FIVE FACTS ABOUT SHOCKS IN THE SAHEL

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The Sahel is highly vulnerable to a wide variety of shocks that perpetuate chronic poverty. Which shocks matter more and what are the implications for social protection systems in the Sahel?

The high level of exposure to shocks, in particular climate-related and conflict induced shocks, across the Sahel region exacerbates the vulnerability of the population. It also increases the risk of non-poor falling into poverty. There is a growing recognition of the need to develop adaptive social protection (ASP) systems designed to build the resilience of households by investing in their capacity to prepare for, cope with, and adapt to shocks. This, in turn, would help reduce the high share of poverty and vulnerability in the region.

In 2018-2019 a new set of harmonized household surveys were conducted by each of the countries in the West African Economic and Monetary Union (WAEMU) and in Chad. The surveys included Burkina Faso, Chad, Mali, Niger, and Senegal (Mauritania was not included). These surveys help identify the distributional impact of shocks in much greater detail for the region than before. This is of critical importance since the degree to which different shocks have different impact at different points of the welfare distribution can help identify the types of shocks to which social protection schemes need to be most responsive. This note presents the key findings of the surveys summarized in five facts. These findings can help inform the development of adaptive social protection systems across the Sahel.

**SUMMARY**

Five facts about shocks affecting households in the Sahel

1. **The majority of the population is exposed to repeated idiosyncratic and covariate shocks**, in particular climate and conflict-related shocks.

2. **Conflict induced shocks are less prevalent though more regionally concentrated** compared to other types of shocks on aggregate. They also tend to affect a high share of the population in affected regions.

3. **Households are forced to resort to a variety of negative coping strategies** in response to idiosyncratic and covariate shocks. This is particularly the case for the poorest households, making it difficult to escape the cycle of poverty and vulnerability.

4. **Climate-related shocks are much more concentrated amongst the poorest households** compared to other types of shocks. This underscores the importance of drought-responsive adaptive social protection systems to protect the poorest households from the impact of climate-related shocks.

5. **The population in Senegal is less likely to be exposed to all types of shocks**, and is also less likely to rely on negative coping strategies than the rest of the region. However, similar to its neighbors, Senegal is significantly impacted by droughts, which are more likely to impact poorer households.
The majority of the population in the Sahel is exposed to repeated idiosyncratic and covariate shocks

65 percent of households experienced at least one of the major adverse shocks to which the region is susceptible – idiosyncratic shocks, climate-related shocks, and conflict shocks (see Figure 1a). However, in addition to the high prevalence of exposure to a single shock, many of these shocks overlap in the same household. Approximately 42 percent of all households suffer shocks from only one category; 16 percent suffer shocks from two; and 9 percent suffer shocks from all three categories. Figure 1b further demonstrates that both idiosyncratic and climate shocks were particularly prevalent, with between 40 and 50 percent of the population experiencing each type of shock. Conflict shocks were less prevalent on average, with approximately 12 percent of households reporting that they were directly impacted by violence.

Despite the similarity between the prevalence of idiosyncratic and climate-related shocks, the types of idiosyncratic shocks are more diverse than the types of climate shocks. Idiosyncratic shocks are composed of ten different types of shocks which affect individual households, including illness of a household member, theft of assets, and the cessation of regular transfer payments. Figure 2a presents the most common idiosyncratic shocks that are reported and demonstrates that the actual shocks that happen to households vary significantly. Illness of household members is the most prevalent type of idiosyncratic shock and that alone accounts for approximately half of the total prevalence reported in Figure 1.

In contrast, climate-related shocks are much more concentrated in their cause: droughts (Figure 2b). The vast majority of climate-related shocks are adverse consequences arising from droughts — nearly three-quarters of the entire prevalence includes households that have experienced a
drought. Droughts are also the single most prevalent shock captured by the harmonized household survey, with 29 percent of the population being adversely affected. A significant share of households also experienced floods, but very few households report adverse consequences from either fires or landslides.

