



Covering the Costs of Nature's Fury

Consolidated Lessons of MILK's Client Math Studies of Property Microinsurance

- The costs of flood damage to small businesses and low-income households are devastating. We find that all financing resources, individually, fall far short of meeting households' needs, forcing them to cobble together financing from many different sources and typically delay or forgo repairs.
- Households in our studies generally failed to fully recover from the floods, even with insurance and even when the total amount of money they raised from various financing sources far exceeded their reported costs.
- Insurance played a valuable though limited role, reducing reliance on burdensome financing strategies (such as asset sales), creating incentives to rely on "better" financing strategies that are difficult in the short term but ultimately more efficient (such as reducing spending), and crowding in low-cost, flexible loans from friends and family.
- Payment of benefits was severely delayed in each of the four studies, with significant implications for the products' value.
- Across our studies, households tended to prioritize spending to regain their ability to earn income; this suggests that faster claims payment might have allowed insured households to minimize their lost income by enabling them to make these productive investments sooner.

Table 1: This brief summarizes the lessons of MILK's studies of property microinsurance:

Location:	Accra, Ghana	Les Cayes, Haiti	Mindanao & Panay, Philippines	Cienaga, Colombia
Coverage:	Business insurance covering disability and damage from flood, fire, and earthquakes. Pays outstanding loan balance to the MFI and cash benefit to the client of USD 114.	Property insurance covering damage to a client's home, place of business, or merchandise. Pays outstanding loan balance, pre-approves a new loan, and pays USD 125 to client in cash.	Property insurance paid in the case of occurrence of certain natural disasters (proof of damage is not required). Pays a cash lump sum of USD 230 to client.	Property insurance covering damage to home and/or place of business, at client's election. Clients choose a cash benefit or loan coverage, though many clients with the cash benefit used it to pay off loans.
Shock Studied:	Flood	Flood	Flood	Flood
MILK Brief #:	10	15	17	18

Studying the value of property microinsurance

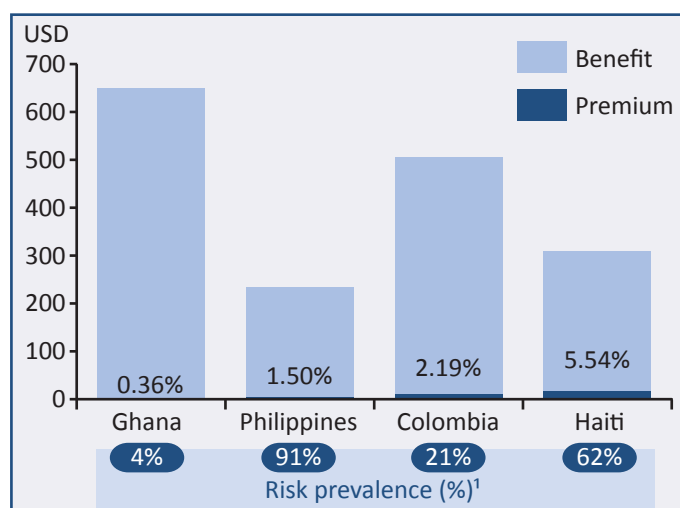
Damage to property can have enormous and far-ranging consequences to low-income people, especially to the extent that this damage affects livelihoods. In the aftermath a major flood in Les Cayes, Haiti, we spoke with Telly, the owner of a small shop whose home and business were damaged by the flood. In addition to the damages she suffered during the storm, Telly was forced to close her business for 60 days afterward, during which time much of her inventory spoiled. She was able to borrow a small amount of money interest-free from a family member, but because this loan did not quite cover her needs, she was also forced to sell an animal. The amount generated from this sale far exceeded her immediate needs, but having no other resource from which to draw, Telly had no choice but to liquidate this valuable, income-generating asset. In this way, Telly suffered three distinct blows from one storm: first from the immediate, direct damaged caused by the flood, second by the loss of income in its aftermath, and third by the financing strategies to which she was forced to turn. These three blows combined to leave Telly even more vulnerable to the many risks she faces in the future.

