

# Evidence Brief 5: Non-insurance Disaster Risk Finance\*

## What is non-insurance disaster risk finance

Non-insurance disaster risk finance (DRF) refers to financial solutions *other than insurance* that are available to individuals and households, firms, communities, and governments to manage extreme weather and other natural hazard risk. Not much work has been done around firm-level, non-insurance DRF. Smaller firms may self-insure, typically rely on savings, credit, and the sale of assets to manage infrequent shocks or go out of business.

Given that much of the recent focus related to climate and disaster risk finance and insurance (CDRFI) has been on micro and sovereign risk insurance, it is important to also look at the other financial solutions available, especially for risk-exposed and vulnerable individuals. This brief will focus on two types of non-insurance DRF: household DRF and forecast-based finance. Sovereign non-insurance DRF is discussed in the [macro policy solutions](#) evidence brief. While household non-insurance DRF consists specifically of savings/risk retention and credit, forecast-based finance is a relatively new solution using event forecasts to trigger finance, typically for humanitarian partners.

## Evidence on non-insurance DRF

### Evidence on household DRF

The role of savings and credit in household wellbeing has been widely researched, and the evidence presented here is not exhaustive. Households employ a variety of both financial and non-financial risk management strategies. Non-financial strategies include crop and livelihood diversification and migration. Non-insurance (or “self-insurance”) financial strategies—our focus here—include savings, credit, and remittances.<sup>1</sup> While savings and credit each play a critical role in helping individuals cope with disasters, experiences such as the Haiti earthquake also demonstrate their fragility; high-impact events may lead to the loss of savings and simultaneously impact the ability of informal and community-based lenders to supply credit (Feinstein International Center 2013).

Theoretical and empirical work has explained the role of savings not only in economic development and growth, but also in allowing individuals to smooth consumption over time, particularly for those engaged in agricultural livelihoods and exposed to weather-related hazards, and especially in the absence of credit markets (Deaton 1992; 1989). Remittances contribute to household precautionary savings, and households use both savings (including physical capital) and credit to manage shocks, although these may not be available after repeated shocks and therefore negative coping mechanisms may be used (Alderman 1996). Unsurprisingly, more risk adverse farmers are more

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<sup>1</sup> While not discussed here, there is also a large literature in the importance of cash transfers to help households manage the impacts of extreme weather and other natural hazards.

likely to engage in diversification and precautionary savings for the purposes of risk management (Ullah et al. 2015). There is mixed evidence on the role of livestock as precautionary savings, although recent work suggests it may be particularly relevant for households located further away from markets (Abay and Jensen 2020; Fafchamps, Udry, and Czukas 1998).

As with savings, there is empirical evidence that in the absence of complete insurance markets, informal credit mechanisms (community risk pooling) can help shock-affected households smooth consumption, though it is unclear to what extent these systems can help manage large, covariate shocks (Udry 1994). In cases where credit access erodes following extreme-weather, credit from self-help groups may be more resilient and help affected households cope (Demont 2014). There is also evidence from randomized evaluations of microcredit that it improves risk management (Banerjee, Karlan, and Zinman 2015). More recently, lenders have started to innovate to facilitate the use of credit to help disaster-affected individuals. After Typhoon Haiyan, Community Economic Ventures Incorporated, VisionFund International's Filipino microfinance operation, piloted loans targeted specifically at disaster-affected individuals to rebuild their livelihoods. The recovery loans improved clients' livelihoods without increases in late payments and defaults. However, the system is not considered replicable to other contexts without substantial pre-event planning, and may function best in coordination with meso-level, parametric weather insurance for lenders (Asian Development Bank 2016) (see the [meso-insurance](#) evidence brief for more information on this type of insurance). In Bangladesh, pre-approved emergency loans have been successfully piloted by BRAC, where they were found to increase "risky" (and potentially more profitable) investments (Lane 2018). This is similar to the investment-related impacts of agricultural insurance (see the [microinsurance](#) evidence brief). As with the recovery loans, emergency loans had high repayment rates (Lane 2018).

Finally, there is significant evidence that remittances are countercyclical—increasing while economic opportunities and investments are decreasing—demonstrating their value in helping people affected by natural hazards or political/economic shocks cope (Le Dé, Gaillard, and Friesen 2013; Mohapatra, Joseph, and Ratha 2012). Remittances are particularly common in the Pacific, where they contribute not only to ex-post coping, but also support regular consumption and social needs (Le Dé et al. 2015; Pairama and Le Dé 2018) although there is significant opportunity to expand the products available to remitters, especially in the case of disaster risk management (Pairama and Le Dé 2018).

## Evidence on forecast-based finance

Early (or anticipatory) action to reduce the impacts of natural hazards, including through the provision of humanitarian assistance, is generally considered to have significant cost savings over traditional, ex-post governmental or humanitarian response. Forecast-based financing uses climate forecasts (or other observations) to disburse funding when certain thresholds are forecast to be surpassed (Coughlan de Perez et al. 2015); researchers have provided recommendations on how these forecasts should be used (Lopez et al. 2017). As designed by the International Red Cross and Red Crescent Movement, forecast-based finance relies on an Early Action Protocol, a plan that sets trigger levels and responses, which facilitates pre-approved funding for Red Cross and Red Crescent Societies from the International Federation's Disaster Relief Emergency Fund (International Federation of the Red Cross and Red Crescent Societies 2020). Forecast-based mechanisms include a non-negligible chance of "acting in vain," or disbursing funds without a subsequent negative event (of the forecast severity) occurring (Lopez et al. 2017).

Recent empirical evidence from a single pilot in Bangladesh shows that forecast-based cash grants increase the positive coping capacity of hazard-affected households and decrease psychosocial stress, although it is unclear if the grants have long-term impacts on wellbeing, especially in the face

of repeated shocks (Gros et al. 2019). A recent review of the evidence base for anticipatory action (A-A, of which forecast-based finance is a subset) discusses both modelled/simulated and empirical outcomes of A-A. Modelled outcomes tend to suggest large savings and benefits from A-A, especially programs including forecast-based finance, but the quality of the models is potentially problematic. On the empirical front, in addition to the evidence from Bangladesh cited above, studies in Mongolia and Bangladesh that included a cash transfer component showed positive impacts on household-led early action and reduced livestock mortality, but no impact on debt levels, food consumption, or psychosocial distress. The evidence review proposes an evidence agenda for A-A focused on 1) greater investment in monitoring, evaluation and learning systems, 2) development of a common analytical framework for evaluations, and 3) a focus on improving models – all things that should be considered for CDRFI as well. (Weingärtner, Pforr, and Wilkinson 2020)

## Gaps and research needs

While there has been significant research on the role of savings and credit in household wellbeing and, to a lesser extent, risk management, there has not been as much innovation around savings and credit for risk management as there has been in the insurance space. Given that many low-income and highly-exposed people have greater access to formal savings and credit institutions than to insurance, research is needed on how these services can be tailored to meet their financial risk management needs. Similarly, despite the important role that remittances play in low- and middle-income countries, little research has been done around remittance solutions that would meet the needs of disaster-affected households while also fitting the income streams and needs of remitters. There is a large gap in the literature on micro, small, and medium enterprises and how insurance and non-insurance solutions could be better deployed to help them manage natural hazard risk.

Finally, given that forecast-based finance is relatively new, the evidence base is still developing. While some of the early findings have been quite positive, they appear to be incredibly context specific and program dependent. More evidence is needed to be able to generalize and the types of forecast-based interventions that are most cost-effective and high-impact.

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