**Additionally, the incidence of conflict shocks is not uniform across the region and within countries, with Mali being most affected.** Figure 2c demonstrates that in Mali, conflict shocks have a similar prevalence to both idiosyncratic and climate shocks and affect half of the population. In contrast, in the rest of the Sahel countries, including countries that are plagued by conflict and insecurity, significantly fewer households report being directly affected by conflict violence (Figure 2d). However, it is important to note that the prevalence of conflict could be underreported due to the escalation of conflict after the survey period (e.g., Burkina Faso).

**FIGURE 2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS**

Notes: Figure reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures report averages over Burkina Faso, Chad, Mali, Niger, and Senegal using data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
Conflict shocks are less prevalent than other shocks, but they tend to be more regionally concentrated than climate and other types of shocks.

Conflicts in the Sahel tend to be geographically localized, impacting a high share of the population in conflict-affected areas. As shown in Figure 3, the share of the population that is adversely impacted by conflict shocks at the sub-national level varies widely across each country. There are regions in each country, aside from Senegal, in which the prevalence of conflict shocks was similar to that of both climate and idiosyncratic shocks. Furthermore, in Mali, there are regions in which conflict is much more prevalent than other major shocks. Considering the high proportion of the population negatively impacted by conflicts in regions affected by fragility, social protection systems that can rapidly adapt to conflict shocks are particularly important for Sahel countries.

The economic impacts of conflict are difficult to ascertain, but conflicts can negatively affect households living outside of conflict-affected areas. Conflict has been shown to have numerous impacts, including causing declines in aggregate and individual employment outcomes, declines in governance and access to basic services, and markets to function poorly. Importantly, some settings have demonstrated that each of these impacts can affect even households that do not live in close proximity to violence. Given these issues, it could be difficult for households to give an accurate assessment as to the impact of violence and insecurity on their well-being, and more investigation into the consequences of conflict-related shocks on the region is needed.

**FIGURE 3. SHARE OF POPULATION AFFECTED BY CONFLICT SHOCKS BY REGION IN THE PAST THREE YEARS**

3a. Burkina Faso

3b. Chad
Notes: Figure reports the share of the population in each region that reported to be adversely affected by conflict in the three years before the survey. The data source is the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
In contrast to conflict, climate-related shocks are much more evenly spread across regions. Figure 4 presents the share of the population in each region that were adversely affected by a climate-related shock in the three years before the survey. Nearly all regions in each country have been significantly affected. Given the much greater uniformity of climate-related shocks in all countries in the region than other major covariate shocks, adaptive social protection systems that are responsive to droughts would require a much greater geographic coverage than those that are responsive to other major covariate shocks that are more localized, like conflict.

**FIGURE 4. SHARE OF THE POPULATION IN EACH REGION THAT WERE ADVERSELY AFFECTED BY A CLIMATE-RELATED SHOCK IN THE THREE YEARS BEFORE THE SURVEY**
FACT 3

In response to idiosyncratic and covariate shocks, households are forced to resort to a variety of negative coping strategies that make it difficult to escape a cycle of poverty and vulnerability.

A large share of households affected by shocks use coping mechanisms that are likely to have severe negative consequences to their long-term welfare, particularly affecting children’s health, nutritional status and education. In addition to reporting the types of adverse shocks with which households have coped in the past three years, the household surveys further report the types of coping strategies on which households relied. Figure 5a demonstrates that households adopted a broad range of negative coping strategies. A significant share of households reduced current access to food, education, and health care, and a significant share engaged in strategies that likely sacrificed future consumption and access to basic services (e.g., increasing credit, selling productive assets, etc.). Importantly, the share of shock-affected households that relied on these types of negative coping strategies was much larger than the very small share that were able to rely on government or NGO support (figure 5a).
Overall, a high share of households relied on negative coping strategies to deal with shocks in the region. Between 40 and 50 percent of households who were exposed to either an idiosyncratic or climate shock resorted to negative coping strategies (see Figure 5b). Negative coping strategies in response to conflict shocks was less prevalent, with approximately 20 percent of households exposed to a conflict shock relying on negative coping strategies.