Weather-related risks and their consequences are increasing in frequency and severity with climate change, making effective risk management tools more and more important for low-income people like Telly around the world. Property microinsurance that covers these damages holds great promise as one such tool, but it is also one of the most difficult types of microinsurance to design and administer effectively. While property insurance covering risks to farmers' crops has been widely studied, little work has been done to understand the value of insurance covering other types of property damage to low-income people. The MILK project has begun to fill this gap in knowledge by studying four different climate-related property microinsurance products and the value they have in the aftermath of a flood, using the Client Math methodology. Client Math uses surveys of insured and uninsured low-income people who have suffered a particular shock (in the case of these four studies, a flood damaging the respondent's home and/or place of business. The studies aim to understand the full cost of the shock, how that cost was financed, and the role that insurance played for those who were covered. In particular, we sought through these studies to gain insight into whether, where, when, and how property microinsurance covering these types of risks actually provides added value for clients.

The actuary's guess

When considering the value of a microinsurance product, we might begin by comparing the benefit received by clients to the premium they pay,

Figure 1: Premium-to-Benefit Ratio



considering the likelihood that the product will be used (the risk prevalence)¹ (See Figure 1, which provides a rough approximation of these numbers, based on the experience of respondents in our Client Math studies). We refer to this as the “actuary’s guess,” although of course an actuary would prefer to have much more information about the clients, risks, and benefits involved in order to make an accurate prediction of value. This analysis gives us some idea of what clients pay (in the form of a premium) for the benefit they receive when a claim is made, as well as how likely they are to make a claim. This very preliminary analysis suggests that MicroEnsure’s product in the Philippines may have the greatest value to clients, as it combines a low premium-to-benefit ratio (1.50%) with a high risk prevalence (91%), even though the average benefit received is relatively small. By contrast, the combination of a higher premium-to-benefit ratio (2.19%) with a much lower risk prevalence (21%) in Colombia might signal much lower value. At the same time, we might expect Fonkoze’s product, which has a much higher premium-to-benefit ratio (5.54%) than the others, to have lower value, even though the risk of natural disasters faced by clients is very high. Finally, though MicroEnsure’s property insurance in Ghana seems far less likely to be used, we might expect it to have great value to those clients who do make claims, due to its very low premium-to-benefit ratio in comparison to the other products.

While this preliminary analysis can give us some indication of value, the question of client value is certainly far more nuanced. Client Math gives us an opportunity to explore the way the costs of the shock and the financing tools available to low-income people influence value, as well how other product characteristics interact with these costs and tools. Our findings might be surprising in light of the “actuary’s guess.” The highest-value products aren’t those we

¹ Risk prevalence in Figure 1 is approximated using authors’ calculations of percent of population affected by natural disaster, 2000-2010 (Sources: International Disaster Database (<http://emdat.be/database>), UN Population Division).

might expect, and their value and shortcomings are far more complex than our first guess suggests.

Costs and financing of flood damage

A flood can have devastating and far-reaching costs for a low-income household, including damage to the structure and contents of a family’s home and/or place of business and loss of inventory, as well as lost income resulting from this damage. Figure 2 provides an example, taking the average of these different costs for a group of uninsured people who suffered flood damage in Ghana, which in total averaged 268% of that group’s monthly income. Across all of our Client Math studies, the costs of flood damage were universally high, ranging from just over one month’s income in the **Figure 2: Adding up the cost**

Average costs incurred by uninsured patients respondents in Ghana after a flood (USD)	
Damage to market stall	53.55
Lost/damaged inventory & equipment	271.10
+	
Lost income	545.40
Other indirect costs	1.85
Total cost	871.90

Philippines to five months’ income among the insured respondents in Colombia.

The low-income people in our samples turned to a wide range of different tools to finance these costs. Given the devastating financial consequences of the floods (high costs and diminished resources for coping), most people turned to a number of different tools.

