



Piecing together partial solutions: Financial tools to cope with shocks

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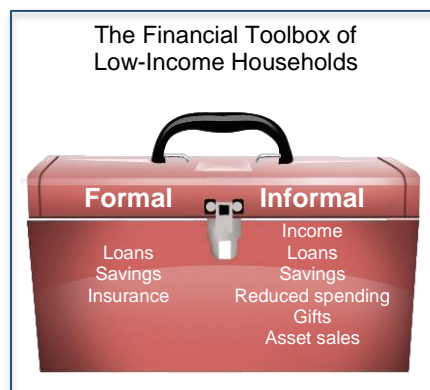
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1. Introduction

Low-income people face severe financial constraints even at the best of times, and the financial tools they have at their disposal vary widely. These tools are informal (such as assistance from family members, informal savings, or money lenders) and formal (such as savings with or loans from banks, or insurance). Some are easily accessed (small amounts of extra cash on hand) while others are less widely available (large savings balances or loans). Some financing tools are burdensome (such as selling off a productive asset or taking out a high-interest loan), while others are more manageable (receiving a donation to cover funeral costs). Low-income people *might* use any of these tools and others to cover an unexpected cost, but they do not always do so, and their choices are not always easy to predict.



Through a series of 16 “Client Math” studies, the MicroInsurance Centre’s MILK Project has worked to gain insight into the role of various financing tools in the wake of a financial “shock”: a family member’s death, property damage, or a healthcare need. In particular, we have aimed to understand the cost of these shocks and, for those who are insured, the role that microinsurance plays as a part of the financial toolbox used to cover these shocks. Below we analyze the various tools that our insured and uninsured respondents used to manage financial shocks and discuss the extent to which these tools were accessible and / or burdensome to them. This analysis can help us further understand the added value that one tool may have over its alternatives and shed light on where and how insurance fits into the financial toolbox of low-income households.

What is Client Math?

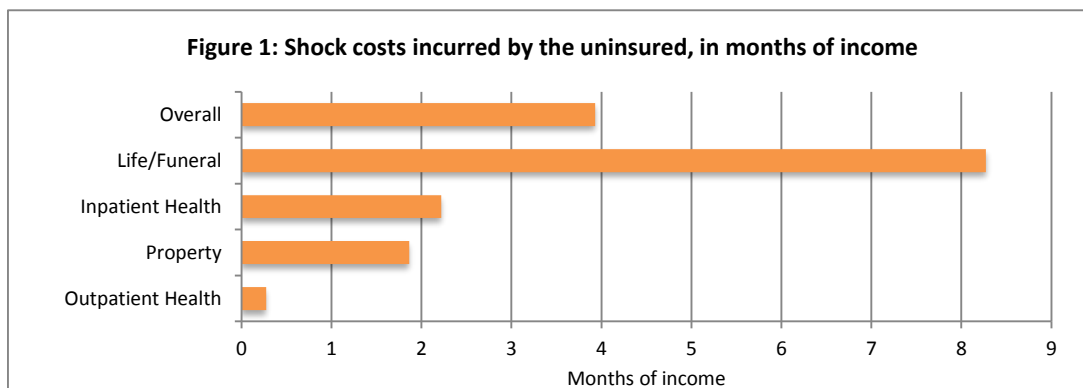
Client Math is a methodology developed by the MicroInsurance Centre’s MILK Project to understand the costs of an insurable shock and how those costs are financed by both insured and uninsured people. MILK has implemented Client Math studies of 16 different health, property, and death shocks (and corresponding insurance products covering those shocks), summarized in Appendix 1.

Each Client Math study includes a sample of approximately 30 insured and 30 uninsured respondents who recently suffered a similar financial shock. Surveys are used to quantify the full direct and indirect costs of the shock and how different financial tools were used to cover those costs.

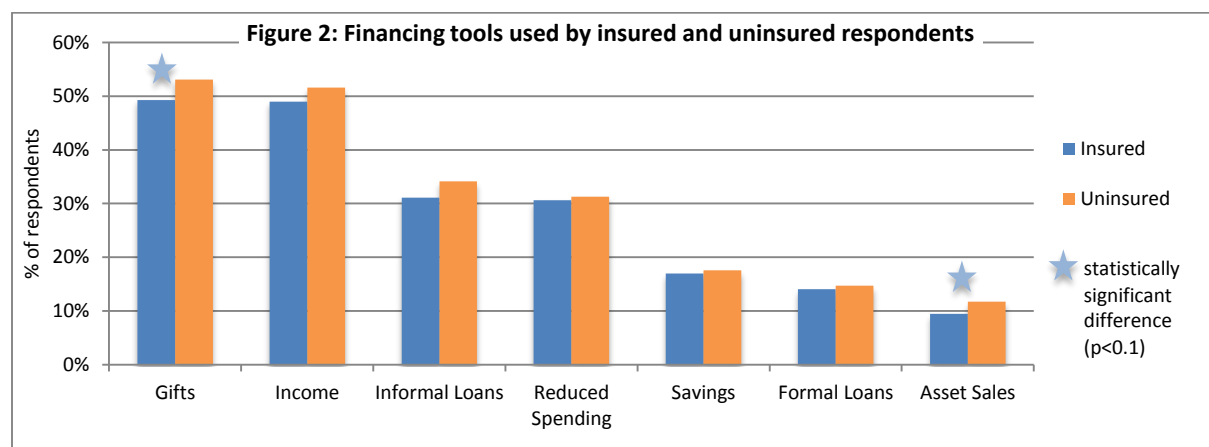
Individually, each of the 1,087 interviews tells the story of how a financial shock affected one low-income person, and how that person used the tools available to him or her (including, in some cases, insurance) to finance the shock. Each of the 16 studies describes how a certain type of shock was financed by members of a certain community and the value one microinsurance product had in that setting. In the aggregate, these 16 studies begin to illustrate in broader terms how shocks are financed by low-income individuals around the world, and the role microinsurance plays among other financial tools.

Coping with shocks

Figure 1 illustrates the cost of each type of shock across studies, indexed to the monthly income of each respondent’s household. We studied shocks that represented on average approximately 4 months of respondents’ household incomes. However, there was significant variation in the magnitude of these shocks depending on the type of shock and context in which it occurred. The cost of the death of a family member was the greatest on average (over 8 months of household income). Small outpatient health expenses only represented a week’s income on average, but even these small financial shocks can have serious financial consequences for low-income households, especially if they occur repeatedly over time.



Financial responses were similarly varied. Figure 2 below illustrates the frequency with which various tools were used by insured and uninsured respondents across all 16 Client Math studies. Cash and in-kind gifts from friends and family were the most commonly used tool overall, used by 51% of respondents, but their use varied widely by study. Current income, used by 50% of respondents overall, was the most universally common financing tool for coping with shocks across studies. Informal loans and short-term reductions in spending were used less frequently, but still by a substantial 31% of respondents in each case. The least common financing strategies we encountered were savings, formal loans, and sale of household or business assets. We find minimal differences between the two groups in the overall frequency with which these tools are used (see Figure 2), though there are substantial differences for some product types or individual studies. Moreover, the *extent* to which these tools are used often varies greatly between the insured and uninsured. These differences are explored in the following sections.



Availability and Burden of Financing

In our studies, we learned that low-income households rarely use only one tool to finance a shock. Chheng, an uninsured man we spoke with in Cambodia, turned to a number of different financial tools to cover the immediate and ongoing costs of his wife's death: he received gifts from family and friends, took out a high-interest loan from a moneylender, reduced his spending on food, and stopped applying fertilizer to his crops for three months. Emelita, an uninsured woman in the Philippines, received help in the form of gifts, contributions, and informal loans from family and community members, as well as support from the local government to cover costs after her father's death. Some tools, such as those used by Emelita, are relatively easy to access and use, although even these are not without shortcomings. Others, such as the high-interest loans or forgone productive spending Chheng turned to, can create large burdens in both the short



and long term. Insurance products have value¹ to clients only to the extent that they offer *added value* over the other tools available to cope with those shocks, for example, the extent to which they can help people like Chheng to reduce reliance on “burdensome” financing.

When they are faced with a financial shock, low-income people choose from an array of financing tools, all of which have consequences in the short and / or long-term for their financial wellbeing. They choose which tools to use, as well as when and in what amounts, based on their relative availability and burden. In considering a tool’s **availability**, we think of the amount of money that can be raised and allocated to cover the cost of the shock, ranging from zero to an amount that potentially far exceeds the cost of the shock. We also consider the speed at which the tool becomes available; some tools (such as cash savings) are available immediately, while others take some time to access (such as formal loans) or to accumulate (such as income).

In considering a particular tool’s **burden**, we think first of its direct cost, such as the interest paid on a loan. We also consider any opportunity cost associated with using that tool: the cost of losing or diminishing access to the resource for future needs. Certain financing tools can also have social costs that are difficult to quantify but may impact a low-income person’s standing in the community or ability to draw on their family or community members in the future. Others can lead to costs through inefficiency, such as when an asset is sold at a discount or when a large loan is taken out because a smaller one is unavailable.

