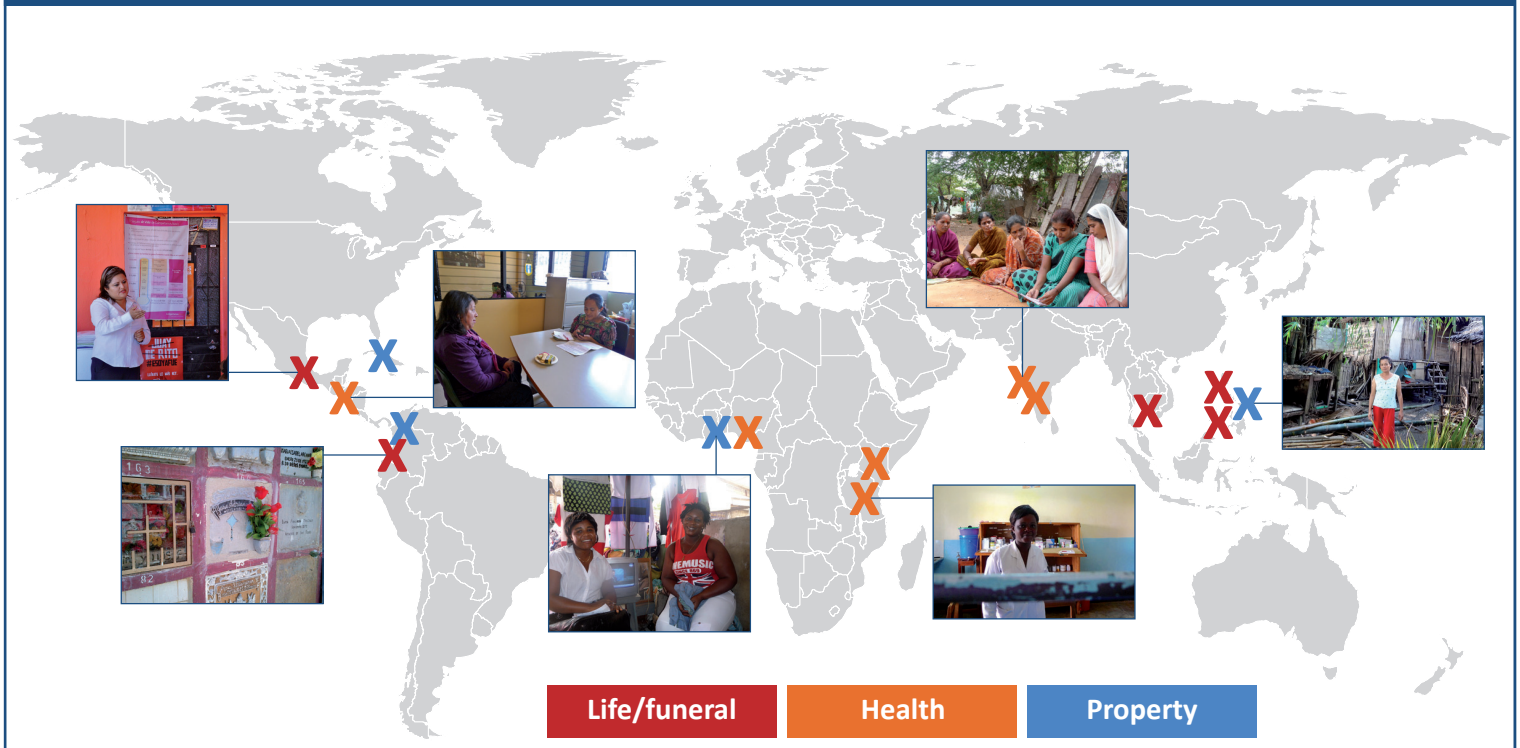
Beyond the Actuary's Guess



Lessons from 15 Studies on Client Value of Microinsurance

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MICRO INSURANCE CENTRE
"Developing partnerships to insure the world's poor"

MILK Microinsurance Learning and Knowledge

The full publications referenced in this brief are available on MILK's website
www.microinsurancecentre.org/milk-project

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Introduction

The MicroInsurance Centre's Microinsurance Learning and Knowledge (MILK) project began in 2010 with an ambitious set of questions around microinsurance: is there value for clients? and is there a business case? We began to tackle the first question by developing a definition of "client value" in microinsurance (see box below) that considers insurance in relation to the alternative financial tools that low-income people use to cope with financial shocks. We considered that there could be three components of this value: *expected*, *financial* and *service* value to capture the range of potential benefits insurance might offer. Armed with a definition, we explored existing research on the topic to see what was already known and what we still had to learn. We found that a number of important lessons emerged from the large body of existing research on the topic,[1] but also that many gaps remained. In particular, little was known about the *financial value* of microinsurance, as few methodologies can capture the value of insurance on infrequent and unexpected events. We sought to focus on this piece of the question, complementing our work with research on expected and service value along the way.

In 2010, the MILK Project *analyzed 176 studies and found large gaps in the understanding of the value of microinsurance to clients, and in particular, its financial value.*

Our constraints mirror the constraints of many practitioners in measuring client value. Infrequent events, short time frames, limited budgets, and the need for some external validity across products and countries prevented us from implementing large experimental research studies. These constraints led us to develop a pragmatic yet in-depth methodology we call "Client Math."

MILK's Client Math methodology *uses in-depth interviews with small samples of insured and uninsured people after they have suffered a financial shock to understand its full cost and how it was financed.*

It offers enormous insight into the way insured and uninsured people of low incomes cope with financial shocks. While it falls short of proving causality as an experimental research design might, it allows us to study the direct aftermath of a large and infrequent shock in a matter of weeks. Over the past three years, we conducted 15 Client Math studies in 10 countries for a range of life, property, and health microinsurance products.

Client Math *aims to understand the role that insurance plays for those who are covered, as well as for a similar group of uninsured people.*[2]

These studies are summarized in this paper in three brief chapters, which bring together some lessons we have learned about the value of life, property and health microinsurance coverage. Chapter 1 explores findings from five studies of life and funeral coverage, Chapter 2 explores findings from four studies of property insurance covering flood damage, and Chapter 3 explores findings of six studies of health insurance products covering a wide range of different health needs. We begin each chapter with an "Actuary's Guess" about the relative value of the products based on very preliminary information, comparing the benefit received by clients to the premium they pay, while also considering the likelihood of using the product (risk prevalence).[3] We compare this preliminary guess to the lessons gleaned from our Client Math studies and find that the products with the lowest relative percentage of premium to cover often are not the highest value products.

The "Actuary's Guess" *or the ratio of premiums to benefits is generally not sufficient to understand how low-income clients finance a shock with insurance and the role that insurance plays in relieving the financing burden.*

1 Magnoni, B., & Zimmerman, E. (2011). Do clients get value from microinsurance: A systematic review of recent and current research. Appleton, WI: The MicroInsurance Centre. Lessons emerging from existing research are summarized in MILK Brief #2.

2 Although we strive to find insured respondents who are similar to uninsured respondents, we often observe some minor differences between the insured and uninsured people within a particular study, and there may also be some unobserved differences between the two groups. These differences may account for some of the differences between the costs and financing of the two groups.

3 Though it was unavailable for many of the products we studied, a claims ratio can also provide a useful initial signal of a product's value.

We explore the additional nuance around when, how, and to what degree products have value by doing the "math." Perhaps the most important lesson emerging from this work is that a single financing tool (whether it is insurance, savings, credit, assistance from friends and family, or something else) is rarely sufficient when low-income people suffer a financial shock.

