

TWO STEPS BACK:
HOW LOW INCOME KENYANS THINK ABOUT AND
EXPERIENCE RISK IN THEIR PURSUIT OF PROSPERITY

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How low income Kenyans think about and experience risk in their pursuit of prosperity

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About the Financial Diaries Research

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The Kenya Financial Sector Deepening (FSD) programme was established in early 2005 to support the development of financial markets in Kenya as a means to stimulate wealth creation and reduce poverty. Working in partnership with the financial services industry, the programme's goal is to expand access to financial services among lower income households and smaller enterprises. It operates as an independent trust under the supervision of professional trustees, KPMG Kenya, with policy guidance from a Programme Investment Committee (PIC). Current funders include the UK's Department for International Development (DFID), the Swedish International Development Agency (SIDA), and the Bill and Melinda Gates Foundation.



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Abbreviations

ASCA	Accumulating savings and credit association
FSD	Financial Sector Deepening of Kenya
HIV	Human Immune Virus
ILO	International Labour Organisation
KSh	Kenya Shilling
MFI	Micro Finance Institutions
NGO	Non Governmental Organisation
NHIF	National Hospital Insurance Fund
ROSCA	Rotating savings and credit association, merry-go-round
RR	Resources received, referring to all gifts and remittances entering a household from non-members of the household
US\$	US dollar

EXECUTIVE SUMMARY

The climb out of poverty is seldom a smooth one. Life rarely bestows good fortune evenly and persistently over a lifetime. Given their limited capacities to cope, low income people can experience major setbacks when hit by what are seemingly even small shocks and can experience serious losses of wealth and welfare when the big ones strike. And merely the spectre of shocks can lead to underinvestment that makes even a smooth climb out of poverty take much longer than it otherwise might.

In this paper, we explore how low income respondents in the Kenya Financial Diaries think about, experience, and prepare for risks in their lives. We consider ways that risk reduction and management interventions could reduce their vulnerability in important ways. This analysis draws on data and insights from the Kenya Financial Diaries project, which tracked 300 households' cash flows, contextualized in their larger life histories and supplemented with a specific risk-related survey.

In Kenya, many of the risks people face, they must manage without the help of state-provided safety nets. While the government of Kenya is working to extend these kinds of safety nets, today there are few such provisions, for example, in the form of free medical care and cash transfers for disabilities or unemployment. At the same time, individual households have limited means to overcome these kinds of risks on their own and prevent a backward slide into deeper poverty. We observe that our respondents do not generally perceive the full impact of these kinds of events, often failing to recognize lost income and opportunity costs.

Low income people face a large number of moderate size and frequency risks, which are ill-suited for single-risk coping strategies, like typical insurance products. It's also nearly impossible to save their way out of risk, with expenses for all kinds of risks having very long tails. Just how much to prepare for is very difficult to predict and often beyond the capacity of low income people to cope with alone.

We find that outpatient medical risks affect everyone, and that even these relatively small value risks cannot always be addressed adequately, due both to liquidity constraints and quality of care challenges. These relatively minor risks can compound into larger problems when not managed well. A common coping strategy for coming with illnesses is to not spend, to forgo or postpone care, sometimes to disastrous consequence.

The reality of scarcity inhibits full risk mitigation through finance. With very few economic resources, low income people need and desire for all of their financial assets to be active. Funds that are used today—whether that be through savings or an insurance premium—should be providing some kind of auxiliary benefit today. Money that is stashed aside, in a fully liquid form, for a

rainy day, is widely viewed as wasteful. That money is not being used to build the better tomorrow that most Kenyans believe is a moral imperative to strive towards. Even when risk mitigation tools like insurance provide absolute client value, we must recognize that investment in them also entails opportunity costs for other investments with potentially larger real or perceived upsides.

Risk management through financial mechanisms is further complicated by the wide range of risks that the poor face and the likelihood in many situations that coping through savings alone for many risks is unreasonable. The resources needed to recover quickly outstrip their capacities to save.

In such situations, risk pooling is essential, and that's best done across distance and income levels. It is no wonder that we observe such heavy reliance on the social network, both among economic peers and in redistributive relationships—as a means to cope with shocks. The social network is capable of providing much higher levels of financing than individuals could manage alone. But, it is imperfect. It excludes many, can be slow to react, is better at responding to certain types of shocks than others, and can itself mean that those who are doing relatively well face not just their own risk of shocks but those of their entire social network, for whom they are at least partially responsible.

Insurers and others concerned about the vulnerability of the poor ought to be paying much more attention to health risks in particular. Looking across the spectrum of risks faced by our respondents, we find that in Kenya the health risks are the most universal. No matter how we calculate the impacts, they are significant and long lasting. Life related impacts can also be severe, but here, alternative coping mechanisms are working relatively well; the urgency is less severe.

What can be done to help low income people better manage the extensive risks in their lives? A wide range of better financial service options can be deployed to help people better cope with the range of risks they face. For example, fast, short-term borrowing could help many low income people overcome the short-term liquidity crunches that force them to delay medical care. Payments solutions that better address information asymmetries within social networks could further enhance that already important coping strategy.

Insurance can be particularly helpful for larger scale risks, where a large pool of risk sharing is needed to deal with costly incidents. But, to make insurance work in this market, customers need to feel their money is working for them and that premium investments also deliver value in the present, not just if and when tragedy strikes sometime in the future. By offering products whose structures and marketing messages resonate with how consumers feel about risk and risk management, insurers are likely to see much greater interest

in their products. Operationally, those products also need to work well for this market. Payments need to be smooth and almost unnoticed, and the process of enrolment, maintaining coverage, and making claims needs to be exceptionally smooth and simple. Insurers might even rethink their markets and consider marketing their products not to intended beneficiaries directly but to the relatives who care for them when they are beset with shocks.

The public sector also has a role to play. Government's efforts to extend access to preventative care and extending the reach of social safety nets can reduce the risks that low income people face and provide them with more predictable futures around which it is much easier to plan. The Kenyan government's National Hospital Insurance Fund (NHIF) can also be bolstered by expanding its net to a broader pool of beneficiaries, and improving communications about coverage.

Chapter 1

BACKGROUND & METHODS

Preparing for and coping with risk is particularly complicated for low income families who have a difficult time even meeting predictable day-to-day needs. How do they think about, plan for, and manage their way through the unexpected events that can so easily throw them off course? Is there more that service providers could do to mitigate the risks low income people face?

In this paper, we look at low income Kenyans' perceptions of risk, their risk management strategies, and the choices they make and resources they deploy to cope with shocks. We draw on new data from the Kenya Financial Diaries project, which, unlike many surveys about risk, takes a deep look at the financial behaviours of households in great depth over the course of a year and complements a deep one-year picture with a survey involving recall of shocks over the previous five years.

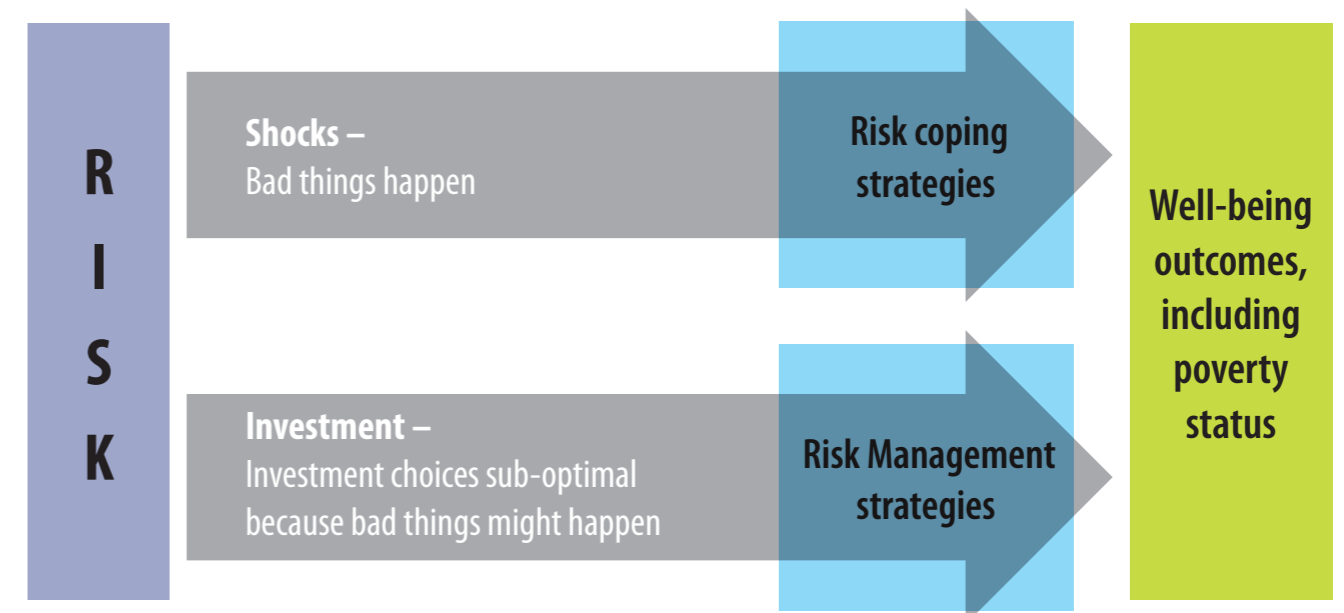
We know that risk affects well-being through two primary routes: 1) through shocks themselves, which can cause a loss of assets, induce new costs, and lead to lasting drops in consumption and 2) through the threat of shocks, which can cause underinvestment in economic activities that are higher risk, but also higher return. The impact of the "shocks" channel can be mitigated by good risk coping strategies and better investment choices made through good ex-ante risk management strategies.

This paper focuses most on the first channel, examining incidence and outcomes related to shocks themselves. In so doing, we cover much of the same ground that has been covered by previous economics research into risk and risk coping.¹ The new contributions of this paper are a deeper understanding of the pathways of impact on well-being outcomes in the short to medium term and a finer-grained understanding of shock costs and risk perceptions, which comes from the intensive engagement with respondents that Financial Diaries methodology affords.

The Kenya Financial Diaries tracked the detailed cash flows of 300 households over the course of an entire year from August/September 2012–August/September 2013 via bi-weekly visits from a team of dedicated researchers. Alongside these regular interviews, the team undertook a more detailed Risk Module, surveying the main respondent in each household on his or her perceptions and experiences with risk events over a broader time horizon. The quantitative data from Diaries interviews and this Module was further contextualized by an in depth interview with the main respondent that placed the study year in the context of a larger life history and through qualitative

¹ Dercon, Stefan. Fate and Fear: Risk and its consequences in Africa. University of Oxford. February 2007. http://users.ox.ac.uk/~econstd/Microsoft%20Word%20-%20Fate%20and%20Fear_v4.pdf

Figure 1: Risk impacts welfare outcomes through two channels. This paper focuses primarily on the first.



observations and notes recorded by researchers over the full duration of the project. While the sample is relatively small, the project provides a great amount of depth on the experiences of the participating households, enabling us to look at many old topics with new eyes.

The intensity of the Diaries methodology makes it logistically difficult to select a nationally representative sample. Instead, we selected five broad areas of the country, all with important livelihood conditions:

- **Nairobi:** Kenya's major metropolis, where there are high concentrations of low income people in a number of informal settlements included in the study;
- **Mombasa:** Another important urban center with an important port and trading economy alongside high levels of poverty in the slightly inland communities;
- **Makueni:** A rural area that experiences frequent drought and food insecurity;
- **Eldoret:** Another important agricultural trading hub, surrounded by farming communities; and

- **Vihiga:** A rural area in Western Kenya, comprised mainly of smallholder farmers and including areas with high concentrations of CARE-trained savings group members, a population of particular interest to research sponsors.

Within each area, we selected households to achieve diversity along key dimensions such as household structure, main livelihood strategy, and basic financial inclusion status. Our aim was to reach quotas of national prevalence for some key variables such as these.

We explore risk in the lives of Diaries respondents through three broad themes:

- **Experience.** What risks dominate the lives of respondent households? What is the actual incidence and severity of the risks that low income Kenyans face?
- **Perceptions:** How do respondents think about the risks in their lives? How likely do they expect them to be? Which do they worry about? How prepared do they feel to face these risks?
- **Coping:** How do respondents cope with shocks when they strike? What are the strengths and weaknesses of different coping mechanisms employed by respondent households?

Chapter 2

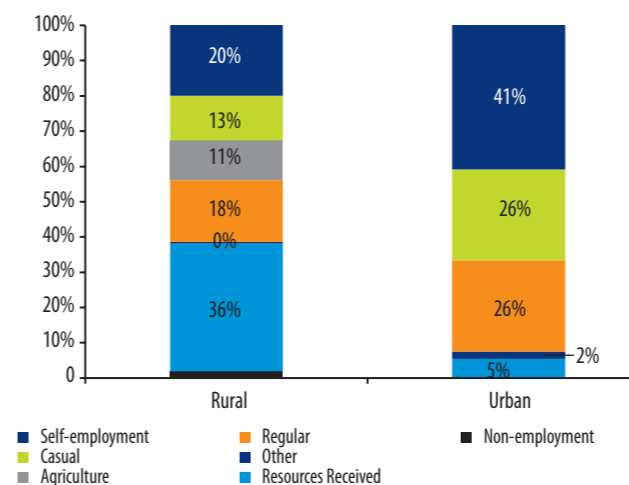
INSIGHT ON RISKS THROUGH THE DIARIES

2.1 EXPERIENCE WITH SHOCKS

Low income people face high levels of income and expenditure volatility in everyday life, not just when beset with crises.

The Financial Diaries were explicitly focused on low income people. Seventy-two percent of our households fell below the US\$2/day threshold and 95% below the US\$5/day threshold. Sixty-nine percent of households in the study lived in rural areas; 31% in urban.^{2,3} We sampled for diverse income sources, but in reality, many respondents misidentified their main income source. Far more depended on what we called "Resources received," which includes remittances and other gifts from the social network, than expected and far fewer depended on agricultural income. But those are just the "main" or "dominant" income sources. In reality, typical households had many different income sources. Putting aside the sources of income coming from the social network, the median household had five separate income sources registered over the course of the project.

Figure 2: Main Income in rural and urban areas, observed (%)



Note: Distribution of dominant income sources across rural and urban areas. Resources Received refers to remittances and gifts received from the social network, while non-employment income is income from grants and other social support from governments and organized charities.⁴

² This distribution is very similar to the Kenyan population distribution at large as recorded in the 2009 census, which found a split of 32% urban, 68% rural.

³ Our target was to finish the study with 300 households. We started with 350 allowing for some attrition, and ended with 298. Unless explicitly stated otherwise, all figures in this report refer to the 298 households who completed the study.

⁴ This is monetary income only and excludes imputed value of food produced and consumed within the household as well as imputed values of in kind resources received. When imputed values for food consumed from the households' own resources, the share of rural households with agriculture as a dominant income source rises to 24%.

Typically, the relative importance of these many income sources would shift over time. Few of these sources could be relied upon to consistently deliver a steady stream of income. The median household's monthly income fluctuated +/- 54% per month. Expenditures were similarly volatile, fluctuating about 43% from month to month at the median. In rural areas, the higher levels of volatility were mediated somewhat by resources received on the income side and by food consumed from respondents' own production on the consumption side. Without these two contributions, the volatility experienced from month to month would be substantially higher.

Figure 3: Median income volatility (%)

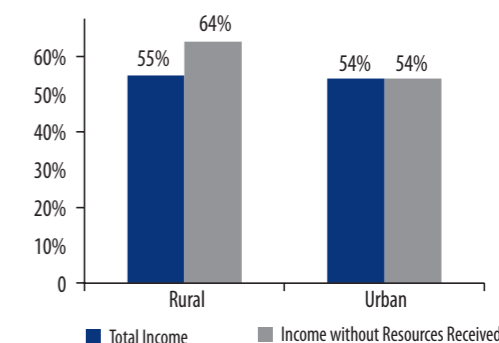
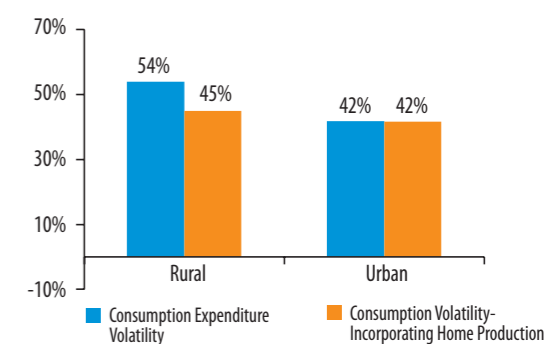


Figure 4: Median consumption volatility (%)



Note: Income and expenditure are both very volatile.⁵

There are a few important factors underlying these high levels of volatility:

1. **Unpredictable incomes:** Just how much a respondent will be able to earn in a given month is not certain. Some months they are able to get work, others there may be no work or no good paying work to do. Some months, they may need to attend to family affairs—organizing a funeral or caring for a sick relative—making it impossible to work as they normally do. For many—including those with regular jobs—just how much they will be able to bring in during a given month is uncertain.

