Insurance, Credit and Safety Nets for the Poor in a World of Risk

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Abstract

The case for an increase in the role of insurance provision in the fight against poverty and vulnerability is well-established. This paper asks how it can be more effectively delivered to the poor, and what its role should be relative to other microfinance programmes, safety nets and informal insurance systems. It focuses on the various interactions, including how insurance may crowd out credit and informal insurance, and implications for the design of insurance schemes. It argue that well-designed insurance schemes, building on existing informal systems, and focusing on catastrophic and serious covariate risks, could offer protection against risk and contribute to poverty reduction beyond the combined impact of microcredit programmes, safety nets and existing informal mutual support systems.

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JEL Classification: G21, G22, O16, O17

1. Introduction

The poor face considerable risk to their livelihoods. In the last 20 years or so, we have learned much about the ways in which risk is managed in poor settings, despite key underlying failures in insurance and credit markets. At the same time, a multitude of interventions and innovations in credit and insurance markets are changing the policy environment. In this paper, we offer a discussion of some of the key interactions between different private and public mechanisms to deal with risk, and their implications for poverty. As the focus is on risk, we will mainly focus on attempts to develop insurance for the poor. As it is the key response on which evidence is still most sparse, and has also been least broadly experimented with, we will inform much of our discussion by theory and conceptual arguments. Nevertheless, in combination with the available evidence, this leads us to a number of key policy implications that could guide further expansion of insurance for the poor, through better designed insurance schemes.

The development of cost-effective insurance for the poor for a variety of risks could be considered to be one of the most important challenges in the fight against poverty. In richer economies, cost-effective insurance has fundamentally changed the lives of the poorer sections of society, and has been achieved through broad public action, combined with the development of private insurance mechanisms. In developing countries, private insurance markets are limited, as often are the capabilities of public agencies to provide adequate protection. Microfinance institutions have begun to take more interest in insurance and have started to provide insurance as part of their overall microfinance service delivery, and some experimentation has occurred, particularly in the provision of agricultural insurance.

Risk is pervasive in developing countries. Rural households face risks such as drought, floods, or pests. Families face considerable unemployment, fire, theft, health and mortality risks. Insurance provision is still limited, and state-provided social security or more basic safety nets are often not available or limited to particular widespread disasters. Richer families have reasonable access to insurance alternatives through substantial savings or credit facilities. While it is well known that the poor also use relatively sophisticated mechanisms to cope with risk, such as activity diversification, mutual support networks and savings for precautionary purposes, risk appears to be only imperfectly handled with serious welfare consequences.

This is well illustrated by evidence from our own research programme in Ethiopia.[1] Using the Ethiopian Rural Household Survey, a panel data survey covering about 1,450 households across the country, the prevalence of different types of risk is explored in Dercon et al. (2005). The survey collected detailed data on a variety of (self-reported) shocks that affected people during the period between 1999 and 2004. In the data, it was found that just under half of the households were affected by drought in this period (2002 was a serious drought year), but a large number of other shocks were also relevant (Table 1). For example, 43 percent reported to have been affected by a death in the household, and 28 percent were affected by a serious illness in the household. Other shocks reported (by between 10 and 20 percent of households) were output price collapses, increases in input prices, crop pests and crime.

[1] Much more evidence can be found in Morduch (1995) or Dercon (2006).

Table 1: The incidence of serious shocks 1999-2004

Type of shocks reported	1999-2004
Drought (or other weather related shocks)	47
Death of head, spouse or another person	43
Illness of head, spouse or another person	28
Inability to sell outputs or decreases in output prices	15
Pests or diseases that affected crops	14
Crime	13
Increases in input prices	11
Policy/political shocks (land redistribution, resettlement, arbitrary taxation)	7
Pests or diseases that affected livestock	7

Source: Dercon et al. (2005)

Despite a relatively widespread safety net to cope with drought, supported with foreign aid, and increased investment in health services, these shocks continue to cause important welfare costs. For example, the consumption levels of those reporting a serious drought were found to be 16 percent lower than those of the families not affected; illness shocks appeared to have similar impacts on average. These shocks result not only in short-run costs: in the sample, it was found that those who had suffered considerably in the most severe famine in recent history, the 1984-85 famine, were still experiencing lower growth rates in consumption in the 1990s, a period of overall recovery, compared to those who had not faced serious problems in the famine (Dercon et al., 2005). The implication that poverty caused by shocks may well persist in the long-run in addition to the short-run is important and is supported by evidence from a number of countries.[2]

