are not. The distribution of assets on the other hand is fairly even across households within a village, irrespective of the district you are looking at. However, across the sample as a whole and in each district, village-level equality in assets is slightly declining.

Where we do find a divergence from the qualitative data is when we look at district-level equality over time—meaning we calculated inequality within each district, rather than within each village (Tables 10 and 11). Overall, livestock inequality in the four study districts is steadily increasing when comparing all sample households within each district. (We offer

these data as potentially indicative of trends in the district, while noting that our sample is not designed to be representative at the district level.) 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. Overall, there is greater equality in asset ownership compared to livestock ownership, with the greatest equality in Amudat and the greatest inequality in Kaabong. As with the village-level data, there are also fewer shifts in equality over time when looking at assets, with only slight indication that overall inequality might be increasing.

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. As households in the focus groups are more likely to compare themselves to their neighbors as opposed to other communities, the difference between the qualitative and quantitative findings using district-level data is easily reconciled.

Table 10. District-level Gini coefficient using Tropical Livestock Units

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	0.497	0.674	0.642	0.596	0.594
2019	0.513	0.681	0.627	0.579	0.605
2022	0.498	0.734	0.685	0.56	0.651
All years	0.505	0.721	0.67	0.584	

Table 11. District-level Gini coefficient using total assets

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	0.365	0.391	0.388	0.375	0.353
2019	0.351	0.425	0.329	0.38	0.387
2021/2	0.322	0.419	0.371	0.381	0.389
All years	0.346	0.413	0.363	0.381	

Changes in absolute wealth at the household level

In the qualitative FGD exercises, we asked respondents to discuss the factors that might contribute to households moving up or down the wealth quintiles over time. Focus group participants report that livelihood shocks at the household level—including cattle raids, droughts, and death or illness within the family—are the key drivers of decreased household wealth. In some locations, respondents discussed the role of bridewealth payments: when paid out (i.e., by a man’s family), these could move a household down and when received (i.e., by a woman’s family), they could move the household up. In looking at livelihoods over time in Karamoja,¹² we see that although there have been myriad changes, the description of both idiosyncratic (affecting a single household or small group of households, such as illness or cattle raids) and covariate (affecting an entire community or communities, such as drought) shocks that impact household wealth are relatively consistent. Despite these persistent and recurring risks, the fact that community perceptions indicate increases in absolute wealth and increased equality over the past 10 years may indicate increased perceived resilience to shock at the household and/or community level. The quantitative data further support this assessment. There was no association

between the experience of climate, conflict, and economic shocks and asset or livestock wealth or higher proportion of expenditure spent on food. More so, over the course of the study period, *changes* in the experience of shocks (climate, conflict, or economic) were not associated with a reduction in wealth or increase in poverty.

In the quantitative analysis we looked at the relationship between food security (discussed in more detail below) and wealth. The data indicate that coping strategies, both short and long term, were used to protect household wealth. The more long-term coping strategies a household reported using, the greater their asset ownership, the greater their TLUs, and the lower their proportion of expenditure spent on food ($p < 0.01$). If a household increased the use of long-term coping strategies over their study period, their TLUs went up and their proportion of expenditure spent on food ($p < 0.05$) went down. On the other hand, a higher MinAHFP (i.e., higher food insecurity) was associated with lower asset ownership ($p < 0.01$) and lower TLUs ($p < 0.01$). Thus, while worse overall food insecurity is associated with lower asset and livestock wealth, the use of long-term coping strategies is associated with greater wealth, indicating households are likely using these strategies in the face of shocks to protect their wealth.

12 See, inter alia, E. Stites, D. Akabwai, D. Mazurana, and P. Ateyo, “Angering Akuju: Survival and Suffering in Karamoja, Uganda” (Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, 2007); J. Burns, G. Bekele, and D. Akabwai, “Livelihood Dynamics in Northern Karamoja: A Participatory Baseline Study for the Growth Health and Governance Program” (Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, 2013); K. Bushby and E. Stites, “Resilience and Risk in Pastoral Areas: Recent Trends in Diversified and Alternative Livelihoods. Case Study: Karamoja, Uganda” (USAID/East Africa Resilience Learning Project, Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, November 2015); E. Stites, K. Howe, and D. Akabwai, “Five Years On: Livelihood Advances, Innovations, and Continuing Challenges in Karamoja, Uganda” (Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, September 2017).

Respondents in qualitative interviews also attributed certain household-level characteristics to moving up or down the wealth “mountain.” Focus group participants repeatedly emphasized that “drunkenness” within households caused a fall in wealth or contributed to remaining in the lowest quintile. As alluded to above, having “too many wives or children” could push households down the “mountain.” In contrast, households that educated their children, invested in savings, or diversified livestock herds or the location of animals were more likely to move up in wealth.

Beyond household characteristics, focus group participants mentioned broader aspects that contributed to improvements in both household and absolute wealth within their communities. One of the most important of these systemic factors was the relative peace that existed across Karamoja in the years following the peak of disarmament. As explained by respondents (and detailed in previous Feinstein studies¹³), this relative peace allowed various livelihoods activities to rebound, markets to expand, and trade to increase. Peace was particularly important to pastoral production, as herders and livestock owners could once again access natural resources without danger, could move animals over long distances and across territory inhabited by different groups, and could safely reach and make transactions in multiple markets. Although insecurity has increased since 2019,¹⁴ the relative peace experienced for most of the past decade was a marked departure from previous levels of insecurity and allowed widescale recovery of many economic and social aspects of life in the region.

Respondents cited government programs and NGO interventions as institutional-level factors that had enabled increased absolute wealth and facilitated some households to progress to higher wealth quintiles over the past decade. Programs

mentioned include skills training by NGOs and asset distribution by the government programs National Agriculture Advisory Services (NAADS) and Northern Uganda Social Action Fund (NUSAF). Focus group participants also credited improved roads, better health infrastructure, more widespread livestock vaccines, and the expansion of markets. While we discuss this more under the section on Apolou intervention layering, there was a significant association in the quantitative data between being and moving to a Apolou light touch or focus village from a no-Apolou intervention village and higher and improved TLUs ($p < 0.01$). In general, the more Apolou interventions a community received, the higher the TLUs ($p < 0.01$). As communities received more interventions over time, the TLUs subsequently also increased ($p < 0.01$).