Microinsurance value is not sufficient, but complements other financial tools when a shock hits. *In some cases, it can help avoid burdensome financing strategies and even crowd in less burdensome strategies.*

As such, insurance plays an important complementary role. It often covers a large portion of the cost of the shock, and can help clients avoid the more burdensome strategies they might need to use to finance the shock. Its ability to do so, however, varies greatly with the type of shock, the relative size of the insurance benefit, the speed and manner in which the claim is paid, and access to other available financing tools.

We find positive behavioral incentives to see doctors sooner and more regularly, *which likely lead to positive financial and health outcomes of health microinsurance products covering preventive care, chronic care management, and early-stage curative care.*

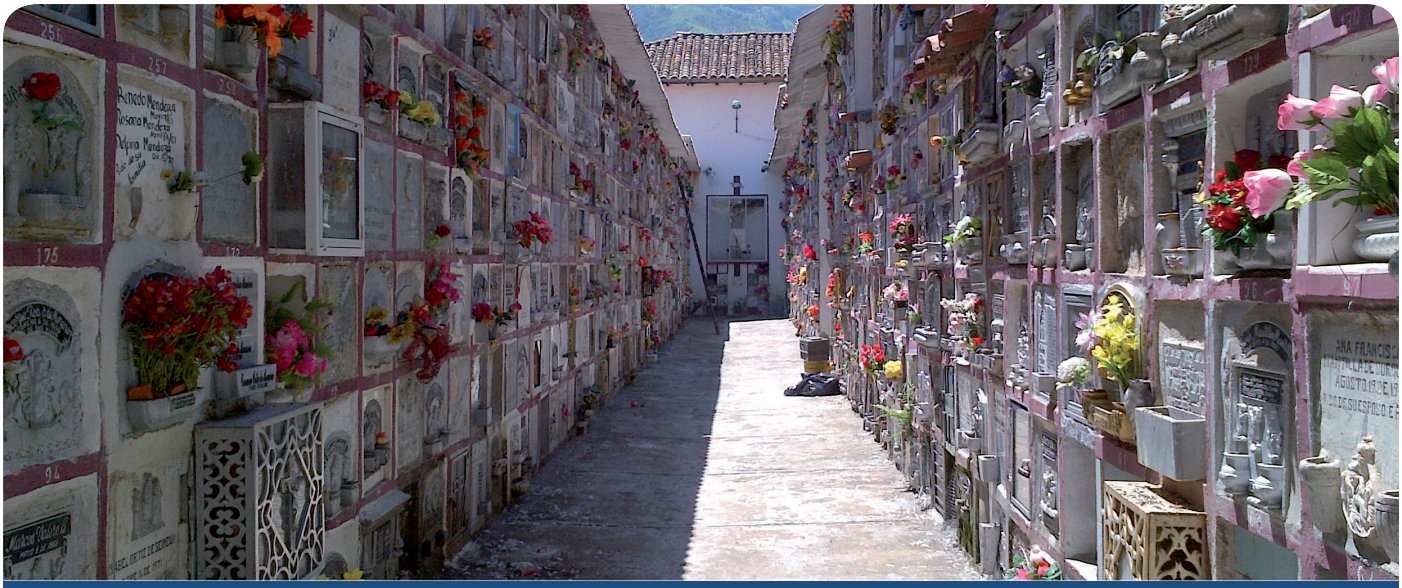
Insurance can also increase the availability and use of some other "good" financing strategies and lead covered individuals to make good financial decisions. Finally, health microinsurance can also create positive behavioral incentives for covered individuals, enabling and encouraging them to seek healthcare sooner, more regularly, or at higher quality facilities.

Microinsurance can be a powerful tool, yet its ability to provide value depends on multiple factors: *how it is structured, what is covered, when and how benefits are paid, the context, the other financing tools available to clients, and clients' understanding of coverage and trust that benefits will be paid.*

What is Client Value?

Client value is either direct or indirect, and represents the *added* value of having insurance, in comparison to other available risk coping mechanisms. It consists of 3 components:

1. *Expected value*: value clients may get from a product through behavioral incentives and "peace of mind," even if claims are not made.
2. *Financial value*: value of the product when claims are made, compared with other coping strategies.
3. *Service quality value*: externalities created by microinsurance providing access to product-related services of benefit to the client.



Coping with the Many Costs of a Death

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

- Comparing the premium paid to the benefit received suggests that the five life microinsurance products that we studied all had similar value, but a more careful analysis of the "math" and context reveals that they had very different value to clients, and that their value emerged in different ways.
- Microinsurance helped the insured in our studies to avoid some of the most burdensome financing strategies, especially where coverage was greater; elsewhere, the differences in financing between the insured and uninsured were less stark.
- Families and communities can provide a great deal of support in some contexts, in covering the immediate costs of a funeral, but they are generally less available for the ongoing needs of a family after the death of a breadwinner. In other contexts, family and community play a limited role after a death, even in covering immediate costs.
- Timing matters and influences the value of insurance in multiple ways:
  - When benefits are paid greatly influences how they are used. Changing the timing of payments can change how much and what type of value products have, even without changing coverage.
  - We find some initial evidence of a "bigger box" effect: insured families tended to spend slightly more on average than uninsured when funding (including insurance benefits) is made available to them at the time of a funeral.
  - In-kind microinsurance is fast, easy, and seamless, allowing insurance beneficiaries to avoid inefficient churning of financing mechanisms while waiting for insurance payouts. However, cash policies can be more flexible, allowing beneficiaries to cover needs beyond funerals, which some clients may find more valuable.

Table 1: This brief summarizes the lessons of MILK's studies of life and funeral microinsurance:

Location:	**Bogota, Colombia**	**Iloilo, the Philippines (MicroEnsure)**	**Puebla, Veracruz, & Chiapas, Mexico**	**Kampot & Kep, Cambodia**	**Panay Island, the Philippines (CARD)**
Coverage:	In-kind funeral insurance	Funeral and life insurance (cash, paid in two stages)	Funeral insurance (cash)	Credit-life insurance (write-off of balance and reimbursement of portion paid)	Funeral insurance (cash)
Shock Studied:	Death	Death	Death	Death	Death
MILK Brief #:	8	13	16	20	27

Studying the value of life and funeral microinsurance

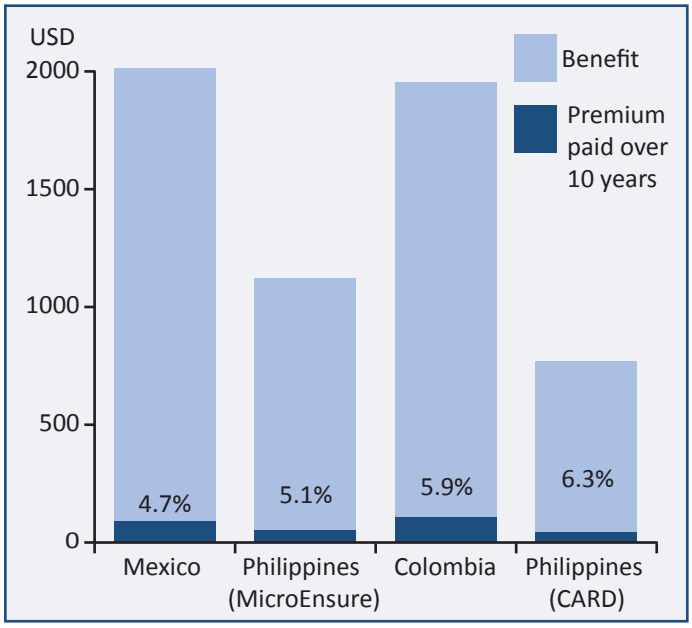
In addition to the emotional hardship it causes, the death of a family member can lead to enormous financial strain. Funeral costs and other obligations quickly add up, and can be especially difficult to meet when the deceased was a breadwinner and the family is strapped with the extra burden of lost income. We spoke with a low-income Mexican woman named Angela recently after the death of her mother. Covering the costs of the funeral and adapting to the unexpected loss of an income stream led to lasting financial hardship for Angela and her family. She pieced together four formal and informal loans to cover immediate costs, but as she struggled to repay these loans, Angela first depleted her savings and then, "not knowing what else to do," sold her banana field. While the proceeds of this sale allowed Angela to cover costs in the short term, it ultimately left her and her family even more vulnerable.