However, the poorest and worst-off households tended to rely more heavily on negative coping strategies. In addition to reporting the strategies used by households to cope with each type of shock, households also ranked the degree to which they relied on each coping strategy. Figure 6 reports the share of households exposed to each type of shock that most relied on negative coping strategies by consumption quintile. For each type of shock, the richest quintile was less likely to rely on negative coping strategies. This is especially true for climate and idiosyncratic shocks. Combined, these results suggest that the poorest households are even more adversely affected by the most common shocks faced in the region than richer households.

However, it is difficult to identify the severity of coping strategies of either conflict-affected households or poor and vulnerable households. Many of the worst-off and conflict-affected households might have fewer coping strategies available to them. Productive assets might have already been sold off or lost due to violence, poor households might not be able to borrow money to bolster current consumption, and poor households might already have taken their children out of school and skipped needed medical care. Thus, the lack of reliance on such strategies is not necessarily indicative of the degree to which conflict shocks might be hurting households, or the degree to which all shocks are affecting poor and vulnerable households.

Notes: Figure reports the share of households experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption, and (iii) other negative coping strategies. The figures report averages over Burkina Faso, Chad, Mali, Niger, and Senegal using data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

Notes: Figure reports the share of shock-affected households that most rely on negative coping strategies to cope with shocks. The prevalence is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. Quintiles are defined using consumption within each country. For example, the Q1 households in Senegal refer to the 20 percent of the population within Senegal that is the poorest, and many Q1 households there might be better off than higher quintiles in other countries. The figures report averages over Burkina Faso, Chad, Niger, and Senegal using data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FACT 4  
**Climate-related shocks are much more concentrated amongst the poorest households compared to other shocks to which the region is susceptible**

The poorest households are twice as likely to have been adversely impacted by a climate-related shock than the richest households. Approximately half of all the poorest households have experienced a climate-related shock in the past three years, while only one-quarter of the richest households have been adversely affected by a climate-related shock (Figure 7). As demonstrated by the large share of climate-related shocks that are droughts reported in Figures 2, these patterns are driven by differences in exposure to droughts at different points of the welfare distribution. This is consistent with the fact that most of the poorest households in the Sahel are working in agriculture and are residing in rural areas.

By contrast, neither conflict nor idiosyncratic shocks vary based on the welfare distribution and are equally likely to impact richer and poorer households. Although the prevalence of idiosyncratic shocks for all consumption quintiles is approximately equal to the prevalence of climate shocks amongst the poorest households, richer households are equally likely to have experienced an idiosyncratic shock. Importantly, the lack of variation in the prevalence of idiosyncratic shocks across different points of the welfare distribution are constant across all types of individual idiosyncratic shocks.

**FIGURE 7. IMPACT OF SHOCKS BY CONSUMPTION IN THE PAST THREE YEARS**

Note: Figure reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The prevalence of each shock is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. Quintiles are defined using consumption within each country. For example, the Q1 households in Senegal refer to the 20 percent of the population within Senegal that is the poorest, and many Q1 households there might be better off than higher quintiles in other countries. The figures report averages over Burkina Faso, Chad, Niger, and Senegal using data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

Importantly, the disproportionate impact of climate shocks on poor households is evident in all countries in the Sahel region (see Figure 7b). However, the size of the difference between richer and poor household varies by country. For example, in Burkina Faso, three times as many of the poorest households experienced a climate shock in the past three years; and in Chad, the magnitude of the difference is smaller. However, in all countries, the share of households experiencing climate-related shocks by quintile is lower for higher consumption quintiles; and the highest consumption quintiles are significantly less exposed to climate-related shocks than the poorest consumption quintiles. This implies that adaptive social protection systems that are responsive to climate shocks – droughts in particular – ought to be more concentrated amongst poor households than systems that are responsive to other pervasive shocks in the region.
Senegal has a different exposure to risks that commonly affect the region and households are also less likely to rely on negative coping strategies. Figure 8a reports the share of the population experiencing shocks separately for Senegal and the rest of the region; and figure 8b reports the share of shock-affected households that rely on negative coping strategies separately for Senegal and the rest of the region. The difference between Senegal and the rest of the region in exposure to covariate shocks that are the focus of adaptive social protection systems — climate and conflict — are particularly large. Furthermore, when each of these shocks does affect households in Senegal, they are less likely to rely on negative coping strategies (often using e.g. savings as a less harmful coping strategy).