There are also other impacts, harder to measure. If households have poor mechanisms to deal with downside risk, they will try to manage their exposure to risk by changing their activities and asset portfolios, for example by diversification or shifting into low risk activities (Morduch, 1995). While diversification tends to be typically viewed very positively, these risk strategies come at a cost: to reduce overall risk exposure, gains from specialisation are likely to be forfeited. In Ethiopia we also found that the

[2] For instance, see Morduch (1995) or Dercon (2002) for reviews.

risk inherent in a modern high-return input (fertiliser) caused lower than optimal uptake (Dercon and Christiaensen, 2007). Unable to insure agricultural risk, aversion to risk led to choices that suppressed expected returns.

What can be done about this? One intuitive policy response would be to encourage the development of insurance provision. In this paper, we pursue this further, focusing on key problems in the design of insurance schemes that target the poor. However, any interventions should be well aware that insurance provision cannot take place in a vacuum. If effectiveness and efficiency are not to be compromised, policymakers should think carefully about alternative and already existing risk-pooling mechanisms as well as people's own responses to risk.

In most countries of the developing world, there is a continuing expansion of credit activities, and in the poorest settings schemes are usually group-based, allowing aligned incentives and cheap monitoring in a way that economises on information and transactions costs. Better basic safety nets are also being developed for the poor, although protection is usually limited to large scale disasters. In recent years, support has been given through targeted conditional cash transfers payable only if families meet specified criteria, such as committing to sending children to school. Finally, in most communities in the world, people have long organised themselves to provide some forms of informal mutual support to each other (Fafchamps, 1992; Townsend, 1995). A key issue for any further insurance provision is how it should relate to safety nets, credit schemes and existing informal insurance schemes. In this paper, this concern is central for our analysis.

2. A Simple Framework

In a simplified world, we could think of two competing starting points for fighting poverty (see Table 2). The first column presents the traditional view of poverty, in a world without risk. Market failures are usually assumed to exist in such a world; in particular, many common policy proposals are predicated on credit market failures being a binding constraint. This view stresses one fundamental characteristic of poverty: The poor lack capital. With few assets of value, there is no simple mechanism that allows the poor to build up their capital base, even if they have great

potential. More importantly for our purposes, in analogy to the more macro-perspective of standard growth theory, there may not be any convergence in the asset accumulation process, but divergence. Left to their own resources and efforts, there may be a limit to the amount they can accumulate, leaving them trapped in a perpetual cycle of poverty (Ray, 2007). If substantial minimum capital levels are required before lucrative activities can be started, or there are other multiple thresholds to surpass before growing out of poverty becomes feasible, poverty traps will lead to poverty persistence. Asset-related poverty traps are an appealing narrative to describe poverty in the developing world (Barrett and Carter, 2006). One direct implication is that any policy that sufficiently increases the poor's access to capital breaks the trap immediately and allows the productive poor opportunities to grow out of poverty.

Table 2: A simple framework for researching poverty with and without risk

	Poverty	***Vulnerability***
	Asset-focus, in a world without risk	**Risk-focus in a world focusing on protection**
Responses		
Self-based	Accumulation (savings for investment into productive assets, including physical and human capital)	Self-insurance (savings via liquid assets) and other risk management and coping mechanisms
Intervention-based	Asset creation programmes (targeted by wealth); transfers as gifts or gifts conditional on work or action (e.g. conditional cash transfers with education objective)	Safety net (responsive to crisis)
Market-based or inspired	Microcredit, focusing on physical capital	Microcredit, focusing on consumption smoothing. Microinsurance

In terms of solutions, suggested policy responses are often intervention-based, such as targeted gifts (pensions, food aid), gifts conditional on work (e.g. food-for-work) or gifts conditional on other actions (such as conditional cash transfers requiring children to attend school). Market-inspired responses are also widespread, implementing ideas

from microcredit innovators that have successfully helped to make the poorest somewhat bankable.

The second column presents the vulnerability view of poverty, in which risk is a defining feature. Risk forces households to focus on avoiding serious shocks, instead of accumulating for the future. Household responses include self-insurance via precautionary savings, risk management to reduce exposure via activity and asset portfolios (diversification, migration, etc) and risk coping to respond to shocks (mutual support networks, selling assets). The most common public intervention in the developing world takes the form of a safety net, coming into action when things go wrong for a particular individual. Although asset creation programmes are also sometimes referred to as safety nets, when focusing on risk we will use the term to mean a responsive programme that comes into action to avoid further hardship when catastrophic events occur. The market-based (or inspired) alternative would be to promote risk sharing through financial institutions such as private or social micro-insurers. Access to microcredit can also help to reduce vulnerability to small shocks as in bad times a loan can be taken out to be repaid later. While attempts have been made to better insure the poor, microinsurance has not yet enjoyed the same success as microcredit, and access to micro-insurance is not yet as widespread as to safety nets or indeed microcredit.