Family and friends are important contributors in the aftermath a flood, as they are for any financial shock: 48% of respondents received gifts from friends and family after the flood, and 35% received informal loans, most of which were from friends or family. However, their assistance, in the form of gifts and/or loans, was usually far from sufficient to cover costs incurred. The limited help provided by friends and family is likely due to various factors. Perhaps most notable is the sheer size of these shocks, which were difficult to tackle with small gifts and support. Also, floods are typically covariate shocks, meaning that family and friends were also likely to have suffered similar damages and as a result were less able to provide help. Finally, family and friends, especially when they are themselves vulnerable and have low incomes, may not be willing or able to offer support for frequently recurring events, as weather crises were in many of the locations of our studies. This is particularly true for gifts from friends and family: in similar communities in the Philippines, for example, families received on average over 20 times the amount for funerals that they received for flood costs.²

Borrowing from formal sources is likewise very important, used by 26% of respondents. While it

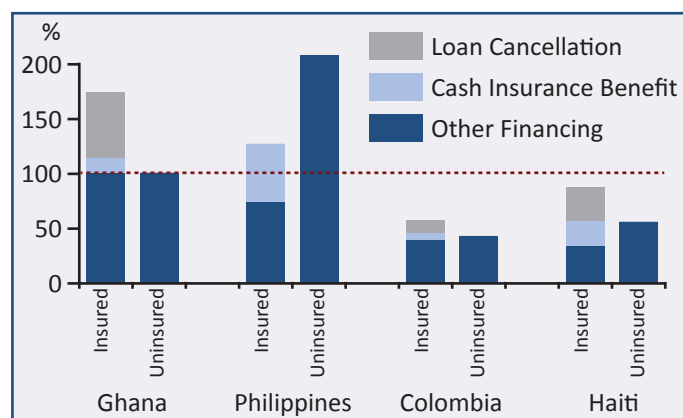
2 MILK Briefs #17 and 13.

played an essential role for many in recovering from the flood, reliance on credit at a time when a family’s income-earning capacity is eroded can be risky. Many respondents, with good reason, showed reluctance to borrow extensively immediately following the flood, a trend we explore in more detail below. A substantial number (28%) of the respondents in our studies used **savings** to finance the shock, though these too were rarely sufficient to cover much. Many respondents used **current income** (55%), though it often did not go far because the flood drastically reduced household’s ability to work and earn money in the short term. **Reduced spending** was by far the most common strategy (used by 70% of flood victims). While it is difficult in the short term and takes time to accumulate funds in this way, cutting spending can help to keep the household from becoming more vulnerable to future shocks. By contrast, **selling assets**, especially productive assets, can have devastating effects. Though relatively few households (20%)³ turned to this strategy, those who did were particularly burdened, as highlighted in Telly’s story above. Finally, microinsurance was an important piece of the financing puzzle for those who were covered, though its effectiveness in helping households to cover costs and fully recover from the flood varied greatly, as we discuss in the sections below.

What these financing sources cover and the choices households make

When considering the many financing sources that our respondents used to cope with floods, we find they covered the total costs of the flood to varying extents (see Figure 3). In the cases of Haiti and Colombia, both insured and uninsured respondents were simply unable to cover the entire costs of their losses. In Ghana, the uninsured raised an amount almost exactly equal to the cost of the shock, but failed to recover all of the damage they suffered. This happened in part because of inefficiency resulting from a timing mismatch when they immediately borrowed money to cover some losses after the shock but repaid loans over time with

Figure 3: Financing as a Percentage of Total Cost



3 Asset sales in Haiti were very common (used by 56% of respondents), but far less common in the other three studies (used by only 7% of respondents).

household income and by reducing spending. This inefficiency meant that on average, they “raised” USD 1.75 to cover each USD 1.0 of the cost of the shock. A more extreme example of inefficient financing can be seen in the uninsured in the Philippines, who financed over 200% of the cost of the shock. A large proportion of this cost was financed by reduced consumption, which took time to accumulate. Even in the Ghana and the Philippines, where on average respondents financed far less than the cost of the flood, some individual respondents did drastically over-finance their costs. Often this was driven by reliance on asset sales, as in the case of Telly in Haiti, who financed nearly twice the cost to her of the flood. Our analysis considers the loan cancellation benefits of three of the four products described in Figure 3. These were larger, and seen as offering the most value to clients by the insurers. These insurance benefits differ from the cash benefit as well as other sources of financing, however, since outstanding loans at the time of the flood are not a cost of the flood but rather an ongoing financial need; loan cancellation insurance had value to clients in other ways, some immediate and some longer-term, as discussed below.