Only a handful of focus group discussions directly raised the expansion of markets (as evident in the increased availability of more goods) as a factor contributing to improved wealth, but the quantitative data imply a more robust connection. Households that reported the availability of more goods at the market owned more assets ($p < 0.01$). Even more telling, reports of more goods in the market was associated with a lower proportion of expenditures spent on food ($p < 0.01$). If market quality improved over the course of the study for a household, then the proportion of their expenditure spent on food also went down ($p < 0.01$). A shorter reported distance to the market was also associated with higher TLUs ($p = 0.05$). The association between our proxy for poverty and market quality likely indicates that when there are more options in the market, households are more likely to be able to shop around for the best price.

The importance of markets is also apparent in the characteristics ascribed by FGD participants to wealthy households, which include various market-

13 K. Howe, E. Stites, and D. Akabwai, with Mercy Corps, “‘We Now Have Relative Peace’: Changing Conflict Dynamics in Northern Karamoja, Uganda” (Feinstein International Center, November 2015); E. Stites, K. Howe, T. Redda, and D. Akabwai, “A Better Balance’: Revitalized Pastoral Livelihoods in Karamoja, Uganda” (Feinstein International Center, July 2016); E. Stites and K. Howe, “From the Border to the Bedroom: Changing Conflict Dynamics in Karamoja, Uganda,” *Journal of Modern African Studies* 57, no. 1 (March 2019): 137-159.

14 The factors behind the resumption of conflict are being examined by a Feinstein team (including the lead author on this report) under the Karamoja Resilience Support Unit (KRSU) at the time of writing this report; release is expected by October 2022. See R. Lotira Arasio and E. Stites, “The Resumption of Conflict in Karamoja: A Community Perspective” (Karamoja Resilience Support Unit (KRSU), Feinstein International Center, Friedman School of Nutrition Science and Policy at Tufts University, Kampala, forthcoming).

based elements such as owning a business, renting properties, operating grinding mills, or driving and/or renting out *boda bodas*. The growth of livestock trade is a key driver of economic growth and personal wealth in many of the study sites; to be successful, this endeavor requires relative peace as well as an expansion of markets and transport infrastructure. As such, we feel it is important to acknowledge the widespread role that market growth has played in recent years, even though it is not described in these words by study participants.

In general, we found that wealth as measured by livestock or assets in the quantitative data is relatively sticky, meaning the higher the wealth in the previous round of data collection, the higher that wealth in the next round of data collection, and vice versa. The greatest stickiness occurred in relation to asset wealth, followed by livestock wealth in comparison to measures of food insecurity (see more below). That stickiness likely explains why so few variables are correlated to wealth, including most of the data on experiences of shocks. Households use the tools at their disposal to protect their wealth, including the use of both short-term and long-term coping strategies. Households aim to hold onto assets and livestock for as long as possible, not only as a form of savings, but also as insurance to allow them to manage difficult periods, respond to one-off household needs, and plan for old age.

Changes in absolute wealth at the individual level

In late 2021/early 2022 we conducted the wealth exercise with 76 of the young people who made

up the individual qualitative respondents in our longitudinal cohort. Overall, half (50%) reported a decrease in their wealth over the study time period relative to the rest of their community. Thirty-four percent reported that their wealth had increased over the same time period, and 17% reported that their wealth neither increased nor decreased. See Table 12.

Overall, Amudat District has the highest rate of reported improvement in wealth status, with 74% of youth respondents reporting having moved up in the 2018–2021/22 period, and only 21% reporting a decrease in wealth (Table 12). Moroto also demonstrates a predominate upward trend, with 57% of respondents reporting improvements, compared to 26% moving down and 16% reporting no change. In marked contrast, only 5% of respondents in Kaabong/Karenga reported improvements in wealth over the study time period, with 70% moving down. In Kotido, no respondents felt that their situation had improved, and 83% said that their economic status had worsened. The data further indicate the level of volatility in this context, with fewer than a quarter of all respondents across all districts reporting no change in their wealth status over the past three years.

We discussed different perceptions of wealth with the youth cohort. When asked what indicated that someone was wealthy, common responses included: being able to meet all the needs of their family, having a large number of animals, having adequate land to harvest enough food for family needs, having rental income, owning a shop, and having many wives and children. This last point—having more

Table 12. Individual wealth change from 2018–2021/22, by district (% with frequency in parentheses)

Districts	Up	Down	No change
Amudat (n = 19)	74% (14)	21% (4)	5% (1)
Kaabong/Karenga (n = 20)	5% (1)	70% (14)	25% (5)
Kotido (n = 18)	0% (0)	83% (15)	17% (3)
Moroto (n = 19)	57% (11)	26% (5)	16% (3)

wives and larger families—is in clear contrast to the information from the focus groups on this topic, where respondents felt that having more wives and children was today often associated with poverty. This difference in perception may, in part, be due to the age and experience of respondents. Older people may see the reality associated with larger families, whereas the younger respondents may still hold on to an aspirational view of what they presume wealth to look like or entail.

There were some differences in the metrics around characteristics of wealth by district of respondents. In further confirmation of district differences in livestock wealth, respondents in Amudat reported that a wealthy person would typically own 100 to 200 heads of cattle, more than 100 goats, and at least some camels. In other districts, wealth in regard to animal ownership was 30 to 60 heads of cattle and more than 50 goats. Outside of livestock ownership and trade, youth respondents in all districts reported that the wealthy normally

owned businesses in trading centers. Successful cultivation was an additional marker of wealth, with respondents in all districts saying that a wealthy person normally harvests 10 or more bags of sorghum, has three granaries of grain, is diversified into multiple crops (including maize, groundnuts, and beans), and can hire labor and use oxen for cultivation.

Differences by gender

The proportions of those who experienced a decrease in wealth is consistent across both genders (49% and 51%), but sharp differences emerge when comparing those who become wealthier (46% of males versus 23% of females) or reported no change (5% of males versus 26% of females) (Table 13). The greater rate of perceived economic improvement for males has to do with a number of factors. First, male youth are more likely to be involved in more-lucrative livelihood activities than their female counterparts, including livestock production and trade; to make most of the decisions about such activities; and to

Table 13. Individual wealth change from 2018–2021/22, by district and gender (% with frequency in parentheses)

	Up	Down	No change
Amudat (n = 19)			
Female (n = 9)	55% (5)	33% (3)	11% (1)
Male (n = 10)	90% (9)	10% (1)	0% (0)
Kotido (n = 18)			
Female (n = 10)	0% (0)	80% (8)	20% (2)
Male (n = 8)	0% (0)	88% (7)	12% (1)
Kaabong/Karenga (n = 20)			
Female (n = 10)	10% (1)	50% (5)	40% (4)
Male (n = 10)	0% (0)	90% (9)	10% (1)
Moroto (n = 19)			
Female (n = 10)	30% (3)	40% (4)	30% (3)
Male (n = 9)	88% (8)	10% (1)	0% (0)
Total (n = 76)	34% (26)	50% (38)	17% (13)
Female (n = 39)	23% (9)	51% (20)	26% (10)
Male (n = 37)	46% (17)	49% (18)	5% (2)

control the income that arises from these activities. Second, men generally have more time to dedicate to income-generating activities than women, who spend a much greater portion of their time engaged in unpaid domestic and reproductive duties. Third, when asked why their status had declined, a number of female respondents explained that, in 2018, they were still living in their natal household and thereby their economic status was a reflection of the status of their father. In the interim period they have married, left their father's home, and moved in with their husband or husband's family. As such, they felt that their economic status had declined as they started out as a young couple. Males who do not leave the family homestead are less likely to report a similar drop in economic standing upon marriage.