⁵ Volatility is measured as the month to month standard deviation as a share of the mean.

- Lumpy incomes:** Some income sources arrive in large, lumpy payments. For example, bonuses paid on tea crops are disbursed once per year in a large sum. Those selling mangoes receive a few large payments during the harvest, and then that source goes dormant until the next season.
- Lumpy expenditures:** Some expenditures are not regular and spread out equally in magnitude from month to month. Instead, relatively large payment may be necessary at specific times of the year. This can be predictable expenses, like catering for the costs of a child birth, or school fees and supplies. But, it also includes unexpected needs, like treating an unexpected illness or injury or repairing the house after a storm.
- Matching lumpy inflows and outflows:** We observe that many respondents attempt to match large inflows with large expenses rather than trying to completely smooth out all costs. So, when they receive a large income flow—say from a bonus—they would be likely to make a large expenditure, like purchasing an asset, right away. Similarly, if they are faced with a large expenditure need, rather than draw on limited savings and small borrowing capacities, they would often “look for money” through increasing income, most often by soliciting help from the social network, but also, where possible working more or adding some extra income sources to try and cover the need.

This volatility of income and expenditure needs on a regular basis has important implications. First, much attention in financial management goes to stretching the budget to be able to accommodate income shortfalls and small increases in expenditure needs, all on a regular basis. We found that respondents often worked to bridge these fluctuations through a small amount of liquid savings, borrowing—primarily from friends and family and local shops, and by seeking assistance in cash and in kind from their social networks. Life is perpetually unpredictable.

Planning for the management of bigger scale, less frequent kinds of shocks is yet one more challenge. And, budgeting for these kinds of risk management and mitigation tools is complicated by the fact that it is so difficult to know what kind of income you might have to budget against and whether that income will remain similar next month. Expenditure budgets are already heavily committed to basic consumption needs, like food and housing, and investments in risk management require making sacrifices elsewhere in the budget. These are not always sacrifices between good choices and bad choices, but among the universe of good choices. A respondent may need to consider whether to feed their children a high quality protein, perhaps chicken, or to save. They might need to choose between either sending their elderly father some money for his ongoing sustenance or paying for an insurance premium. The combination of volatility and scarcity just makes risk management and mitigation very complicated.

Low-income people face a very large number of moderate probability, moderate severity risks.

People face a very wide range of risks. Looking at the risk module, which covered the previous five years, and observing shocks during the Diaries year, we tabulate the incidence and severity of shocks in low income families’ lives. Through this process, we can make a few important observations:

First, there are some major outlier types of shocks. Outpatient medical care, for example, is very likely. About 90% of individuals in our study will need outpatient care every year, with the average household seeking care about five times per year. The median cost per incident was KSh 400, which is just about 6% of median monthly household income in our sample. We also see that the death of the main income earner is very low frequency, with a probability of occurring for only 1% of our sample households each year, but has a very high cost at a median estimated cost (taking into account the out of pocket expenses and the lost income while coping with the situation) of KSh 55,050, nearly eight times median monthly household income.⁶

And this loss associated with the death of the main income earner could very well be understated. Where does an individual stop counting lost income from such an event? We placed no specific bound on the period over which the loss was relevant. We also saw that respondents generally were underestimating lost income across all kinds of shock events. Only for a few risks—loss of an income source, death of main income earner, and temporary and permanent disabilities—did respondents report ANY lost income as a result of the shock. That means even for damaged crops and hospitalizations, they seemed not to internalize the losses in income they likely experienced from not being able to sell or consume the destroyed produce or not being able to work while coping with an illness.

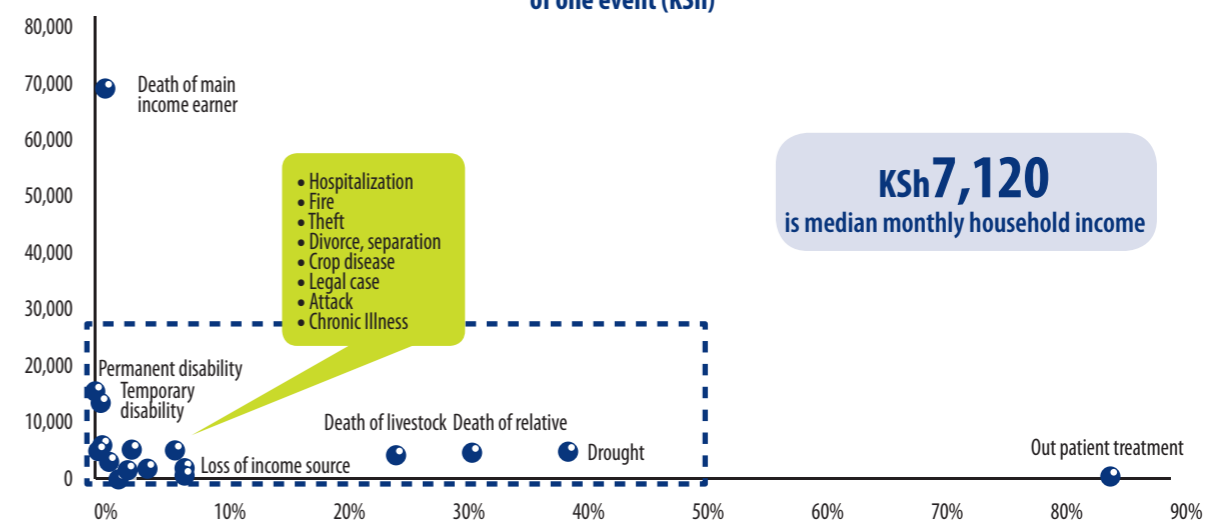
While the loss of the main income earner is rare on an annual basis, it is less rare over the course of a lifetime. Fourteen percent of our respondents had experienced this kind of incident at some point in their lives.⁷

For urban households, the risk of fire is very similar to the loss of the income earner as a low probability, but high cost type of shock. Seven percent of our urban households had experienced a fire in their residence at some time in the past, though the annual probability is only around 1%. If a fire strikes, the impact is enormous. Fires are no less common for rural households. In fact, 12% of rural households experienced a fire. But, the economic severity tends to be more moderate.

⁶ The risk module provided us with data on the incidence of shocks over five years. For better comparison of these risks and comparison to observational data in the Diaries year, we use that data to compute the probability of an event occurring in one year. So, for high frequency shocks, like outpatient medical care, we find probabilities exceeding 100%.

⁷ Death is inevitable, but death of the main income earner is not. This implies that an adult dies during their productive years, while they are still the key breadwinner caring for other members of the household.

Figure 5: Rural incidence and severity: probability of population at risk experiencing event in one year (%) by median cost of one event (KSh)



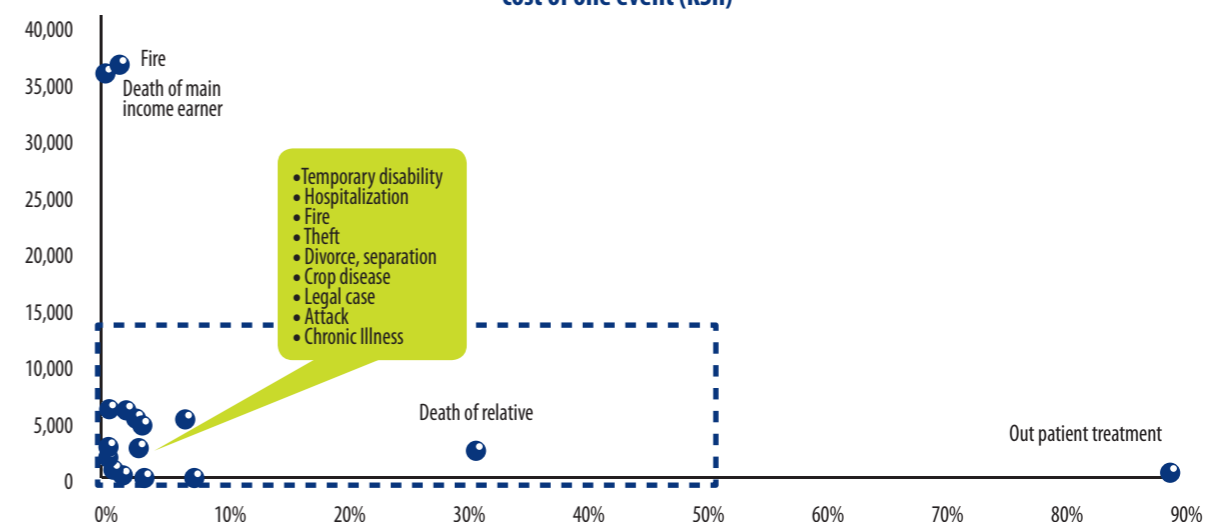
Note: Shock frequency and severity, including all risks, shows how much outpatient medical care and the death of the main income earner are truly outliers, though along different dimensions.

These outlier risks represent the extremes of high frequency, low value events (outpatient medical) and low frequency high value events (death of main income earner and fire in urban areas).

It’s important to point out that the precision of our cost estimates decreases for low frequency events, in which we may only have a small number of reported incidents to report against. The precision of our cost estimates therefore increases for the higher frequency events, like outpatient treatment and deaths of close relatives.

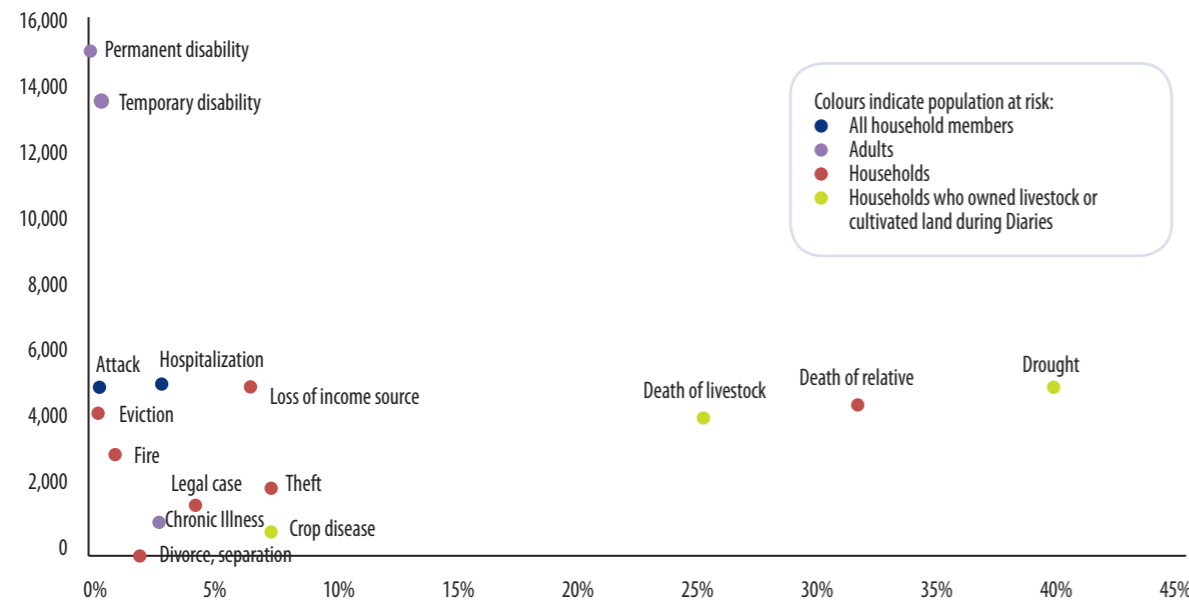
When we put those two types of risk events aside, what we also see is the very large number of relatively low frequency and low value types of risks that people face. But this low value is really relative. There are some really important distinctions. The loss of a close relative, for example, tends to cost about ½ a month of median household income, just like a mugging or attack, though about a third of households will experience the former in one year, and only about 3% the latter. Still, what’s striking are just how many risks there are in this segment. There are many kinds of risks that people need to be prepared to confront throughout the year. The diversity of those risks makes them difficult to insure against.

Figure 6: Urban incidence and severity: probability of population at risk experiencing event in one year (%) by median cost of one event (KSh)



⁸ See methodology note in Annex B for an explanation of calculations of probabilities and population at risk, along with some sensitivity analysis of these figures.

Figure 7: Rural incidence and severity, zoom: probability of population at risk experiencing event in one year (%) by median cost of one event (KSh)



Note: There are a large number of relatively low probability and low cost risk that low income families face.

When we narrow the time frame of observation to just the year of the Diaries, we see a very similar pattern, with a large number of low frequency, low value incidents.

Figure 8: Urban incidence and severity, zoom: probability of population at risk experiencing event in one year (%) by median cost of one event (KSh)

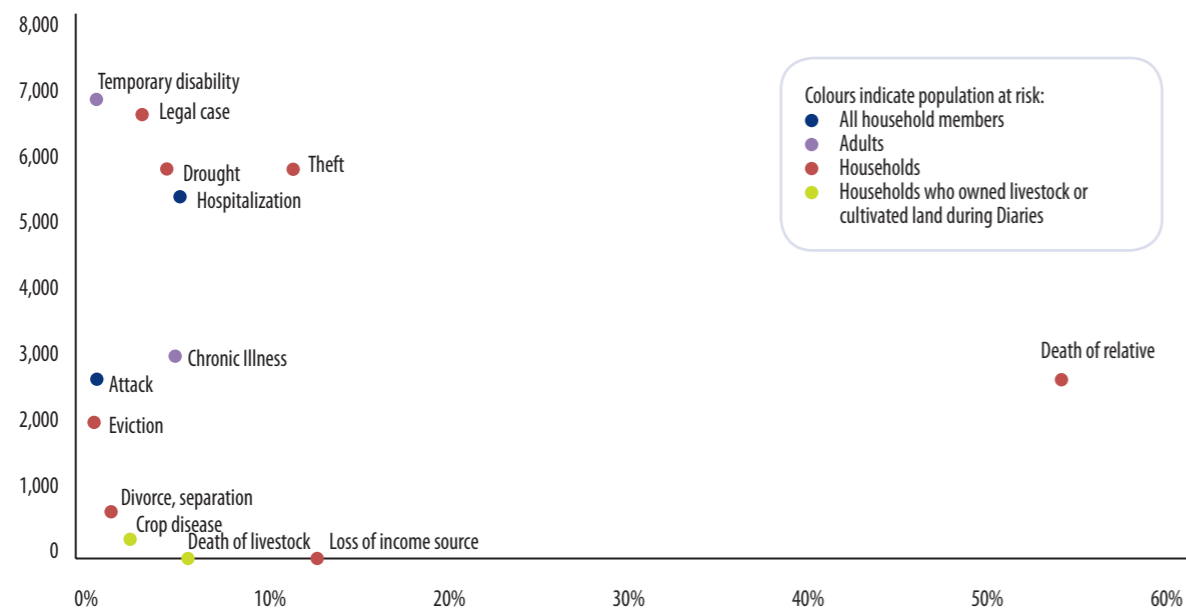
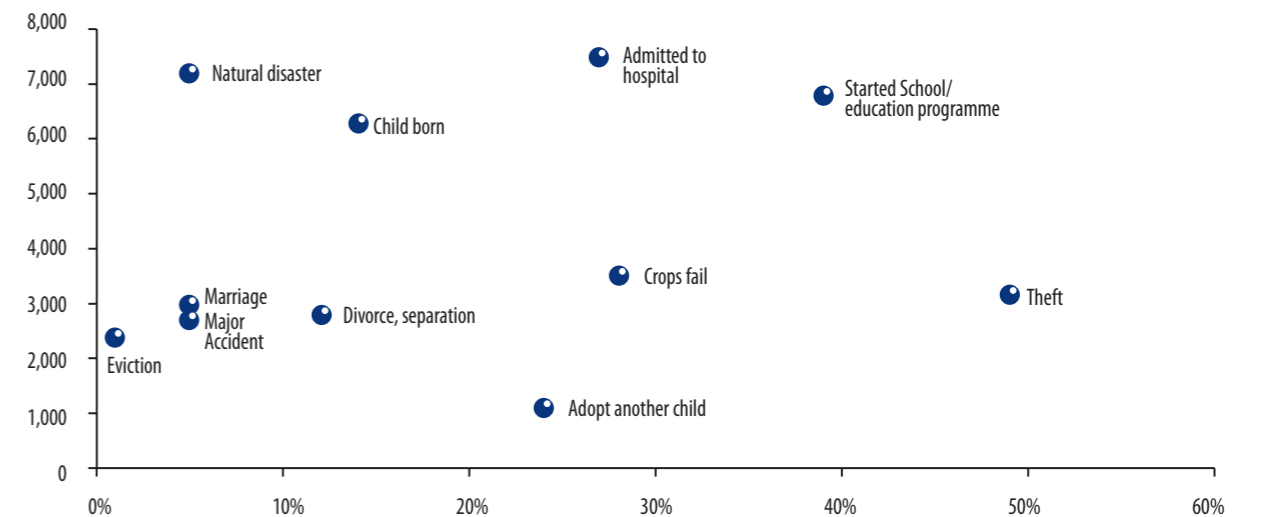


Figure 9: Frequency and impact (lower left), actual incidence by household during diaries year



Note: Diaries-year observations reveal a similar pattern of shock incidence and severity as the five-year recall data in the risk module.