Given that all financing tools together tended to fall short of meeting all needs after a flood (even where we see “over-financing” as above), the respondents in our studies were forced to make difficult choices about what damages to recover and what to forgo. **Overwhelmingly, they tended to prioritize regaining their ability to generate income.** For most households, this meant forgoing non-essential repairs to their homes and instead re-purchasing inventory and repairing their business places. For example, in Haiti, over half of the insurance benefit was saved or invested (and over half of the insured invested some or all of this in their businesses), while only 14% of the insurance benefit was used to increase spending that had been reduced after the flood. In Colombia, 66% of the insurance benefit was used to repay debt, and about half of the remainder was invested.

How microinsurance fits in

Given the large gaps we see in low-income households’ ability to finance flood damage, microinsurance has great potential to play an extremely valuable role, helping households to more fully recover. Our Client Math studies show that it does indeed have value to many clients, but in most cases it falls short of enabling a full recovery. An explicit intention of all of these microinsurance products, with the exception of the Philippines product, was to **relieve clients of their loan obligations while retaining access to formal credit** by covering their outstanding debt at the time of the flood.⁴ In addition to protecting the lenders’

⁴ Though the Colombia product did not in most cases explicitly cover the client’s loan, many clients were strongly encouraged to use their cash benefit to repay their loans in order to maintain their credit history and preserve their access to formal loans.

loan portfolios, this benefit would theoretically allow clients to take on new loans and re-ignite their income generating activities. The loan coverage undoubtedly provided immediate financial relief by eliminating the cost of making payments on outstanding loans; however, it seems in most cases to have been less successful in encouraging clients to re-borrow, especially in the short term. In Haiti, Fonkoze’s product paid off the balance of clients’ loans and automatically approved them for new loans, but only one respondent re-borrowed immediately from Fonkoze to cover flood costs; this was partially due to delays in claims processing (which delayed pre-approval for a new loan), but also to clients’ preference for avoiding formal credit at a time when they were particularly vulnerable. Strapped with the ongoing financial consequences of the flood, less able to earn income, and facing the high likelihood of natural disasters in the future, these clients chose not to take on the risk of a new loan even though that loan might have helped their businesses to recover more quickly. While the products did not result in clients borrowing formally in large numbers immediately after the flood, they do seem to have been successful preserving access to credit in the longer term. For example, 86% of the insured in Haiti and 75% of the insured in Ghana, had a current loan at the time of our interviews several months after the storm. Use of credit, especially formal credit, in the aftermath of a shock is a complicated decision for a low-income household, reflecting constraints to both access and willingness.

One of the most important benefits of the microinsurance products we studied is that they appear to have helped clients **avoid the use of financing strategies that are burdensome in the medium and long term.** In particular, microinsurance seems to have helped clients avoid selling assets. While asset sales were uncommon for both insured and uninsured respondents, the insured were slightly less likely to resort to them, and also tended to sell smaller assets. For example, in Ghana, four respondents sold assets to cover flood costs: two uninsured sold large assets worth USD 2,961 and USD 2,164, both at a large discount for about USD1,700 respectively, while one insured respondent sold a laptop for USD 512 and another sold some clothes for USD 22. When we asked the insured how they would have covered the costs of the flood if they hadn’t had insurance, 24% of insured respondents across studies reported that they would have sold assets. Given the particularly damaging effects of some asset sales, even a small difference can be seen as a sign of great value. In Haiti, where asset sales were more common, we saw a much larger difference (69% of the uninsured sold assets, and only 46% of the insured).

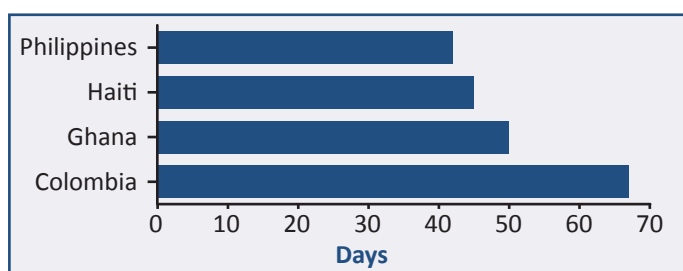
Microinsurance may also lead to incentives to respond to the shock with “bridge financing” **behaviors, such as reduced consumption, that are difficult in the short**

term but ultimately less burdensome than their alternatives. Our Client Math study in Haiti highlights this influence. The insured cut spending (mostly on food) by an average of USD 26 in the aftermath of the flood, while uninsured respondents cut spending by only USD 6 on average. The uninsured sold assets and drew down savings immediately because they ultimately had no other recourse, while the insured chose to “wait it out,” scraping by on less until the insurance benefit was paid. We saw a similar trend in the Philippines.