Only focusing on one of these two routes has key limitations. For example, ignoring risk and protection misses an important reason for the perpetuation of poverty, as assets may be accumulated only to be lost during crisis, and high expected return opportunities may be foregone if they are also high risk. However, a naïve focus on risk and protection would also be detrimental, as insurance may protect against the worst eventualities and enable individuals to safely take on high risk, high expected opportunities, but poverty may still persist if credit and other market failures constrain asset accumulation.

However, most of the discussions on asset poverty do not take the role of risk into account; the logic of these interventions is dependent on the world being riskless, often a poor assumption in practice[3]. This view is strongly implicit in early microcredit schemes, such as the Grameen Classic System (Yunus, 2002) whose

[3] Barrett and Carter (2006) is an exception.

design focused on combating problems of moral hazard and adverse selection in a riskless world. All default was assumed to be information-related and punished severely, even if the default was caused by an observable shock over which the group had no control.[4] Although access to microcredit allows the poor to smooth their consumption by taking out and paying back loans, microcredit can actually make borrowers more vulnerable to large shocks as the credible promise of severe punishment on loan default is necessary to keep borrowers honest. That things go wrong due to shocks is rarely acknowledged in design, leading some observers, such as Adams and von Pischke (1992) to refer to microdebt programmes rather than microcredit, as obligations are created that cannot be fulfilled when shocks occur. Matin (1997) documents cases in which moneylenders were used to refinance microcredit loans that needed to be paid back, creating a debt trap. In practice, of course, many microfinance institutions acknowledge real-world risks and have ways of dealing with them, although typically the focus is on guaranteeing eventual payback of the loan when shocks occur through rescheduling rather than cancellation.[5] In short, while assets may in principle reduce vulnerability, a widespread route to acquiring them may actually increase vulnerability to large shocks.

In sum, a focus on both asset creation and risk seems to be important for poverty reduction in the real world. The discussion also suggests that different interventions should not be implemented in a vacuum. Neither credit nor insurance markets will work well for the poor if the other functions badly. In the absence of one or both markets, some protection or commercial financing may still be possible from safety nets, savings and various risk management, self-insurance and other coping strategies.

In the rest of the paper, we explore these interactions, and the relative advantages of different approaches. First, we explore the scope and constraints on developing insurance. Then, we explore the interactions between credit, insurance, and vulnerability.

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[4] Armendariz de Aghion and Morduch (2005) offer a detailed discussion of this and other models of providing microcredit. They also discuss the Grameen Bank II approach that removed some of the harsher features, arguably acknowledging that things can go wrong and allowing debt rescheduling with more ease.

[5] Rescheduling appears to be the main innovation in the new Grameen Bank II model of lending (Yunus, 2002).

3. Problems with Insurance

3.1 Imperfections in Insurance Markets

In a world with widespread risk, but with limited insurance and protection, the successful development of fairly priced insurance markets is likely to provide a large social benefit. Unfortunately, insurance markets have historically always been slow to develop; currently their expansion into the developing world is similarly slow. Understanding why this is the case is crucial for any public action related to insurance, as the underlying problems will also bedevil these interventions.

In general, financial system constraints can be well explained by the quartet of (i) information asymmetries, (ii) transaction costs, (iii) enforcement constraints, and (iv) ambiguity aversion. First, information asymmetries are well known to restrict credit, saving and insurance markets in the form of moral hazard and adverse selection. Moral hazard refers to situations in which the lender or insurer cannot observe the effort put in by the borrower, the amount of risk chosen by the borrower, or the outcome of the efforts. As noted by Crosby (1905), an individual's behaviour may differ depending on whether she has insured her house against fire damage or not. Insurance may also suffer from adverse selection under which insurers are unable to distinguish between good and bad risks, and good risks are priced out of the market. Adverse selection can act in the opposite direction as well with an insurer knowing more about its riskiness than the insured, and finding it costly to credibly signal that claims will be paid in bad states of the world.