Microinsurance may have potential to help cope with some of this financial strain, potentially allowing families like Angela's to avoid the additional hardship of turning to financing strategies that create an ongoing burden. In response to the need for effective risk coping tools, many millions of low-income people around the world are covered by life microinsurance policies.[1] Nonetheless, very little is known about the value these products have to clients and beneficiaries. Over the past three years, the MicroInsurance Centre's MILK project has worked to begin filling this wide gap in knowledge through a series of "Client Math" studies of five different life and funeral microinsurance programs around the world. Client Math uses surveys of insured and uninsured low-income people who have suffered a particular shock, documenting the full cost of the shock and how that cost was financed, and thus gaining insight into the role that insurance played for those who were covered. Our Client Math studies of life microinsurance span a wide range of different types of coverage: in-kind and cash-based funeral insurance, credit-life, and a combined funeral and life microinsurance policy.

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 (See Figure 1,[2] which provides a rough approximation of these

Figure 1: Premium (10 year)-to-Benefit Ratio



numbers, based on the experience of respondents in our Client Math studies).

We refer to this approximation as the "actuary's guess," though of course an actuary would prefer to have much more information about the clients, risks, and benefits involved 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. This very preliminary analysis suggests that the products offer quite similar value to clients, with a premium (paid over ten years)-to-benefit ratio ranging from 4.7% to 6.3%. We might guess from this approximation that the subsidized funeral insurance policy offered by Compartamos in Mexico (4.7% premium-to-benefit) and MicroEnsure's combined funeral and life microinsurance (5.1% premium-to-benefit) offer the highest value of the four products, and that Mapfre's in-kind funeral insurance in Colombia (5.9% premium-to-benefit) and CARD's funeral insurance in the Philippines (6.3% premium-to-benefit) offer slightly lower value. 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 costs of the shock and the financing tools available to low-income people influence value, as well as how other product characteristics interact with these costs and tools to meet beneficiaries' needs. Our findings might be surprising in light of the "actuary's guess." The products all have value in very different ways, and their value and shortcomings are far more complex than our first guess suggests.

The many costs of a death and how they are financed

A death often leaves many costs for surviving family members. A funeral alone can be very costly, especially

1 These policies are dominated by "credit-life" insurance that pays a client's outstanding loan balance to her lender, but many policies include a cash or in-kind benefit to the deceased's family instead of or in addition to loan coverage.

2 Premium is the amount paid per covered life by the client (excluding the amount of any subsidy), and benefits are the average benefits paid for each of the four studies in which a benefit was paid (cash or in-kind), plus the amount of any loan repayment covered by the policy. We have excluded the Cambodia credit-life product from this comparison because its coverage is quite different from that of the other products. Finally, when comparing products we have assumed that the risk prevalence (likelihood of death) is roughly the same between these four different contexts.

where cultural practices demand elaborate ceremonies and large gatherings. Families are often strapped with hospital bills and other costs of caring for their family member before the death. Surviving family members miss work as they mourn, attend services, and cope with the logistical steps of settling the deceased's affairs. When the deceased was a breadwinner, they also suffer the ongoing cost of lost household income, and must find ways to adapt to a lower income stream or new ways to support the family's income going forward. These many costs, while substantial everywhere, varied widely across and even within studies (total funeral costs in Mexico, for example, ranged from USD 239 to USD 3,868).

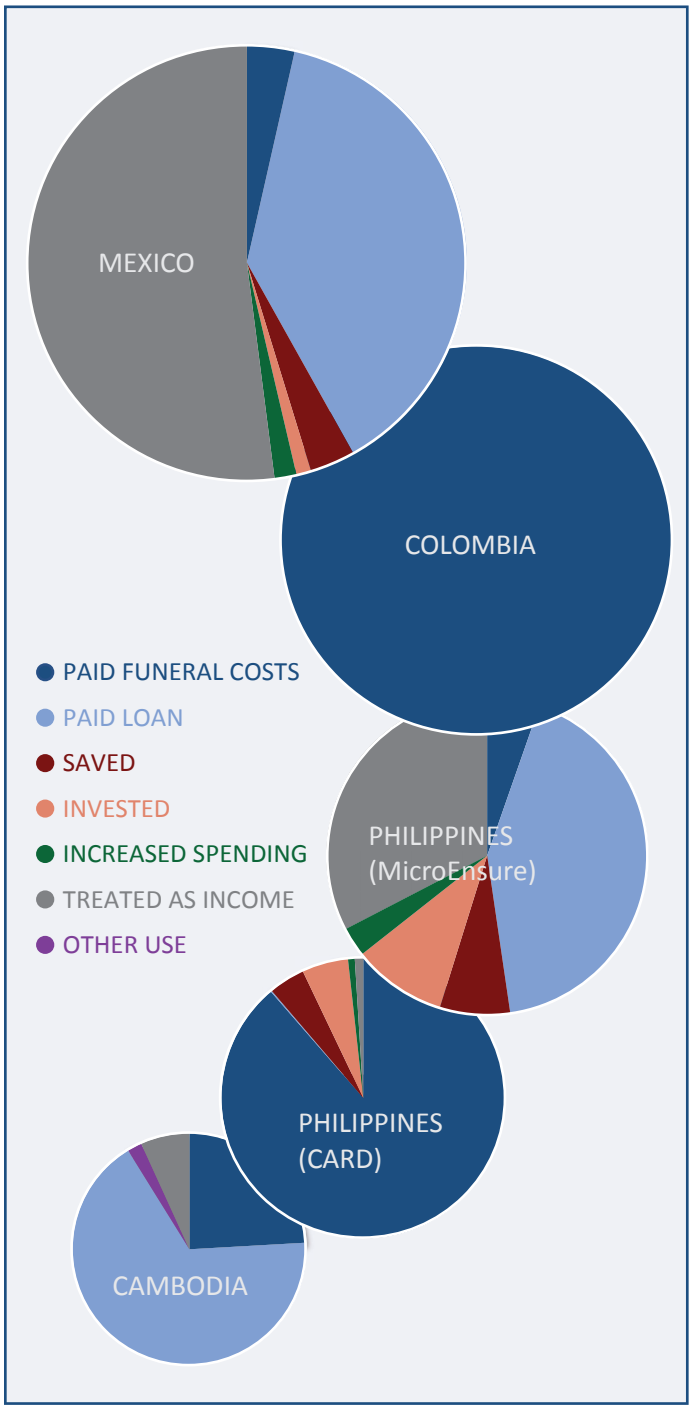
To cover the costs they face, the low-income people in our studies turn to a wide range of different resources. **Gifts and donations** from families, friends, and communities play a crucial role, particularly in paying immediate funeral expenses. This role, especially strong in certain contexts, is often driven by cultural norms; in the Philippines and Cambodia, nearly all (98%) respondents received such gifts, and they made up approximately 59% of the financing raised in those studies (excluding financing from insurance). In Mexico and Colombia, they played a much smaller but still substantial role, received by 52% of respondents in those studies. **Formal and informal loans** play an important complementary role, used by 17% and 54% of respondents across studies, respectively. Many families also use current **income** to cover some part of the cost, and some **reduce spending** on food, healthcare, and education, but how commonly these sources of financing are used and how much they cover varies widely by context. Both of these strategies also take time to accumulate; they are not available in substantial quantities to meet immediate funeral costs but rather are used to repay loans or meet later needs. Some families are forced to sell assets to cover costs, though asset sales were relatively uncommon outside of our Cambodia sample (36% of respondents in Cambodia and 6% elsewhere turned to this strategy). Another and perhaps more troublesome financing strategy that was rare overall but more prevalent in Cambodia was taking children out of school so they could work to support the family's diminished income. Doing so helped to cope with the immediate costs of the death, but with enormous consequences for the families' future wellbeing. Finally, **insurance** often played an important role for the families that were covered, though how it was used and its effectiveness in meeting needs varied widely.

