



The impact of climate change on weather index insurance design

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While the agreement on a binding policy framework is vital to limit emissions and therefore the impact of climate change on a global scale, two complementary actions are important with regard to the mitigation of climate change impacts. First, there is clear need to upscale new approaches and successful strategies. Ideally, this happens via tools that are based on participatory processes and capacity building, empowering the communities that are the most affected. Second, the development of these approaches must constantly be re-evaluated with regard to a changing climate. Weather index insurance (WII) is one of these approaches. It allows smallholder farmers to increase their yields in normal or good years by protecting them against the risk of losing their agricultural investments in drought years. In addition, WII is usually more affordable and pays out faster than conventional insurance. The parameterization of WII is often based on satellite-derived datasets, mainly rainfall and vegetation health, dating back to the early 1980s. The calibration of indices based on historical data is crucial in identifying at which threshold of the chosen variable (e. g. of rainfall) payouts start and end during the season, the overall payout frequency and the payout sum for a given year. To date, the development of WII assumes a uniform distribution of drought years since the 1980s. Recent findings, however, identified generally dryer conditions in West Africa during the 1980s compared to the 1990s and 2000s. There is a risk that these circumstances influence the calibration of indices in a way that more recent droughts result in lower payouts. As a consequence, this study analyses temporal and spatial shifts in rainfall patterns in West Africa, in particular Senegal, and their impact on the calibration of WII.