In fact, for those events whose incidence and severity we can triangulate, we find very similar incidence when we look at five year recall, one year recall, and one year of observation during the Diaries. When it comes to hospitalizations,

five year recall seems to overestimate incidence. The same may appear true for agricultural losses, but what is perhaps more likely is that the previous five years included periods of drought not experienced in the shorter time intervals.

Table 1: Triangulation of event frequency and cost

Triangulation of event frequency and cost	Module (Frequency Ever, Median cost of each incident)				"Major Events" Observed (household, under observation)		"Life Events" (individual, yr before study)
	% Ever Experienced	% Experienced in Previous 5 Years	Cost (mean), KSh	Cost (median), KSh	Frequency in one year	Cost (mean)*, KSh	Frequency
Outpatient treatment	98%	94%	1,124	400	not measured	not measured	not measured
Death of close relative, friend	97%	71%	16,710	3,600	28%	KSh 3,206	26%
Death of main income earner	14%	3%	67,667	60,000	not separated	not separated	not separated
Admission to hospital	64%	42%	19,412	5,000	7%	KSh 7,508	6%
Livestock death	40%	30%	14,724	4,050	2%	KSh 15,524	7%
Chronic illness	26%	17%	14,776	1,000	not recorded in this way	not recorded in this way	not recorded in this way
Theft of assets	35%	26%	14,117	5,000	10%	KSh 1,977	9%
Mugging	13%	11%	11,841	3,100	not separated from theft	not separated from theft	not separated from theft

Table 1: Triangulation of event frequency and cost

Triangulation of event frequency and cost	Module (Frequency Ever, Median cost of each incident)				"Major Events" Observed (household, under observation)		"Life Events" (individual, yr before study)
	Frequency Ever	Median cost of each incident	Frequency Ever	Median cost of each incident	Frequency Ever	Median cost of each incident	Frequency Ever
Legal cases	20%	15%	18,485	1,950	--	--	--
Crop failure					6%	KSh 3,519	10%
Drought	37%	20%	11,028	3,250	not distinguished	not distinguished	not distinguished
Pests	23%	10%	2,126	540	not distinguished	not distinguished	not distinguished
Separate/divorce from spouse	14%	6%	3,984	-	3%	KSh 2,783	1%
Temporary disability	16%	7%	89,995	10,500	not measured	not measured	not measured
Major accident	--	--	--	--	2%	KSh 2,932	1%
Fire/disaster	9%	5%	70,659	4,000	2%	KSh 7,140	8%
Have child	not measured	not measured	not measured	not measured	4%	KSh 6,279	6%
Start/stop school	not measured	not measured	not measured	not measured	7%	KSh 6,773	6%
Adopt child	not measured	not measured	not measured	not measured	7%	KSh 1,087	5%

Note: In many ways, recall over five years is similar to that over one year and to observation over one year of biweekly Diaries visits.

But if we look at severity, we see overall trends of similar magnitude in severity, but some evidence that during recall, people may underestimate the costs and losses associated with a particular shock. For example, respondents seem to recall costs associated with hospitalizations being considerably lower during recall compared to our year of Diaries observation. Losses associated with livestock death and home fires seem to also be considerably lower. There may be other forces at play in this mismatch, but it is at least possible that memory makes past events feel less severe than they felt at the moment in which they happened or that we forget some of the costs associated with different kinds of shocks as time moves along.

Risks cluster into a few different categories based on those important dimensions of probability and severity.

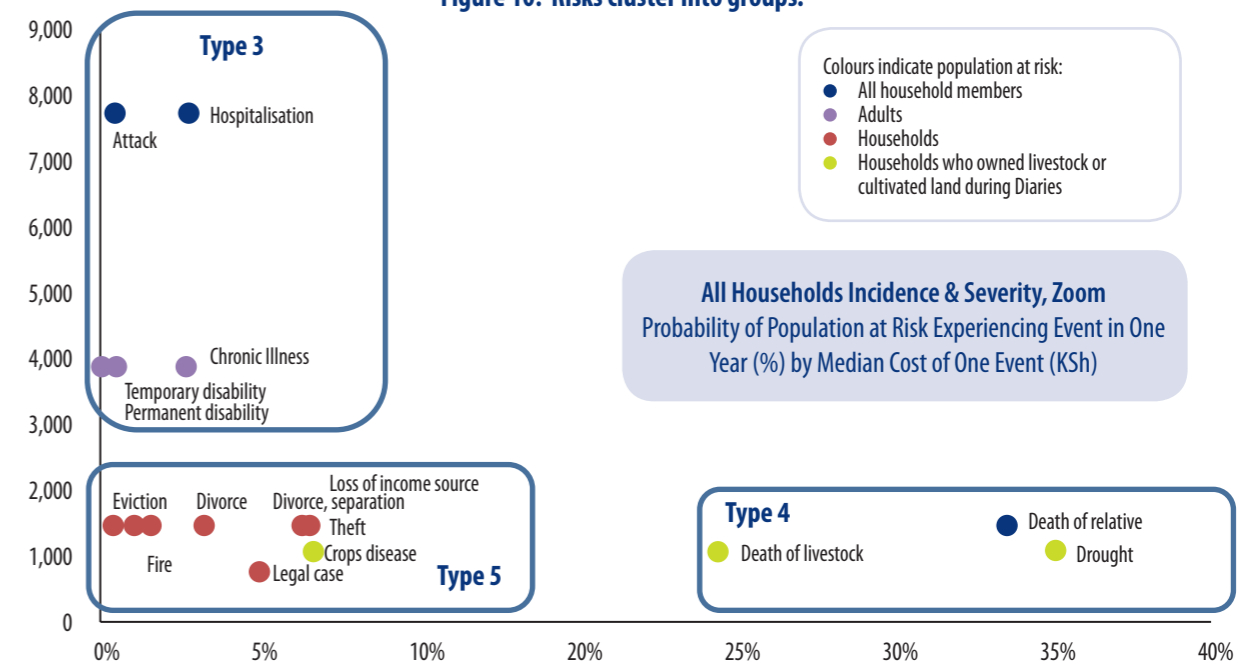
As we view these incidence-severity diagrams, we can see that risks cluster into five categories:

- Low frequency, High severity:** This covers the outlier risk of the death of the main income earner, and for urban households, fire. These risks strike infrequently, but are economically devastating when they do.
- High frequency, Low severity:** This is clearly the nature of outpatient medical care. Nearly all individuals will need this every year, but the per-incident cost is minor. (That does change, if we think about the total economic burden for a household in a year, which we will discuss later.)

- Low frequency, Moderate severity:** As we zoom in on Figure 10 below, we see that three more clusters appear as we zoom in on the other risks. In the upper left, we see a number of health-related risks and personal attacks (muggings). Individuals are less than 5% likely to experience these events in a given year, but if they do, the cost outlay is expected to be substantial, though not devastating necessarily, the way that the death of the main income earner so often is.
- High frequency, Low severity:** A large share of households can expect to lose a relative every year, and farming households are somewhat likely to experience drought and the loss of livestock. However, all three events entail relatively low new out of pocket expenses.⁹
- Low frequency, low severity:** The final cluster of risks are events that individually only happen rarely and tend to entail minimal costs. However, the large number of these means that there are a significant number of things like this that must be on the minds of low income people on a day-to-day basis. While individually, they may not be insurmountable, they could easily cause new and undue stress if they must be faced alongside other economic stressors in effected households.

⁹ That seems to be how most people think about costs and losses associated with these agricultural risks. We discuss this inclination more later in the paper.

Figure 10: Risks cluster into groups.



Understanding Outpatient Health Risks

Outpatient health risks are an outlying form of risk in their frequency. In fact, outpatient risks are so common that 33 of our respondents reported that they were so frequent they could not estimate how many times they sought such care over the previous five years. Because that is such a large number (none of the other risks had more than one household reporting an unknown frequency of incidents), we imputed the frequency of these events for those 33 households with the median number of outpatient visits in 5 years across the sample.

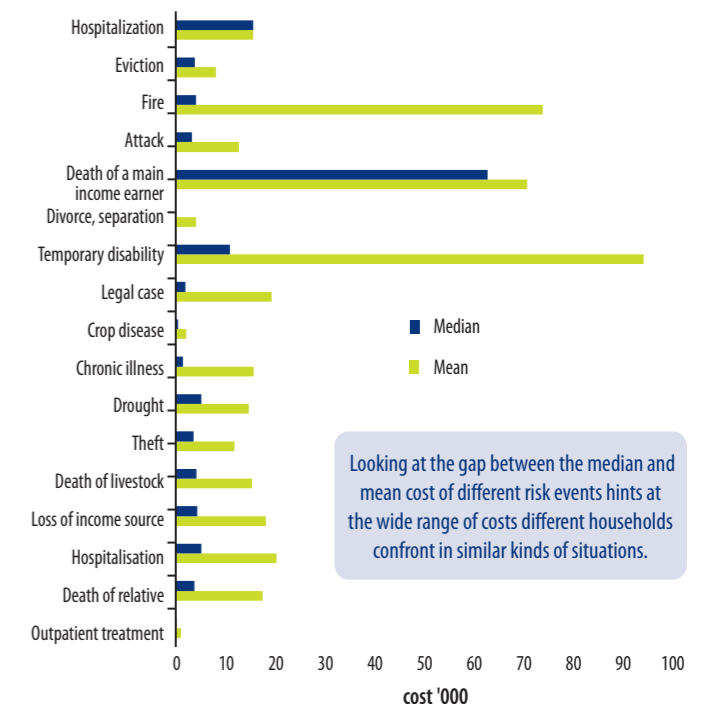
When using the population at risk method, we find the average person in our sample has a 90% chance of seeking outpatient care in any given year. Typical households in our sample actually seem to average about 4.7 visits per year, and only about 6% of households reported no use of outpatient care over the previous five years. This is clearly a need that is both universal, and though per visit costs are quite low, the cumulative cost to a household over the course of a year can become substantial.

The costs associated with many shocks is highly variable, further complicating people's ability to plan for them ex ante.

Another important observation about the nature of these varied risks is that the range of actual costs that might be incurred in any particular situation is very big. A histogram of costs would have very long tails. In Figure 11, we show both the mean and median costs for different types of risk events, and for many, this gap is very large. This is in part due to the small number of incidents reported over five years among an already small sample of

households. Still, it shows us that these risk experiences can be very diverse and even a single instance that is typically a small kind of loss for many, like an attack (or mugging), can be a much bigger setback for some.¹⁰

Figure 11: Mean vs. median cost of shock events in risk module (KSh)



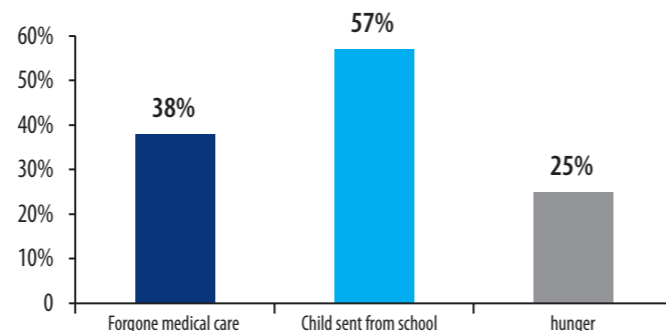
¹⁰ Many of the costs associated with a mugging have to do with the costs of medical care to treat injuries the victims sustain.

The full costs of shocks are difficult to measure. Sometimes the costs are non-financial in the form of forgoing or postponing necessary expenditures.

In our own conceptualization of what constitutes a shock, we were also somewhat biased in our approach, documenting most carefully those events with cash flow implications, for example, recording details about hospitalizations, but not necessarily the onset of a serious illness. But, we know that vulnerability does not manifest itself only in cash flows and quantitative measures of income and expenditure volatility. Sometimes the problem a household faces is an inability to stretch consumption expenditure upwards when really necessary. For example, when a household member is sick, but does not seek treatment because they can't afford to spend that money at that time. We also observed that a household can go hungry for a few days in a month for lack of small amounts of money, which may be virtually imperceptible in their aggregate spending for the month. In fact, many of our households exhibited these kinds of vulnerabilities at some point throughout the study.

The impact of foregone consumption can manifest itself in dips in consumption—the typical measure of vulnerability in many studies—but it doesn't necessarily. Instead, the impacts can be non-financial in the short term, but can trigger bigger shocks later and have long term implications that are sometimes difficult to measure. For example, foregone medical care can worsen a health situation, transforming into a bigger crisis months down the road. Forgoing food—or good food—for sustained periods can affect school performance and long-term nutrition related outcomes.

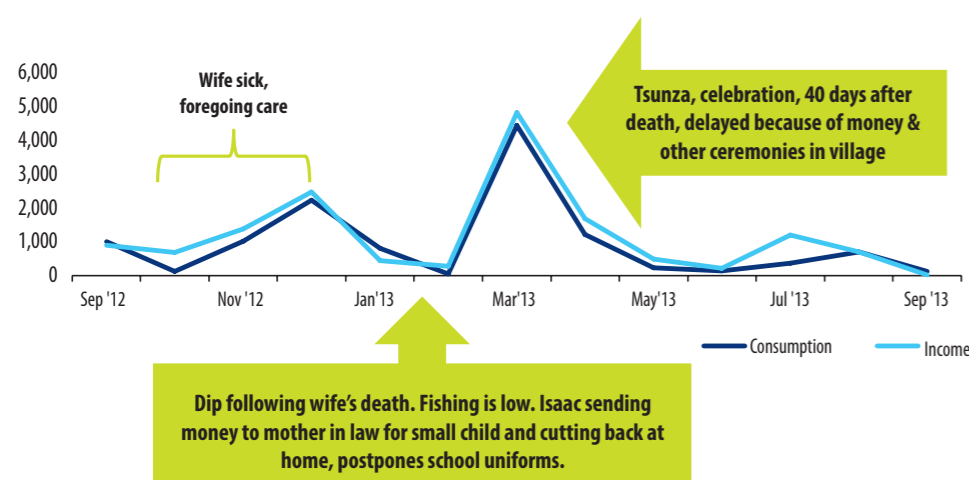
Figure 12: Share of households that experienced at least once during study



Note: Vulnerability is manifest not just when new expenses are incurred, but when some expenses must be delayed.

Foregone medical care was often in acute situations, like in the case of Isaac's wife. In September, she started having trouble swallowing and keeping down food. She went to the doctor several times, sometimes refusing to be admitted, because they could not afford the cost. After many visits, she was finally diagnosed with a tumour in her throat that would cost KSh 23,000 to remove, money they did not have. She went to rest at her mother's house while Isaac looked for money. During that period, consumption expenditures for the household were actually increasing. The family was stretching to meet their needs, but the biggest need of all, potentially life-saving surgery, was out of reach.