How insurance fits in

Insurance can play a role in covering many of the costs described above, but its effectiveness in doing so and how it is allocated to costs depends on the size of the benefit, the nature of the coverage, and the timing of payment. Figure 2 shows the average uses of the insurance benefit for each of the five studies. The pies are roughly proportionate to the size of the total benefit, including cash, in-kind, and loan forgiveness benefits. While the insurance was generally used for similar types of needs, we see drastically different amounts and proportions of the benefit allocated to these different uses by product.

First, insurance can be used to **pay for the funeral**. Indeed, all of the benefit from Mapfre's funeral insurance in Colombia is put to this use, as it is paid in kind (covering a standard funeral package at an affiliated funeral home on a cashless basis). In other contexts, the insurance benefit was used for a variety of additional needs. In addition to direct spending on the

Figure 2: Uses of Insurance Benefit



funeral, cash insurance benefits, when they are paid later, can be used to pay off funeral-related borrowing, as we see in the other studies. The structure of such products can lead to greater inefficiency and cost when beneficiaries are forced to turn to loans and other short-term strategies to cover immediate needs, but they also allow greater flexibility than cashless products to allocate insurance to different uses.

Insurance benefits were also used by many respondents to **pay down debt**, including funeral-related borrowing and other loans taken out to support the family after the death (for example in Compartamos' product in Mexico and in MicroEnsure's product in the Philippines), as well as any outstanding loans left by the deceased. While credit-life insurance pays the outstanding balance of a borrower's loan, many of the deceased in our studies had loans from multiple sources, not all of which were insured. As such, insurance reduced but did not always eliminate the debt burden on surviving families. However, the limited support provided by insurance may have played a crucial role in allowing those families to manage the debt left to them. In Cambodia, after accounting for the loan repayment insurance, insured and uninsured families were left with nearly identical debt burdens from the deceased, but the insured were able to service all of this debt, while the uninsured were able to service only 69% of it.

In several studies, respondents could not easily recall exactly how the full amount of the insurance benefit they received was spent. We assume that the unallocated amount was used as income, covering ongoing needs of the family and helping to replace some of the lost income of the deceased. However, although many families reduced spending on daily needs after the death, only a very small proportion of the insurance benefit was used to help bring **spending** back towards previous levels. This is likely due to the fact that these families were even months after the death still strapped with the ongoing costs of lost income, which insurance only partially relieved.

In addition to supporting income directly, part of the insurance benefit was used by some respondents to adapt to ongoing costs of the loss. Portions of the benefit were sometimes **invested** or **saved**, though generally not in large amounts. The financial cost of a death goes far beyond the most immediate costs of a funeral and its related customs and ceremonies. When the deceased was a breadwinner, the surviving family must adapt to a lower income stream and/or find ways to increase its income in the future. Several of the insurance products we studied (particularly the MicroEnsure product in the Philippines and the Compartamos product in Mexico) seem to have provided some support in cushioning income after the death. Some (notably, MicroEnsure's product in the Philippines) also enabled families to save or invest some money, partially supporting their long-term recovery. All five products, however, fell short of truly meeting these ongoing needs.

In some but not all studies, we see substantial **differences between the financing strategies used by the insured and uninsured**. This difference is particularly stark in the case of Mapfre's funeral insurance in Colombia, which seems to have been effective in helping insured respondents avoid taking on additional debt, using savings, and cutting spending; because the benefit was delivered in-kind, these families avoided the need for most up-front financing. Similarly, in Mexico we find that the insured were able to rely somewhat more heavily on informal loans from friends and family, rather than on the more burdensome tools of formal loans or drawing down savings. These differences suggest that the insured may have leveraged the expected insurance payout to access loans from friends and family, a trend that we also see in our studies of property insurance. In our other life insurance studies, where coverage was more limited, we see less drastic differences between the financing of the insured and uninsured. Some of these differences were eroded when insurers paid benefits after a long period of time (for example, MicroEnsure's product in the Philippines), leading beneficiaries to turn to similar financing tools as the uninsured to cover costs while waiting for the payout. Additionally, in the face of both the large size and ongoing nature of a family's needs after a death, lower-coverage products played a more limited role in relieving the overall financing burden on families.

Timing matters: The complex impacts of delayed payments

While delays in paying claims are typically viewed as a sign of low value, we find that in some ways and for some of the clients in our studies, delays may have increased value by influencing how clients use the benefit. The time an insurance benefit is received seems in large part to determine how it is spent. Two studies in the Philippines of products paid at very different times provide an example. Beneficiaries of CARD's product, which pays very quickly, spent almost all of the benefit on the direct costs of the funeral. Beneficiaries of the MicroEnsure product, which involved long delays,[3] used just over half of this benefit on income replacement or productive investments aimed at generating additional income, and only 39% to pay off loans incurred to cover funeral costs. While it caused additional inefficiency and hardship in some ways, the delayed payment seems to have helped those families channel more of the benefit toward meeting their many ongoing needs after the death, not only the funeral.

It has been suggested that funeral insurance, rather than providing financial relief, may lead families to

3 The product paid a funeral assistance benefit, paid on average 26.2 days after the death, and a life benefit, paid on average 83 days after the death.

simply buy a "bigger box" or otherwise spend more on non-essential elements of the funeral than they would have without insurance. Evidence from Client Math on this topic is not conclusive, but the insured families in our studies tend to spend slightly more than the uninsured. This greater spending might be seen as some evidence of a "bigger box" effect, but might also reflect the slightly higher socioeconomic status that Client Math often observes in insured respondents. Our two studies in the Philippines shed light on the nuanced impact of timing. The total amount spent by the insured on the wake and funeral does not vary significantly by payout time. However, those clients receiving very fast payouts (near the time of the wake) dedicated a larger proportion of spending to the wake, while those receiving slightly slower payouts (near the funeral) spent relatively less on the wake but more a on the funeral. For these clients in the Philippines, the timing of the payout seems to have influenced the specific usage of the benefit, but not overall spending.