In examining differences by gender and district (Table 13), we see that while the much of the positive change in Amudat was driven by improvements among the male respondents, 55% of females also reported improvements in wealth. However, 33% of female respondents in Amudat also reported decreases in wealth and 11% reported no change, compared to only 10% and none of the males respectively reporting a decline and no change in Amudat. In Kotido, respondents of both genders drive the steep downward trend, with no reported improvements and 80% of females and 88% of males reporting a wealth decrease. The story in Kaabong is interesting, with 10% of females moving up compared to 0% of the males, and 50% of females reporting decreases in wealth, compared to 90% of the males. In Moroto District, 88% of the males reported an upward trend compared to 30% of females. Ten percent of males in Moroto said that their economic status had worsened over the study, compared to 40% of females. Thirty percent of females in Moroto reported no change in economic status, compared to 0% of males.

Broader district patterns combined with gender dynamics are the likely factors of explanation for the differences listed in the above paragraph. In Amudat, for instance, many male respondents reported continued success in livestock production and trade, and half of males reported becoming involved in the *boda boda* business in recent years. Females who reported improvements in Amudat were largely

engaged in crop farming and poultry keeping. In Moroto, male engagement in livestock trade, working as "bookers" trading brew and alcohol, and sale of bush products (charcoal and building poles) account for most of the male gains. In contrast, female respondents in Moroto were mostly engaging in *leje leje* (daily casual labor), making local brew, and exploiting bush products for domestic purposes. Males are also more likely than females to own or control productive resources, including livestock, and to make decisions about the use of these resources. Not surprisingly, many male respondents reported reinvestment of their profits into business ventures, compared to female youth who primarily use the income to purchase food for the household. The data show no improvements in economic status reported by male youth in either Kotido or Kaabong. This is most likely driven by a combination of increased insecurity and several years of poor harvests. The better situation for young women than men in Kaabong may be due to the growth of brewing and collecting bush products as livelihood activities (see Figure 1), as these are heavily female-dominated activities.

Youth respondents sought to improve their wealth by increasing their income and asset holdings. For those who experienced an increase in their wealth, respondents (regardless of district or gender) attributed the increase (by order of most reported by youth) to i) having more animals, ii) diversifying their livelihoods, iii) increasing their savings, iv) having a good harvest, and v) changing their livelihoods into a more lucrative activity (such as *boda boda* driving for males in Amudat). Another factor that contributed to improvements in wealth was NGO trainings on improved agronomy practices, savings and credit, and life skills. Participating in a savings group was seen as a good means of increasing wealth. As discussed below, this association was confirmed in the quantitative analysis, with individuals who lived in villages that received support from Apolou to set up savings groups showing an increase in livestock wealth.

Reasons for decreasing wealth among the youth cohort were more varied, with many respondents reporting experiencing both widespread (i.e., covariate) and localized (i.e., idiosyncratic)

shocks. Respondents who reported a decrease in wealth spoke of loss of animals, poor harvests, rising insecurity, economic impacts of Covid-19 closures, poor health, and taking on increased economic responsibilities as they grew older. Female respondents in particular who felt that their wealth decreased talked about the heavy burden of domestic and reproductive duties with limited support from husbands or other family members. They saw these duties—which increased as they came of age and started families over the course of the study—as inhibiting their potential to engage in more-lucrative livelihood activities. For those youth who reported that their wealth was at the same level as when we first met them, some had experienced dips or rises over the four-year period but had then settled at the same level as previously.

In the quantitative data, sex of the household head was consistently associated with better wealth outcomes. Having a male household head was associated with lower poverty, greater TLUs, and greater asset ownership ($p < 0.05$). If a household switched from having a female to a male household head over the course of the study, then the household's asset wealth also increased ($p < 0.05$). The relationship, in relation to asset and livestock wealth and having a male household head, was consistent across districts in the quantitative data. Age of the household head was not consistently associated with improved wealth, except for slight evidence ($p < 0.05$) that found that having an older male household head was associated with a lower asset wealth.

Discussion of differences in the quantitative and qualitative data

As evident in the above discussions, the data from the quantitative surveys and the qualitative focus group discussions sometimes tell different stories about wealth and equality over time in Karamoja. For example, focus group respondents perceived an increase in absolute wealth and equality in all study villages. This trend contrasts with the data from the three survey rounds, which (as detailed earlier) show an overall decrease in wealth and equality (at the district level) over time. We posit that these narratives are not necessarily at odds with each

other and may simply tell different parts of the same story. In this section, we discuss potential reasons for the existence of some of these differences.

First, when considering the village-level data from a methodological perspective, the units of analysis in question are not the same in the quantitative and qualitative data: the results from the qualitative FGDs represent consensus as reported on an entire community, whereas the results from the quantitative surveys are an analysis of responses by different households. Differences in findings in this regard may therefore indicate a move towards greater equity at the village level but not at the household level. The reverse may also be true—i.e., that inequality among households is increasing but that this is not captured in the aggregate. When the qualitative data used individual-level responses on wealth and hence a more comparable unit of analysis to the quantitative data (where the household is the unit of analysis), there was a much more coherent story across data collection approaches in three of the four districts (Amudat, Kaabong, and Kotido). Similarly, when the quantitative data looked at village-level as opposed to district-level equality, households within the village looked a lot more similar to each other, indicating greater cohesion across the quantitative and qualitative data when the same or similar unit of analysis is being compared.

Second, the period under review for the village-level data is different: the qualitative FGD exercise reflects on a period of approximately 10 years, whereas the quantitative results come from three survey rounds over a four-year period. The participatory qualitative exercise required a reference point that could be recalled with relative ease and that was far enough in the past to allow for meaningful comparison; hence our selection of “the end of the most intense period of disarmament.” The quantitative survey, in contrast, is looking over a much shorter and recent period of time: 2018–2021/22, encapsulating the period associated with the pandemic and climate shocks.