Figure 3 provides a visual summary of the availability and burden concepts, with availability increasing along the vertical axis and burden increasing along the horizontal axis. “Ideal” financing tools are those that fall closest to the top left portion of the figure: those with high availability and low burden. Tools become less preferable as they fall in the lower (less available) and / or right (high burden) portions of Figure 3. Figure 4 summarizes the availability and burden of the most common types of financing tools we encountered in our studies. The shaded areas illustrate the range of availability and burden that we encountered for each type of tool. For

Figure 3: Availability and burden of financing

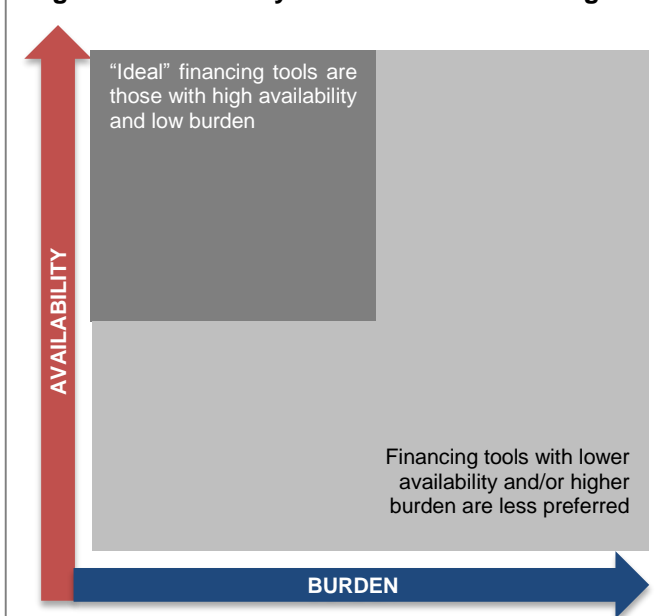
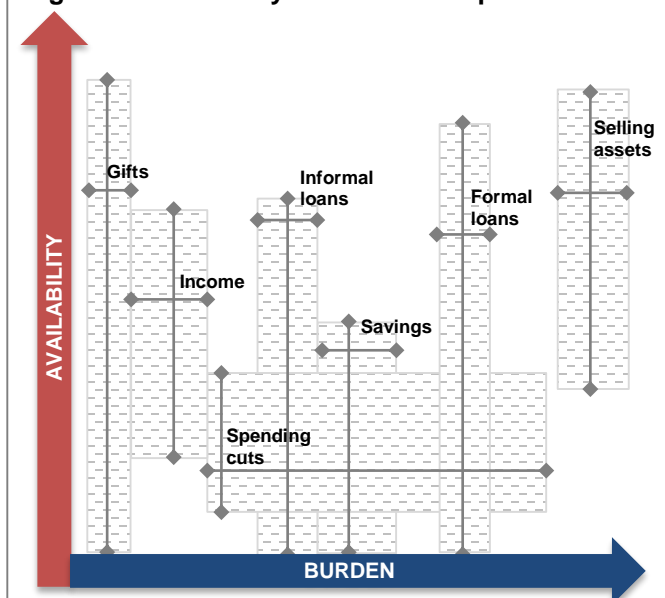


Figure 4: Availability and burden of particular tools



¹ MILK defines client value as the added value, either direct or indirect, in comparison to other available risk coping mechanisms, of having insurance either when claims are made or as a result of the changed behavior caused by owning a policy and trusting that it will be honored.



example, gifts from family and friends were available to respondents in our studies in a wide range of amounts (in some cases, they were not available at all; in others, they were available in very large amounts), and where they were used generally imposed little or no burden.

Both the availability and the burden of a particular tool can vary greatly, and tend to be influenced both by the shock that has been suffered and the context in which it occurs. In the rural communities we visited in the Philippines, gifts and contributions from family and community members were an extremely common source of financing for funeral costs. This form of support was far less available to cover funeral costs in Bogotá, Colombia, or to cover the costs of an illness in our studies in Karnataka and Maharashtra, India.

In the following pages we consider each of these tools separately, discussing the availability and burden of each tool and its use by insured and uninsured people in our Client Math studies in different contexts.² We focus throughout on the role that microinsurance plays in relation to these other tools, and end with a discussion of how all of the different strategies fit together.

² Outliers were excluded from the aggregate analysis in this paper based on four variables: household income, household expenses, total shock costs and total shock financing. Any respondent with data points outside of the inter-quartile range (below the 25th percentile and above the 75th percentile) in any of these four variables was excluded.



2. Income / Cash on Hand

Current income or “cash on hand” is often one of the first resources used to cover the cost of an unexpected shock, used by 50% of respondents across all studies. Its role in covering the cost of the shock varied widely among both insured and uninsured respondents, but it was in nearly all cases insufficient on its own, especially in the short term. For those who used income, it constituted 17% and 49% of the financing³ raised by the insured and uninsured, respectively.

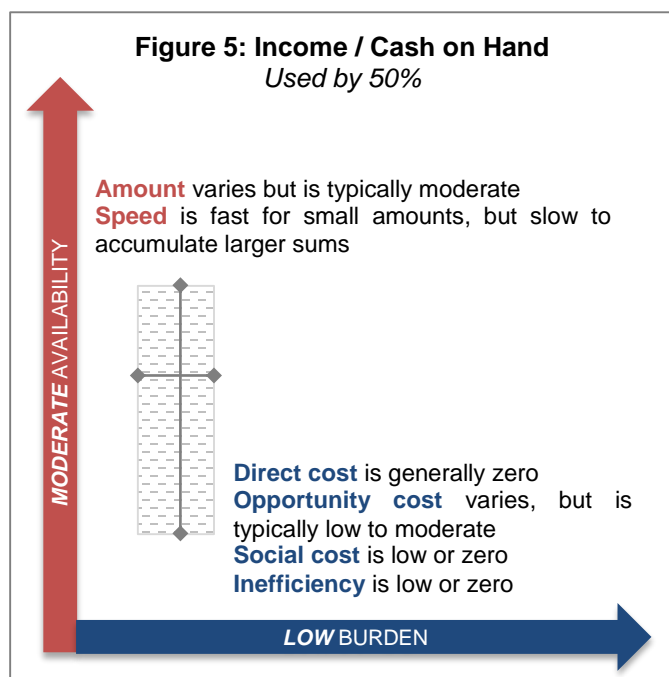
Availability and Burden of Income

Because it is generally one of the least burdensome financing strategies, any extra cash on hand is generally allocated to cover the cost of a shock, to the extent it is available. Pulling together this cash does not have any direct cost, nor does it typically entail any social cost or stigma. It is also generally a very efficient source of financing. There may be some opportunity costs associated with using extra cash, to the extent it would have been allocated to other needs, including saving for future shocks. Opportunity costs increase, however, as other spending is reduced or foregone to set aside more money to pay for the shock. These spending cuts are discussed in Section 3 below.

The availability of income to cover shock costs varies widely. Although we sought in each study to interview similar people who experienced comparable financial shocks, the uninsured tended to have lower income levels than the insured. Average household income across studies was USD 290 per month for the insured and USD 231 for the uninsured. In some individual studies, however, the insured actually have lower average income than the uninsured,⁴ and in others there is no statistically significant difference. In any case, lower income levels translate to less cash on hand available to be diverted to cover the cost of shock. Across all studies, those who used income had an average monthly household income of USD 301, compared to only USD 218 for those who did not use income.

In addition to household income levels, the availability of current income to cover a shock may be influenced by the control the individual suffering the shock has over that income. Women and young family members, for example, may have less control over household income and less ability to divert income to cover these expenses, especially if they are seen as avoidable by other household members.

Finally, the ability to set aside larger amounts of income over time can be severely reduced by the shock itself. All of the three types of financial shocks that we studied can reduce or eliminate the ability to earn



³ Total financing figures cited in this paper include insurance payouts and (where applicable) an estimate of the value of cashless insurance coverage. Cashless health insurance benefits are estimated by the difference in direct, out-of-pocket spending between insured and uninsured respondents. Cashless life insurance benefits are based on the insurers' valuation of the funeral services covered.

⁴ For instance, average household income of one uninsured sample that was hospitalized in India was 22% more than the corresponding insured group's, despite our effort to seek out respondents of comparable socioeconomic status (MILK Brief #12). The study analyzed costs and financing for a hospitalization at a private facility. The insurance product studied was distributed to borrowers of a microfinance institution, clients who without insurance might have sought care at different (less costly, and possibly lower quality) facilities.



income temporarily, as in the case of an illness or a flood in one's workplace, or permanently, as in the case of the death of a breadwinner.

Value Implications of Using Income

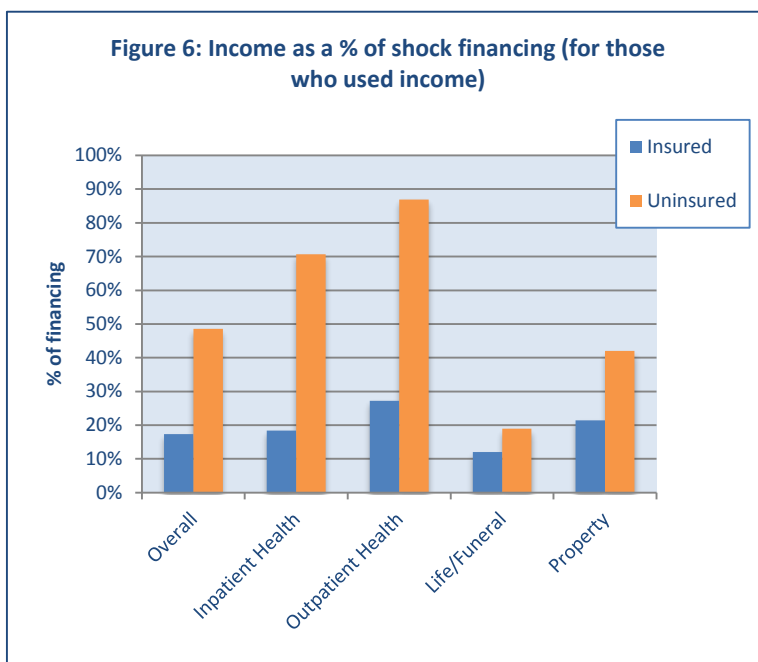
Figure 6 shows the percentage of financing raised through cash on hand for both the insured and uninsured for different types of shocks.