Revisiting the actuary's guess

Though the actuary's guess above suggested that these products have similar value to clients, a more careful consideration of the "math" and the context suggests that in fact they have value in very different ways. As such, which product is best depends on the need it is intended to fill. For meeting immediate financial needs related to a funeral, cashless funeral microinsurance such as Mapfre's product in Colombia may be best. The costs of a funeral, unlike damage to one's home from a flood, cannot be delayed. Cashless, in-kind coverage avoids the need for inefficient financing tools to fill the gap before a cash payout is received, such as taking out formal loans, or strategies with long-term consequences, such as depleting savings, selling assets, or taking children out of school to work. Such products also alleviate some of the strain of planning a funeral at an already stressful time, and may also reduce pressure to over-spend because a "standard" funeral is covered. Cashless products, however, lack the flexibility of those providing a cash payout.

The flexibility that comes with cash payouts and some other product features can itself provide great value to clients by allowing them to allocate benefits among their needs as they choose. Flexible products such as the one offered to Compartamos clients in Mexico (which pays benefits in cash and allows the client to select her level of coverage) give clients and beneficiaries the flexibility to spend more or less on the funeral, and to spend that money more precisely as they choose. This flexibility seems especially desirable where funeral practices are more elaborate and culturally important, even if it sometimes enables a "bigger box." Further, in contexts such as the Philippines and Cambodia, where friends, family, and community play a very large role in funeral financing, the remaining financial needs for the funeral may be more limited than ongoing needs, for which these other resources are less available.

Even with cash benefits, which are presumably fungible, the way payouts are allocated by beneficiaries appears to depend partly on when they are paid. CARD's benefits, paid soon after death, were used mostly on the deceased's funeral, while MicroEnsure's benefit, paid much later, was often put to other uses. While less effective in relieving funeral costs, a greater proportion of this benefit was used toward the family's ongoing needs, and was at least arguably better spent. This advantage to later payments should not, however, be seen as an excuse for delay due to inefficient or inadequate claims processing; the lack of certainty that comes with such delays can greatly diminish value. An intentionally delayed life (as opposed to funeral) microinsurance benefit, however, may ultimately have great financial value to some families as they move forward after a death.

VALUE THROUGH PEACE OF MIND

Exploring the Expected Value of Life Microinsurance

What if something happens to me? That is the concern of parents…that you will leave your children on the street.

– Compartamos client

Client Math studies suggest that life microinsurance can play an important role in alleviating the financial strain of a death in the family when claims are made. But what value, if any, is offered to the great majority of clients who do not "use" the insurance because, thankfully, they don't die?

To address this question, MILK conducted a randomized control trial in Mexico with Banco Compartamos to see whether policyholders perceived value in the product. A randomly chosen group of clients was told that they would no longer receive a free basic insurance package, while another randomly selected group kept its free coverage. When clients lost access to the free insurance, many compensated by voluntarily purchasing coverage. In focus groups, they emphasized the peace of mind that insurance provides. Clients' reaction to losing free coverage is a powerful indication that they see value in the product, despite the fact that most are unlikely to "use" it. Compartamos' clients were unique in that they had familiarity through their previous experience being covered by it for free. Many were aware of the product's reliability, and had seen instances of claims being paid and used, which develops understanding and trust of the product.

If you have life insurance, it is not so much a concern. At least you no longer feel the stress of 'what would I do?'

– Compartamos client

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

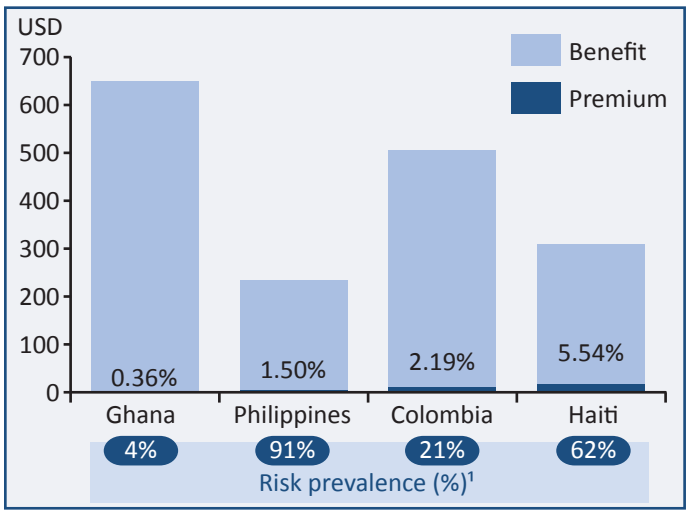
Damage to property can have enormous and far-ranging consequences to low-income people, especially to the extent that this damage affects livelihoods. In the aftermath a major flood in Les Cayes, Haiti, we spoke with Telly, the owner of a small shop whose home and business were damaged by the flood. 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 Philippines to five months' income among the insured respondents in Colombia.

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**

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.

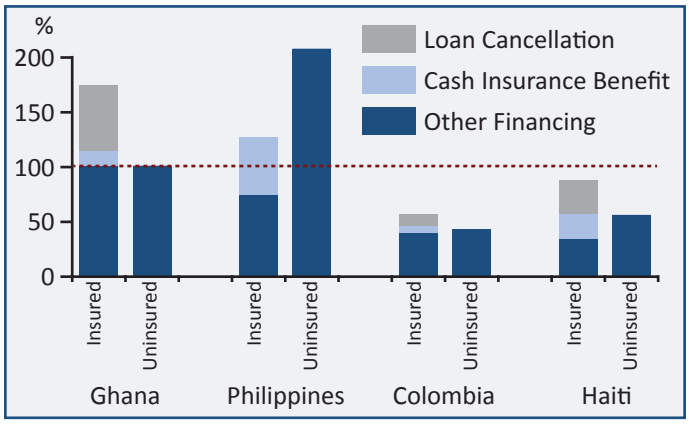
Family and friends are important contributors in the aftermath a flood, as they are for any financial shock: 48% of respondents received gifts from friends and family after the flood, and 35% received informal loans, most of which were from friends or family. However, their assistance, in the form of 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 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



2 MILK Briefs #17 and 13.

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' 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**

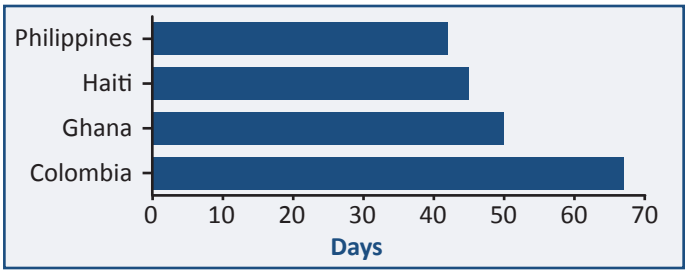
4 Though the Colombia product did not in most cases explicitly cover the client's loan, many clients were strongly encouraged to use their cash benefit to repay their loans in order to maintain their credit history and preserve their access to formal loans.

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

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%.

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.

Fitting Insurance in the Health Financing Puzzle

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

- Falling ill and seeking healthcare entails a wide range of costs, all of which can be significant for low-income households, and all of which can contribute to a person's decision to avoid or delay seeking care.
- Even relatively small health shocks can create a substantial financial burden for low-income households, forcing them to turn to difficult financing tools or to avoid care; for larger cost events this burden is much greater, and households are often forced to cobble together many different often costly resources to cover expenses.
- Microinsurance can be a valuable tool for financing the costs of illness and healthcare, though it is rarely sufficient to cover all of these costs.
- Cashless microinsurance coverage can have great value in reducing out-of-pocket spending at the time of a health shock, though clients often still incur substantial indirect costs and suffer lost income.
- Even where microinsurance clients spend more overall than their uninsured counterparts when the premium cost is included, microinsurance can help smooth cash flows at the time of the shock and help avoid the use of burdensome financing (depleting savings or using assets); it is here that microinsurance covering small shocks tends to have its greatest financial value.
- Health microinsurance can lead to access to quality healthcare facilities and can have unique value vis-à-vis other health financing tools in providing incentives to use care faster, more often, or more regularly; however, this value is limited by the products' coverage.