Figure 13: Isaac's household income and consumption over time



Note: Isaac's household income and consumption over time shows some unexpected peaks and valleys through his wife's illness, death, and burial.

At other times, forgoing care is the long delay of larger interventions and procedures for months or years at a time. Addressing the issue would require quite a significant stretch beyond the means of the household members and their combined social networks.

Fiona is a good example of this. She earns about KSh 3000 per month working as a cook at a church in her rural home, and her husband who does casual work in Nairobi sends an extra KSh 2500 per month to help. She spends more than 70% of her spending budget on school fees, stretching to get her children through school. Three of them are doing college level courses at various institutions. One of them had a daughter and left her with Fiona to continue her own education. Fiona also must stretch to pay the fees for that grandchild. Very little money is left for food and housing needs, much less medical care. Fiona has had a growth on her chin that has been growing for more than 20 years, but she cannot afford to have the surgery to have the growth removed and biopsied.

Traditionally, economists have tried to understand the impact of shocks on household welfare by measuring dips in consumption and consumption expenditure. Without also capturing important expenditures foregone, we may be underestimating some of those impacts and only seeing part of the picture. If we only look at shocks—particularly medical ones—at the point of care seeking or ultimate death, we may be missing opportunities to help manage risk earlier and avoid large scale impacts for affected families.

2.2 PERCEPTIONS OF RISK

The way people conceptualize the costs and losses associated with shocks has an important role in shaping their approach to managing risk.

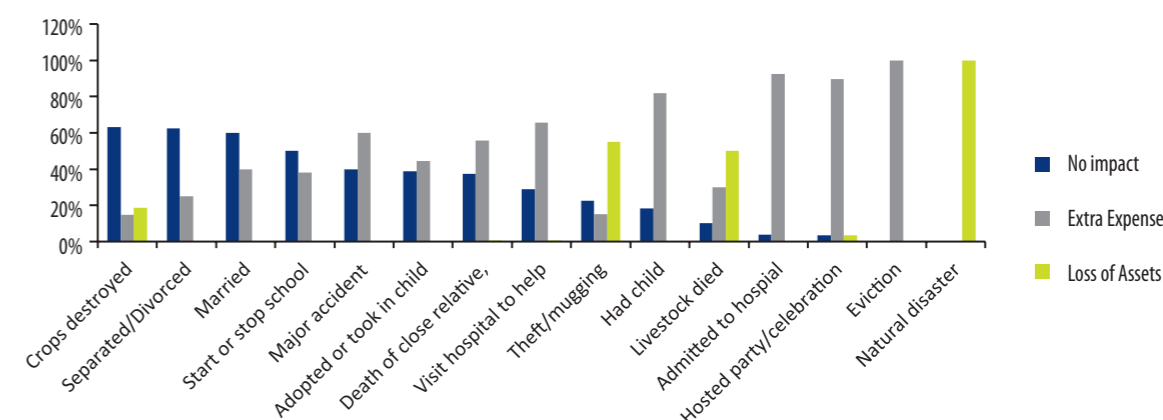
Another way that respondents' perceptions fail to match with the reality of

their economic situation is the way they think about the impact of a loss. Not only do they fail to account for lost income as we've already discussed, but they also often don't fully account mentally for the losses and extra expenses they incur in a shock. For example, 39% of those who took in an extra child for an extended period, felt it caused no change whatsoever to their financial position. They don't register the extra costs of feeding and caring for an additional person. Sixty-three percent of respondents who experienced crop failure felt it had no impact on them. They don't register the lost inputs, lost sales or food consumption, and lost labour resulting from such an event. Psychologically, this may make it easier to navigate through such a situation, but it makes the proposition for protecting against these kinds of shocks very difficult.

Levels of worry about a particular risk seem to be more closely tied to the impact of an event more than its probability.

In addition to measuring the incidence of severity of shocks, we asked respondents about their perceptions of shocks in terms of likelihood, cost, levels of worry, and preparedness (Table 2). When we compare those perceptions to actual events, we find some interesting results. The table below ranks risk events by the perceived likelihood of occurring. What we see when we do this is that some perceptions of likelihood—not all—are out of proportion to the actual experience of these kinds of events. Respondents seem to overestimate the likelihood of the death of the main income earner while he or she is still the main income earner and potentially underestimate the risk of theft of household assets and losing their main income source. Underestimation of risk likelihoods can lead to under-preparedness, but in these particular cases, there is not necessarily much that is within their control to reduce the likelihoods of these risks or be able to cope with them when they occur.

Figure 14: Perceived Nature of Main Economic Impact of Events by Type (% of instances)



Note: Many do not fully account for all the ways that shock events affect their finances. (Reported in Diaries Major Events during year of observation)

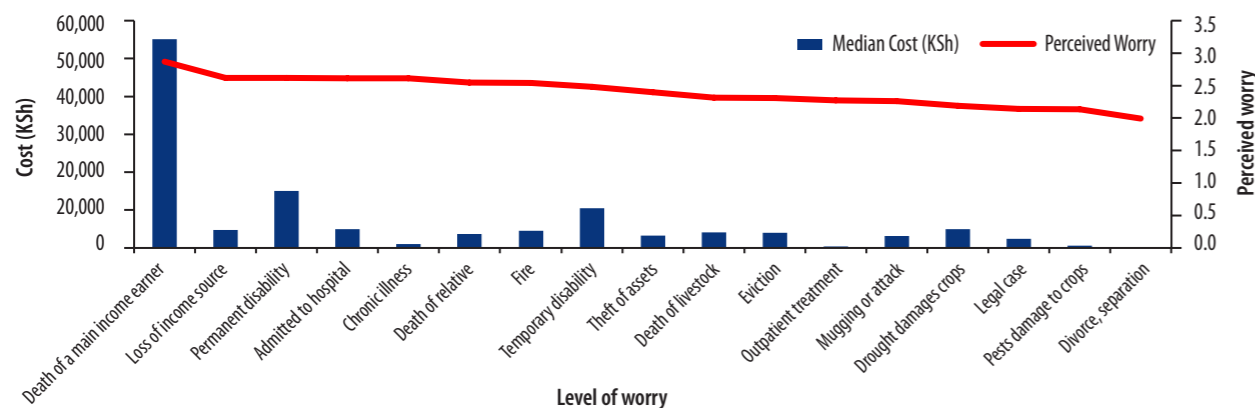
Table 2: Risk perceptions versus realities¹¹

	Perceived Likelihood ¹²	Perceived Worry ¹³	Actual Incidence (% ever experienced)	Mean Cost (KSh)	Median Cost (KSh)
Outpatient treatment	3.08	2.26	98%	1,124	400
Death of livestock	2.79	2.31	40%	14,724	4,050
Admitted to hospital	2.76	2.62	64%	19,412	5,000
Drought damages crops	2.74	2.17	35%	14,117	5,000
Death of close relative	2.71	2.54	97%	16,710	3,600
Pests damage crops	2.6	2.12	23%	2,126	540
Death of main income earner	2.56	2.88	14%	67,667	60,000
Loss of income source	2.53	2.62	54%	17,238	4,000
Chronic illness	2.53	2.62	26%	14,776	1,000
Permanent disability	2.44	2.62	1%	15,000	15,000
Temporary disability	2.43	2.48	16%	89,995	10,500
Fire	2.38	2.54	9%	70,659	4,000
Theft of assets	2.35	2.39	37%	11,028	3,250
Mugging or attack	2.26	2.25	13%	11,841	3,100
Legal cases	2.15	2.12	20%	18,485	1,950
Divorce or separation	1.91	1.97	14%	3,984	0
Eviction	1.87	2.3	4%	7,875	3,750

When we look at levels of worry across the different risks, we see first that respondents seem to worry about nearly all the risks. There's not a dramatic difference across the different types of risks we asked about. If we rank them by worry, however, we see that the risks that people worry about most are those with high economic severity, especially those events that interfere in the medium to long term with a household's ability to earn income.

We see another interesting discrepancy between perceptions and reality when looking at the risks that households consider most worrisome. In this case, households selected the one risk that concerned them greatest. Here again we see that the death of the main income earner ranks very highly. However, fire and eviction are also a very major concern for a large share of the sample, though both incidence and costs are relatively low. Perhaps here, the anxieties

Figure 15: Levels of worry against median cost (Ksh)

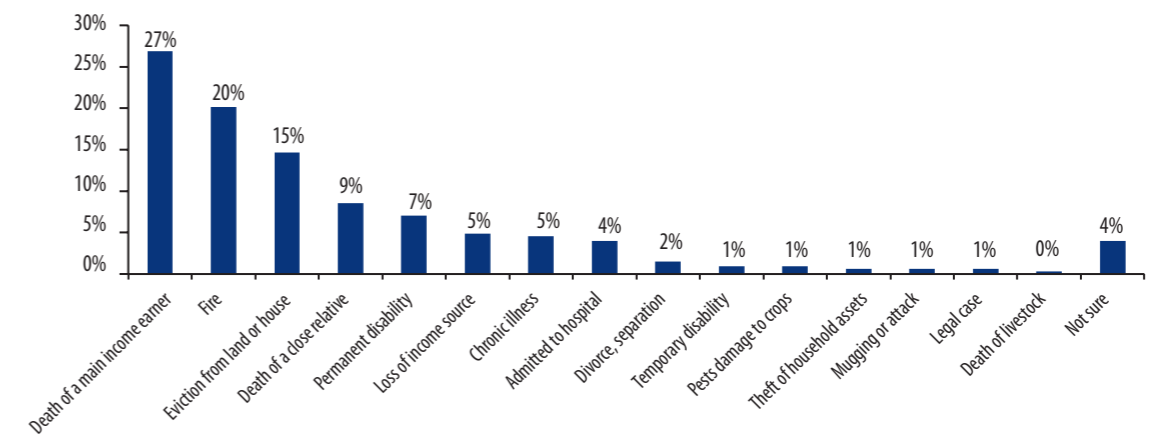


¹¹ Actual dispersion of perception variables can be found in Figures 27-28 in the annex.

¹² Based on four-point scale: 1=Very unlikely, 2=Unlikely, 3=Moderately likely, 4=Very likely.

¹³ Based on four-point scale: 1=Not at all worried, 2=A little worried, 3=Moderately worried, 4=Extremely worried.

Figure 16: Percent of respondents who consider this the most worrisome risk (%)



Note: Respondents worry most about the death of the main income earner, but fires and eviction also rank highly, even when they do not generally entail substantial costs.

come from the potential to cause major disruption, rather than pure economic losses and costs. When respondents talked about why they were so troubled by these kinds of losses they talked about how difficult and painful it would be to get back to where they started, even if immediate costs just to get by were not very big. Many of them told us that if these events happened, "I don't know where I would start from."

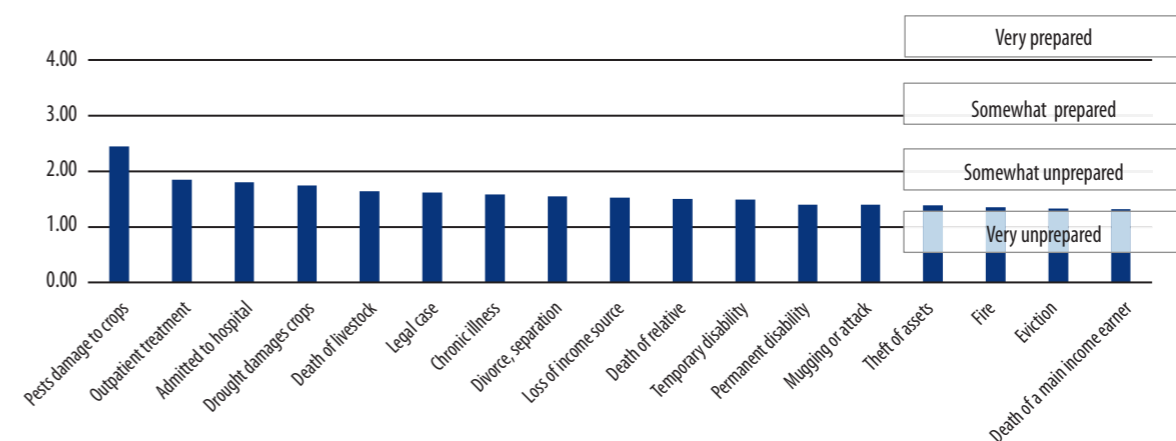
Quite a number of respondents also were quite worried about becoming disabled. During the study, all of these respondents were bringing money into the household in one form or another. They told us that they would much prefer to die than be disabled. The burden of caring for someone who is disabled can be very severe, with the lost income easier to manage than the extra cost of caring for someone. Many of them aid, "It is much better to die than be a burden."

It is very difficult to prepare fully for risks, and low-income people feel particularly underprepared for high cost episodes.

When we directly asked about our respondents' perceptions of risk—an important factor in being able to manage them ex ante—we found that they felt underprepared for most kinds of risks. Only for outpatient treatment did people feel—on average—somewhat prepared to cope with the shock. As you see in Figure 17, the others leave them quite uncertain about their capacity to cope.

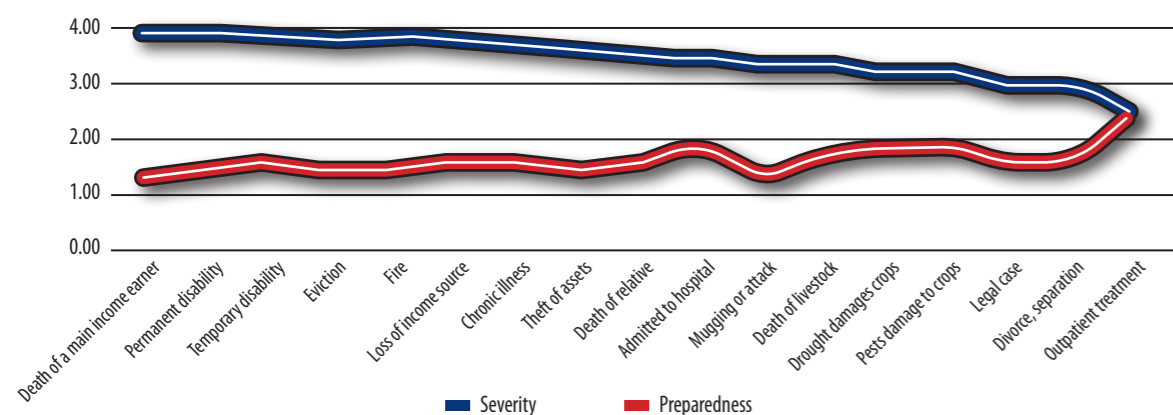
These degrees of under preparedness seem much more closely tied to the expected severity of the event than the frequency. Respondents feel most prepared for outpatient treatment costs, which are considered the least severe economically according to perception scores on a scale of 1-4. They feel least prepared for the death of the main income earner, quite rightly perceived as the highest severity event in the set.

Figure 17: Average preparedness scores by risk



Note: Diaries respondents feel underprepared for most shocks.

Figure 18: Average preparedness scores by risk



Note: Respondents feel more prepared for risks with lower expected costs.

It is interesting that we see less correlation with likelihood of an event or worry over an event. Respondents do not fail to prepare for catastrophe because they are unaware of the risks or because they do not worry about them. Instead, they are—as we already know—resourced constrained. They feel unprepared for high cost events. Those are the events where coming up with extra money is particularly difficult.

2.3 COPING WITH RISK

Preparing for risks ex ante is a big challenge.

Above we consider how prepared respondents feel to face risk. How prepared do they seem to truly be to confront risk in their lives? Another way to consider the relative severity of risks is to look at the average financial burden different kinds of risks induce for a typical household in a typical year. When we do this, we see that the top five most burdensome risks overall are outpatient treatment, drought, death of relatives, death of livestock, and hospitalizations.

Because of their frequency, the low cost events of outpatient care and death of relatives actually impose serious burdens on the average family.

When we look at risk burdens in this way, we also find that the sum of the expected annual risk burdens is quite substantial at KSh 7,953. This exceeds median monthly income for our sample of households, meaning that managing risks would consume more than a typical family earns in total for an entire month out of every year. Given the large share of resources that must go to expenditures on essentials—like food and housing and some would say education—this is a huge amount of money. It is so large, that we would expect that managing risk—and just these particular risks that we happened to measure and which are not comprehensive—would be a primary objective of financial management. And even if savvy managers managed to meet these needs on their own, they would be left with very limited financial resources for another critical piece of the money management agenda: investing!