For the small costs associated with outpatient health shocks, the insured who used income raised 27% of their financing in this way (with much of the remainder coming from the insurance benefit). The uninsured who used income to cover outpatient healthcare costs raised 87% of their financing from income. This suggests that for these small costs even many of the uninsured were able to finance the shock relatively easily, and consequently that the financial value of insurance products covering such small needs may be limited. However, we still see evidence of strong financial value for some clients and under some circumstances, discussed further below. There can also

be great non-financial value in these products, particularly in creating access to care and behavioral incentives to seek care faster or more regularly (see Zimmerman et al., 2013). It may be that similar uninsured people who were not able to finance the visit "easily" through income chose to self-treat, visit more inexpensive providers, or forgo care.

In studies of larger health shocks requiring inpatient treatment, the 65% of the uninsured using income raised on average 71% of their financing from this source. In this case, however, the large proportion of financing coming from current income does not point to the sufficiency of cash on hand, but rather to the unavailability of other financing tools that could be accessed quickly enough and in large enough amounts to meet the respondents' very pressing financing needs. Uninsured respondents in our inpatient health studies severely *underfinanced* the costs of their hospitalization, on average covering only 80% of their reported costs (largely because they did not recover the income lost due to the hospitalization). Insured respondents, by contrast, covered on average nearly 100% of their reported costs.

In the wake of both deaths and property damage income was commonly used, but played a far smaller role in financing the shock. This is due partially to the very large size of these shocks and partially to the fact that both types of shocks often result in long-term or even permanent reductions in the family's income-earning ability.





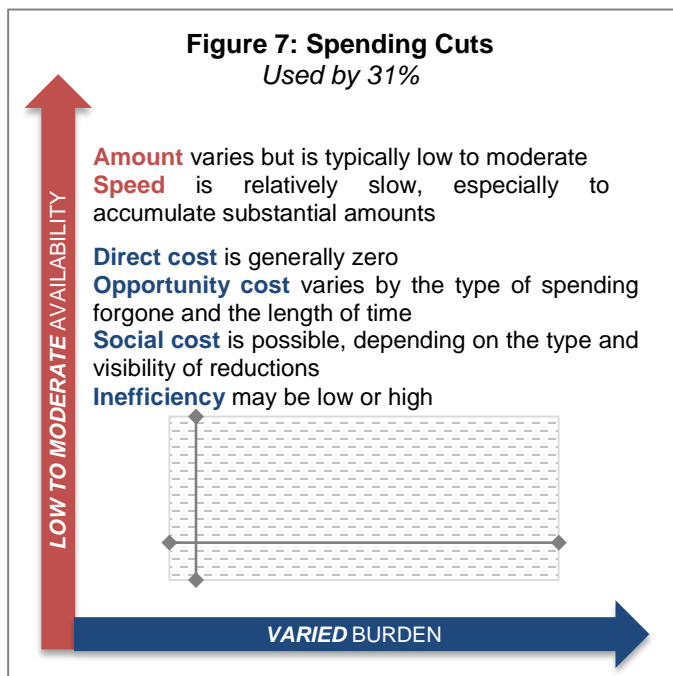
3. Spending Cuts

As a complement to using the cash available on hand, many low-income households reduce spending in an effort to accumulate more income over time that can be used to cover the costs of the shock. This strategy was common across studies (used by 31% of respondents), but most common in the cases of property shocks and deaths, where shock costs were both large and ongoing. For those who used spending cuts, they constituted 14% and 19% of the financing raised by the insured and uninsured, respectively.

Availability and Burden of Spending Cuts

The availability of spending cuts as a financing resource varies, but is generally modest at best. As with using income, this strategy is more available to better-off people; those who reduced spending to pay for the shock had an average monthly household income of USD 303, while those who did not reduce spending had an average monthly household income of USD 239.⁵ Even where they are used, spending cuts cover only a small portion of the cost; alone, they are far from sufficient to cover costs, especially in the short term. Spending cuts take time to accumulate, and for this reason are best suited to cover costs that are ongoing (such as covering the loss of a breadwinner's income) or as a complement to more immediate strategies (such as repaying a short-term loan taken out immediately after the shock).

The burden of reducing spending can vary widely depending on pre-shock spending levels, the type of spending that is cut, and the length of reduction. Generally, short-term reductions in consumption are viewed as a low “stress” financing tool – one unlikely to lead to greater impoverishment in the future (Morsink et al., 2011). In many cases, though not all, the spending cuts of respondents in our studies are not the type that create severe long-term burdens.⁶ The most common type by far were short-term reductions in spending on food that did not involve skipping meals. Spending cuts like these can often be considered beneficial, efficient means of covering shock costs.



Value Implications of Using Spending Cuts

Spending cuts were most common in case of property shocks (used by 60% and 61% of the insured and uninsured, respectively), followed by deaths. This may be a result of both the large size of these shocks and the ongoing nature of their costs. However, for those who used them, spending cuts constituted only a very small proportion of the financing raised (see Figure 8). Like income, they can be an important complement to other financing, but are rarely, if ever, sufficient alone.

⁵ The difference is statistically significant ($p=0.0009$).

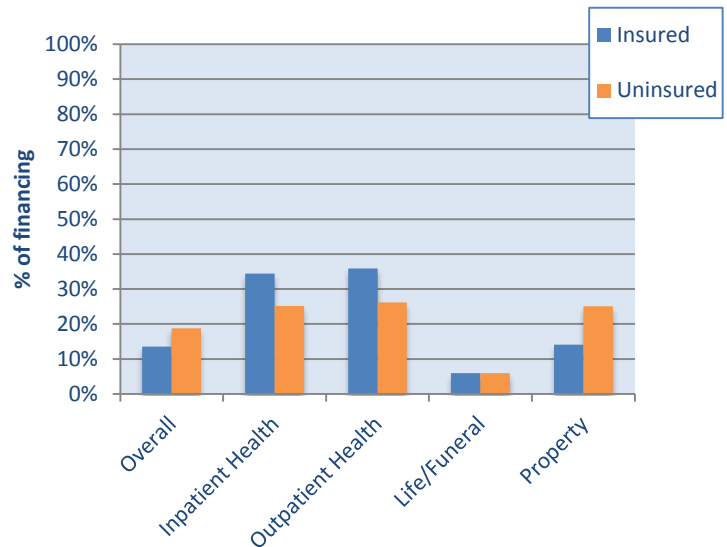
⁶ Our study of life microinsurance in Cambodia is a notable exception: many respondents reported cutting education spending, and 17% of the insured and 10% of the uninsured said that at least one family member had stopped attending school since the death (MILK Brief #29).



Household spending cuts were used far less frequently to cover health shocks; doctor's visits and medicines must generally be paid for up-front, while making repairs to one's home or recovering lost income can be delayed. For those who turned to spending cuts, however, they played a larger role in financing for health shocks, perhaps because the overall costs of these shocks were more manageable (See Figure 1 above) and because the shocks themselves had a smaller impact on earning ability.

We find some evidence that insurance coverage may encourage some short-term frugality. The uncovered costs of shocks for insured people are often more manageable than those of the uninsured because of the insurance coverage; as a result they seem to rely to a greater extent on spending cuts than the uninsured, who turn more quickly to financing tools that are available in larger amounts but are ultimately more burdensome. On average, the insured who cut spending did so in an amount equal to 0.58 months of their income, while the uninsured who cut spending did so in an amount equal to 0.37 months of their income. Our study of flood damage and financing in Haiti provides a particularly compelling example (MILK Brief #15). Insured and uninsured respondents were similarly likely to reduce spending to cover the costs of flood damage, but insured respondents did so by USD26 on average, while uninsured respondents cut spending by only 23% of that amount (USD6). The uninsured in Haiti were far more likely than the insured to turn to asset sales to cover the flood costs (discussed in Section 8 below). The insured, who anticipated receiving an insurance payout, were able to "wait it out" by tightening their belts a bit more and in many cases avoiding the need to sell assets.

**Figure 8: Spending cuts as a % of shock financing
(for those who reduced spending)**



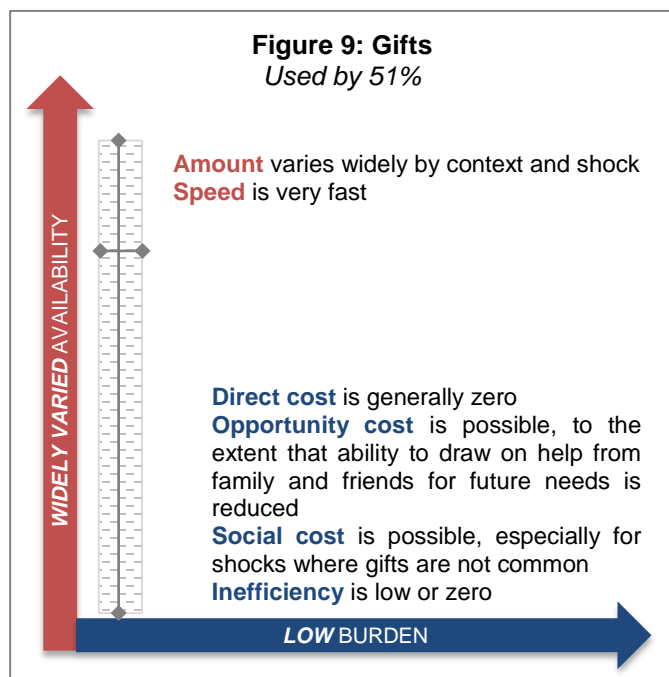


4. Gifts and Donations

Support from friends, family, and community in the form of gifts and donations often plays a crucial role in financing the costs of a shock. In fact, this support was used more often overall than any other financing tool in our studies. Its role, however, varies widely depending on the context and type of shock. 81% of respondents (both insured and uninsured) in our life insurance studies received gifts, while only 12% and 21% of insured and uninsured respondents, respectively, received gifts for outpatient healthcare. The uninsured who received gifts tended to get more of their financing from this source than did the insured (53% and 30% of financing, respectively), although the amount raised also varied greatly by shock type and context.

