

Starvation Crimes in the South Sudanese Civil War

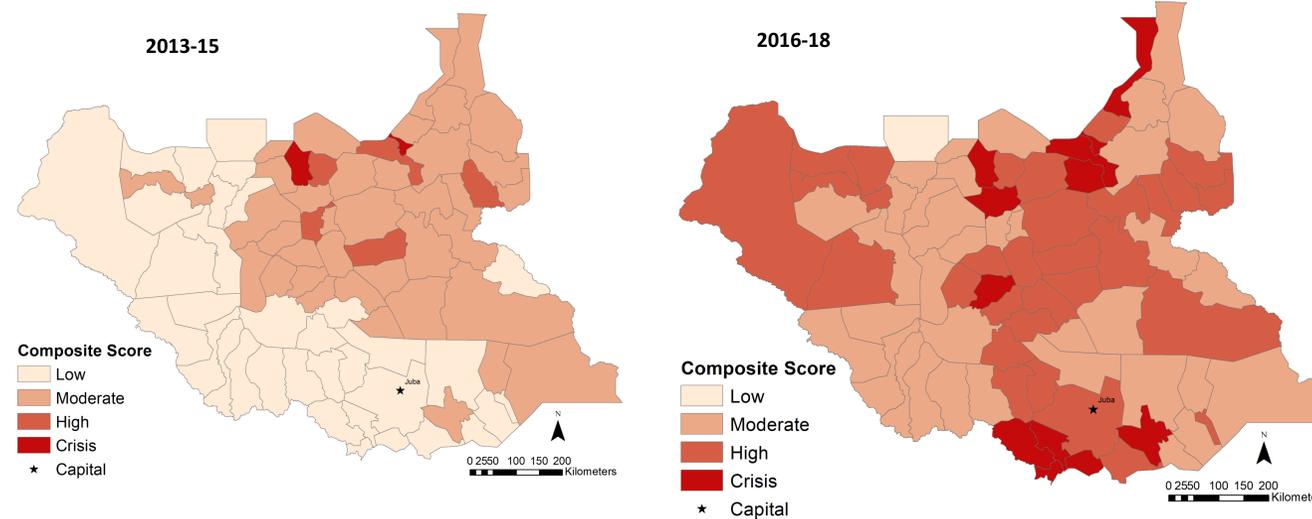
2013-15 & 2016-18

Introduction

South Sudan achieved independence in 2011 after decades of struggle, but the honeymoon did not last long. In December 2013, a civil war began after a massacre in Juba, the capital, which quickly saw fighting spread throughout the country. A peace agreement was signed in August 2015 but fell apart in July 2016, leading to not just the return but the escalation of fighting and its spread to areas of the country previously untroubled. A second peace agreement was signed in September 2018.

During the civil war, both sides committed atrocities against civilians. These acts happened alongside other economic factors, including hyperinflation and large-scale displacement, that made it impossible for some people to buy what was needed to sustain life. A 2018 study found that from the outbreak of the war to mid-2018, the crisis had led to an estimated 383,000 excess deaths, about half due to violence and half to hunger and disease. This analysis seeks to show the correlation between conflict and food (in)security and the impact the conflict has had on the country's cropland during each phase of the conflict.

Composite Food Security and Conflict Density

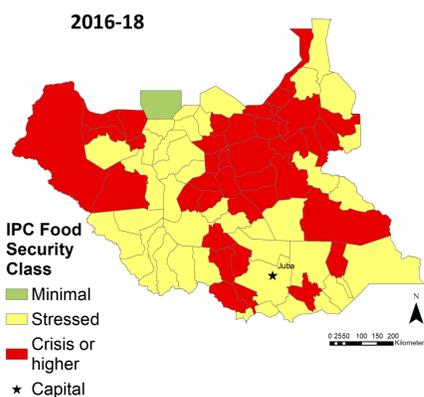
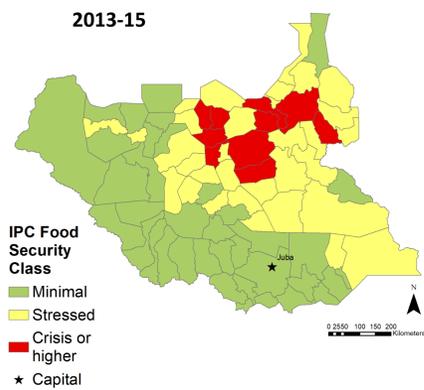