Table 3: Average annual financial burden of risks

Risk Type	Unit	Typical household costs per year (KSh) ¹⁴
Outpatient treatment	All households	1,885
Drought	Producer households	1,720
Death of relative	All households	1,176
Death of livestock	Livestock owning households	901
Hospitalization	All households	840
Death of main income earner	All households	367

¹⁴ This measure takes the average rate of incidence per household per year times the median cost per incident.

Risk Type	Unit	Typical household costs per year (KSh) ¹⁴
Loss of income source	All households	291
Theft	All households	245
Temporary disability	All households	164
Attack	All households	86
Chronic illness	All households	82
Legal case	All households	73
Fire	All households	49
Crop disease	Producer households	36
Permanent disability	All households	20
Eviction	All households	18
Divorce, separation	All households	-

Low income people face tradeoffs in their financial management strategies between managing risk and investing in the future.

Of course, the costs of shocks do not in reality smooth themselves out over an annual basis in this way, which is one reason that they are so difficult to prepare for in advance. As we consider these aggregate costs, we can perhaps better understand why some may under-prepare for risk: while there is no imminent risk, it may be instead more important to invest, tying up money in a way that generates some future return.

The respondent households in our study are already faced with unpredictable and volatile incomes. They constantly face some fairly certain risks—like the need at some point in the year to cover outpatient medical care. Plus, there are a large number of medium-to-large scale shocks that could happen at any given moment. All of that risk mitigation must happen alongside investments in livelihoods and asset accumulation. And all of that money management must happen also in the context of scarcity. Low income families’ budgets are already committed to very basic expenses, so finding extra space to invest and save is no easy task.

While many were saving—at the median nearly 40 days’ worth of their income—much of that savings, about 90%—was actually held in illiquid form. This savings would be tied up in chamas or being used as security to access a loan. That money, while being saved, was doing something else at the moment—either securing a loan or helping a friend or neighbour make an economic investment. Calling on it in the event of an emergency is not possible. Instead, savings only becomes a major contributor to risk coping in the event of very small shocks—like outpatient care—or when the recovery costs can be delayed—as in the death of livestock.

And savings doesn’t always cover even small shocks. Often times the barriers preventing people from eating in a day, getting their child back in school after they are sent home, or getting outpatient care are very small, but still must be foregone and delayed. In the immediate term, families are constrained in how they cope with a small emergency by the resources they can tap immediately. They might have to delay purchasing malaria medication even when they have several thousand shillings saved in a SACCO. The money at the SACCO could take months or more to claim and involves giving up access to loans that the membership provides.

Faced with the tough balancing act that low income people must strike between ensuring liquidity from day to day and investing in the future, we see a preference to save for investment and to rely more heavily on small-scale informal borrowing for the liquidity function. By taking small loans from friends and family or even taking goods on credit from local shops, people could navigate through many—but not all—small scale disruptions. The flip side is that people are very cautious about borrowing for investments. Business plans don’t always work out, crops do not always make it to harvest. Faced with livelihoods so full of risk, borrowing to invest is intimidating. Things could go terribly wrong if they are unable to repay.

Savings is the main coping strategy for small shocks, but big ones typically draw on resources from the social network, which typically has a larger capacity.

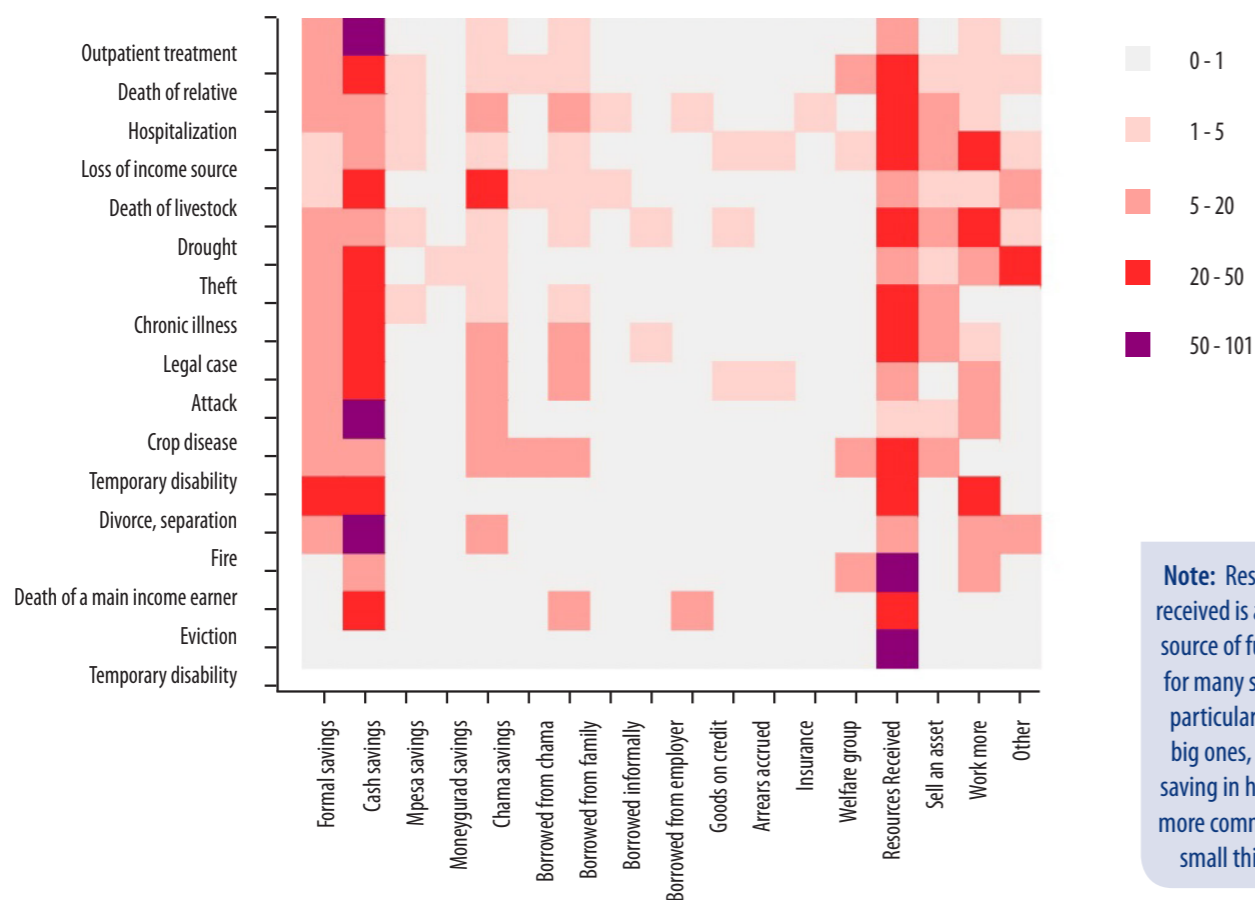
Once a shock event begins, low income people think about the resources available for getting through the period of increased financial stress. We’ve seen that the magnitude of funds needed varies from risk to risk, but so do

the resources available. Consider Isaac from Figure 13 above. His friends and family helped him to pay for his wife's early medical care, while she was in and out of the hospital for tests and diagnostics. But, once she was told she needed a surgery that would cost KSh 23,000, those funds slowed. The value seemed too far out of reach. Then after her death, the social network was again activated and immediately sent funds—in excess of the cost of the surgery—to help Isaac with the funeral.

The differential availability by need doesn't apply just to these resources from the social network. Borrowing can be constrained to certain types of needs, and insurance is also restricted to specific types of shocks. In the chart below, it's immediately clear that drawing on small scale savings in the house and calling on assistance from the social network (Resources Received) are very important. But, you see that for livestock deaths, chama payouts are very important, perhaps enabling those with a loss to purchase a new animal. Welfare groups were used by 9% of those who lost a close family member or friend, but barely register as sources of support for other kinds of incidents.

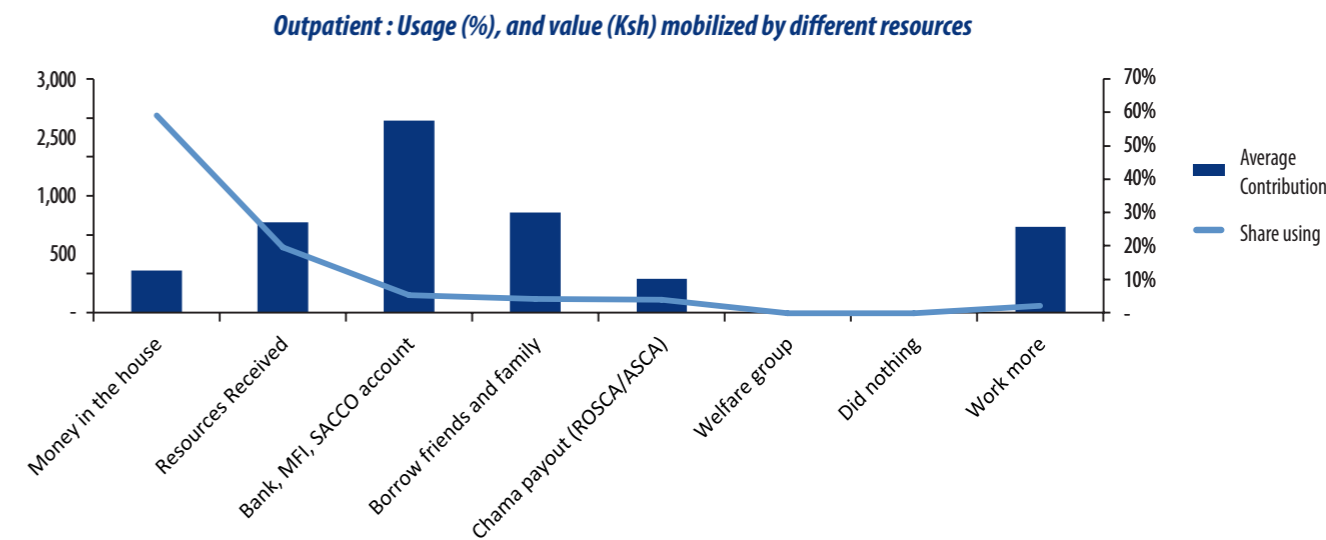
And, the scale of liquidity provided by different coping strategies also differs widely across types of needs and again across strategies. Below we show the top few coping strategies for each time of risk event that affected a relatively large number of respondents. We plot the value obtained from the coping strategy against the frequency of use. This highlights a couple of important trends: For many incidents, the most used strategy actually provides relatively little financial value. For example, money in the house is the main strategy for getting through a period of outpatient healthcare needs, but the amount obtained from that strategy is relatively small. If more money is needed, respondents need to turn to plan B & C, soliciting funds from the social network or tapping formal savings (if they have it). These strategies can provide more financing, but are used much less. These plots also highlight that for many of the resources that can provide large levels of liquidity, usage is much lower. This is probably a function of two things: the value needed for the specific event and also the access the respondent has to the larger pool of funds. Welfare groups, for example, can provide very large payouts, but only 9% of respondents who experienced the death of a close friend or relative used this as a coping strategy.

Figure 19: Frequency of resource usage by risk event (% of those who experience)

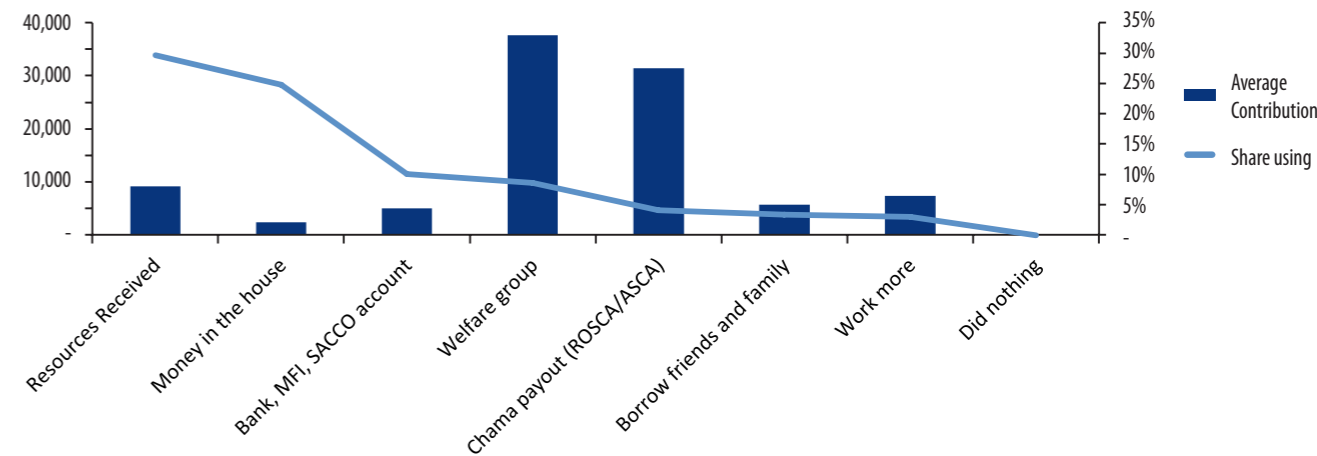


Note: Resources received is a major source of funding for many shocks, particularly the big ones, while saving in house is more common for small things.

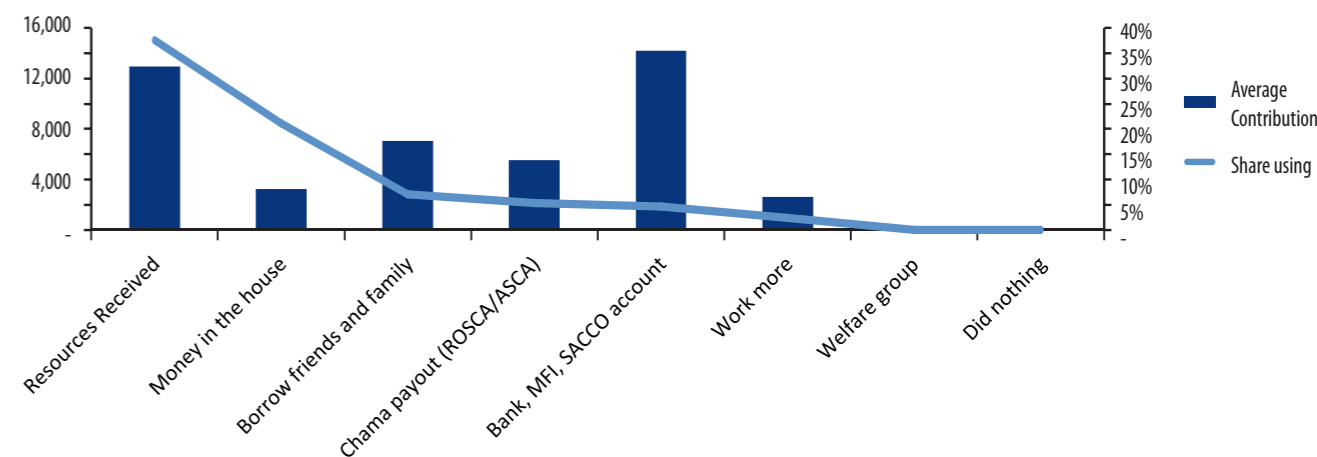
Figure 20: Value mobilized by different coping strategies by shock type



Death of a loved one: Usage (%), and value (Ksh) mobilized by different resources