Third, in the qualitative data we intentionally asked respondents to discuss their *perceptions* of wealth in the communities and how these had evolved over time. We did not give directives—again,

intentionally—regarding any specific definitions of wealth to be considered and we did not seek “proof” of these wealth categories or levels (i.e., by visiting different “wealthy” or “poor” homes or counting the numbers of such households). In other words, this exercise purely captured the views of respondents about approximate categories within their communities. In contrast, the quantitative data measured highly specific aspects of wealth (namely livestock and assets) at the household level and then compared the responses over time of the approximately 10 households per village. Even when comparing across these two different measures, slightly different pictures of equality emerge, with livestock showing far greater inequality compared to assets. These variations are not surprising considering the different sources of information and techniques at getting at this information.

Fourth, the quantitative instrument tracked much more specific indicators than the qualitative one did. The survey measured wealth according to a) livestock ownership, b) asset ownership, c) proportion of expenditure spent on food, and d) briefly touched on livelihoods associated with poverty. These indicators are important components of wealth, but do not take into account the range of factors that might contribute to household status. As detailed in the focus group discussions, perceptions of wealth are complex and dynamic and include economic (asset and livestock ownership, business investments and strategies), social (number of wives and children, types of behavior), and professional (form of employment and/or income source) indicators. As such, asset and livestock ownership are likely incomplete proxies for wealth, especially as communities move towards more market-oriented livelihoods. As an example: if a household in the sample lost livestock over the three rounds of quantitative data collection, the results will show a decrease in wealth. This is certainly accurate based on this indicator, but over the same period this household (or specific members within it) may also have invested in property, started a business, sent children to school, or secured salaried employment. These changes may mean that this household would be perceived as being wealthier in the qualitative exercise even though their wealth decreased in the quantitative data. This example illustrates that

both measures of wealth are “correct” at the same time that neither is complete. Furthermore, the differences related to methodology of data collection highlight the need to use a variety of approaches to understand changes in wealth and equality over time.

Summary

Wealth as measured by assets, livestock, and proportion of expenditure spent on food paints a picture of declining wealth and increasing inequality, on average, in Karamoja from 2019 through late 2021/early 2022. However, when taking a closer look at changes within and across districts, a more nuanced picture emerges, indicating a gradual but divergent evolution of livelihoods, associated wealth, and perceptions of wealth.

In Amudat we find not only significantly greater ownership of livestock (a median of five TLUs compared to a median of less than one TLU in 2021/22 in the other districts), but also many more households reporting moving into livestock-related livelihood activities over the study period. In other words, the increase in livestock ownership in Amudat appears to be driven by the movement of households into livestock husbandry. The wealth benefits of this move (as opposed to a move into low-reward livelihoods, such as brewing or collecting bush materials) appear to be supported by the qualitative data from the youth cohort, whereby three-quarters of respondents in Amudat reported an increase in their wealth status over the study period, far greater than in any other district. More so, not only does Amudat have the highest, and growing, livestock wealth, this wealth is the most evenly distributed across the district and within individual villages, although there is some evidence that inequality might be growing as livestock ownership increases.

Kaabong falls on the other end of the spectrum from Amudat. Not only does the district have the lowest animal wealth compared to the rest of the sample, but it also shows some of the greatest declines in animal wealth over the study period. We also find movement into livelihood strategies that households associate with greater poverty: brewing,

bush products, and casual day labor. Kaabong also has one of the least equal distributions of livestock ownership out of any of the districts, meaning that a few households hold the majority of all the individual livestock wealth, while most households are reliant on cultivation and coping-related livelihood strategies. Individual perceptions of wealth status correspond to the quantitative findings, with 70% of respondents feeling like their wealth has declined over the past four years. Kotido and Moroto fall somewhere in between the two extremes of Kaabong and Amudat.

If the overall picture at the individual and household level regarding wealth changes is mixed, focus group respondents who reflected on how their communities had changed over the past 10 years had a much more optimistic view. They felt that both wealth and equality had improved over this long-term period. The quantitative data did not completely contradict this perspective, showing that households within villages do look a lot more like each other compared to households between villages, likely partially driving the perception of increased equality overall.

A deeper dive into changes in wealth by gender also reveal further nuances, with—not surprisingly— young men more likely to report improvements in wealth status compared to young women. The difference is linked primarily to men’s involvement in more-lucrative livelihood activities, greater control over income, more time for income-generating activities, and the overall lower agency and economic status of women as they start building their own families as opposed to being a member of their father’s household.

Wealth in the communities was fairly sticky in comparison to food insecurity (see more below), meaning on the household level we did not see as much variation over time as seen between households in any particular time period. Households with a lot of wealth tended to accumulate more wealth. Household wealth also appears to be fairly resilient. There was no association between wealth and the experience of climate, conflict, or economic shocks over the study period. A closer look indicates that households are employing long-term strategies to protect their

wealth. Assets—in particular livestock—are the primary form of savings, insurance, and status in most of these communities. Therefore households are using what strategies they have at hand to protect their herds. This does not mean that all assets and livestock are not expendable, with clear evidence in the data that livestock and productive assets are at times sold to meet household needs. But, when compared to other outcome variables, such as food security, wealth in the form of both livestock and assets is far less variable over time, likely indicating efforts by the household to protect these aspects.

Market access was noted in some of the qualitative discussions and in the quantitative data as associated with greater wealth. More goods in the market meant that households had more choices, thereby resulting in an overall lower proportion of total expenditure on food. In the focus group discussions, respondents linked market-based livelihoods to wealth status and saw these livelihoods as an important contribution to the growth of livestock trade. Households also cited government programs and NGO interventions as key institutional-level factors that helped to increase overall wealth and equality (although such responses may be biased due to knowledge of the researchers’ affiliation with Apolou or Mercy Corps). The quantitative data also found some evidence that communities that received Apolou interventions were able to increase their livelihood wealth, despite the overall decline in wealth observed across the sample.

The study duration covers a particularly difficult time period that encompasses a locust invasion, a global pandemic, and periods of food insecurity. The overall result is declining wealth and increased inequality as households are forced to move into less-desirable livelihood activities—with the stark exception of Amudat, where all metrics point to an improved situation. However, respondents also take a more long-term view than this study and recognize that the Karamoja region has seen significant improvements over the past decade, due largely to greater peace and security, expanded markets and associated economic development, and the support of NGO interventions.