Availability and Burden of Gifts

The availability of gifts varied widely between studies. Friends and family were most likely to give, and gave in larger amounts, after a death. This availability seems to be determined largely by social norms. In rural parts of the Philippines, where the practice of abuloy institutionalizes contributions at the wake and funeral of the deceased, which is typically a large, elaborate affair, virtually all respondents received gifts. Where funerals are simpler, family and community networks less extensive, and / or traditions do not mandate giving, gifts were far less common, as in the case of urban Colombia. Family and friends were also less likely to offer gifts to cover health shocks or property damage, perhaps in part because of a reluctance to offer support that might be needed repeatedly. In the case of flood damage, some family and friends may also have been affected by the same shock and as a result less able to give.



Where they are available at all, gifts are typically available quickly. They are usually one of the lowest-burden financing tools, with low or no direct cost or inefficiency. They may, however, involve some

Special Types of Assistance from Friends and Family

Our study of the costs and financing of high-cost hospitalization in Kenya delves deeper into some particular types of support that friends and family can give (and the limitations of that support):

Remittances (MILK Brief #29) can provide important complementary support to those who receive them, but even where they are available they are far from sufficient alone to cover costs. Patients in Kenya who received remittances regularly obtained 39% their total financing through special remittances for the health shock, with the remainder of financing pieced together from a number of other sources. Even in Kenya, where migration is common and mobile money platforms facilitate these transfers, remittances are far from universal. In our study, 61% of patients did not receive regular remittances, and of this group only a small portion (7%) obtained their financing from remittances.

In-Kind Support (MILK Brief #30) can also be crucial in recovering from a shock. This support often takes the form of unpaid replacement for work that cannot be performed in the home, and as a result can be particularly important to women. Like financial support from friends and family, this form of assistance is limited – where friends and family were not available to perform all tasks, paid replacements needed to be found, and in some cases (11% of women and 3% of men), the work was left undone.



opportunity cost; family and friends are not unlimited resources, and drawing on them for one need may make them less available to cover future needs. Social costs are also possible, especially for shocks that are not commonly financed through gifts and where asking for or receiving help may involve stigma. These costs are reflected in the desire expressed by some respondents to avoid reliance on gifts where possible.

Value Implications of Using Gifts

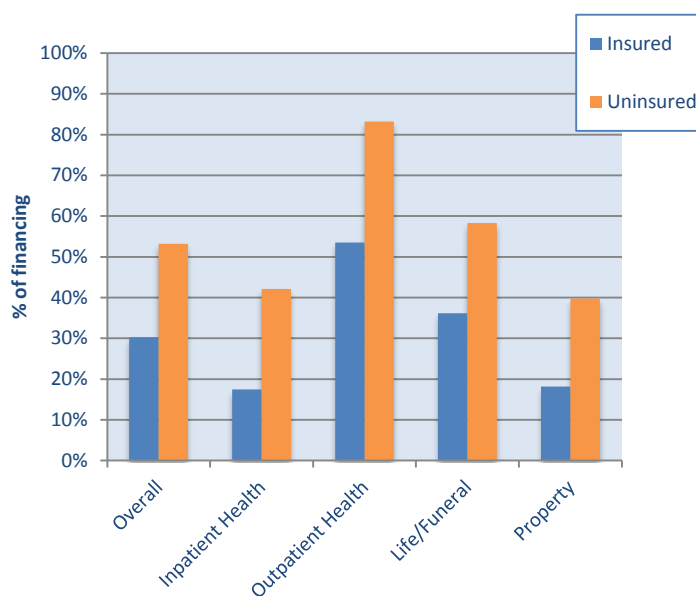
The insured in our studies were slightly less likely to receive gifts than the uninsured (49% vs. 53%). Further, among those who did receive gifts, the insured financed less on average with these gifts than the uninsured (see Figure 10). This may be viewed as some evidence that insurance “crowds out” this important form of traditional financing, as has been suggested by Clarke & Dercon (2009). However, the differences we find, though statistically significant, are small and should be interpreted with caution, as they may reflect other differences between our insured and uninsured samples rather than the insurance coverage. The differences in reliance on friends and family may also reflect a choice not to call on friends and family, rather than an inability to receive help from them.

We find that microinsurance and social network support are generally complementary, not competing, forms of protection. However, insurance products must be carefully designed to avoid duplicating the support of friends and family. They may be most valuable in covering shocks where family and friends are less able or willing to give. For example, microinsurance intended to cover funeral costs may be most useful to urban clients who receive fewer gifts. Clients in rural areas, by contrast, may be better served by insurance that helps to replace the loss of the deceased's income, which is

rarely covered by social support. Similarly, gifts from family and friends are rarely available to cover healthcare costs, especially for outpatient care (12% of the insured and 21% of the uninsured in our studies received such support). However, on the occasions when gifts are available they cover a substantial portion of the cost (see Figure 10). To the extent that these costs are not easily covered by other resources, the gaps in support from friends and family signal areas where insurance coverage may potentially have great value.

Gifts were available to a substantial percentage of respondents who suffered property damage; they were used by 43% of insured and 46% of uninsured respondents, and those who received them covered a substantial portion of their financing in this way, but less than for other shock types. However, availability of gifts varied widely across our property studies. In Haiti, where respondents were particularly vulnerable, only 26% of the insured and 15% of the uninsured received gifts, likely because family and friends were similarly poor and had also suffered from flood damage and were simply unable to provide this support.

Figure 10: Gifts as a % of shock financing (for those who received gifts)





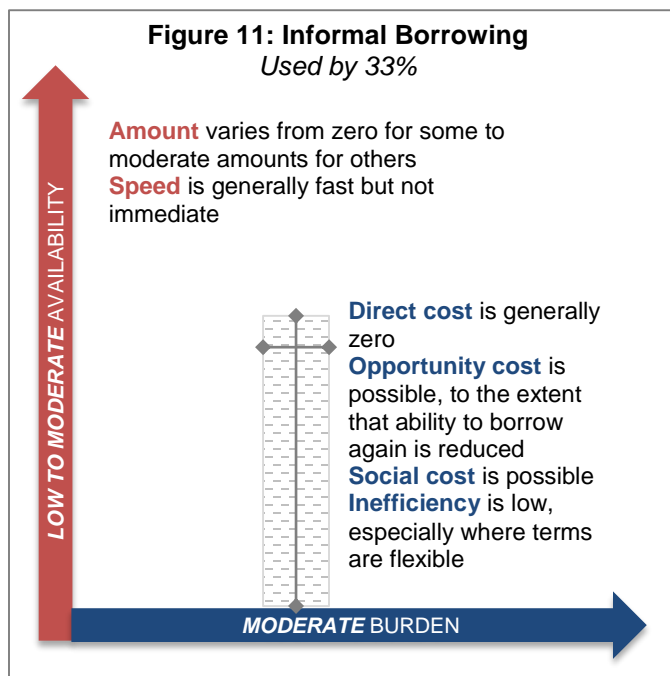
5. Informal Borrowing

When family and friends are unable or unwilling to cover shock costs with gifts or donations, they may offer informal loans to help meet immediate needs after the shock has occurred. These loans were less frequent than gifts, but were nonetheless used by 33% of all respondents. For those who used them, they comprised 26% and 47% of financing for the insured and uninsured, respectively, though these amounts varied quite widely by shock, context, and individual respondent.

Availability and Burden of Informal Loans

The availability of informal loans depends on both the ability and willingness of friends and family members to offer them. In some cases, they may offer loans as an alternative to the gifts or donations discussed above. Where they are available, these loans can generally be accessed quickly and with flexible terms, though generally not in very large amounts.

These loans are often (but not always⁷) interest-free. Informal loans are often very efficient due to their flexible terms, but sometimes need to be repaid more quickly than formal loans, resulting in “churning” of financing sources as people turn to another resource to quickly pay back an informal loan. Informal loans can also come with significant opportunity costs. As in the case of gifts, family and friends are an exhaustible resource; drawing on them to cope with one shock may make them less available for unexpected needs in the future. There can also be social costs to borrowing from friends, family, and neighbors, especially for those who may struggle to repay the loans.



Value Implications of Using Informal Loans

Informal loans were used by 33% of respondents across studies, but use varied greatly between shock types. Of those who borrowed informally, the insured received loans of similar sizes to the uninsured when expressed in terms of months of their income (except in the case of funeral financing).⁸ However, when expressed as a percentage of the total shock cost, informal loans were *larger* for the insured than for the uninsured for each product type. This suggests that the uninsured who borrowed informally underfinanced the shock. Because the insured were better able to cover the full cost of the shock, informal loans received by the insured constituted a smaller portion of their overall financing than those received by the uninsured (see Figure 12).

⁷ Several respondents in our study of flood financing in Colombia, for example, paid very high interest rates on loans from friends and family (MILK Brief #18).

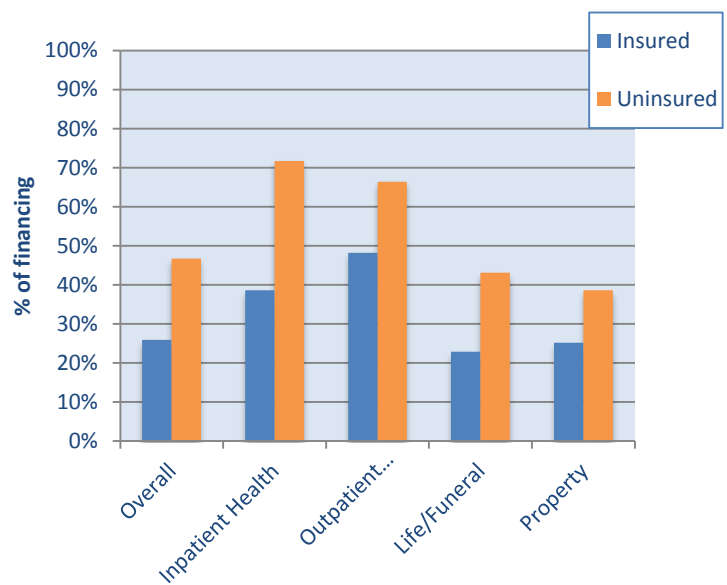
⁸ For funeral financing, the uninsured who received loans received them in amounts equal on average to 3.46 months of their income, compared to 2.40 for the insured.