Hospitalisation: Usage (%), and value (Ksh) mobilized by different resources



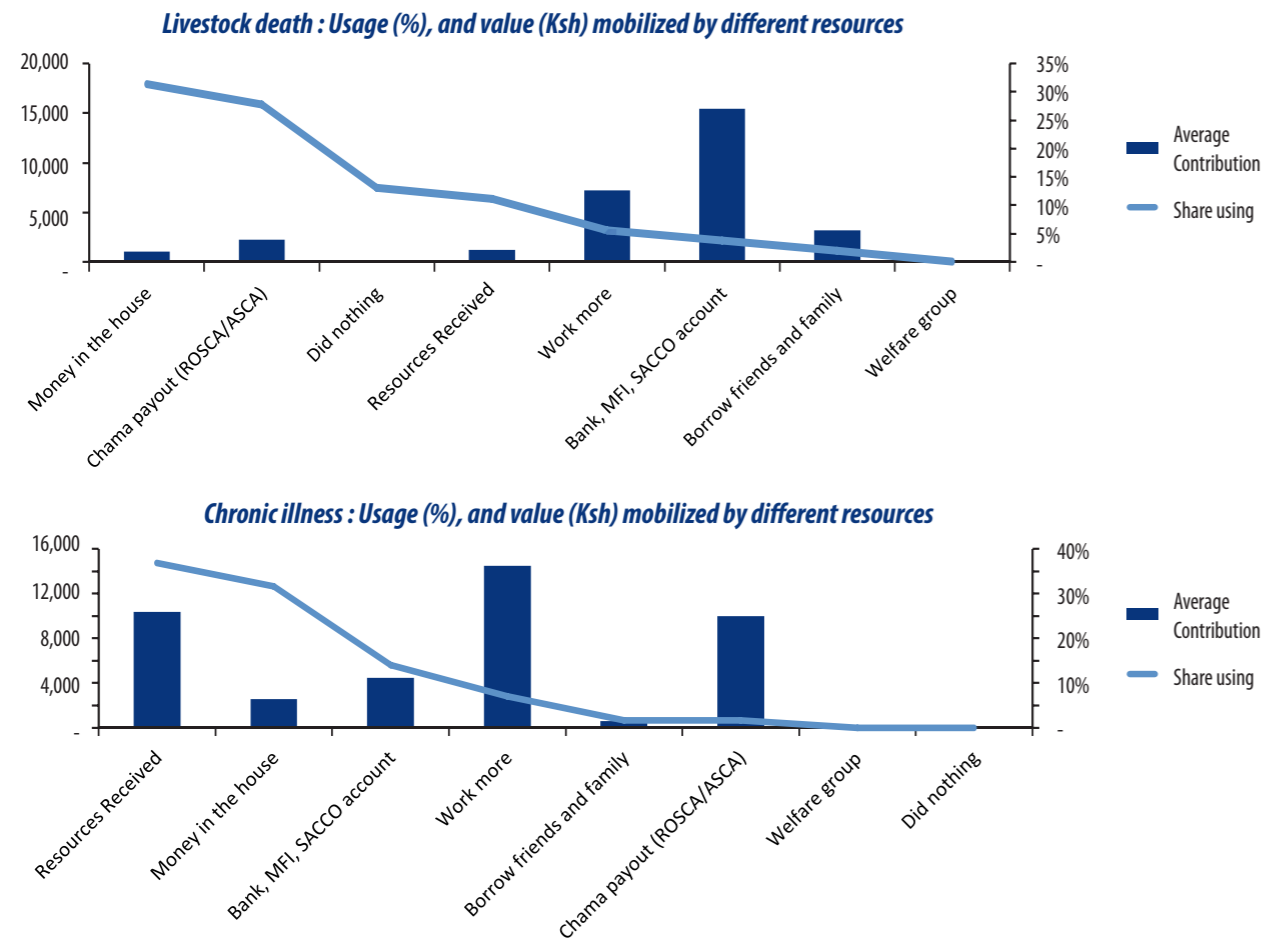
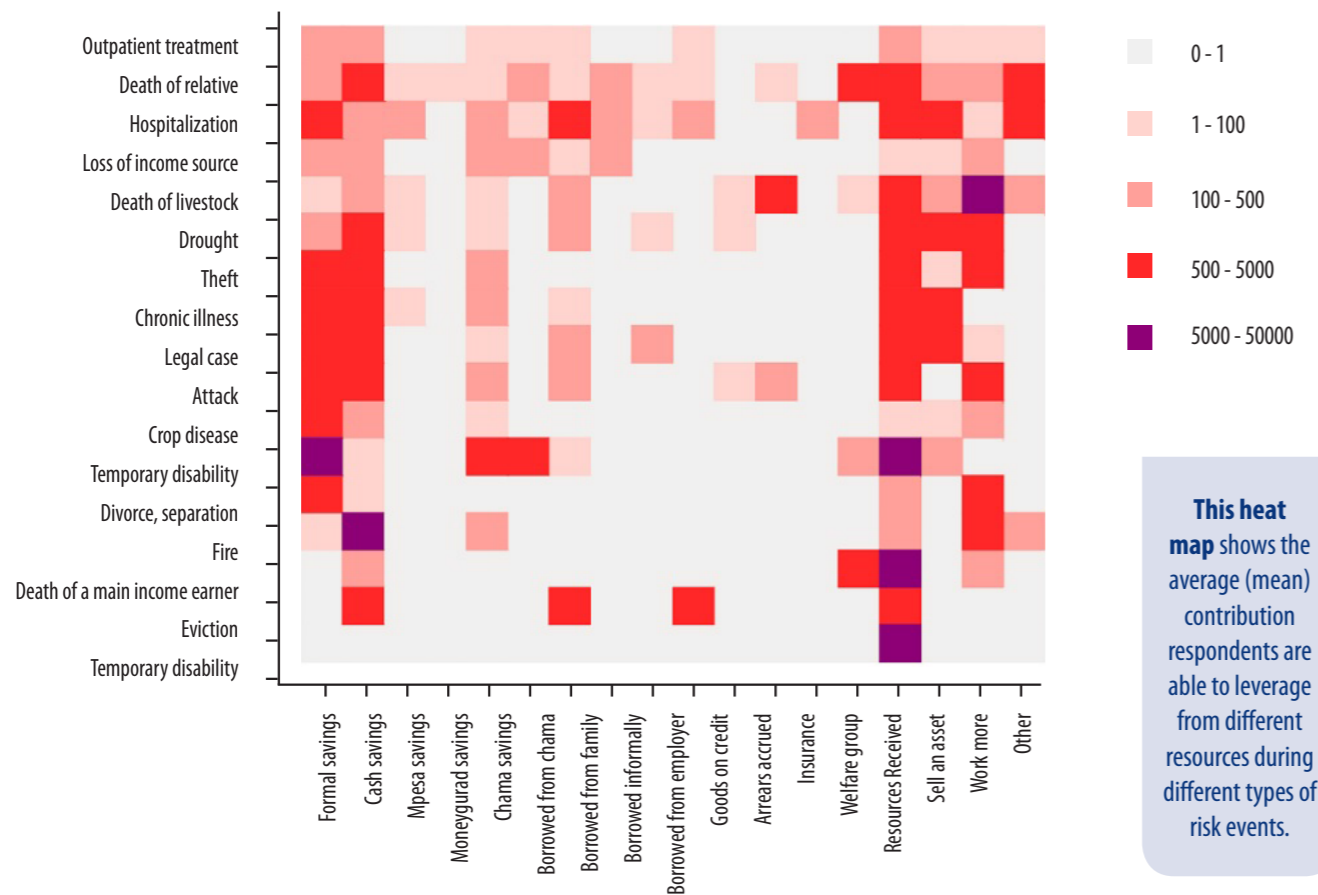


Figure 21: Contributions from resources by risk event, (Ksh)



Insurance is not widely used, but some forms of insurance—particularly health cover—are viewed positively.

Insurance is not ubiquitous in Kenya. FinAccess found that only 29% of urban and 11% of rural adults had any kind of insurance product. In FinAccess as well as the Diaries, the most widely used insurance was the National Hospital Insurance Fund (NHIF), a compulsory insurance programme for formal workers and one that others can also join voluntarily. To understand perceptions of insurance, we also asked whether respondents had ever had coverage. Twenty-eight percent of our households had NHIF at some time in the past. And, even though only 33% of them ever had a claim under the coverage, 93% of those who had it would still recommend it to others. They tend to view the product as useful; sometime you might be hospitalized and it will provide a substantial offset to what is sure to be a costly hospital bill.

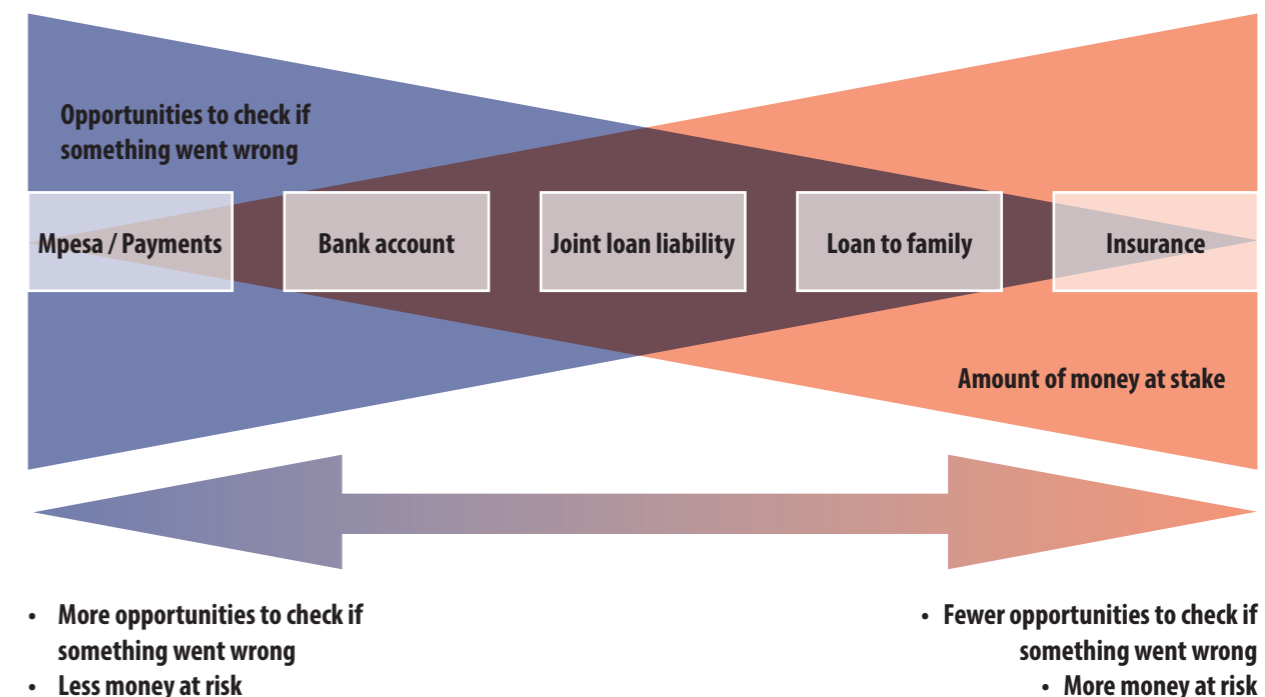
Still, we saw some challenges with NHIF. Most of our respondents who voluntarily contributed to NHIF had chronic health conditions like HIV and diabetes. In the case of HIV, for example, support groups had referred members to NHIF, and it feels like good value, since hospitalization feels almost inevitable for this group. In addition to this adverse selection, we also observed a few cases of outright fraud, with individuals registering and paying premiums after incurring the medical expense, after they were hospitalized, and even in one case, after the beneficiary had actually already died. Several respondents tried to use coverage that they actually could not. Payments had lapsed or been paid into group rather than appropriate individual accounts.

Respondents rarely checked on the status of their coverage until it was needed. Some simple communications and payment channel changes could alleviate some of these challenges, helping more people hold onto the coverage they already value.

Other forms of insurance—vehicle, life, crop and livestock—were less well-known, much less used, and less valued. We believe there are a few practical reasons for this. First, is that insurance is a relatively new kind of thing, and unlike many of the financial tools people already use, it is difficult to test and therefore accumulate trust. Many payments may have to be made before a person initiates a claims process and discovers whether the product will actually work the way they expected. This trust dynamic can be shifted, though, by communications strategies that confirm coverage and increasing the “touches” a customer receives, particularly early on in the insurance relationship.

Second is that people seem to have a preference to channel their money where they believe it is “working.” They do not have enough money to do everything they want to do and get by on already tight budgets. When making choices about which financial devices to use, they seem to prioritize those that seem to provide immediate value, not just the promise of a future benefit. Insurance faces some of the same challenges as savings in that it feels as if it means sacrifice now in exchange for some future and uncertain benefit. It may feel almost wasteful not to channel those funds to some more pressing need or to an investment that will put you in a better position to cope with future shocks.

Figure 22: Spectrum of financial product testability



This impulse could be better fulfilled if customers felt that their coverage provided some immediate benefits, perhaps in the form of value add services, rather than only in the event of a major shock.

Even though gifts from the social network represent the most used and most substantial coping mechanism for moderate to large shocks, the coverage it currently provides is imperfect.

In these imperfections, we see space for service providers to enhance existing solutions and offer complements:

Defect 1: Network can react slowly

In Isaac’s case above, we saw that the network reacted slowly to the expenses relating to the surgery that might have saved his wife’s life, though it worked very efficiently in managing the expenses of her burial. When it comes to needs like Isaac’s, we see that information asymmetries—particularly relating to health issues—may inhibit efficient functioning of the network. Potential givers are not sure the urgency of the problem, the true size of the funding gap, whether funds contributed will go to the intended purpose, whether the full sum can be reached by the entire network, and whether the medical care will be effective even if it is administered. We do not know which of these information asymmetries is the biggest barrier, but at least some of these can be corrected.

Unlike with medical care, deaths send very clear signals to the social network about a verified need. There are strong norms surrounding funeral-related giving that indicate how much different members of the social network ought to contribute, and funeral expenditures can be restricted to the budget available for spending, whereas medical expenses tend to be fixed to the cost of the explicit need.

Considering these factors can help us classify the nature of different shocks to understand better the signals and responsiveness of the social network. Consider three very common shocks. All three are different in terms of the audience of contributors, nature of the fundraising need, and clarity in signalling the need for contributions.

	Death	Moderate to Large Health Need	Drought
Size of network called upon	Very large	Small to medium	Small if at all
Flexibility of spending need	Flexible	Not flexible	Flexible
Clarity of signalling	Very clear	Uncertain	Uncertain

Defect 2: Not everyone is covered.

While gifts and remittances from the social network are the main source of income for 27% of Diaries households, it accounted for less than 5% of income for 30% of households. Eleven percent of households received nothing at all from their social networks throughout the year. Some that receive little from their networks are better off than others. Still, the median income for this group was only KSh 10,525, hardly “rich” and still certainly in need of support during a crisis. And, 35% of the members of this low-receiving group had incomes that were below the average. Here, we suspect that their social networks are small and low-capacity—perhaps crippled by some kind of social fallout around divorce or post-election violence.

We also see that fewer than half of men receive any kind of gifts or remittances from the social network. The share of women receiving this type of income and the magnitude of those inflows is much higher for women. Men may not benefit as much from these gifts both because they are too proud to ask for help and because members of the network may be less inclined to give, concerned that men may not use the funds as the givers intend.

Defect 3: Reliance on the network can hold back the upwardly mobile.

Even within the low-income Diaries sample, we have both net givers and net receivers and see that net givers tend to be slightly better off. But, their giving capacity is still constrained. When bad things happen within their social networks, it is these moderately better off people that bear much of the financial burden for navigating the shock. And, sometimes, that can be a major setback to their own investments which might have helped them climb further out of poverty. Reliance only on the social network then just pushes burdens to the slightly better off within the network.

Defect 4: The size of the risk pool can be too small.

Sometimes the needs that low income people face are very large even relative to the fundraising capacities of their social networks. In these types of cases, a much bigger and more diverse pool of risk sharing would be necessary to make financing the need possible.

One example of this is Robert. Robert is a four year old boy with a heart defect. Unsure of what was wrong, his family held a harambee (group fundraising event) to raise funds for his diagnosis and treatment. This family of very little means was able to raise KSh 15,000, which they used to take Robert for consultations and appropriate tests. The tests revealed a heart defect requiring a surgery that would cost about KSh 500,000, more than 30 times what their network was able to raise.

Failures to manage risk has long term reverberations on families’ economic trajectories.

We also know that the impact of not being able to successfully get through these periods of need can have long-term implications. This was perhaps most salient among our respondents when inadequate financing of outpatient care or hospitalizations led to untimely death. The death of the main income earner, as many respondents told us, can be truly devastating by cutting out a major source of income while also increasing dependency ratios within the household. Add in another few of those low incidence low value shocks over a few years, and a household can find itself on a downward trajectory from which it’s very difficult to recover relying on their own devices.