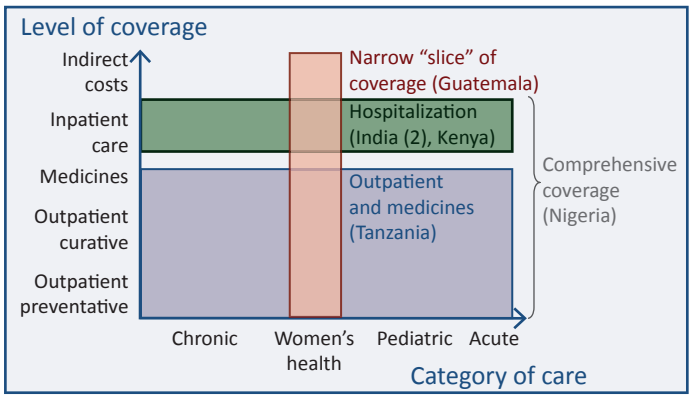
Table 1: This brief summarizes the lessons of MILK's studies of health microinsurance:

Location:	Maharashtra, India	Karnataka, India	Moshi, Tanzania	Lagos, Nigeria	Xela, Guatemala	Central Province, Kenya
Coverage:	Hospitalization	Hospitalization	Outpatient	Comprehensive	Women's health	Hospitalization
Subsidy:	No	No	Yes	Yes	No	No
Shock Studied:	Medium-cost hospitalization	Medium-cost hospitalization	Outpatient treatment for acute illness	Management and outpatient treatment for chronic disease	Routine preventive care	High-cost hospitalization
MILK Brief #:	11	12	22	24	28	29

Studying the value of health microinsurance

An insurer designing a product to cover healthcare needs is faced with many options for what the product might cover in different categories and/or at different levels. These options, of course, are constrained by cost: without subsidy, low-income clients are rarely able to pay for comprehensive care, leading to difficult tradeoffs in product design, which are reflected in the products we studied (see Figure 1). As they work to design coverage effectively, insurers can benefit from an understanding of when, how, and in what ways different types of coverage have value to clients. The large body of research on the value of health insurance, however, tends to address only a few important but narrow questions about value. There's much evidence that health microinsurance can (though it does not always) lead to cost savings and improve health-seeking behaviors among clients. The value of health microinsurance, however, depends on the answers to more nuanced questions about when, where, and how low-income people seek healthcare and pay for it, with and without insurance, and there is far less consensus on the answers to these questions.

Figure 1: Options in Insurance Coverage



With these gaps in understanding in mind, the MicroInsurance Centre's MILK project has over the past three years implemented six "Client Math" studies of health microinsurance programs throughout the world. These reflect subsidized and unsubsidized programs covering a wide range of different healthcare needs (see Figure 1). Client Math uses surveys of insured and uninsured low-income people who have suffered a particular shock, documenting the full cost of the shock and how that cost was financed, and gaining insight into the role that insurance played for those who were covered. Our Client Math studies span a wide range of different types of health shocks as shown in Table 1. This brief provides an overview of what we have learned.

Costs and coverage of healthcare needs

Seeking healthcare entails a wide range of costs, all of which can be significant for low-income households, and all of which can contribute to a low-income person's decision to avoid or delay seeking care. These costs include direct costs of treatment, medicines, and facility fees; indirect costs such as transportation to a healthcare facility; and opportunity costs of missed work (particularly significant for many low-income people who are business owners or day laborers). Health insurance coverage rarely goes beyond the direct costs. Figure 2 gives an example of the broad range of these costs for a group of uninsured people who suffered an illness resulting in hospitalization in Kenya.

Low income people use a wide range of financing strategies to cover these many costs. For a large, high cost health event such as a hospitalization, it may be expected that without insurance they would be forced to combine financing from a number of different sources. Indeed, across our Client Math studies of hospitalization in India and Kenya, uninsured people used on average 1.8 different tools to cover these costs, with some respondents turning to as many as 5 different tools. While we might expect the cost of a smaller shock such as an illness treated with a single outpatient visit to be relatively easily covered out of **current income**, even then many people turn to multiple tools, including much "harder" tools such as selling assets and taking out loans. Figure 3 provides an example, showing the range of financing strategies we encountered for a small shock in Tanzania.

Figure 2: Adding up the cost

Average costs incurred by uninsured patients after hospitalization in Kenya (USD)		
	Hospital costs	354
	Related medical costs	20
	Transport	18
+	Lost income	59
	Hiring costs	12
	Total cost	**463**

Family and friends are an important resource for financing health needs. Gifts were common in our studies, received by 30% of respondents, but far less common than for deaths: 80% of respondents in our life insurance studies received gifts from family and friends after the death of a household member. The lesser reliance on friends and family for health shocks

Figure 3: Adding up the financing

Average financing used by uninsured patients for an illness in Tanzania (USD)		
	Savings	6.23
	Informal loans	5.78
	Gifts & remittances	5.73
	Asset sales	4.01
	Income	3.74
	Reduced spending	1.14
+	Formal loans	0.55
	Total financing	**27.00**

may in many cases reflect reluctance of family and friends to offer this type of support rather than inability, and perhaps also reluctance on the part of the person suffering the shock to ask for help. Health shocks can happen repeatedly (and result in repeated requests for help), while death is once in a lifetime. As a result, family and friends tended to give less frequently and in smaller amounts for health needs than after a death, some choosing instead to lend money. Across our health studies, 17% of the uninsured received informal loans, mostly from friends and family.

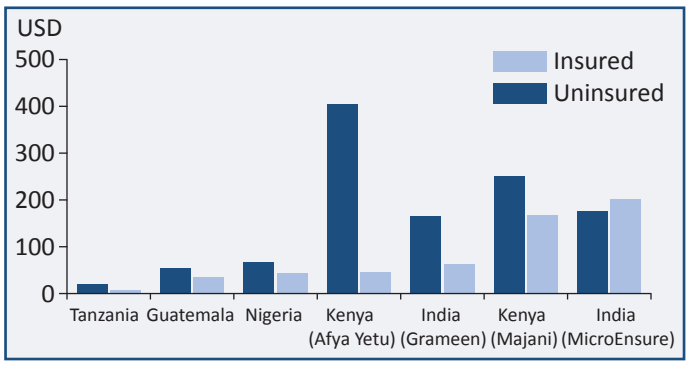
In fact, **credit**, from both formal and informal sources, played an important role for many in financing health needs, especially those related to large shocks. Loans were used by 28% of the uninsured across all of our health studies, and 37% of the uninsured in the case of hospitalization. However, like other financing tools, credit is limited in availability and can be inefficient – formal borrowing in particular seems to be a major driver of the over-financing we discuss below. Low-income people turn to more difficult strategies such as selling assets relatively infrequently (only 3% of the uninsured across our health studies sold assets to finance their health needs), but the few cases of in which asset sales are used are particularly troublesome. For example, one uninsured respondent in Tanzania sold an animal valued at 1,246% of the cost of his illness. In addition to being highly inefficient and costly due to discounting for quick sale, such asset sales diminish a low-income person's income-earning capacity, leaving that person even more vulnerable to future shocks.