Food Insecurity

In this section, we present the findings around food insecurity. We look at trends in food insecurity across the three rounds of data collection and by district for all three of our food security measures: MinAHFP, long-term coping strategies, and short-term coping strategies. Using MinAHFP, we are also able to investigate seasonal trends in food insecurity using the MinAHFP variable to pinpoint when in the year food insecurity increased the most across the four districts. We then present findings about what is associated with food insecurity and changes in food insecurity over time.

Changes in food insecurity at the district level

In our survey, MinAHFP captures the number of months that a household considers themselves to be food insecure. By this measure, the number of food-insecure months significantly increased by an average of 1/3 a month across the period of data collection ($p < 0.01$) (Table 14). However, as with much of the analysis, the trend was not uniform across districts. In Amudat, Kaabong, and Kotido, food insecurity increased by an average of about half a month ($p < 0.05$) across each of the three data collection periods. However, in Moroto, there was no significant change over time, showing a decrease in average number of food-insecure months (but not significantly). 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 trends in food insecurity and the comparison across districts do not correspond with what is reported using the Integrated Food Security Classification (IPC), which is to be partially expected as our sample is not meant to be representative at the district level. However, it is useful to put the findings from our sample into the context of district-level trends. According to the IPC, the 2018 data collection took place at a time when Kotido and Kaabong were in IPC Phase 3 (crisis), while Moroto and Amudat were in IPC Phase 2 (stressed).¹⁵ In 2019, conditions improved across the board, with all districts considered to be in IPC Phase 1 (minimal).¹⁶ During the third round (2021/22), conditions deteriorated to IPC Phase 3 (crisis) in Kotido, Kaabong, and Moroto and IPC Phase 2 (stressed) in Amudat.¹⁷ Thus, district-level food insecurity shows an improvement in 2019 that was not observed in the sample data, where food insecurity increased every year (except in Moroto). Furthermore, the sample in Kaabong has consistently some of the lowest food insecurity, while Kaabong as a district, according to the IPC, had worse food insecurity compared to Amudat in 2018 and 2021/22. The differences underscore that our sample is representative of the Apolou population in these districts, as opposed to the districts as a whole.

The difference in MinAHFP 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 MinAHFP data are related to changes in food insecurity in October through December, which is the harvest period (Figure 3). In Amudat, Kotido, and Kaabong the

¹⁵ <https://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1151994/?iso3=UGA>.

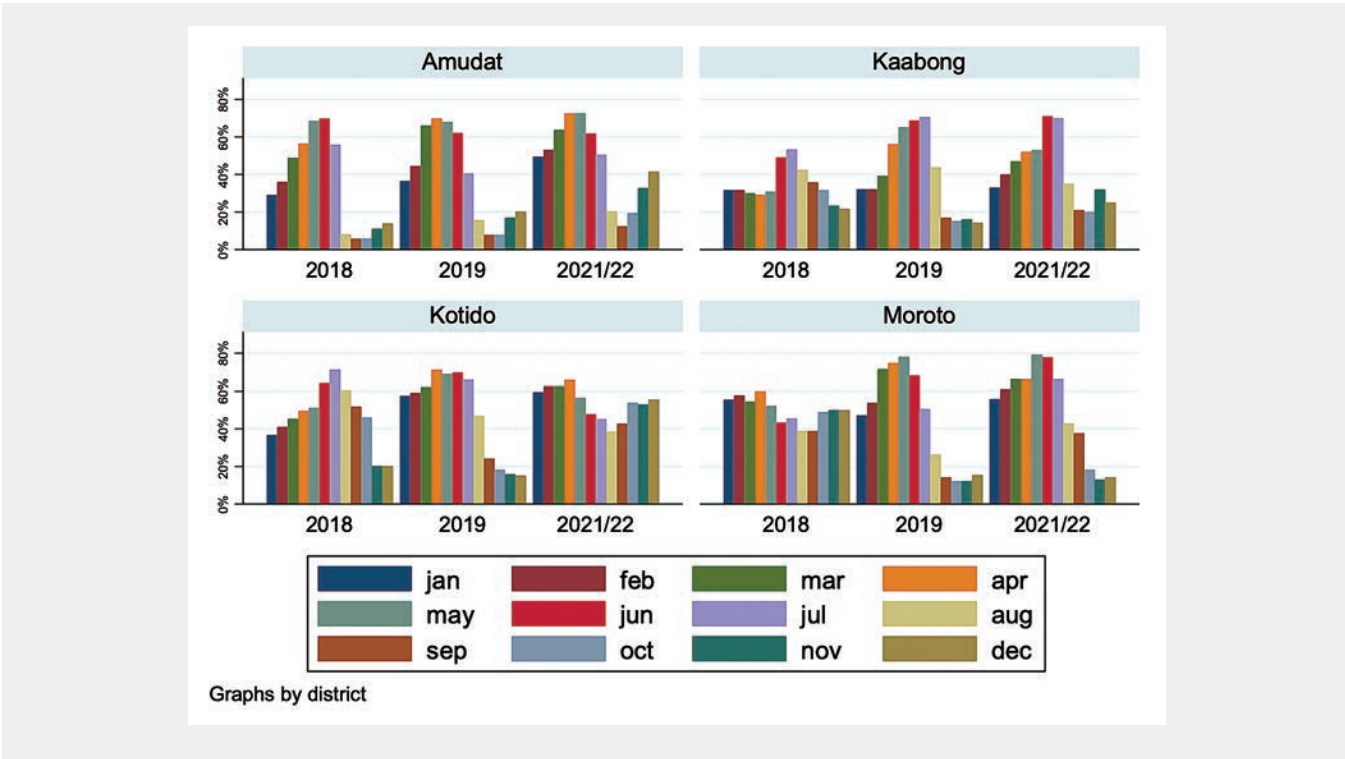
¹⁶ <https://fews.net/east-africa/uganda/food-security-outlook-update/december-2019>.

¹⁷ <https://fews.net/east-africa/uganda/key-message-update/november-2021>.

Table 14. Average number of months of inadequate household food provisioning by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
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

Figure 2. Monthly food insecurity by district and time.