Second, there may be significant administrative costs of providing financial services, including search, bargaining and calculation costs. These can be substantial relative to the size of the transaction, particularly for small transactions (Rojas and Rojas, 1997). The popularity of Rotating Savings and Credit Associations (ROSCAs) highlights the need to keep calculation costs and complexity low for financial agreements concerning small amounts. Even formal financial institutions in the developing world cannot employ particularly sophisticated risk-management techniques as risk portfolios are rarely large enough to be able to support a team of costly financial professionals. Armendariz de Aghion and Morduch (2005) report that the accounting department for ASA, a microlender in Bangladesh providing banking services to

nearly 2.3 million customers, consists of only thirteen people. In the case of insurance, premium collection costs and the costs of verification that certain insured risks actually materialised can be high. Gollier (2003) argues that even in developed financial markets high administrative costs of insurance restricts demand for insurance products to such a degree that the added value of the insurance sector is surprisingly low.

Third, there is the enforcement problem. This is clearest in the case of lending arrangements, in which the borrower may be tempted to engage in strategic default, but this issue is also real in the case of the insurance provision. Large unlikely shocks, termed catastrophic shocks, are often difficult to share through informal or small scale formal insurance mechanisms as they require full enforceability of contracts. Informal enforcement is often shallow and if a large shock hits, and a large transfer is required, the informal or small insurer is likely to successfully renege on the agreement. As any informal insurance cannot credibly offer full protection against catastrophic risks, such catastrophic risks will remain, at least partially, uninsured.

Fourth, insurance markets are slow to develop due to a need for viable financial institutions to protect against insolvency in the face of uncertainty, and the resulting institutional aversion to ambiguity, or actuarial prudence.[6] An ambiguity averse insurance company prefers to insure when they have a good understanding of the odds, and demands a premium to insure risks for which data is scarce, even if there is no perceived moral hazard or adverse selection. This actuarial prudence in the face of ambiguity is one of most highly celebrated tenets of risk management in insurance companies, but slows the development of new lines of insurance business as data is scarce and the claim odds are not well known. In many developing contexts, data and actuarial know-how is scarce and any insurer or reinsurer wishing to stay solvent must charge substantial ambiguity premiums, making products of poor value. Moreover, financial regulators tasked with maintaining confidence in the financial system must force financial institutions to price the way above, or risk facing widespread insurer insolvency.

[6] Ambiguity aversion, sometimes referred to as uncertainty aversion, refers to the preference for known risks over unknown risks (Ellsberg, 1961).

These four types of constraint provide explanations for the limited development of insurance markets in poor settings. However, while they are explicitly discussed in any primer on insurance, it is easy to forget that these constraints are not easily resolved by any public or NGO scheme. Any viable insurer, formal or informal, is subject to these constraints, although different institutional forms and product designs may lead to higher or lower informational, prudential or administrative costs. These constraints have implications for the products that can be fruitfully offered.

3.2 Insurance Products – What to Offer?

Offering insurance requires carefully designed products. Different classes of risks have different specific problems with information, enforcement, or ambiguity, which should be taken into account when designing suitable products. For example, health insurance schemes tend to suffer mainly from adverse selection problems and post-selection residual ambiguity. Property and fire insurance are both strongly affected by moral hazard problems. Insurance against crop failure suffers from moral hazard and loss verification problems, and risks are also often highly covariate, necessitating a strong link between insurers and wider risk pools. Life insurance has fewer problems, and is typically observed to emerge early on in new insurance markets. For example, one of the first Indian microinsurance schemes was life insurance offered by the Indian Self-Employed Women's Association (SEWA), a trade union (Sinha, 2002). With widespread informal insurance, and high information and transactions costs for formal insurance, the most promising forms of insurance are likely to offer protection against catastrophic shocks that are difficult to informally insure with neighbours. Offering insurance for low-impact risks is never likely to be cost-effective. Informal systems are likely to provide insurance at a lower cost for these risks.

In recent years, a number of innovative products have been designed specifically for the developing world. Indexed products have been developed for rainfall insurance, in which fixed payouts are made when local rainfall levels fall above or below particular triggers. These insurance products are calibrated to cover typical losses from low or high rainfall across particular geographical areas, and predetermined payouts occur to those holding the insurance , without the need to check on specific losses for

individual farmers. These are very attractive products to the insurer, as they sidestep the problems of moral hazard, adverse selection and verification costs which have bedevilled crop insurance schemes across the world. In the developing world, there have been trials of rainfall insurance products in various areas of India (backed by ICICI Lombard, in Andhra Pradesh with an NGO called BASIX, and with SEWA in Gujarat), Nicaragua, Ukraine, Ethiopia, Malawi, Peru and Mongolia (World Bank 2005).