Like other financing tools, **health microinsurance can play an important role, but one with limitations**. It covers some of the direct costs of the insured (but never all costs) and can also lead to other types of financial value.

Where does health microinsurance fit in as a financial tool?

In each Client Math study, the microinsurance product was designed to cover treatment on a cashless basis[1] rather than requiring clients to pay out of pocket at the time of visit and later seek reimbursement. As such, we see cost savings resulting from these products across studies. While in all cases except one, the **insured spent less out-of-pocket** than the uninsured at the time of the shock (See Figure 4), *how much less* varied widely: those insured by Grameen Koota's hospitalization insurance in India incurred only 12% of the out-of-pocket costs of the uninsured, those insured by the Majani health insurance product in Kenya spent a much higher 67% of the out-of-pocket cost of the uninsured. The remaining out-of-pocket costs incurred by the insured include, among others, medicines or tests not covered by the insurance product (as in India) or purchased before visiting the doctor (as in Tanzania), additional hospital fees (as in Kenya), and transportation costs (incurred by many respondents in all studies).

Figure 4: Out-of-Pocket Costs of Insured and Uninsured (not including insurance premium)



Another cost incurred by the insured that greatly influences value is the **insurance premium**. For the subsidized programs we studied (Tanzania and Nigeria) and those covering large, infrequent shocks (India and Kenya), the insured who experience a shock and use the coverage still experience overall cost savings as compared to the uninsured who do not incur the premium cost. However, in the case of smaller shocks, the insured may spend more overall when the premium is included.[2] For example, in Guatemala, insured women spent an average of USD 82 related to their visit when the annual premium is included and the uninsured spent only USD 58.[3] It is important to note that Client Math studies include only those clients who have used the product and received an insurance benefit; clients who pay a premium but do not file a claim will not spend less than the uninsured.

Even where insurance does not result in overall cost savings, it may have financial value by providing a means of **smoothing cash flows and avoiding some of the more "burdensome" financing tools** that the uninsured must resort to. Burdensome strategies are those that are difficult in the short term and/or have long-term consequences. In Guatemala, though insured women paid more in total for a preventive health visit than the uninsured when the cost of their annual premium was included, the product's ability to spread out the cost of this visit allowed them to finance the small remaining cost at the time of the visit more easily than the uninsured. Insured women relied mostly on income, remittances, and gifts to cover these costs, while uninsured women who had to pay a much larger amount at one time relied more heavily on savings and spending cuts. Microinsurance can also sometimes have value in helping the insured to avoid a different type

1 In the case of MicroEnsure's hospitalization microinsurance in India, providers commonly refused to provide coverage on a cashless basis, instead requiring the insured to pay up-front for the hospitalization and later seek reimbursement from the insurer (this happened in 80% of the cases in our study).

2 While it is quite plausible that regular access to healthcare may actually save clients money in the longer term, Client Math does not pick up such long-term impacts because it considers only the time immediately around a particular shock.

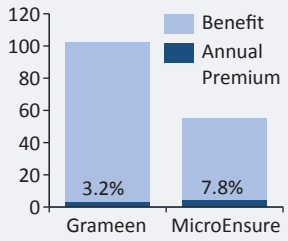
3 The vast majority of clients are eligible for only one consultation per year, but those diagnosed with certain illnesses are eligible for additional coverage.

THE ACTUARY'S GUESS

Using Premium-to-Benefit Ratio to Compare Products in India and Kenya

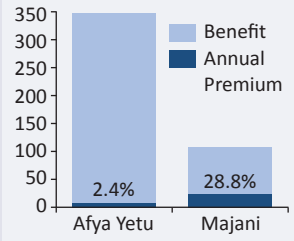
One useful tool for gaining preliminary insight into financial value is comparing the premium paid for a product to the benefit received. We refer to this ratio as "the actuary's guess" – a rough approximation of value based on limited information. We use this premium-to-benefit ratio to compare the hospitalization microinsurance products with similar coverage, used by similar clients for similar hospitalizations in India (Figure 5) and in Kenya (Figure 6). In both of these cases, the actuary's guess seems to correctly identify the higher-value product, but misses additional nuance in how and why those clients who make claims benefit from one product more than another. In our other Client Math studies of life and property insurance, the actuary's guess is sometimes even less accurate as a predictor of value.

Figure 5: Premium-to-Benefit Ratio in India (USD)



In **India**, Grameen Koota's 3.4% premium-to-benefit ratio seems to signal greater value than MicroEnsure's higher 7.8%. On balance, the Grameen Koota product also seems to have had greater value to those clients in our study who used it. In addition to having quite comprehensive coverage for the hospitalization (leaving clients to cover only should be 38% of the out-of-pocket costs incurred by the uninsured), the Grameen Koota product avoided some procedural flaws of the MicroEnsure product. While both were designed to provide cashless coverage, facilities required 80% of the MicroEnsure clients in our study to pay out-of-pocket. Most of these costs were later reimbursed, but clients had to wait on average 14 weeks to receive the payment. Needing to pay up-front led to greater inefficiency and ultimately to financial hardship. In **Kenya**, the Afya Yetu microinsurance product has a far lower premium-to-benefit ratio than the Majani product (2% and 29%, respectively). Though our Client Math study finds on balance that Afya Yetu did provide higher value to clients who used it, the difference between the two may not be as stark as it seems at first glance. Majani provides greater flexibility in the choice of providers and also includes a small life insurance component in coverage, though neither of these seems to compensate for its drastically higher premium-to-benefit ratio.

Figure 6: Premium-to-Benefit Ratio in Kenya (USD)



In both countries, the insured group with the seemingly lower-value product incurred far higher out-of-pocket costs at the time of the hospitalization than the other insured group: MicroEnsure clients spent 326% of what Grameen Koota clients spent (some later reimbursed) and Majani clients spent 360% of what Afya Yetu clients spent. In both cases, their higher spending led them to more closely replicate the financing strategies used by the uninsured, relying more heavily on burdensome strategies.

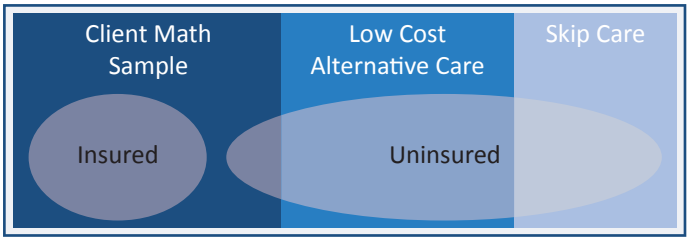
of burdensome financing: turning to strategies with long-term financial consequences, such as asset sales, removing children from school or depleting savings. To pay for the costs of a hospitalization in Kenya, for example, clients covered by the Afya Yetu product were far less likely than their uninsured counterparts to draw on their savings (26% vs. 41%). The insured were also more likely to reduce spending in the short term following the hospitalization, possibly because their much smaller out-of-pocket cost at the time was relatively easily managed with small consumption cuts; the uninsured, faced with a much larger expense, turned immediately to financing tools that provided more money, but had consequences of increased vulnerability and depleted savings that they would struggle in the future to rebuild.