The expectation of an insurance payment seems in some cases to help crowd in low-cost loans from friends and family. The insurance can in a sense be used as “collateral,” against which friends and family are more willing to lend. This influence is only relevant in insurance products that provide a cash payout that could be used to repay an informal loan (rather than cashless, in-kind coverage). In our studies of flood damage, for example, 39% of the insured receive such loans, compared to 30% of the uninsured). Delays in insurance payouts, especially when they are accompanied by uncertainty about when, whether, and how much will be received, can limit the availability of these loans. Such delays can also increase the social costs described above, as informal borrowers face stress and uncertainty about their ability to repay loans and may be delayed or prevented from doing so. When

designing insurance products, insurers can be mindful of the effect that expected payouts may have in securing informal loans from friends and family, which can leverage the overall benefit of having microinsurance coverage. Clarity and certainty around the events and amounts covered and the timing of payouts can enhance any such benefits.

Figure 12: Informal loans as a % of shock financing (for those who borrowed informally)





6. Formal Borrowing

Formal loans were used to finance the shock by 14% of respondents across studies. Like informal loans, they can be useful in meeting immediate needs after a shock, while waiting for other tools to accumulate in sufficient amounts. Access to formal credit varies widely, limiting the availability of this tool. Where formal loans are available, they are typically available relatively quickly and in relatively large amounts (on average, 32% and 65% of total financing by the insured and uninsured who used them, respectively). Formal loans can help bridge the gap, meeting immediate needs before slower forms of financing are available, but their cost can add up quickly.

Availability and Burden of Formal Loans

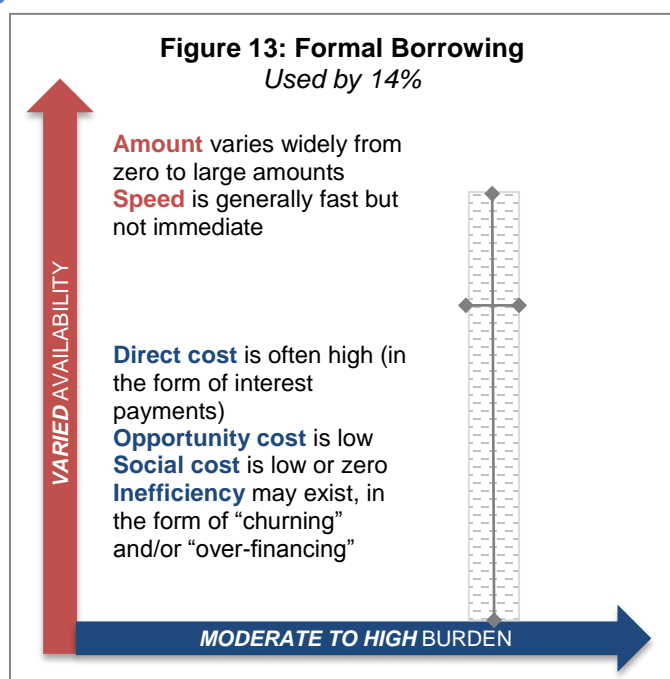
Credit access varies quite widely within our samples and across low-income populations. In some areas credit is very widely accessible, even to low-income people, while in others its availability is much more limited. Much microinsurance is currently delivered through microfinance institutions and other lenders, meaning that those who lack access to credit often also lack access to microinsurance. But even regular MFI borrowers do not always access formal loans after a shock, if either they doubt their ability to repay these loans or if their lenders are reticent to re-lend to a borrower who has recently fallen ill or to the household of a deceased breadwinner.

Where they are available at all, formal loans are generally available quickly (though not immediately) and in relatively large amounts. However, formal loans can also entail substantial burdens. They come with high direct costs, in the form of interest payments. There is also, in some cases, great inefficiency in this form of financing. Unlike most other forms of financing, loans are not a permanent solution; they cover immediate costs, but need to be repaid from other sources. This can result in over-financing, where respondents “churn” through multiple financing sources by borrowing formally, later repaying these loans out of income, reducing household spending, receiving insurance payouts, and possibly receiving / using other resources. While some sources go toward financing the initial shock directly, others are used to cover the cost of the loan, or to bridge timing gaps between financing sources. Another cause of inefficiency is that formal lenders are not always flexible and formal loans are not always available in the size or for the term they are needed. As a result, someone who may need only a small amount of money to supplement help from family, or a short-term loan while waiting for an insurance benefit to be paid, may take out a large or long-term loan (at additional cost) if that is all that is available.

Value Implications of Using Formal Loans

Formal loans appear to be used most frequently when large amounts of financing are needed. They were a very low source of financing for outpatient healthcare, the smallest shocks we studied (3% of the uninsured and none of the insured turned to loans in these studies). Use was moderate (ranging between 13% and 26%, on average) for each of the larger shock types.

Overall, the insured and uninsured respondents in our studies were similarly likely to use formal loans, although within individual studies there were sometimes large differences in use of loans between the two groups. For example, in our study of funeral financing and life microinsurance in Colombia (MILK Brief #8),





uninsured respondents were far *more* likely to use formal loans than the insured (17% vs. 2%). The two groups had similar access to formal credit, so the difference in borrowing is most likely linked to the larger out-of-pocket costs that the uninsured incurred (USD 2,058) compared to the insured, who received a cashless funeral benefit covering a standard funeral package from an affiliated funeral home, and were left with much smaller out-of-pocket costs (USD 337).

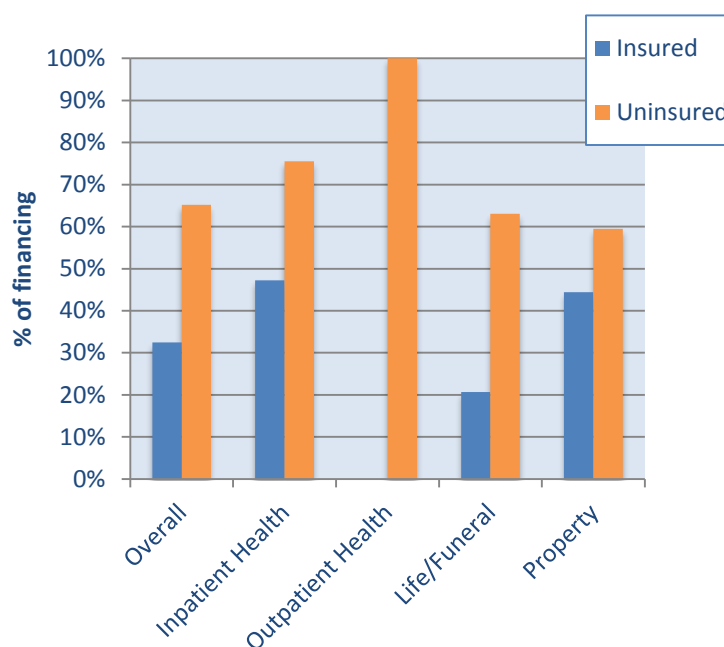
In another life insurance study, in the Philippines, the insured were far more likely to borrow than the uninsured (30% vs. 5%) to cover costs associated with a family member's death (MILK Brief #13). The life insurance product in that study was distributed through a microfinance institution. Microcredit access in the Philippines is widespread and lenders commonly offer life insurance products with their loans. As a result, those who do not have life insurance coverage are often among the populations excluded by the credit market.

For those who use them, formal loans appear to play a very important role in recovery from a shock. The insured in our samples who used formal loans relied on them to a lesser extent than the uninsured; by covering a portion of their costs, insurance seems to have enabled these clients to take out smaller loans (see Figure 14). As a result, those respondents were able to avoid some of the accompanying burden.

In some cases, however, loans play a primary role in financing the shock, even for the insured. In a study of hospitalization costs and financing in India (MILK Brief #11), the insured who used loans derived 95% of their financing for the event from formal loans, including the insurance benefit in the calculation of "total financing." The relatively small insurance benefit was dwarfed in importance compared to the large loans taken out by these clients.

Insurance benefits are often used to help the insured pay off debt, either because they cover debt directly or because clients choose to use cash payouts to pay down debt incurred before or after the shock. These insurance benefits can relieve the burden of pre-existing debt that clients are less able to pay off after the shock, or they may pay down loans taken out after the shock to cover immediate costs. We revisit the interplay between borrowing and insurance, and the value insurance may have in preserving access to credit, in Section 9 below.

Figure 14: Formal loans as a % of shock financing (for those who borrowed formally)





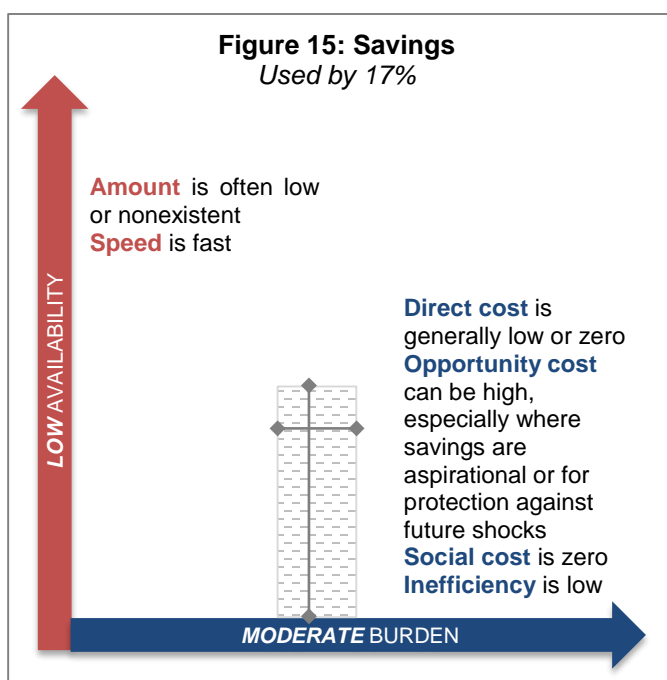
7. Savings

Although widely described as an important risk management tool for low-income households, savings played only a very limited role for most of the respondents in our studies. Savings were used relatively infrequently (by 17% of respondents across studies), and where used they were rarely sufficient to cover much of the cost incurred.