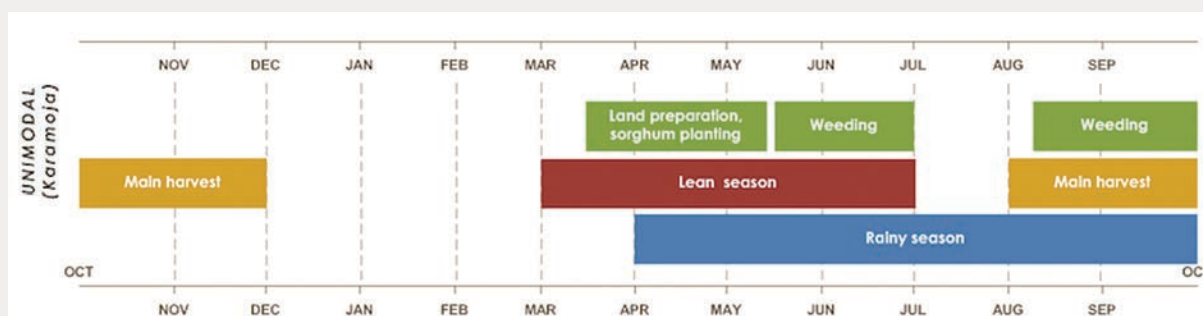


increase in MinAHFP in 2021/2022 is mostly due to more households being food insecure in the October through December period. The seasonal pattern in Kotido completely reverses in 2021/2022 compared to previous years, with the April through June lean season associated with the lowest food insecurity. The reduction in food insecurity in Moroto comes primarily from a large drop in food insecurity in October through December in 2019 and 2021/2022 compared to 2018. 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.

In addition to MAHPF, we also looked at both long-term and short-term coping strategies. There is a significant reduction over time in the use of long-term coping strategies in the sample as a whole (Table 15) ($p < 0.01$). By district, the drop is significant only in Kaabong and Moroto ($p < 0.05$). The drop in long-term coping strategies mainly comes from a significant reduction in households reporting slaughtering livestock ($p < 0.01$) or

Figure 3. FEWS NET seasonal calendar.



source: <https://fews.net/file/113534>.

selling a productive asset ($p < 0.05$): with every round of data collection, the odds of a household reporting that they sold livestock because of not having enough food to eat dropped by 45%, and the odds that they sold a productive asset dropped by 53%. The use of long-term coping strategies was associated with greater TLUs, asset wealth, and lower proportion of expenditure on food. This association indicates that—although often associated with vulnerability—the ability of households to use these strategies requires a significant amount of wealth in the first place. As we see a reduction in wealth overall in our sample, so too we see a reduction of long-term coping strategies dependent on that wealth.

There is no significant change in short-term coping strategies across time in the sample as a whole.

However, 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 ($p < 0.01$). The overall change in Amudat is mostly driven by increased migration of some members of the household ($p < 0.05$), consuming wild food ($p < 0.01$), harvesting crops prematurely ($p < 0.01$), consuming seeds meant for planting ($p < 0.01$), and taking on new casual day labor opportunities ($p < 0.01$). However, in absolute values, households in Amudat reported using the fewest coping strategies compared to the other districts. The better performance of Amudat in terms of fewer short-term coping strategies used lines up with the IPC analysis for the district as a whole identifying Amudat at a lower phase classification compared to Kaabong, Kotido, and Moroto. See Table 16.

Table 15. Average number of long term coping strategies by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	1.11	1.03	1.18	0.96	1.08
2019	1.15	0.76	0.88	0.93	0.95
2022	0.98	0.69	0.9	0.64	0.82
All years	1.09	0.84	0.99	0.86	0.96

Table 16. Average number of short-term coping strategies by district and time

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	2.03	3.95	4.33	3.68	3.38
2019	2.78	3.87	3.69	3.92	3.3
2021/2	3.12	3.2	4.79	3.81	3.75
All years	2.57	3.7	4.24	3.46	3.46

It is worth noting that even though we do not necessarily see the same trends in months of food insecurity and use of short- and long-term coping strategies, the three variables are all significantly correlated ($p < 0.05$). This means that the higher the number of food-insecure months reported, the more coping strategies (short or long term) a household reports using. The strongest relationship, though, is between short-term coping strategies and months of food insecurity (Pearson correlation coefficient of 0.23). Both measures reflect experiences over the 12 months prior to the survey.

We also find that, 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, which, as discussed earlier, is much stickier.

In summary, we find that the number of months of food insecurity is increasing across all districts sampled except Moroto, and that change is primarily coming from an increase of food insecurity in the harvest and post-harvest months. The increase in food insecurity is accompanied by an increase in short-term coping strategies in Amudat only, while overall we see a reduction of long-term coping strategies, primarily the sale of productive assets and slaughtering of livestock. 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.

What is associated with food insecurity?

Despite the fact that brewing alcohol is associated with poverty in the qualitative findings, overall, the data show that households that brewed alcohol reported the fewest months of food insecurity ($p < 0.01$). This difference was by 0.8 months overall and by more than a month in the third round of data collection compared to own cultivation. However, alcohol brewing was associated with greater use of long-term (and less-reversible) coping strategies when compared to own cultivation ($p < 0.01$). The sale of bush products was associated with significant greater use of short-term coping strategies ($p < 0.05$).

Wealth was not a good predictor of food insecurity. As described earlier, higher TLU wealth, higher asset wealth, and lower proportion of expenditure were all associated with greater use of long-term coping strategies ($p < 0.01$). Furthermore, if households increased their wealth across any of these three variables, they also were significantly more likely to increase the number of long-term coping strategies used. Greater asset ownership was associated with the use of fewer coping strategies ($p < 0.05$) and fewer months of food insecurity ($p < 0.05$), but changes in asset ownership were not associated with changes in the number of coping strategies used. Livestock ownership or our measure of poverty (proportion of expenditure spent on food over the course of a year), on the other hand, had no correlation to food security.

The experience of shocks, on the other hand, was highly and consistently correlated with worse food insecurity and worsening food insecurity. For every additional climate, conflict, or economic shock experienced, the extent of food insecurity increased by one week ($p < 0.05$). More so, the more shocks a household experienced (irrespective of the type of shock) across the three rounds of data collection, the greater the number of food-insecure months ($p < 0.05$). The same association was observed with short- and long-term coping strategies. Thus, consistently, the more shocks a household reported in a time period, the worse their food insecurity was in the same time period. On the other hand, we know from the wealth analysis that the experience of shocks was not correlated to changes in wealth. This further corroborates the finding that households do what they can to protect their wealth, particularly in the form of holding onto assets, even while their food security significantly oscillates across months and years.

Households with male and/or educated household heads reported significantly fewer months of food insecurity ($p < 0.01$), but also used more long-term coping strategies ($p < 0.01$). The relationship with education remained even when controlling for sex of household head. The older the household head, the greater the number of food-insecure months ($p < 0.01$), although we are not certain as to why this association exists. A higher dependency ratio¹⁸ was also associated with the use of a greater number of short- and long-term coping strategies.