While the financial value of a health insurance product depends in large part on the particular product, context, and client, we can learn a great deal by **comparing the different types of products** that MILK studied. Unsurprisingly, subsidized products tend to have the greatest financial value to clients. In addition to the premium savings they pass to clients, these products generally support much broader and deeper coverage than low-income clients would be willing or able to pay for on their own. The highly subsidized health microinsurance we studied in Tanzania covers a very broad range of outpatient needs, including medicines and lab tests. The unsubsidized product in Guatemala had much narrower coverage due to constraints imposed by clients' preferences and ability to pay. These constraints resulted in many of clients' health care needs, including follow-up-care related to covered visits, falling outside of coverage. Even without subsidy, however, products covering large or small shocks can have financial value to clients, but they tend to show different types of value. Those covering large shocks are more likely to result in overall cost savings, while those covering small shocks tend to have their greatest financial value through cash-flow smoothing. The lesson arising from all of these studies is that some products, for some clients, offer clear financial value. In other cases, the financial story is far less straightforward, leading us to explore other types of value that these microinsurance products might have: in particular, by improving health.

Value through healthcare access and use

In addition to the sometimes uncertain financial value discussed above, health microinsurance can have value in providing **access to quality healthcare facilities and incentives to use them**. Client Math does not measure the impact of insurance coverage on access or utilization directly because we compare insured and uninsured patients accessing equivalent care (see Figure 7). However, differences between the

Figure 7: Access to Healthcare



characteristics and behaviors of insured and uninsured samples provide some compelling suggestions of the role that insurance can play in this area.[4] In our study of Grameen Koota's hospitalization insurance in India, for example, the insured patients in our sample have on average substantially lower income and are more vulnerable in other respects than the uninsured patients treated in the same private facilities. These differences suggest that the insurance may have brought into the higher-quality private facilities some people who would otherwise have sought care at lower-quality, cheaper facilities, or skipped care entirely. In Guatemala, 20% of the insured women in our study told us that without the insurance product they would not have gone for the covered consultation. Insured hypertension patients in Nigeria sought treatment for their condition more often and more regularly than the uninsured and had better adherence to hypertension medications.

Health microinsurance can also positively influence the **timing of clients' healthcare seeking behavior**. In Tanzania, for example, the insured waited an average of only 3 days after falling ill before they visited a local clinic, while uninsured patients from the same communities waited on average 5 days. The shorter waiting time seems in turn to have contributed to an additional and perhaps unexpected financial benefit from insurance. By seeking care for their illnesses sooner, the insured were able to miss fewer days of work and minimize the opportunity cost of the illness: the insured suffered on average of only USD 7 in lost income from the illness, while the uninsured lost USD 11.57 on average. Insured patients in our study of the Afya Yetu product in Kenya were more likely than the uninsured to undergo planned hospitalizations (36% and 6%, respectively) than emergency procedures. This difference suggests that the insurance may have played an important role in encouraging patients to plan ahead, rather than wait in the hope of avoiding the high cost of a surgery.

These types of value, however, are generally **limited to the products' coverage**. In Guatemala, follow-up care related to the covered visit was recommended for 60% of the insured patients, but 73% of those who were recommended follow-up care did not follow through. Reasons for skipping were often related cost, because these visits were not covered by the insurance. We saw a similar trend among hospitalization patients in Karnataka, India: readmission was recommended by the doctor for 30% of insured and 14% of uninsured, but only three people were actually re-admitted.

Finally, some insurance products can **encourage other positive behavior changes** not directly related to the covered treatment. In Nigeria, clients of a microinsurance product covering treatment for hypertension were more likely to have changed their diet (84% vs. 65%), to exercise (52% vs. 32%), and to have increased their hours of sleep (58% vs. 35%) than uninsured respondents. Significantly more uninsured than insured respondents report that they have made no lifestyle changes since their diagnosis (13% vs. 3%).

Revisiting the value of health microinsurance

Health microinsurance can have value to clients in many different and often complementary ways. How much and what type of value are constrained by products' coverage, with unsubsidized products sold to low-income clients subject to the greatest constraints. Nonetheless, even with these constraints, carefully designed products can still have substantial value.

Products can have **financial value**, leading to cost savings at the time of a health shock, though they rarely cover all costs. Products covering high-cost needs such as a hospitalization and subsidized products often also lead to overall cost savings for clients who make claims, even when the insurance premiums are considered. Unsubsidized products and those covering more routine needs often do not lead to such overall cost savings, but can still have financial value by smoothing cash flows and helping clients to avoid the use of burdensome financing tools. Health microinsurance can have further value by **improving access to and use of healthcare services** and by incentivizing **positive healthcare-seeking behaviors** by clients, but again these are limited by products' coverage. Insurance seems, in some cases to improve access to higher-quality care than the insured would otherwise have used. It can also lead clients to seek care earlier, which may in some cases lead to additional financial value by containing the cost of the illness. These types of value typically end where products' coverage does: follow-up care was often excluded for the products we studied, leading clients to skip it.

The many types of value combine to make health insurance a uniquely effective tool for financing healthcare needs, but one that still has limitations. Healthcare needs are numerous, varied, and expensive. Comprehensive coverage may be ideal but is rarely achievable without large subsidies. Limited coverage can still have great value to clients, to the extent it is designed appropriately. Understanding when, how, and to what degree different types of coverage have value can help to simplify the difficult choices that providers often confront in product design.

4 Our Client Math studies are complemented by a large body of academic studies of the impact of health insurance on access and client behaviors; MILK's Client Value Landscape Study compiles much of this work.

Overview of MILK's Client Math studies:

Type of shock	Brief #	Location	Shock studied	Coverage
Life and funeral	8	Bogota, Colombia	Death	In-kind funeral insurance
	13	Iloilo, the Philippines (MicroEnsure)	Death	Funeral and life insurance (cash, paid in two stages)
	16	Puebla, Veracruz, & Chiapas, Mexico	Death	Funeral insurance (cash)
	20	Kampot & Kep, Cambodia	Death	Credit-life insurance (write-off of balance and reimbursement of portion paid)
	27	Panay Island, the Philippines (CARD)	Death	Funeral insurance (cash)
Property	10	Accra, Ghana	Flood	Business insurance (paying outstanding loan balance to the MFI and cash benefit to the client)
	15	Les Cayes, Haiti	Flood	Property insurance (paying s outstanding loan balance, pre-approves a new loan, and pays USD 125 to client in cash)
	17	Mindanao & Panay, Philippines	Flood	Property insurance (paying a cash lump sum of USD 230 to client)
	18	Cienaga, Colombia	Flood	Property insurance (clients choose a cash benefit or loan coverage, though many clients with the cash benefit used it to pay off loans)
Health	11	Maharashtra, India	Medium-cost hospitalization	Hospitalization
	12	Karnataka, India	Medium-cost hospitalization	Hospitalization
	22	Moshi, Tanzania	Outpatient treatment for acute illness	Outpatient
	24	Lagos, Nigeria	Management and outpatient treatment for chronic disease	Comprehensive
	28	Xela, Guatemala	Routine preventive care	Women's health
	29	Central Province, Kenya	High-cost hospitalization	Hospitalization

Micro Insurance Centre

MILK Microinsurance Learning and Knowledge

Microinsurance Learning and Knowledge (MILK) is a project of the MicroInsurance Centre that is working collaboratively to understand client value and business case in microinsurance. Barbara Magnoni leads the client value effort and Rick Koven leads the effort on the business case. Contact Michael J. McCord (mjmccord@microinsurancecentre.org), who directs the project, for more information.