However, despite these differences, droughts are the most significant shock in Senegal, which is very similar to the other countries in the region. As demonstrated in Figures S2b and S4, the climate shocks that impact Senegal are mostly droughts, and these droughts are more likely to impact poorer households. Thus, drought-responsive social protection programs could be an important component of the safety net in Senegal.

FIGURE 8. COMPARISON BETWEEN SENEGAL AND THE REST OF THE SAHEL IN THE PAST THREE YEARS

Notes: Figure reports the share of the population exposed to negative shocks and reports the share of shock-affected households that rely on negative coping strategies by the different types of shocks. The figures report averages over Burkina Faso, Chad, Mali, Niger, and Senegal using data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
Conclusion and Policy Implications

The prominence of shocks in the Sahel region underscores the need to invest in adaptive social protection systems. The results further underscore the importance of ASP systems that are responsive to climate-related shocks. Relative to other shocks that are common to the region, climate-related shocks have a higher prevalence, are more concentrated amongst the poor, and have a much wider geographic incidence. The importance of ASP systems to address climate-related shocks will increase in the coming years as climate change will likely make climate-related shocks even more common in the region.

The results further suggest that ASP systems should offer a wide range of support. Adaptive social protection systems that (i) build household resilience to climate change and (ii) expand quickly to protect households from climate and other shocks when they occur can offer strong support to poor and vulnerable households in the entire region. For example, resilience-building interventions can include financial support and training to farmers to adopt climate-smart agriculture technology such as water management and soil conservation practices can reduce farmers’ vulnerability to drought; and ex-post support to shocks can include immediate cash transfers to reduce the degree to which households are forced to rely on negative coping strategies.

However, the results also underscore the need for additional work to identify appropriate targeting strategies for ASP systems in response to shocks. The vast majority of the population in the region are either poor or within a single shock of falling into poverty. This points to the need to design ASP systems that are anchored in a focus on the poorest households, yet also points to the need for ASP systems to “flex” and provide protection to non-poor but vulnerable households. Given differences in the degree to which different types of shocks affect the poor and vulnerable, ASP systems should consider developing targeting methodologies that are tailored to each type of shock by relying on a mix of household poverty targeting, geographical targeting, and categorical targeting.

Lastly, in order to design more complete ASP systems, more work needs to be done to fully identify the impacts of shocks in the region. Here, we focus only on the self-reported incidence of shocks. However, it is possible that shocks can have impacts on households that are not in close proximity and through channels of which households might not be aware. For example, droughts in rural areas can affect urban areas through higher food prices; and violence can impact food availability and access in regions that do not experience a large amount of violence by disturbing supply chains. Merging existing household surveys with additional data sources on conflict and climate-related shocks, and collecting additional types of high-frequency data, can further identify the impact of common shocks in the region and help ASP systems support all affected households.
The first wave of the West African Economic and Monetary Union (WAEMU) harmonized household survey was launched during the lean season in September 2018, and a second wave was completed in 2019 after the lean season had ended. All SASPP countries aside from Mauritania participated in the WAEMU survey, which includes Burkina Faso, Chad, Mali, Niger, and Senegal. The surveys are nationally-representative, and can further report estimates at the rural/urban and regional (Admin 1) levels. However, the sampling frame did not include refugees and internally displaced populations that are living in camps.

The surveys are multi-purpose household surveys which include a detailed household roster and detailed modules on consumption, employment, education, health, exposure to shocks, and social safety nets. The consumption modules will be used by each national statistics office to estimate the national poverty lines. The combination of the shock module along with all the other detailed modules allows one to investigate the degree to which shocks impact the population, the types of strategies that households used to cope with these shocks, and how each of these factors might vary for different points of the welfare distribution and for different household characteristics.