Results

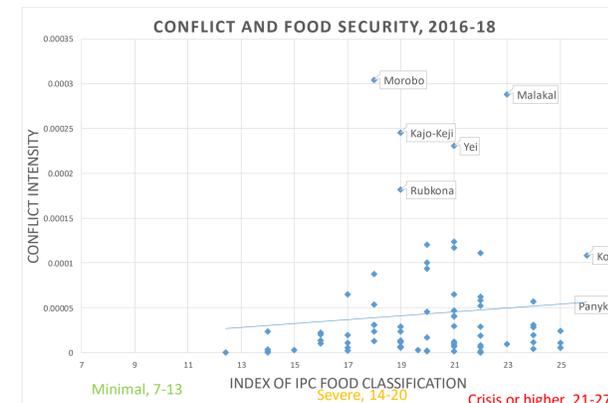
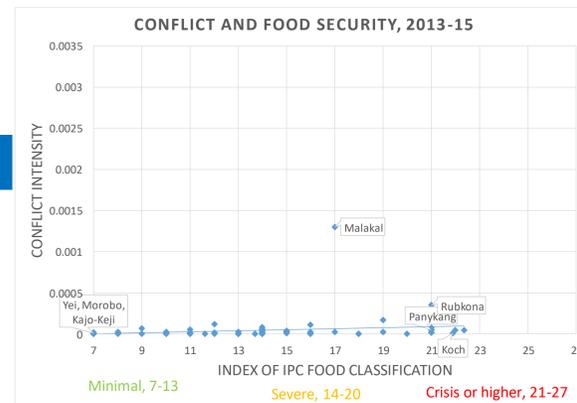
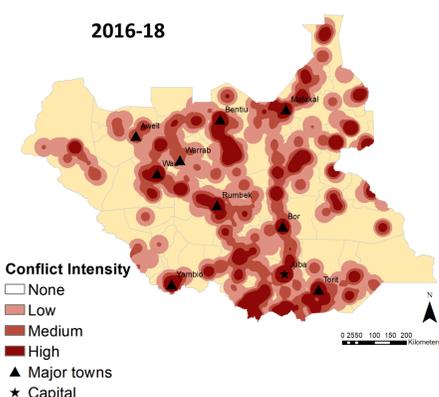
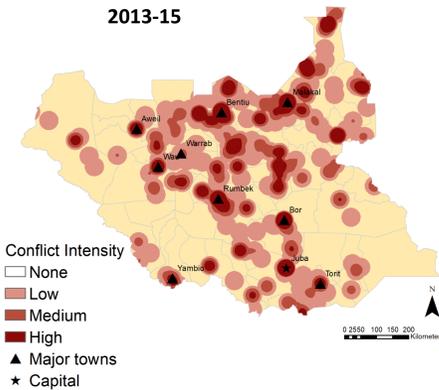
The results of my analysis show a clear correlation between conflict density and worsened food security outcomes. This correlation appears stronger in the second phase of the war. The dual-time period analysis is particularly striking for examining several of the outliers in the latter phase which were both food secure and largely free of conflict during the first half of the war. This helps demonstrate how the conflict's arrival in previously undisturbed areas is directly related to worsened food security outcomes.

Examining the impact of the conflict on landcover also shows that half of South Sudan's cropland were exposed to conflict during each time period. Cropland makes up a small fraction of South Sudan's landcover and is used to identify the country's most productive agricultural lands. This high rate of conflict incidence likely had a very negative effect on agricultural output on that land for several planting seasons, showing how the conflict negatively impacts livelihoods.

Food Security



Conflict



Methods

To calculate food security, I collected data from the Famine Early Warning System Integrated Food Security Phase Classification System (IPC), a widely accepted humanitarian standard that employs five-level scale to classify food insecurity from minimal to famine. I constructed an index calculating each county's IPC score over each time period.

Conflict data from ACLED, which relies on open source data, was imported for December 2013 to August 2015 and July 2016 to September 2018. The data was used to create a point shapefile and a kernel density raster. I also calculated conflict incidents per population to create a conflict density score. I combined this data with the IPC index score to create a measure of the food security outcomes and conflict density.

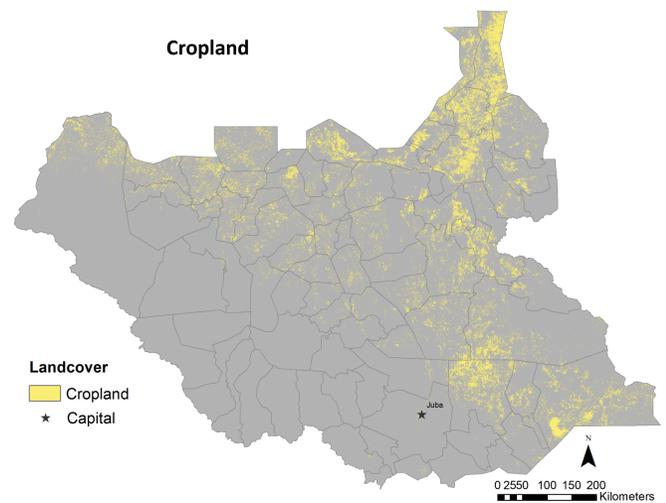
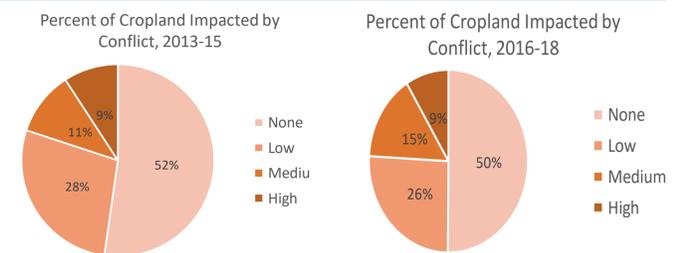
I also combined the conflict raster dataset with the Global Landcover raster to calculate the proportion of cropland that had been impacted by conflict during each time period.

Limitations

Data has been a limiting factor in this project. I relied on ACLED data, which can be unreliable. Accurate population data is a particular challenge in the midst of a war with widespread displacement. FEWSNET likewise has several gaps in its data, particularly early in the war.

The South Sudanese Civil War has been essentially one long continuous conflict. I have treated it as two discrete events because it provides some analytical benefits, but of course that is not how the conflict has been experienced. It has been a continuous conflict, with its impact compounded year-on-year.

Conflict & Cropland



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Sources: ACLED, FEWSNET, GLC, World Bank, WorldPop, GADM
Projection: UTM Zone 35N