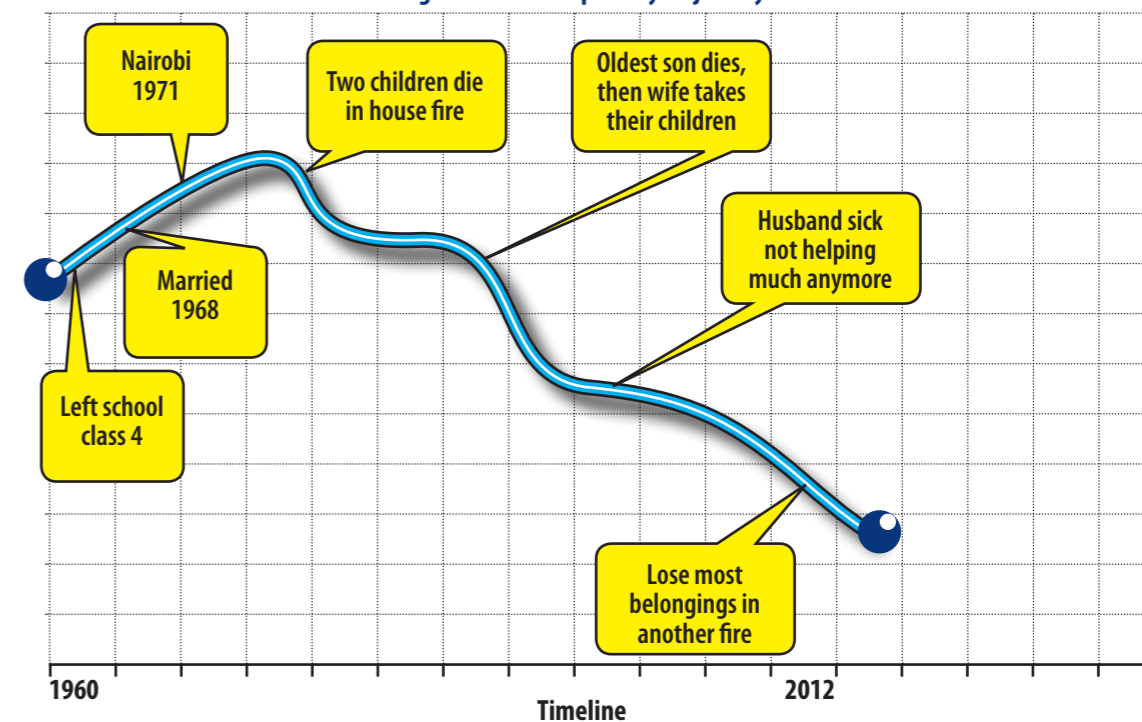
Faith is the head of the household for one of our lowest income families. She lives in Nairobi with her surviving children and several grandchildren. She makes a living selling medicinal herbs and charcoal. As she recounts her life, she tells us that things seemed to be really getting better for her when she got married and came to Nairobi. In Nairobi, she got a job for a time at a cannery

that helped to stabilize the family’s income, complementing her husband’s income from fishing. But, things started to get complicated after two of her children died in a horrible fire that swept through the slum where they were living. Faith left her job and took the bodies upcountry to bury them and to grieve. Not long after her oldest son and his wife both die (presumably from HIV), and Faith takes in their children.

Faith had used the money she saved when working to buy a piece of land upcountry; she’s glad she did so she could bury the children and retreat there when things got tough. But, she feels she must stay in Nairobi until her grandchildren finish school. Life has been getting harder and harder. One of her sons has become an alcoholic who still eats at her home, though he doesn’t contribute, and her husband has been sending less money now that he is older, also sick, and seems to have another wife in the town not far from Nairobi where he does his fishing. On top of all this, just as the study was starting, she was dealt another blow when a fire again swept through her home. She doesn’t have many assets there, but it was still disruptive. Despite renting the home since 1971, the landlord did nothing to repair the space. She relied on help from NGOs and politicians—lucky it was an election year—to fix things up again.

Over the course of a lifetime, many different shocks marked key moments where Faith’s fortunes changed. And better coping strategies at some of these key moments might have helped her hold her ground and perhaps even improve her economic situation. Imagine how things could be different if her

Figure 23: Faith’s poverty trajectory



son and his wife were treated for HIV and hadn't died, leaving their children to be raised by Faith. Imagine if her other son had been able to recover from his alcoholism and move from draining to generating household resources? The shock we observed in the Diaries year, the second fire destroying her

belongings, was just one more blow on a family already devastated by many other compounding shocks. Comparatively, it was not much of a big deal; by the time the fire came, they had little left to lose.

Chapter 3

NEW APPROACHES TO MANAGING RISK

Insights from Financial Diaries in Kenya have shown us that managing risk is a difficult challenge for low income people. The risks they face are many and diverse and the direct costs and full economic impact difficult to predict in advance. While the death of the main income earner stands out as the risk that entails the heaviest costs, it is a type of shock managed relatively well—at least in the immediate aftermath of the shock—by the social network. On the other hand, outpatient medical events have the highest frequency. Often families are able to cope with a single outpatient visit with their limited liquid savings, but when such episodes require more than one visit to a health provider or escalate into a larger scale health need, traditional financing mechanisms often fall short. We observe many households foregoing or postponing care, sometimes with tragic consequences. Helping low income people manage these health risks should be a focus for insurers seeking to maximize client value in the low income segment.

Low income people make tradeoffs between investing and risk management. It's difficult to say what balance they should strike. But, from what we understand about how low income people think about and navigate the risks in their lives, we can imagine that there would be value in diverting some financial flows to risk management, particularly for the types of risks with long term reverberations and where existing coping mechanisms fall short. And, those risk management strategies will be much more attractive to low income people if the benefits feel clear, certain, and to some extent, immediate. Putting aside resources for an uncertain claim in the future is much more attractive if consumers feel their money is “working” for them today.

Particularly when it comes to medical issues, financial risk management solutions may also provide an entry point for addressing quality of care challenges. They might introduce telemedicine that helps educate consumers about their health issues and make better treatment choices. Linking payments to provider treatment directly, they might help ensure documentation of a diagnosis and treatment plan on each visit, enabling better monitoring of diagnoses and prescriptions to check for adherence to protocols. They might even require some disclosure to patients about their illness and course of treatment, helping turn each interaction with a healthcare provider into a learning experience for patients, potentially helping them take greater control of their own preventative health care.

Even apart from these two outlier types of risks, we find that families face a large number of moderate severity, moderate frequency risks, which are ill-suited for single purpose insurance products. Here, composite coverage products may be helpful, but may also be too expensive for people already making tradeoffs among good investment choices. One type of risk management solution for these kinds of risks would be a combined savings/insurance composite product that provided a clear lump sum upon the occurrence of a verifiable trigger event. This fund, could be called something like a “start over” fund, that boosts existing savings and helps a family navigate through a particularly hard time, helping restoring standards of living degraded by a shock. Non-

insurance risk management strategies, such as payments solutions that help alleviate information asymmetries in the social network, may also be very helpful by helping the existing coping strategies people already use to work even better.¹⁵

Risk management solutions introduced in this market can leverage on clients existing behaviours and inclinations to make their products more appealing and more impactful. For example, recognizing that the burden of managing health and death shocks falls upon moderately better off kin, providers might target remittance senders rather than low income people themselves in the marketing of risk management solutions. For example, a son who sends money regularly to his parents upcountry might find being able to pay for health insurance coverage for his parents through regular payroll deductions a very good and very attractive investment. He has more capacity to pay for coverage and is essentially protecting himself from unexpected and very high out of pocket expenses to care for his parents when they need it.

Insurance can be particularly helpful for larger scale risks, where a large pool of risk sharing is needed to deal with costly incidents. But, to make insurance work in this market, customers need to feel their money is working for them and that premium investments also deliver value in the present, not just if and when tragedy strikes sometime in the future. Payments need to be smooth and almost unnoticed, and the process of enrolment, maintaining coverage, and making claims needs to be exceptionally smooth and simple. Bundling insurance products to credit, savings, even airtime usage can be a helpful way to introduce a larger number of low income people to insurance for the first time. However, poor experiences with such products can poison the well, turning large numbers of people off to insurance. Especially when it comes to bundled insurance, providers should take pains to ensure their clients understand the terms of their coverage, when they are and are not covered, and that registration and claims processes are fluid, transparent, and painless processes, reinforcing client trust with each usage. Particularly for clients new to insurance, leveraging what we know about how low income consumers think about risk can help marketers develop messages that connect and resonate with this new market, helping them understand the products and think about how they might fit in the context of their broader portfolios.

The public sector also has a role to play. Government's efforts to extend access to preventative care and extending the reach of social safety nets can reduce the risks that low income people face and provide them with more predictable futures around which it is much easier to plan. The Kenyan government's National Health Insurance Fund (NHIF) can also be bolstered by expanding its net to a broader pool of beneficiaries, improving communications about coverage, and reducing incidence of fraud that may undermine the scheme's longer term viability.

¹⁵ Composite products can boost client value, but can be difficult to implement. In their paper, *Creating client value: Ten blueprints for microinsurance providers*, Impact Insurance suggests some prerequisites for successful composite products. <http://www.microinsurancefacility.org/publications/cyb2>

Annex A

ADDITIONAL SELECTED FIGURES

Figure 24: Prevalence of shocks in the last year and the last 5 years.

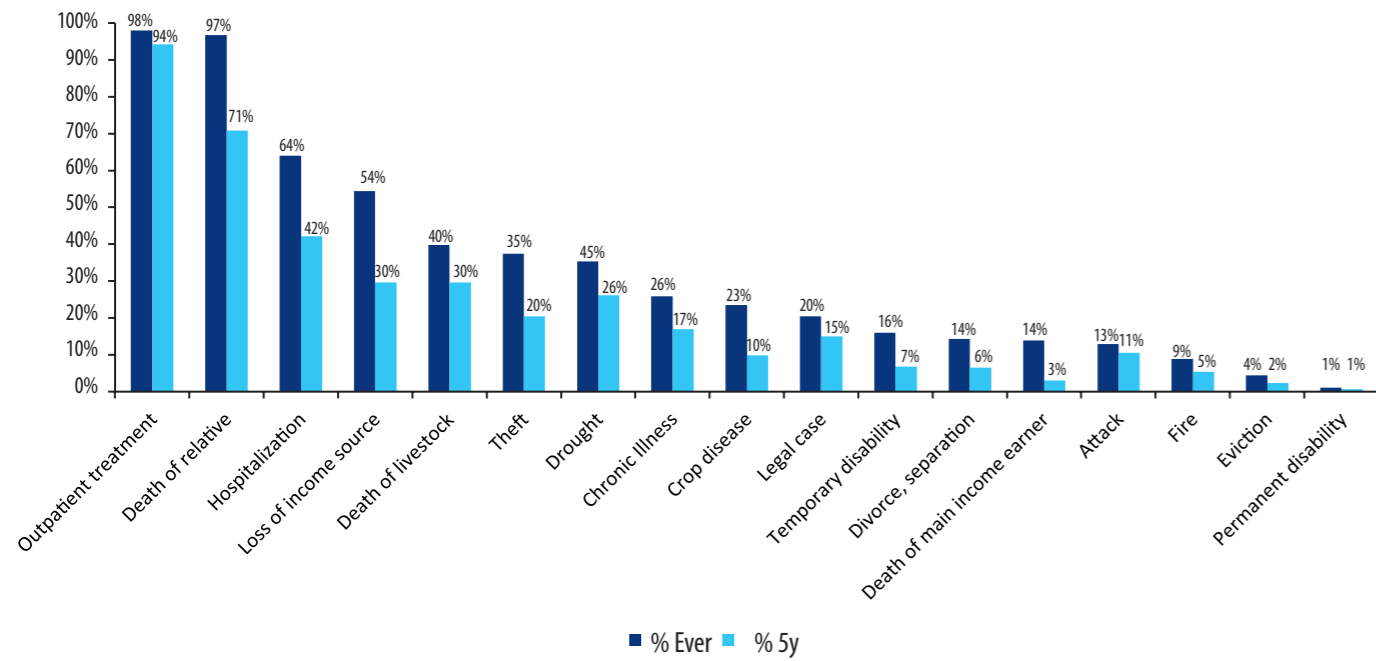
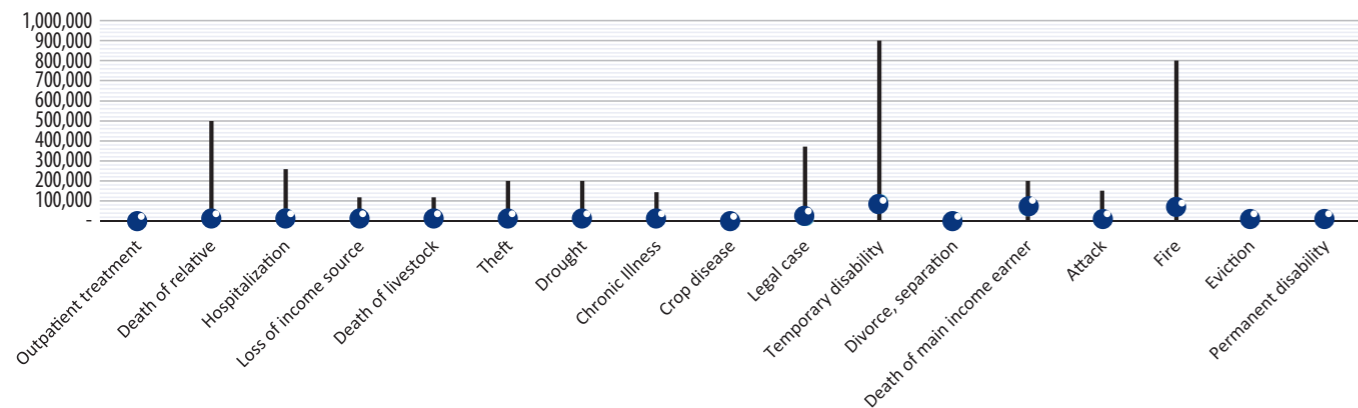
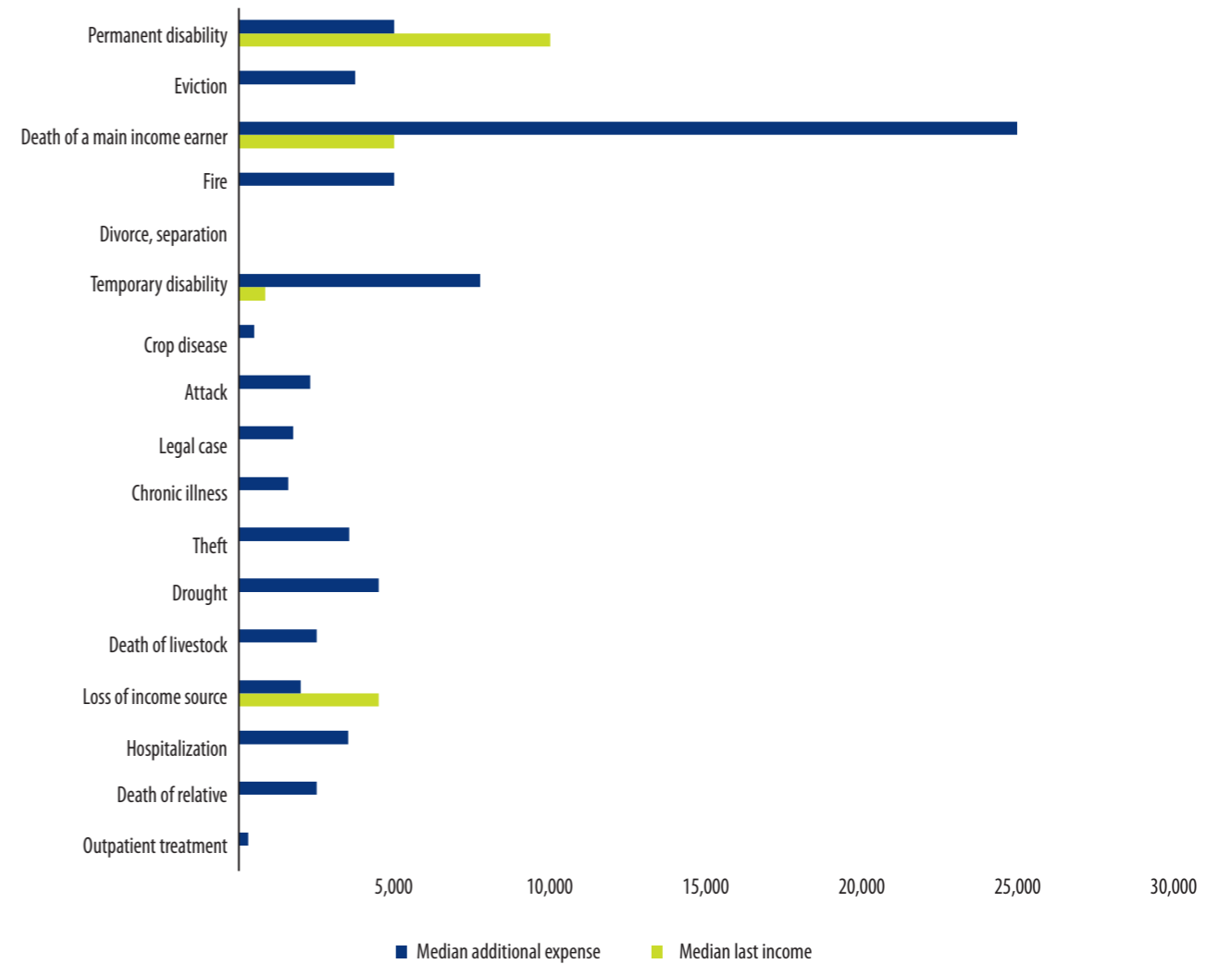


Figure 25: Range of shock costs reported in risk module (KSh)



Note: Note that many shocks have long tails.