The shock module asks households if they have been negatively affected by each of 21 different types of shocks over the last three years prior to the survey time. Importantly, these shocks include conflict shocks and a variety of shocks that can be related to climate, including droughts, floods, fires, and landslides. Additionally, the list of shocks includes a variety of idiosyncratic shocks, such as illness of family members, death of family members, theft of assets, and so on. For simplicity, the above report groups these shocks into three groups: climate shocks, conflict shocks, and idiosyncratic shocks. Additionally, certain shocks from the list have been omitted that might be secondary effects of some of the other shocks listed. For example, high food prices and changes in input or output prices for businesses can be related to droughts. These types of shocks have been excluded from the analysis above so as to not magnify the impacts of some but not all shocks. However, all results are qualitatively identical if these shocks are included.

The shock module further asks households the primary strategies they used to cope with the negative shocks, and allows the household to list up to three strategies used for each type of shock. The list of possible coping strategies includes 24 separate strategies. For simplicity, we have grouped these into negative and non-negative strategies, and we identify the household as relying on a coping strategy regardless of whether it was ranked first through third on importance.
Non-negative strategies include the use of savings, help from friends or families, or support from the government. Negative coping strategies are grouped into three categories: strategies that impede access to food and vital services, strategies that impede future consumption (e.g., relying on credit, selling productive assets, etc.), and other coping strategies (e.g., migration, having their children get married, and sending children to live with other families). For a complete list of coping strategies, see Table A1.

Using the detailed shock module, we report estimates pooled across all SASPP countries and we report a portion of the results by country. In the estimates that pool observations across countries, more weight is given to countries that have larger populations. However, the populations of each country at the time of the household survey are roughly similar, with the smallest population of approximately 16 million in Senegal and the largest population in Niger of approximately 22 million.

Importantly, the surveys were mostly unaffected by conflict during the survey period. Only in northern Mali and in Chad were approximately enumeration areas (EA) replaced due to conflict and insecurity at the time that data collection was to take place. In Mali, approximately 30 EA’s were replaced with EA’s from within the same strata; in Chad, 3 EA’s were replaced.

### TABLE A1. LIST OF NEGATIVE COPING STRATEGIES

<table>
<thead>
<tr>
<th>Current Access to Food and Basic Services</th>
<th>Future Access to Food and Basic Services</th>
<th>Other Coping Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reduction in meals, quantities consumed, etc.</td>
<td>• Obtaining a loan</td>
<td>• Marrying off children</td>
</tr>
<tr>
<td>• Buying cheaper food</td>
<td>• Sale of agricultural assets</td>
<td>• Migration of household members</td>
</tr>
<tr>
<td>• Children under 15 were made to work</td>
<td>• Sale of durable household goods</td>
<td>• Entrusting children to other households</td>
</tr>
<tr>
<td>• Children were taken out of school</td>
<td>• Sale of land/buildings/houses</td>
<td></td>
</tr>
<tr>
<td>• Reduction of health or education expenditure</td>
<td>• Sale of food stocks</td>
<td></td>
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</tbody>
</table>
COUNTRY-SPECIFIC APPENDIX

BURKINA FASO

**FIGURE BF1. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS**

**BF1a. The Share of the Population by the Number of Major Shocks to Which the Household is Exposed**

**BF1b. Share of the Population Affected by Common Shocks**

Notes: Figure reports the number of major shock categories to which households in Burkina Faso are exposed, and also reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

**FIGURE BF2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS**

**BF2a. Exposure to Most Common Idiosyncratic Shocks**

**BF2b. Exposure to Climate-related Shocks**

Notes: Figure reports the share of the population in Burkina Faso that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE BF3. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

Notes: Figure reports the share of households in Burkina Faso experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption and (iii) other negative coping strategies. Panel (a) reports the share of affected households that use each type of coping strategy as the primary coping strategy; and panel (b) reports the share of households that report a negative coping strategy as one of the three primary ways to cope with the shock. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE BF4. SHARE OF SHOCK-AFFECTED HOUSEHOLDS MOST RELYING ON NEGATIVE COPING STRATEGIES BY CONSUMPTION QUINTILE