Availability and Burden of Savings

While savings can offer a crucial buffer against small, unexpected costs or fluctuations in income, low-income people are rarely able to save in the large amounts needed to cover even a moderately high-cost shock. Where savings are available they can typically be accessed quickly. As a result they can play an important role in covering at least a portion of the most pressing immediate costs, even if their size is low overall.

While having savings can allow a low-income person to be more resilient when faced with a shock, use of those savings to finance the shock often comes with high opportunity costs. Savings take time and great effort to accumulate, but can be depleted in an instant. Once they are used to pay for one shock, they are no longer available to be used for the family's short- or long-term goals (such as buying or improving their home, paying for their children's education, or investing in their business). Nor are they available as a buffer against future shocks. This burden is reflected in the reluctance shown by many respondents to tap into savings to finance the shock. Of those who had a formal savings account only 20% used savings to finance the shock. While they may be valuable as a form of protection in some situations, many low-income people are willing to work hard to protect the savings themselves, even if it means turning to financing strategies that are more difficult in the short term.



Value Implications of Using Savings

For the minority of respondents who used savings, this tool comprised only 18% and 29% of financing for insured and uninsured, respectively (see Figure 16). Even for the small costs associated with outpatient healthcare, savings only amounted to slightly more than half of financing for the uninsured who used them (and only 38% for the insured). For larger shocks, savings played an even more limited role. While the role of savings in financing shocks was limited overall, having a savings account seems to be correlated with an ability (or need) to finance shocks more independently. Respondents in our sample with savings accounts were *more* likely to borrow formally, use income, and use savings than those who do not have accounts.⁹ Those with accounts were also *less* likely to borrow informally (26% vs. 39%) and receive gifts (47% vs. 55%). We might expect some of these differences to be caused by a greater ability of wealthier or more financially stable people to save, but in fact there was no statistically significant difference in household income between those who used savings and those who did not. This suggests that those who

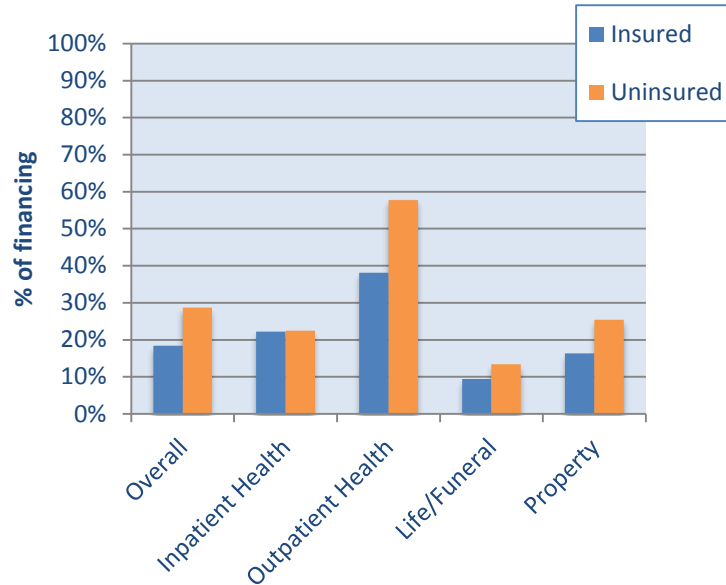
⁹ Percentage of respondents with and without a savings account, respectively, using: formal loans (17%, 12%), income (54%, 48%), savings (20%, 16%) (All differences are statistically significant).



used savings were not simply the wealthiest for whom saving was easiest, but perhaps those who anticipated needing or preferred to finance unexpected costs more independently.

While they allowed some respondents to raise small amounts of money quickly and independently, savings were generally sub-optimal tools for handling financial shocks. This was especially true when shocks were large, as savings were too low to put much of a “dent” in overall financing needs. Our findings are important in that insurance is often compared to savings when considering the *relative* value of these tools for handling financial shocks. While insurance has the benefit of requiring smaller cash lay-outs (premium payments) than savings, savings lead to accumulated wealth and can be used for a multitude of purposes. Our findings suggest that rather than replacing savings, there may be a role for insurance to help protect savings of low-income families.

**Figure 16: Savings as a % of shock financing
(for those who used savings)**





8. Asset Sales

Sale of a household or business asset can often raise large amounts of cash, but this strategy was among the least preferred by respondents in our studies, as it can be extremely burdensome in both the short and long term. Only 11% of respondents financed shocks with asset sales (and only 6% of respondents did so when the Haiti and Cambodia groups are excluded). By comparing the behavior of the insured and uninsured, a few of our studies suggested that insurance coverage may have helped some of the insured avoid relying on this particularly difficult financing strategy. In many other studies, we see that all respondents avoided selling assets regardless of whether they were insured, a testament to the inefficiency and burden of this strategy.

Availability and Burden of Asset Sales

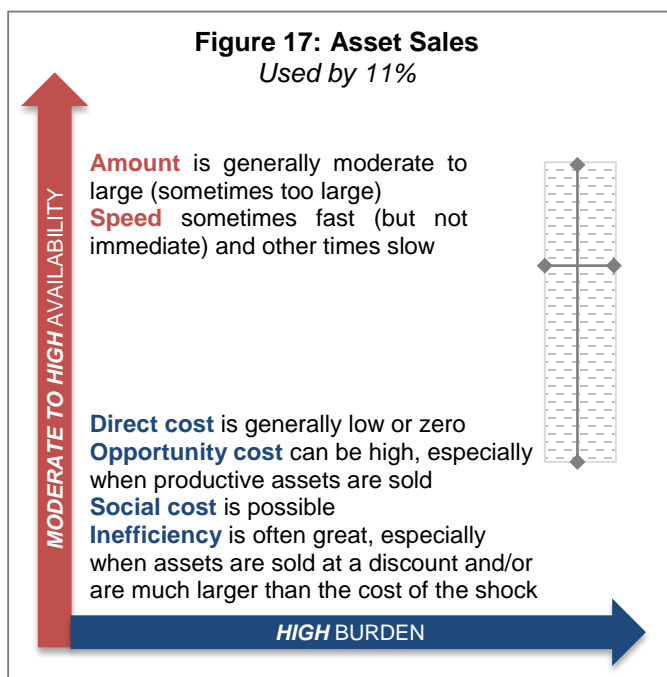
Asset sales are perhaps the most widely available form of financing. Nearly all people, even the poor, have access to some asset that they *could* sell to raise money to cover some of the cost of a shock. Such sales can sometimes bring quite substantial sums quickly, but are still one of the least preferred financing tools, and with good reason.

When assets are productive, their sale entails very large opportunity costs that can in the long run leave the family more vulnerable: an animal sold to cover a one-time need can no longer be used to generate income. Even when assets do not generate income, opportunity costs can be great, though more difficult to express in monetary terms.

Selling assets is often also a very inefficient form of financing. When they have no other choice, some respondents sell large assets to cover a smaller financial need. At times, the resulting over-financing can be extreme. To cover the very modest cost of a routine illness treated on an outpatient basis, one uninsured respondent in Tanzania sold an animal for USD 243, over twelve times the cost of that illness. Inefficiency can also arise when assets are sold for less than their value or less than the price at which they can be repurchased. When assets must be sold quickly to cover immediate needs, they are sometimes sold at a discount. For example, in Ghana, the two uninsured respondents who sold assets to cover flood damage both sold large assets at a large discount for only 57% and 78% of their value, respectively.

Value Implications of Using Asset Sales

Asset sales were generally treated as a last resort by both the insured and uninsured households in our Client Math studies. Such sales were used infrequently, and only when other less burdensome strategies fell short. Microinsurance coverage seems to have helped some of the insured avoid turning to this especially difficult strategy to finance the costs of the shock; there is a small but statistically significant difference between the percentage of insured and uninsured respondents who turned to asset sales across studies.¹⁰

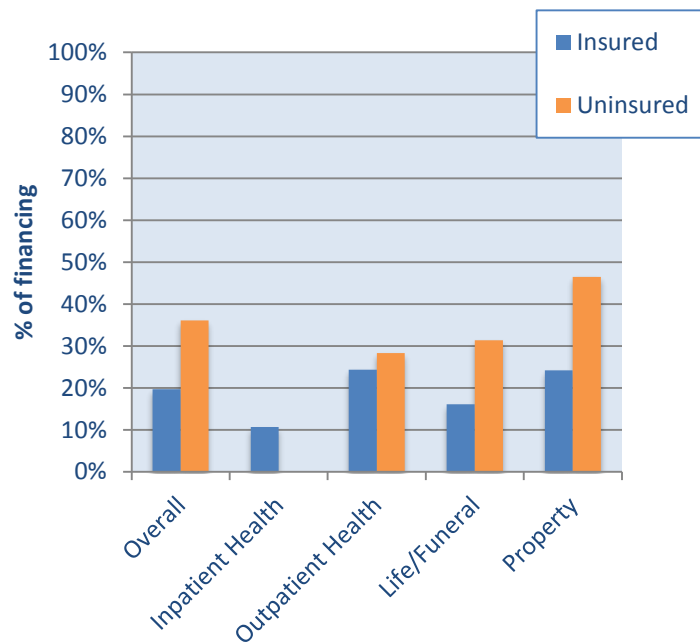


¹⁰ 9% of the insured used asset sales, compared to 12% of the uninsured ($p=0.000$).



