

Conflict worsens the impact of flood on food insecurity: Evidence from Myanmar

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Extended Abstract

In 2023, 282 million people globally suffered from acute food insecurity, mostly driven by the adverse effects of conflict, weather extremes, and economic shocks (FSIN and Global Network Against Food Crises, 2024). Violence and climate-related extremes – the two main drivers of food crises (Brown et al., 2020) – have been on the rise in the past decade (IPCC, 2023; Davies et al., 2024), carrying devastating effects on agricultural production, access to and prices of food, and overall individuals’ ability to meet their food needs (e.g. World Meteorological Organization, 2024; Weldegiargis et al., 2023).

A growing literature has examined the effect of weather extremes on food security, and especially of flood events, the dominant type of extreme weather events (e.g. Oskorouchi and Sousa-Poza, 2021; Reed et al., 2022; Yolchi et al., 2024). These studies find that flood exposure is associated with lower food consumption, and higher levels of hunger and malnutrition (Yolchi et al., 2024; Reed et al., 2022; Oskorouchi and Sousa-Poza, 2021), with potentially long-lasting consequences for the health and wellbeing of exposed individuals, and children and women in particular (Douglas, 2009).

Existing studies also point to the negative effects of armed conflict on food security, both in the short and long term (Shemyakina, 2022). Conflicts destruct and disrupt crop harvests and land (?), deteriorate local income, labor, and means of production (Verwimp et al., 2019; Di Maio and Leone Sciabolazza, 2023), impair food markets and agricultural output (D’Souza and Jolliffe, 2013; ?), cause spikes in food prices (D’Souza and Jolliffe, 2013) and overall increase the risk of hunger and malnutrition, with long-lasting consequences for exposed populations, and especially infants and children (?).

The above studies have not only estimated the negative impacts of armed conflict and flood events on food security; they have also highlighted how these impacts vary over space and across groups, enabling considerable progress in enhancing preparedness and humanitarian relief. Despite this progress, the existing literature tends to study each of these drivers of food security in isolation, thus overlooking the possible compound effects of armed conflict and weather related hazards. As some of the most

severe food crises have occurred in locations exposed to both violence and climate-related extremes (Anderson et al., 2021), understanding how these shocks interact and combine is fundamental to improve the effectiveness of monitoring, early warning, and relief programmes and thus minimize the risk of famines.

The present paper aims at improving our understanding of the compound effect of exposure to armed conflict and flood on food security in Myanmar. We use sub-national and survey data on armed conflict, flood exposure, and food insecurity in Myanmar to investigate the compound effect of the 2008 flood and armed conflict exposure on households' food security. We find that the 2008 flood increased food insecurity by 18%. However, this effect soars to 52% if a location concurrently experienced armed conflict. In particular, children in conflict-affected areas displayed lower weight and height for their age compared to children in non-exposed locations.

Our findings contribute to the literature in three key ways. First, we provide robust empirical evidence for the compound impacts of flood and armed conflict exposure on food security, breaking the silos that characterize existing analyses of food crises. Further, we utilize spatially and temporally disaggregated data to uncover the mechanisms through which these drivers interact. High-quality satellite data on flood extent enable us to estimate exposure at the sub-national level, going beyond traditional country-level assessments of food systems (Dowd et al., 2024); systematic, granular information on armed conflict fatalities and duration allow us for a more nuanced assessment of the impacts of violence, beyond large-scale and high-intensity wars which are over-represented in the literature (Dowd et al., 2024). Combining household-level data on income with sub-national information on socio-political exclusion, we shed light on how conflict and flood impacts vary across groups, countering a general tendency of previous research to overlook the differential impacts of violence on marginalised groups and minorities (Dowd et al., 2024). Lastly, our focus on Myanmar overcome the traditional 'African bias' observed in both peace and conflict and food research (Hendrix, 2017; Dowd et al., 2024).

In line with SDG16 advocating for peace, justice, and strong institutions, our findings point to the importance of achieving and sustaining peace as a valuable strategy for reducing local vulnerability to floods, and minimizing food insecurity in flood-affected locations. As extreme weather events are anticipated to become increasingly frequent (IPCC, 2023), policymakers require solid scientific insights in different temporal and spatial contexts to tailor effective disaster risk management and adaptation strategies — such as those involving infrastructure, technology, management, and insurance. These measures are essential to safeguard the most vulnerable populations and support global food security. Our results may thus contribute actionable insights for policymakers to design disaster risk management and adaptation strategies that account for the unique vulnerabilities of conflict-affected regions.

Keywords: food insecurity, flooding, armed conflict

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