Notes: Figure reports the share of shock-affected households that most rely on negative coping strategies to cope with shocks in Burkina Faso. The prevalence is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE BF5. IMPACT OF SHOCKS BY CONSUMPTION IN THE PAST THREE YEARS

Notes: Figure reports the share of the population in Burkina Faso that reported to be adversely affected by each type of shock in the three years before the survey. The prevalence of each shock is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE C1. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

Notes: Figure reports the number of major shock categories to which households in Chad are exposed, and also reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE C2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS

Notes: Figure reports the share of the population in Chad that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE C3. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

Notes: Figure reports the share of households in Chad experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption and (iii) other negative coping strategies. Panel (a) reports the share of affected households that use each type of coping strategy as the primary coping strategy; and panel (b) reports the share of households that report a negative coping strategy as one of the three primary ways to cope with the shock. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE C4. SHARE OF SHOCK-AFFECTED HOUSEHOLDS MOST RELYING ON NEGATIVE COPING STRATEGIES BY CONSUMPTION QUINTILE

Notes: Figure reports the share of shock-affected households that most rely on negative coping strategies to cope with shocks in Chad. The prevalence is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE C5. IMPACT OF SHOCKS BY CONSUMPTION IN THE PAST THREE YEARS

Notes: Figure reports the share of the population in Chad that reported to be adversely affected by each type of shock in the three years before the survey. The prevalence of each shock is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
## FIGURE M1. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

**M1a. The Share of the Population by the Number of Major Shocks to Which the Household is Exposed**

- No Shocks
- One Shock Type
- Two Shock Types
- Three Shock Types

**M1b. Share of the Population Affected by Common Shocks**

- Idiosyncratic
- Climate
- Conflict

Notes: Figure reports the number of major shock categories to which households in Mali are exposed, and also reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

## FIGURE M2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS

**M2a. Exposure to Most Common Idiosyncratic Shocks**

- Illness
- Death
- Theft
- Other Idiosyncratic

**M2b. Exposure to Climate-related Shocks**

- Drought
- Flood
- Fire
- Landslide

Notes: Figure reports the share of the population in Burkina Faso that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE M3. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

Notes: Figure reports the share of households in Mali experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption and (iii) other negative coping strategies. Panel (a) reports the share of affected households that use each type of coping strategy as the primary coping strategy; and panel (b) reports the share of households that report a negative coping strategy as one of the three primary ways to cope with the shock. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE N1. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

N1a. The Share of the Population by the Number of Major Shocks to Which the Household is Exposed

N1b. Share of the Population Affected by Common Shocks

Notes: Figure reports the number of major shock categories to which households in Niger are exposed, and also reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE N2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS

N2a. Exposure to Most Common Idiosyncratic Shocks

N2b. Exposure to Climate-related Shocks

Notes: Figure reports the share of the population in Burkina Faso that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE N3. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

Figure N3a. Comparison of Primary Coping Strategies (share of households)

Figure N3b. Share of Households Experiencing Shocks that Rely on any Negative Coping Strategies

Notes: Figure reports the share of households in Niger experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption and (iii) other negative coping strategies. Panel (a) reports the share of affected households that use each type of coping strategy as the primary coping strategy; and panel (b) reports the share of households that report a negative coping strategy as one of the three primary ways to cope with the shock. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE N4. SHARE OF SHOCK-AFFECTED HOUSEHOLDS MOST RELYING ON NEGATIVE COPING STRATEGIES BY CONSUMPTION QUINTILE

Figure N4

Notes: Figure reports the share of shock-affected households that most rely on negative coping strategies to cope with shocks in Niger. The prevalence is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE N5. IMPACT OF SHOCKS BY CONSUMPTION IN THE PAST THREE YEARS

Figure N5

Notes: Figure reports the share of the population in Niger that reported to be adversely affected by each type of shock in the three years before the survey. The prevalence of each shock is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
FIGURE S1. SHARE OF THE POPULATION HURT BY SHOCKS COMMON TO THE SAHEL REGION IN THE PAST THREE YEARS