Respondents' behavior vis-à-vis asset sales emphasizes the value that insurance can play in contexts where available financial strategies are limited. Especially where asset sales were more common overall, the insured sold assets substantially less often than the uninsured. However, insurance did not obviate the need for asset sales under all circumstances. Asset sales were by far most common among respondents suffering flood damage in Haiti (37% of insured and 58% of uninsured respondents), some of the poorest and most vulnerable people we spoke with. Microinsurance coverage seems to have been especially valuable in Haiti in helping the insured to avoid asset sales; most respondents had suffered repeated, severe damage from natural disasters leaving them with few resources to turn to. Although many insured respondents still sold assets, significantly fewer were forced to do so, and the assets they sold were slightly smaller on average.¹¹

Figure 18: Asset sales as a % of shock financing (for those who sold assets)



For those who were forced to turn to asset sales, those sales were often substantial in size (and in some cases quite large), though even they comprised only a limited portion of financing on average. This limited role is due to the particularly high shock costs suffered by those selling assets, which amounted to 5.8 months of income on average, compared to an average shock size of 3.3 months of income among those who did not sell assets. To cover these large costs respondents were forced to piece together financing from a number of different sources, each of which alone played only a limited role.

The insured who sold assets, however, were generally able to sell smaller assets than the uninsured. Overall, asset sales comprised a smaller percentage of financing raised by the insured who used them than uninsured who used them (20% vs. 36%).¹² This difference holds for each shock type (with the exception of large health shocks resulting in inpatient treatment, for which only 1% of the insured and no uninsured sold assets). The difference in size of asset sales is again greatest in the case of flood damage, where they comprised only 24% of the insured's financing, compared to 46% of the uninsured's.

Our findings support a strong argument for protecting very poor people, who may have particularly limited access to other financing tools, from large financial shocks that might lead them to sell assets. However, they also highlight a challenge that arises regularly in microinsurance; the potential value for clients may be highest for those who are least able to afford insurance premiums. Asset sales are generally a resort of only the most vulnerable, who have few other resources to turn to, but often also have limited capacity to pay premiums and limited access to appropriate channels to purchase relevant insurance products. This finding can inform considerations about subsidizing insurance premiums or delivery costs. For example, our study of flood damage in Haiti (the context in which we saw the most frequent asset sales) involved an insurance product that is subsidized by its distribution channel, the microfinance service provider Fonkoze (MILK Brief #15).

¹¹ Amounting to 1.30 months of the insured's income on average, compared to 1.48 months of the uninsured's.

¹² Asset sales were also smaller for the insured when expressed in months of income (1.43 for the insured vs. 2.82 for the uninsured).



9. Insurance

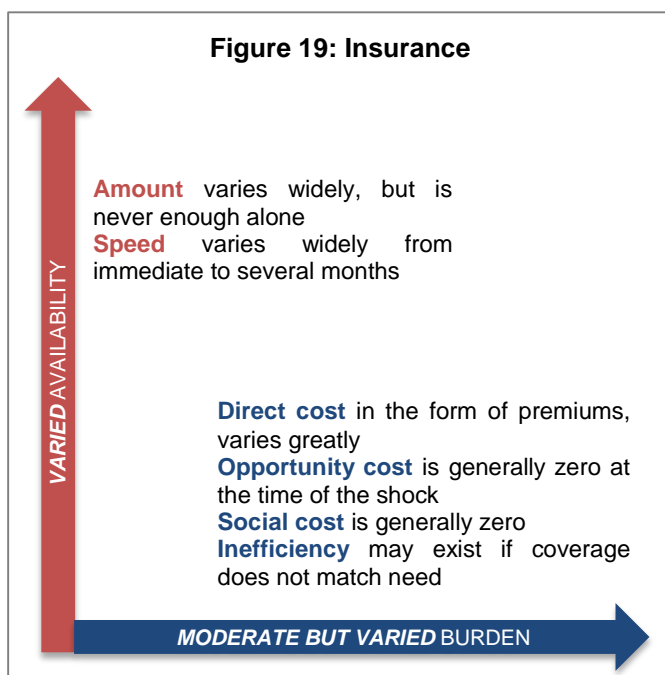
Finally, insurance was used by half of all respondents in our samples.¹³ Its role and the value it had to clients varied greatly by type of shock, context, benefit size, and other product features. This great variety makes it difficult to characterize the availability and burden of the products we studied or to offer an overall assessment of the value of microinsurance, though all products offered some degree and type of value to the clients in our studies.

Availability and Burden of Insurance

Access to insurance is determined largely by the presence of insurance products in a given area, the channels through which those products are sold, and the premiums charged. Some products, especially those offering more comprehensive coverage without subsidy, can price out the lowest-income target clients. Even quite affordable products can exclude some people if they are offered through a channel (such as a lender) that not all can or do access. The varying access to insurance is reflected in differences between the income levels of our samples; on average, household income of the insured groups is significantly higher than that of the uninsured, though in some individual studies the insured groups had income levels similar to or lower than the uninsured (see Section 2 above).

At the time of the shock, the availability of insurance benefits to cover shock costs depends critically on the amount of coverage it offers, which also varies greatly by product. However, availability is also influenced by the appropriateness and timing of benefits. Cashless, in-kind coverage is available very quickly, while cash payments often involve significant delays. While faster payouts are generally better than slower ones, it is most important for the timing of the benefit to closely match the financial need it is intended to address.¹⁴

The direct cost of microinsurance, in the form of premiums, also varies by coverage level and by presence of subsidy; in our studies, annual premium per covered life ranged from USD2 to USD47. While there are opportunity costs to paying premiums rather than using that money for another purpose, there is generally no opportunity cost at the time of the shock, as the product and its benefits have already been paid for. Social costs are generally also zero, and there may in fact be social benefits to having insurance coverage (see Section 6 above). Inefficiency is sometimes the greatest burden insurance products create when benefits are not well-matched to the size or timing of the need.



¹³ This proportion does not reflect the availability or overall use of insurance in the communities we visited, because our sampling strategy aimed to reach insured and uninsured respondents in equal numbers.

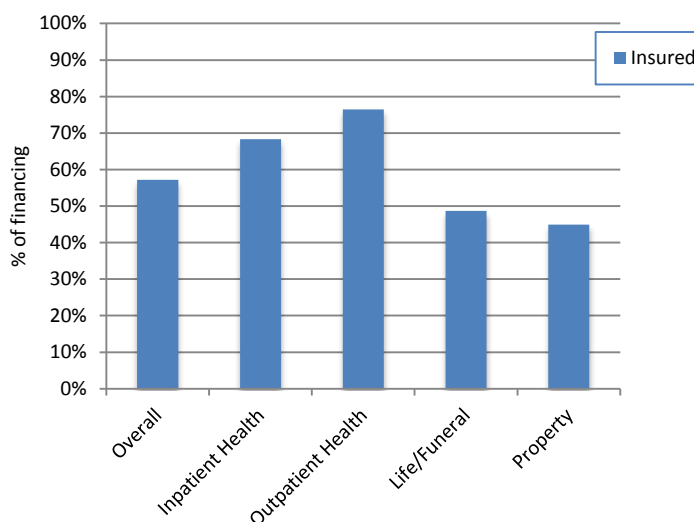
¹⁴ Our two studies of life microinsurance in the Philippines illustrate the relevance of timing to how the benefit is used. The total amount spent by the insured on the wake and funeral does not vary significantly by payout time. However, those clients receiving very fast payouts (near the time of the 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 on the funeral (MILK Brief #27).



Value Implications of Using Insurance

The size of the benefit and the proportion of financing raised from insurance varied by product and by shock type. For each of the four types of coverage we studied, however, insurance benefits comprised a substantial percentage of the financing raised by the insured (57% overall) (see Figure 20, which combines cash and in-kind insurance benefits). Insurance was among the most substantial sources of financing overall, and was for many of the insured the largest single source of financing received. Insurance comprised the greatest percentage of financing for outpatient healthcare, but its *financial* value may in fact have been greatest for life and funeral products, where total costs were much greater.

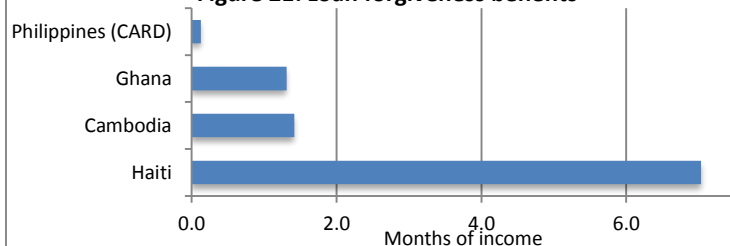
Figure 20: Insurance benefit as a % of financing



In addition to these cash and in-kind benefits, four of the products we studied had a loan forgiveness component. While the value of loan forgiveness is often difficult to describe in the short term following a shock, these benefits can ease the burden of repaying a loan during a difficult time (often a time when the household's income-earning ability is diminished). Perhaps more important, they can preserve access to credit in the longer term. Our study of flood financing in Ghana (MILK Brief #10) illustrates the value of such coverage. All respondents in that study were microfinance borrowers, but only the insured benefited from

loan cancellation insurance. Although few insured respondents borrowed immediately after the flood to cover its cost, the insurance benefit preserved their access to credit, a tool they use regularly for their businesses. Four months after the flood, many were ready and able to access new loans to finance their working capital needs as usual.