Better market quality was associated with fewer months of food insecurity ($p < 0.01$). Market quality was also associated with more use of long-term coping strategies ($p < 0.01$). In addition, if market quality improved during the study period, then the household increased the use of long-term coping strategies ($p < 0.01$). There was no relationship between market quality and short-term coping strategies. This association between long-term coping strategies and market quality may be because having better markets facilitated the employment

of those long-term strategies that required market interaction, such as selling assets, accessing a money lender, etc. However, distance to markets and changes to distance had no relationship with food insecurity.

¹⁸ The dependency ratio compares the number of household members ages 0 to 14 and over 65 to those between the ages of 15 and 65. A higher dependency ratio means there are more people to support by fewer economic contributors.

Markets

In this section, we look at the quality and access to markets. As a proxy for market quality, we look at the total number of different products available at the market. Overall, market quality significantly declined across the three rounds ($p < 0.01$) by almost one good per round of data collection (Table 17). While the amount by which market quality declined varied by district, all districts indicated a significant decline ($p < 0.05$), with some evidence of rebounding in 2022 compared to 2019.

Overall, there was no significant change in the amount of time it took to reach a market. However, across districts we see very different trends. See Table 18. In Amudat, there was a significant reduction ($p < 0.01$), with travel time falling by about half an hour for each round of data collection. In Kaabong and Kotido, however, there is a significant

increase in travel time ($p < 0.05$). However, in Kotido most of that increase comes from 2019 with a slight rebound (drop in travel time) seen again 2021/22.

Market quality and time to markets are correlated, with households generally reporting going farther to reach better-quality markets. The strength of that association is particularly strong in Moroto, likely indicating the additional travel time households might be willing to take to reach Moroto Town market.

As shown in the analysis, market quality and distance to markets are associated with some improved outputs. Higher market quality was associated with fewer months of food insecurity. Importantly, improvement in market quality was associated with improvements in number of food-

Table 17. Market quality (average number of goods reported) by district and round of data collection

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	6.57	7.44	7.34	6.02	6.88
2019	5.9	6	6.14	5.42	5.9
2021/22	6.53	6.46	5.75	5.17	6.03
All years	6.33	6.66	6.46	5.56	6.3

Table 18. Average distance to market (in minutes) by district and round of data collection

Time	Amudat	Kaabong	Kotido	Moroto	All districts
2018	132.73	120.39	101.19	155.77	125.26
2019	105.11	135.18	126.37	144.23	125.34
2021/22	64.38	140.37	95.26	142.99	106.8
All years	105.38	131.39	107.97	147.79	119.94

insecure months. Market quality was also associated with greater use of long-term coping strategies, likely indicating the greater access and better prices households are able to get for selling goods in better-quality markets. Market quality and improvements in market quality were also associated with a lower proportion of expenditure being spent on food, again likely a result of having greater choice. There was an association between more goods at a market and greater asset ownership, but not more livestock ownership. The only time we see a relationship between shorter distance to a market and improved outcomes is in relation to higher TLUs.

Previous analysis of the data¹⁹ does further highlight that the relationship between food insecurity and market access is partially dependent on the severity of food insecurity. Households are likely to be more reliant on markets for their household needs in worse food security years, such as the first round of data collection. As conditions improve, the relationship disappears, indicating a role for markets during periods of stress and further evidence for greater support of markets in the Karamoja context.

19 A. Marshak, "Market Access and Quality Critical for Food Security in Periods of Stress" (Feinstein International Center at the Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA, 2022).

Apolou Intervention Layering

Finally, we present evidence around the association between Apolou interventions across the study villages and data collection period. We use multiple different approaches to help triangulate the relationships and identify which of Apolou interventions might be the most closely correlated to improved outcomes. That said, the study was not designed to be an impact evaluation, and hence we can only speak to associations, not causality or direct impact.

There is some evidence that the Apolou approach of layering interventions had a significant association with improved outcomes, particularly in terms of reducing a household's need to rely on coping strategies. On average, villages that had one Apolou intervention had households reporting using 1.3 fewer coping strategies, compared to villages that had no Apolou interventions ($p < 0.01$). When villages went from not having any Apolou interventions to having one Apolou intervention (i.e., when a new intervention was introduced over the study period), the number of coping strategies used decreased by 1.4 ($p < 0.01$). Living in a focus village (i.e., with more than one Apolou program) as opposed to having no Apolou interventions was associated with using 0.78 fewer coping strategies ($p = 0.03$). Having the village go from no interventions to receiving Apolou interventions (i.e., becoming a focus village) was associated with a reduction of 0.73 coping strategies ($p = 0.03$).

Further supporting the assertion that Apolou interventions might help reduce the need of households to rely on coping strategies is that households living in light (one intervention) and focus villages had 63% and 70% lower odds of practicing a coping-related livelihood strategy—(brewing, day labor, or relying on bush products) as opposed to cultivation ($p = 0.04$ and $p < 0.01$ respectively). More so, switching into a light village

and focus village from not receiving any Apolou interventions was associated with a 65 and 72% reduction in the odds that a household had to switch from cultivation to a coping-related livelihood strategy ($p = 0.03$ and $p < 0.01$ respectively). For each additional intervention that a village was assigned, the odds that a household had to switch from cultivation to a less-desirable livelihood strategy went down by 25% ($p = 0.01$).

In addition, the data show that living in a focus village, compared to a village with no Apolou interventions, is associated with owning an additional 0.25 TLUs. Each intervention a village receives is associated with 0.1 additional TLU average across households in that village ($p < 0.01$).

In the third round of data collection, 63 households (15% of the total) reported having received interventions from Apolou. However, it is worth pointing out that approximately the same percentage of households said they receive Apolou interventions across all villages, including those with no Apolou interventions, light Apolou interventions, and focus Apolou interventions: 12%, 20%, and 15% respectively. Thus, analysis of this variable should be approached cautiously. Households that said they receive Apolou interventions in the third year of data collection reported owning 0.32 more assets ($p < 0.01$).

Of the specific interventions, the data show some mixed results. Living in a village that received Apolou's economic empowerment intervention was associated with one additional month of food insecurity ($p < 0.01$) as did switching from a village that did not receive an economic empowerment intervention to one that did ($p < 0.01$). Being in a village with any kind of saving group, on the other hand, was associated with using 0.75 fewer coping strategies ($p = 0.02$). Switching from not having

a savings group in the village to having a savings group was associated with a reduction in 0.8 coping strategies ($p = 0.02$). Furthermore, going from not having a savings group to having a savings group reduced the proportion of expenditures spent on food by 0.05 percentage points ($p = 0.05$).