**S1a. The Share of the Population by the Number of Major Shocks to Which the Household is Exposed**

**S1b. Share of the Population Affected by Common Shocks**

Notes: Figure reports the number of major shock categories to which households in Senegal are exposed, and also reports the share of the population that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

FIGURE S2. SHARE OF HOUSEHOLDS AFFECTED BY COMMON SHOCKS IN THE PAST THREE YEARS

**S2a. Exposure to Most Common Idiosyncratic Shocks**

**S2b. Exposure to Climate Shocks**

Notes: Figure reports the share of the population in Senegal that reported to be adversely affected by each type of shock in the three years before the survey. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
Notes: Figure reports the share of households in Senegal experiencing negative income shocks that rely on negative coping strategies by the different types of shocks. Negative coping strategies are defined as (i) sacrificing current access to food and basic services, (ii) sacrificing future consumption and (iii) other negative coping strategies. Panel (a) reports the share of affected households that use each type of coping strategy as the primary coping strategy; and panel (b) reports the share of households that report a negative coping strategy as one of the three primary ways to cope with the shock. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

Notes: Figure reports the share of shock-affected households that most rely on negative coping strategies to cope with shocks in Senegal. The prevalence is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.

Notes: Figure reports the share of the population in Senegal that reported to be adversely affected by each type of shock in the three years before the survey. The prevalence of each shock is separately reported by consumption quintiles, where Q1 is the poorest quintile and Q5 is the richest quintile. The figures use data from the West African Monetary Union Harmonized Household Surveys conducted between 2018 and 2019.
REFERENCES


ENDNOTES

2 https://acleddata.com/2020/05/20/state-atrocities-in-the-sahel-the-impetus-for-counter-insurgency-results-is-fueling-government-attacks-on-civilians/
3 It is further important to note that Figure 1 summarizes the share of households by the number of broad shock categories experienced, which each contain a number of different shocks. Thus, many households are exposed to many more than three shocks in the past three years.
4 The significant share of the population that did not report experiencing any adverse shocks in the three years before the survey survives excluding better-off regions in the region. For example, even when excluding Senegal, the share of the population of the rest of the Sahel that reported no negative shocks was 29 percent; and when restricting the sample to only rural households in the entire Sahel aside from Senegal, the share that reported no negative shocks was 25 percent.
5 As demonstrated in Figure 1a, approximately one-quarter of the population is exposed to more than one major shock category. Thus, the shares of the population sum to more than one.
6 For a survey of the literature, see Blattman and Miguel (2010), Justino (2012), or Verwimp et al. (2019).
7 For examples, see D’Souza and Jolliffe (2013), Martin-Shields and Stojetz (2018), Tandon (2019), Tandon and Vishwanath (2020), and Almoayad et al. (2020).
8 For a complete list of coping strategies, see Table A1 in the Data Appendix.
9 The figure does not demonstrate that the reliance on negative coping strategies is stronger for each quintile. For example, the bottom four quintiles have essentially an indistinguishable reliance on negative coping strategies from each other. However, the top quintile has significantly less reliance than other households.
10 The higher reliance on negative coping strategies of the poorest households relative to the richest households only is evidence with the coping strategy that is most heavily relied upon. When looking at the second- and third-most-relied on strategies, there is no difference based on consumption quintile.
11 It is difficult to identify the reason for these differences across countries, and more thorough investigation is needed.
12 It is difficult to identify whether the climate shocks contributed to poor consumption, whether climate shocks tended to strike those that already had poor consumption, or a combination of both.

ACKNOWLEDGEMENTS

SASPP is a multi-donor trust fund managed by the World Bank that supports the strengthening of adaptive social protection systems in the Sahel (Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal) to enhance the resilience of poor and vulnerable households and communities to the impacts of climate change. The program is supported by Denmark, France, Germany and the United Kingdom.

NOTE DESIGN: ANDRES DE LA ROCHE / ADELAROCHEDESIGNS.COM