Figure 26: Median additional expense vs. median lost income by event (KSh)



Note: Looking at expenses versus lost income, it is clear that for most cases, the out of pocket expense of the shock has a higher impact than lost income.

Table 4: Detailed view of coping strategies by top shocks.

Coping strategies and value mobilized by shock type										
Strategies	Outpatient		Death of loved one		Hospitalization		Livestock death		Chronic illness	
	Share	Avg. contrib.	Share	Avg. contrib.	Share	Avg. contrib.	Share	Avg. contrib.	Share	Avg. contrib.
Money in the house	59%	542	25%	2,355	21%	3,215	31%	994	32%	2,562
Resources Received	20%	1,158	30%	9,199	38%	12,988	11%	1,217	37%	10,395
Bank, MFI, SACCO account	5%	2,470	10%	5,007	5%	14,188	4%	15,500	14%	4,500
Borrow friends and family	4%	1,288	3%	5,633	7%	7,050	2%	3,150	2%	600
Chama payout (ROSCA/ASCA)	4%	439	4%	31,518	5%	5,544	28%	2,220	2%	10,000
Work more	2%	1,100	3%	7,375	2%	2,625	6%	7,167	7%	14,525
M-PESA savings	1%	1,825	2%	1,900	4%	2,143	0%	-	2%	500
Borrow from employer	1%	190	1%	7,500	2%	9,500	0%	-	0%	-
Sell an Asset	1%	550	3%	8,275	4%	10,214	2%	3,000	5%	8,450
Chama loan	0%	2,000	1%	8,000	2%	5,033	2%	26,000	0%	-
Goods on credit	0%	100	0%	-	0%	-	0%	-	0%	-
Arrears	0%	100	3%	8,188	0%	-	0%	-	0%	-
Money guard	0%	-	0%	4,000	0%	-	0%	-	0%	-
Borrow from bank/mfi/sacco	0%	-	0%	50,000	4%	13,000	2%	16,000	0%	-
Borrow from moneylender	0%	-	0%	2,700	1%	3,000	0%	-	0%	-
Borrow M-Shwari	0%	-	0%	-	0%	-	0%	-	0%	-
Insurance	0%	-	0%	-	3%	4,720	0%	-	0%	-
Welfare group	0%	-	9%	37,739	0%	-	0%	-	0%	-
Harambee	0%	-	5%	26,100	0%	-	0%	-	0%	-
Other (free care, prize)	0%	620	0%	-	2%	63,500	0%	-	0%	-
Did nothing	0%	-	0%	-	0%	-	13%	-	0%	-

Figure 27: Only a few risks are perceived as likely, but many are viewed as potentially quite costly.

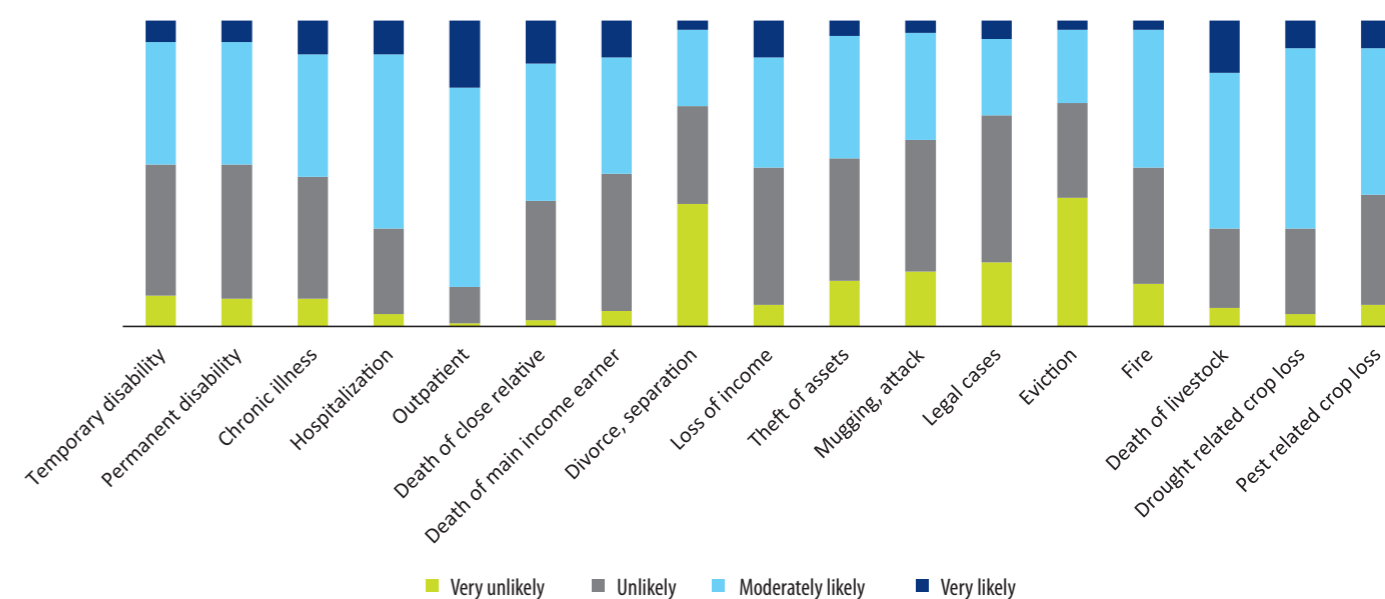


Figure 28: Perceived severity (% responses)

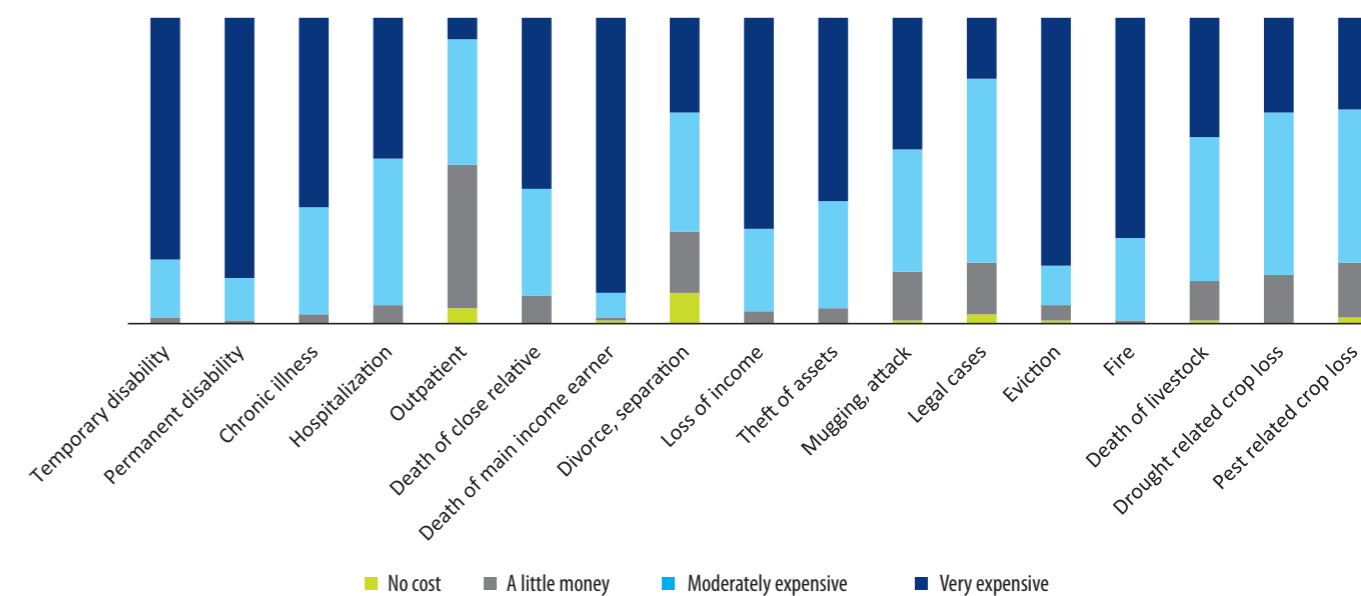
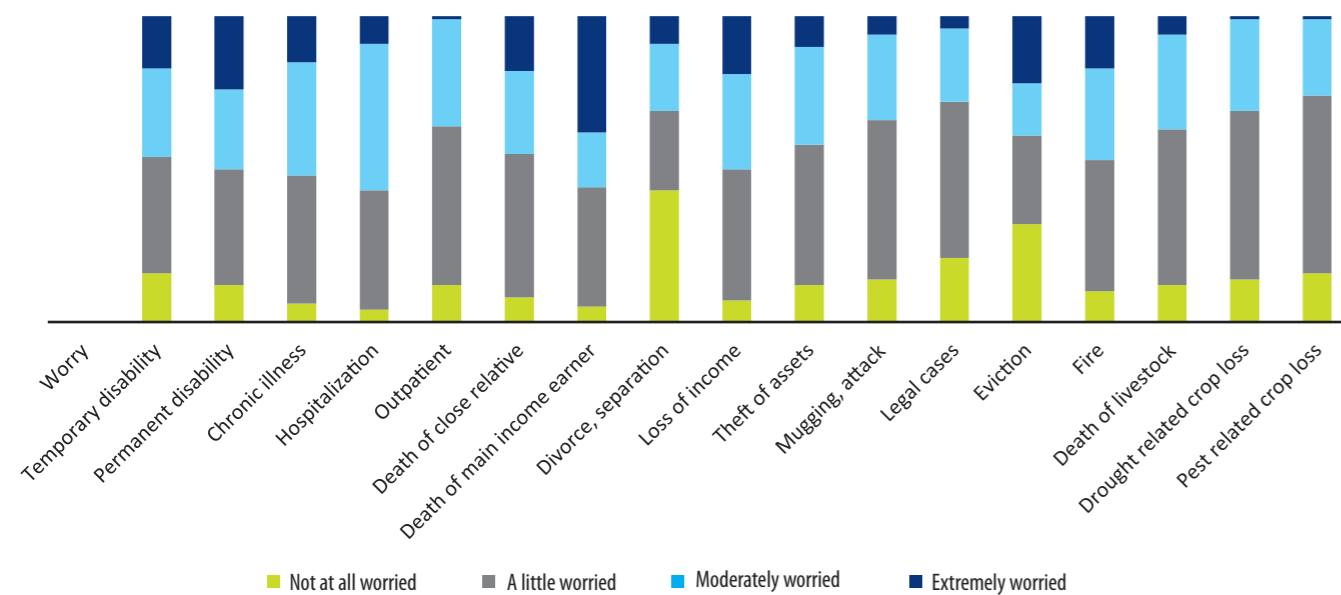


Figure 29: Level of worry (% responses)



Annex B

METHODOLOGICAL NOTES ON CALCULATIONS UNDERLYING FREQUENCY AND SEVERITY CHARTS

Severity. This is perhaps the more straightforward calculation, assigning an average cost to shock events. Throughout the paper, we look at the costs of a single event, accounting for the value of both the lost income (if any) and out of pocket new expense. This comes from self-reported figures of respondents reflecting back over their experience and interpreting the costs involved. In the Risk Module data, that is over a five-year horizon. For those who were unsure of the exact costs, we treated their responses as missing rather than imputing a cost. We use the median total cost in our charts to avoid skewing results with long tails. However, it is important that we point out that those events with low frequencies (on the left hand portion of the charts) have much more uncertainty around the total cost. We simply have few observations of households experiencing those events.

Frequency. The dataset from the risk module includes a variety of risks, which could befall both individuals and households. In the case of the incidence of individual risks—like the incidence of outpatient treatment—we captured this for all household members in aggregate. The module also measures incidence over five years rather than one. Transforming that variable into a meaningful probability, then involves considering annual probability of occurrence and the population of interest. We looked at two populations of interest:

Population at Risk. This converts shock events to the appropriate unit and adjusts for the population of adults and relevant individuals within households as the population at risk. For some risks, this entails a focusing of the population: For risks related to the loss of livestock, we include only households who owned livestock at some point during the Diaries project. For risks related to production of agricultural products, we focused in on only those who sold or consumed some kind of agricultural product from their farms during the project. This might exclude households who produced such products in the preceding five year period, but no longer do. It also excludes urban households that might have experienced a loss of agricultural products upcountry, which are not considered part of their current household income. (Their household for this study, would be their urban home.) Do note that urban households may still own livestock, as our asset inventory does include assets that reside at another residence. So, what you see on these charts is the probability of a livestock owner experiencing a loss in a given year, rather than of any household. For other risks, this is a broadening of the population to include the individual members of the household rather than the household at large. The table below explains the population at risk for each risk type, based on how the question in the risk module was framed.

Households. Our respondents in the risk module were the heads of households or their spouses, whichever was the main respondent in the study. So, all of the risk events asked, whether they applied to themselves as an individual or the household at large were risks that they were tasked with navigating.

Table 5: Population at risk vs risk type

Risk No.	Risk Type	Population at Risk
01	Temporary disability	Adults within the household
02	Permanent disability	Adults within the household
03	Chronic illness	Adults within the household
04	Hospitalization	All individuals within the household
05	Outpatient treatment	All individuals within the household
01	Death of relative	All households
07	Death of main income earner	All households
08	Divorce, separation	All households
09	Loss of income source	All households
10	Theft	All households
11	Attack or mugging	All individuals within the household
12	Legal case	All households
13	Eviction	All households
14	Fire	All households
15	Death of livestock	Households owning livestock during project
16	Drought	Households cultivating during project
17	Crop disease	Households cultivating during project

This simplifies the population at risk concept, recognizing that households – and particularly heads of household – are responsible for managing shocks even when the population at risk may be other members of the household.

Comparing Methods

How much does it matter how we define our population? In terms of the relative ranking of risk events, the methodology does not produce wildly different results overall, but there are some quite key differences. For example, the risk of an individual person being hospitalized in a given year is relatively low. We calculate that likelihood at around 3–4%. However, at a household level, this likelihood rises dramatically to about 42–43%. Meaning that about 40% of households will have one of their members hospitalized in any given year. If we are designing cover for individuals, the population at risk figure is very important. If we need to understand how a household experiences and responds to risk, the household level metric is more relevant.

Risks	RURAL		URBAN	
	Annual rate population at risk	Annual rate households	Annual rate population at risk	Annual rate households
Temporary disability	1%	1%	1%	2%
Permanent disability	0%	0%	0%	0%
Chronic illness	3%	8%	4%	9%
Hospitalization	3%	17%	4%	17%
Outpatient treatment	85%	474%*	102%*	465%*
Death of relative	32%	32%	35%	35%
Death of main income earner	1%	1%	0%	0%
Divorce, separation	2%	2%	1%	1%
Loss of income source	7%	7%	9%	9%
Theft	7%	7%	8%	8%
Attack	0%	2%	1%	3%
Legal case	4%	4%	2%	2%
Eviction	0%	0%	1%	1%
Fire	1%	1%	2%	2%
Death of livestock	25%	23%	4%	1%
Drought	40%	37%	3%	1%
Crop disease	7%	7%	2%	1%

*In the case of outpatient treatment, an average family experiences this event more than once per year. In urban areas, a typical individual can expect to see an outpatient provider 1.02 times per year.