Although it is generally not available to cover immediate needs after a shock, microinsurance seems sometimes to play a valuable role at this time by **encouraging family and friends to provide support in the form of informal loans.** The expected payout can act as “collateral,” crowding in another form of bridge financing through low-cost, flexible loans from family and friends. In Ghana and the Philippines, the insured were substantially more likely than the uninsured to have access to such informal loans.⁵ This benefit is limited, however, by lack of trust in or understanding of the insurance product. Many clients in our studies underestimated the amount they would receive from insurance: in the Philippines, clients expected to receive only about half the amount they actually received, while in Ghana, only 38% expected to receive any cash benefit at all.

Payment of claims was severely delayed in each of the four studies, with significant implications for the products’ value. Delayed insurance payments may be especially damaging as they may exacerbate the cost of the shock by prolonging the period during which income earning is reduced. The expectation of an insurance payout can leverage bridge financing, but this can be inefficient, particularly when it involves loans that carry interest payments. Nevertheless, supply-side challenges to paying claims quickly abound, and products rarely offer respite in the short term (see Figure 4). As such, it important for insurers to consider that some form of bridge financing will take place and that clients can make this easier by knowing that they will receive a benefit, the timing of such benefit and the expected date of the benefit. This can help them maximize the efficiency of limited and often inefficient

Figure 4: Average Waiting Time for Cash Benefit



⁵ In Ghana, 25% of the insured and 18% of the uninsured borrowed informally to cover flood costs, and in the Philippines, this strategy was used by 43% of the insured and 23%.

choices such as reducing consumption or informal borrowing and perhaps avoid more difficult asset sales.

Revisiting the actuary’s guess

Returning to the actuary’s guess, we find that the predictions made about value from the limited information of premium-to-benefit ratio are sometimes misleading. “Doing the math” and exploring the context tells us things about value that we might otherwise miss. Fonkoze’s microinsurance in Haiti appeared at first glance to offer the least value of the four products, but in fact it offered much greater value than predicted by the actuary’s guess. Although clients still struggled greatly to recover, the insurance benefit played an invaluable role in helping them to reduce their financial obligations at a difficult time, avoid the most burdensome financing strategies, retain access to credit, and begin to re-build their businesses. Mapfre’s product in Colombia appeared on first glance to be more valuable than Fonkoze’s, but this value was mitigated by the pressure placed on clients to use the benefit to repay their outstanding loans. While doing so undoubtedly helped to preserve their access to credit (especially given the prevalence in Colombia of credit bureau information used in lending), it also limited the ability of those clients to quickly resume their income generating activities. MicroEnsure’s product in the Philippines was designed to avoid the cost and delay of verifying claims: benefits were paid after occurrence of a flood, rather than requiring clients to prove damage. While it had the fastest payout of the four products we studied, the clients we interviewed in the Philippines still suffered from an average 42-day delay, resorting to various mechanisms, including severe “belt-tightening” to bridge this gap. Finally, MicroEnsure’s product in Ghana appeared from the actuary’s guess to offer great value to those clients who made claims. However, though we find that the insured “bounced back” more easily than the uninsured in Ghana, the insurance cash benefit played a limited role; most of that product’s value was in its loan cancellation and preserving access to credit, and that value is not easily quantified in the short term. The lessons from our analysis of property coverage suggest that while covering loan payments is important and helps reduce the many costs clients face during a recovery, the small cash payouts clients receive are often insufficient to meet immediate needs, and delays in these payouts erode their value even more. When clients did receive the cash payout, they put it to good use: paying off loans, re-stocking their businesses, and beginning to bring their consumption back up toward the pre-shock levels. Cash injections are critical to reigniting clients’ income earning ability, and may be more effective if they are paid out sooner, in larger quantities, and with greater transparency, allowing clients to plan and to better leverage the other financing tools they have access to.