Figure 21: Loan forgiveness benefits



Insurance as Part of the Financial Toolbox

The 16 different insurance products we studied offered financial value of different degrees and different types. All led to some level of financial relief, but some were especially valuable in this regard. That financial relief came in the form of cost savings (for cashless coverage), additional funds to cover the shock (cash benefits), or elimination of a future obligation (loan forgiveness). Not all products offered clients overall cost-savings, however, when an estimate of their (premium) cost is considered. Even without cost-savings, insurance can have financial value by smoothing cash flows and helping clients avoid more burdensome financing. Some products also offered value in the influence they had on other forms of financing.

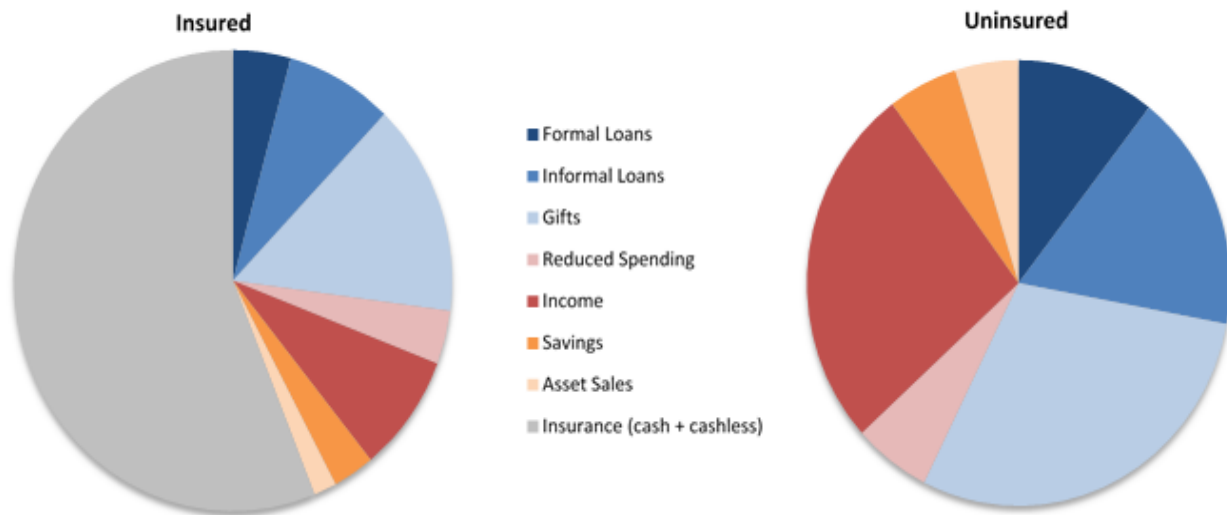
Including Insurance in the Financial Toolbox of Low-Income Households





Insured and uninsured people used the other financing tools at remarkably similar rates overall (see Figure 2 above). As discussed in the sections above, it does in some cases seem to reduce reliance on burdensome strategies and increase the use of “good” financing. Further, insurance seems to have reduced the degree to which respondents relied on other financing sources (see Figure 22, which shows the percentage breakdown of total financing by insured and uninsured respondents across studies). It did so by covering a substantial portion of the cost, and in some cases by helping to reduce the cost.

Figure 22: Total financing of the insured and uninsured



The inclusion of insurance in the financing “toolbox” of a low-income person can also create incentives that enhance value (in particular, seeking healthcare more frequently or regularly, at higher quality facilities, or sooner after falling ill). It might also at times create incentives that detract from value, for example, by encouraging over-spending on a funeral, although none of our Client Math studies provide conclusive evidence of this incentive. Zimmerman et al. (2013) summarizes our findings on different types of value across Client Math studies.

Insurance is a partial solution. It is not always accessible, appropriate, or highly valuable, but on balance our research suggests that it can play a very important role for those who use it. It never covers all costs, but can substantially reduce the degree to which clients must rely on other financing tools, often allowing them to reduce their reliance on some of the most burdensome. It can also help preserve access to other financing tools for future needs, expected or unexpected.



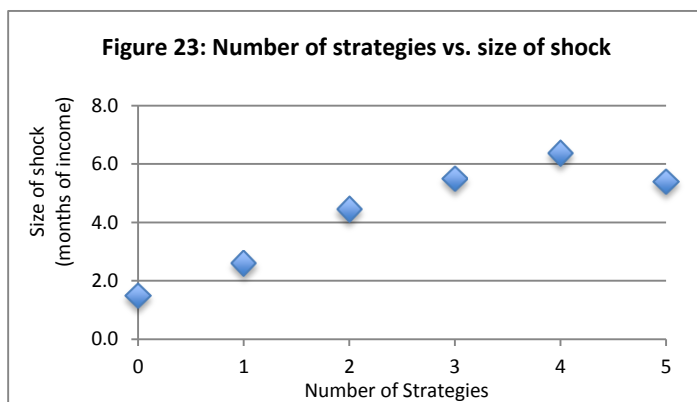
10. Piecing Together Financing Solutions

Availability and Burden Determine Use

Alone, none of the financing tools used by the low-income people in these studies were sufficient to cover the costs of the shocks they suffered. Each offers a partial solution, covering some portion of the cost, for some people and in some contexts. The utilization of tools is not always a choice, but is constrained by the access people have to the tool and the amount of the shock it can finance. People would prefer to use less burdensome tools, but are not always able. The sections above illustrate that financing choices are determined by the availability and burden of different financing tools. When faced with a financial shock, low-income people choose which tools to use, as well as when and in what amounts, based on their relative availability and burden. While “ideal” financing tools are those with high availability and low burden, financial shocks can rarely be financed solely through such tools. Often, and particularly when shocks are large, people must turn to tools that are less available and / or create a larger burden in the short or long term.

Combining Multiple Strategies

A large number of financing strategies may suggest that people are turning to some “harder” tools as they use up the more available / less burdensome ones. Further, the stress of turning to multiple financing tools at an already difficult time may itself create an additional burden. The number of different financing tools that a person turns to is largely determined by the size of the shock. Where costs are high, people use more sources of financing on average (see Figure 23¹⁵). Perhaps surprisingly, insurance coverage did not on average diminish the number of strategies used.¹⁶



Implications for Product Design

Understanding the use of different financing tools by different people, in different contexts, to cover different needs, can both describe the current role of those tools and suggest the *potential* role of other tools to cover their needs. It can offer insight into which tools are most valuable, and can inform the design or modification of financial products to maximize value by increasing their availability or reducing their burden.

In particular, these findings offer important insights into when and how insurance offers value and how coverage might be modified to improve value. For instance, where insurance covers only a small percentage of the financing needs resulting from a shock, it may have low value and might require re-visiting, especially in contexts where access to alternative funding tools is widespread. Also, when low-burden tools such as cash on hand or gifts are able to cover a large portion of the shock, insurance products may have less financial value to clients. Such insurance products may offer other types of value, such as access to services or improved health outcomes, but in the absence of strong financial value they may often be difficult to “sell” to low-income clients. These insights are heavily dependent on the context in which the products are used. Insurance, like other financial tools, is not used in a vacuum. Appropriate, valuable

¹⁵ Figure 23 excludes respondents with reported shock costs exceeding 36 months of income due to the small number of respondents in this category.

¹⁶ Insured respondents used on average 2.93 different types of strategies (including insurance), while the uninsured used on average 2.09.



product design depends crucially on the role that insurance can and does play in the context of these other formal and informal tools.

Insurance products tend to offer their greatest financial value when other financing sources are unavailable or impose a high burden. For example, insurance can offer high financial value to those who are likely to turn to asset sales in its absence: those who suffer very large shocks or who are very poor. However, these products may also be difficult to sell due to their price and the particularly severe income constraints of the target market. These constraints point to a strong potential role for subsidy targeted at the clients and risks for which insurance may provide the most value.

Savings are widely viewed as an important form of protection against risk, but our Client Math studies reveal limitations of this tool. It is often available in only small amounts, if at all, and its use generates high opportunity costs. This suggests that savings, rather than being a form of protection against risk, might be something that insurance may offer great value in protecting.

Loans offer an important source of financing for many shocks, but can also lead to a substantial burden by creating an additional ongoing obligation at a time when the borrower is particularly vulnerable. Insurance can have value in helping clients avoid this burden, but to do so it must offer enough coverage to replace the large sums that loans bring. In our Client Math studies, insurance coverage often was not large enough to avoid borrowing. Where insurance does not take their place, credit products can better meet needs by offering flexible loan sizes and terms, reducing the burden of this form of financing.

Finally, interventions to protect clients from shocks should address ex-ante and not only ex-post needs. Prevention can be a cost-effective and important tool for low-income people to reduce the risk of large expenses. Incorporating preventative health efforts into health and life insurance might help minimize the burden of some large shocks associated with illness, including chronic disease. Offering advice for rural households to prevent suffering from large losses in assets during floods can help reduce the cost of rebuilding or replenishing inventory later on. While ex-ante tools are not often considered in the toolbox of low income people, there is a clear need to add these to the set.



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.



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Appendix 1: MILK's Client Math Studies

Brief #	Location	Shock studied
Life & Funeral		
8	Bogota, Colombia	Death
13	Iloilo, the Philippines	Death
16	Puebla, Veracruz, & Chiapas, Mexico	Death
20	Kampot & Kep, Cambodia	Death
27	Panay Island, the Philippines	Death
Property		
10	Accra, Ghana	Flood
15	Les Cayes, Haiti	Flood
17	Mindanao & Panay, Philippines	Flood
18	Cienaga, Colombia	Flood
Health		
11	Maharashtra, India	Medium-cost hospitalization
12	Karnataka, India	Medium-cost hospitalization
22	Moshi, Tanzania	Outpatient treatment for acute illness
24	Lagos, Nigeria	Management and outpatient treatment for chronic disease
28	Xela, Guatemala	Routine outpatient care
N/A*	Central Province, Kenya	High-cost hospitalization

*MILK paper: *Balancing client value and business case in Kenyan health microinsurance*