Putting It All Together

Overall, the data capturing the state of wealth, food insecurity, and market access 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, significant volatility in food insecurity, and declining market quality (with some evidence that market quality is rebounding in 2021/2022). These changes occurred in a context of a global pandemic, locust invasion, and minimal-to-critical—but not emergency—levels of regional food insecurity. However, the qualitative data allow us to add more nuance and to situate the findings within the wider changes occurring in Karamoja since the height of disarmament. Overall, the greater time scale afforded in the qualitative data (including the focus group discussions conducted in 2020–21) suggests a potential trend of growing wealth and equality given the greater security (at least until 2020) and expanded market access. Thus, the longitudinal quantitative findings do not necessarily indicate a steady decline, but rather highlight the reality that significant investment is still needed to improve the lives and livelihoods of the local population.

Throughout the analysis, we observe significant differences across our sample by district. This points to the fact that any programming carried out by national or international actors needs to be tailored to the specific location or livelihood group as opposed to being designed for Karamoja as a whole. Here we briefly discuss the cases of Amudat and Moroto, as they highlight important district-level differences in trends and how these trends relate to outcomes.

In Amudat, we see a growing proportion of households moving into more livestock-related livelihoods, an associated but unequal increase in livestock ownership, a corresponding perception on the individual level (particularly from male youth)

that wealth is increasing, and a significant reduction (by more than half) in the reported time it takes to reach a market. Much of the wealth increase in Amudat is related to a movement towards more livestock-related activities, meaning that the increase in wealth is not equivalent by gender, as men have greater control and agency when it comes to livestock. Importantly, the increase in wealth is also not associated with reduced food insecurity—quite the opposite. In Amudat, households reported using more short-term coping strategies and experiencing a greater number of months of food insecurity, with food insecurity specifically increasing during the harvest period. Thus, if we were to only look at wealth and improved market access as indicators of wellbeing, Amudat would be a success story. However, the increase in wealth is associated with some evidence of increasing inequality in regard to livestock ownership, does not benefit men and women equally, and does not appear to be linked with reduced food insecurity. Thus, programming among these communities needs to provide additional support to women and female-headed households, to recognize that livestock support does not affect everyone in the same way, and to realize that short-term gains in food security are not necessarily linked to livestock wealth.

A different story emerges in Moroto. Unlike Amudat, we find relatively less and declining wealth, particularly animal wealth, the highest proportion of expenditure spent on food, a large proportion of households reporting carrying out and increasingly moving into brewing, bush products, and casual labor, and no change in market access or quality. However, individual perceptions from the qualitative data show the greatest positive changes in wealth status, possibly indicating that asset and livestock wealth are not appropriate measures in this increasingly urbanized context. More so, the move towards brewing actually might indicate a greater wealth increase for women as opposed to men. And while this livelihood activity is perceived to be an indication of poverty, in the survey data it

was associated with fewer months of food insecurity compared to cultivation. Our sample in Moroto, compared to the other districts, is the only one that did not show worsening food insecurity, with a non-significant reduction both in months that a household was food insecure (specifically in the harvest period) and in use of short-term coping strategies.

The difference between Moroto and Amudat illustrates one of the main findings in the research: the differences between food insecurity and wealth, particularly livestock wealth, were not always in the expected direction. In both these districts we find that these trends move in opposite directions. In the regression analysis, households that used more long-term coping strategies had greater wealth and a lower proportion of expenditure spent on food. And 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 insecurity. More so, food insecurity was incredibly volatile in this context, even in the absence of a serious drought or price hikes. The variability in food insecurity 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. Thus, at least on the micro-level, investment in greater wealth, particularly livestock wealth, does not necessarily translate into improved food security. 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 insecurity that households experience year in and year out.

While market access and quality has expanded in Karamoja overall in the past 10 years, a contraction in the market was observed around 2019, with some recovery in 2022. As the 2019 data collection occurred before the Covid-19 pandemic, the contraction in 2019 cannot be attributed to Covid-19-related market closures. We do find evidence that market quality is associated with improved outcomes: fewer months of food insecurity, lower

proportion of expenditure spent on food, and greater asset ownership. The increased availability of products at the market and hence likely greater choice does seem to directly improve wealth and decrease food insecurity.

Importantly, despite the overall declining wealth and worsening food insecurity, there is some evidence that the Apolou approach of layering interventions had a significant association with improved outcomes, particularly in terms of reducing a household's need to rely on coping strategies. Communities with Apolou interventions reported using fewer coping strategies, and once a community received a Apolou intervention, the number of coping strategies used by households goes down. More so, the greater number of Apolou interventions a community received, the less likely they were to switch into livelihoods that were associated with poverty. Of all the interventions, living in a community that received support from Apolou to set up saving groups was associated with fewer short-term coping strategies and a reduction in the number of short-term coping strategies used over time. Thus, while this study was not set up to be an impact evaluation, triangulated evidence does support that Apolou interventions, particularly support to savings groups, reduce the use of household coping strategies and decrease food insecurity.

We conclude this multiyear research project with qualified optimism for the situation in Karamoja. Although the data point to varied outcomes, the mixed methods approach indicates improvements in some young people's perceptions about their individual wellbeing as well as a widespread sense of steady improvement in wealth and equality at the community level over the past 10 years. In addition, we see important gains in Amudat that imply reinvestment in livestock wealth, although with limited equity in how these gains are occurring. One of the biggest developments is the shift in how people perceive the characteristics of wealth in the present day as compared to 10 years ago. Today, wealth is (often but not always) associated with smaller (not larger) family sizes, with engagement in salaried and investment opportunities, and with diversified livelihoods that often take advantage of the urban economies. These advances are not

uniform, with important distinctions likely taking place across variables of gender and location. Additional research is required to examine the ways in which these differences are occurring and implications about whom they benefit. In addition to these community-level changes, data from the qualitative cohort with young people highlight the diversity of economic strategies and the resiliency that this population brings to their adult lives. Within this group, however, we see the differences faced by men and women, with men better able to tap into emerging opportunities, such as *boda boda* driving and animal trade in Amudat, and women largely limited to activities within the traditional female realm (such as brewing and resource collection) as a source of income. We hope that future programs take into account the critical differences that exist along gender, livelihood, location, and wealth in Karamoja and consider these differences in designing support and interventions.

Lastly, we have seen in the past few years the resumption of conflict and insecurity in many parts of Karamoja. This issue is touched on only briefly in this report as it was not discussed in depth by respondents over the course of our data collection. We know, however, that this is a major issue, with potentially devastating impacts on the progress that has occurred in people's lives and livelihoods over the past 10 years. A forthcoming report by Feinstein details local perceptions around this resumption of conflict,²⁰ and we hope that international and national actors take action to both address the current situation and stay engaged to mitigate future resumptions.

20 Lotira Arasio and Stites, "The Resumption of Conflict."

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