



## 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.

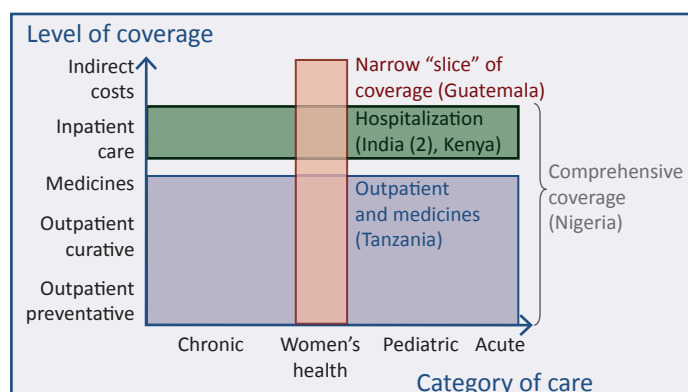
**Table 1: This brief summarizes the lessons of MILK's studies of health microinsurance:**

| 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

**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         |
| <b>Total cost</b>   | <b>463</b> |

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.

**Family and friends** are an important resource for

**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         |
| <b>Total financing</b>  | <b>27.00</b> |

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

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.

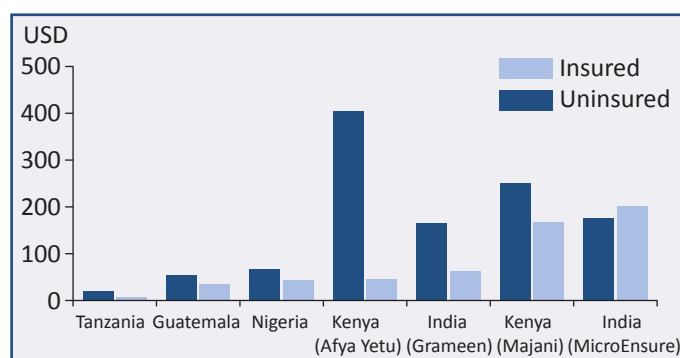
In fact, **credit**, from both formal and informal sources, played an important role for many in financing health needs, especially those related to large shocks. Loans were used by 28% of the uninsured across all of our health studies, and 37% of the uninsured in the case of hospitalization. However, 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<sup>1</sup> 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

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



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).

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.<sup>2</sup> 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.<sup>3</sup> 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.

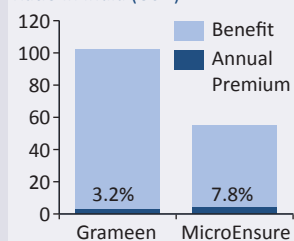


## THE ACTUARY'S GUESS

### 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.

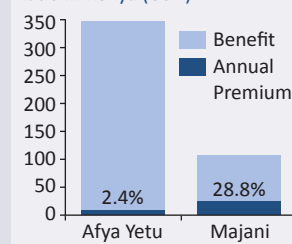
Figure 5: Premium-to-Benefit Ratio in India (USD)



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.

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.

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



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.

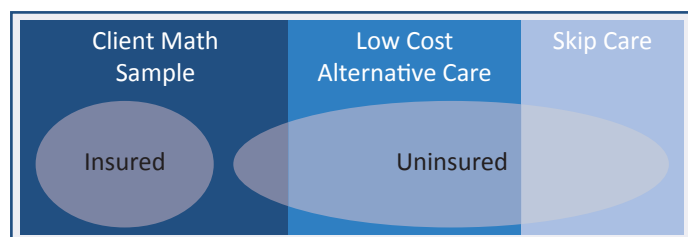
While the financial value of a health insurance product depends in large part on the particular product, context, and client, we can learn a great deal by **comparing the different types of products** that MILK studied. Unsurprisingly, subsidized products tend to have the greatest financial value to 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.<sup>4</sup> 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.

<sup>4</sup> 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.