Gine et al. (2007a; 2007b) report on the experiments in Andhra Pradesh, based on the activities of BASIX, who have been trying out rainfall insurance since 2003. The findings of their controlled experimental study show some of the key problems with offering indexed insurance products for the poor. Despite being offered in areas with serious drought risk, with well-known negative consequences, only a small number of eligible households bought the insurance (4.6 percent). All evidence points to those who bought the insurance being wealthier, better educated and more able to withstand drought shocks to start with. Why did the poorer farmers avoid insurance? The most common reason given by those interviewed was that they did not understand the product, and other evidence suggests that trust in the product and the organisation matters as well. However, it is worth noting that, despite the insurer-friendly indexed design of the product, insurance premiums were on average around three times as large as expected payouts. The work by Gine and Yang (2007) in Malawi reached similar conclusions on problems with uptake, although there is clearly a need for further work on understanding why take-up is so low.

The above experience with index-based insurance illustrates a more general problem. Designing products is relatively easy compared to the task of ensuring that the uptake of sustainably-priced insurance is considerable. Studies investigating the hypothetical demand for insurance consistently find high demand, but when insurance products are piloted, such as in Malawi and India, uptake is rarely swift or high. In insurance companies, this phenomenon is well-known, and actuaries have a saying that ‘insurance is always sold, never bought’. Explaining this is harder, but it may have to do with the fact that insurance is a difficult concept to understand. Taken in isolation, payouts from any insurance product are uncertain and so insurance might be thought

to increase risk if considered in isolation from the rest of a risk portfolio.[7] For insurance to be successfully adopted, costly consumer education is necessary, increasing initial marketing costs substantially, although these costs might be expected to decrease over time as more people learn about insurance. Low uptake will further increase the costs of insurance as insured risk-pools are smaller and additional costly reinsurance will be required if the insurer is to protect against insolvency.

Microinsurance innovations have not experienced anything like the success of the microcredit innovations of Grameen Bank and others. This is partly because innovation in insurance products is more difficult to critically assess than innovation in credit products, and new products require substantial costly consumer education. The microcredit experiments of Muhammad Yunus and others have been incredibly valuable to the world's poorest. If financial engineers can develop methods of insuring common catastrophes with low costs, low complexity and aligned incentives, microinsurance may have the potential to make an even bigger impact on the lives of the poorest than microcredit. Moreover, economic theorists are well placed to lead this engineering by drawing on recent positive theoretical modelling of successful features of microcredit products. See, for example,Armendariz de Aghion (1999) and Rai and Sjöström (2004).

3.3 Can Credit Reduce Vulnerability More Effectively?

It is often assumed that by softening credit constraints, the primary economic function of microcredit is to allow microentrepreneurs to unleash their productive potential. In the context of a world with high risk, it will then not only raise mean living standards, but assist in rapid asset accumulation, offering a larger buffer to deal with shocks. Overall, it would allow the productive poor to grow out of poverty and leave their vulnerable lives behind.

[7] Another problem with rainfall insurance is basis risk, the lack of correlation between the insured interest (here, the income loss induced by crop failure) and the actual observed rainfall. In all these pilots, and elsewhere, there is substantial basis risk affecting the usefulness of the policy. While a dislike of basis risk was not found to be behind the low uptake of the policies piloted, it is bound to limit the spread of the insurance product.

It is, however, still difficult to get reliable empirical justification for the basic assertion that access to microcredit induces any income growth. To date there is no study investigating the effect of access to credit facilities on income levels that has achieved wider consensus as to its reliability (Armendariz de Aghion and Morduch, 2005). Nevertheless, more optimistically, most studies do find strong evidence that access to microcredit facilities leads to reduced vulnerability, in the sense of a lower threat of fluctuations in the incomes or consumption (Hashemi, 1996; Montgomery, 1996; Morduch, 1998; Zaman, 1999). Morduch (1998), for instance, finds that households with access to microloans have smoother income streams (and thus smoother consumption patterns) relative to control groups, achieved by diversification of income-generating activities or entry into low risk activities with reasonable returns that required some capital investment. Microcredit may then offer a means for reducing risk exposure, while keeping costs and incentives aligned.

However, microcredit is not a perfect vehicle for vulnerability reduction. Firstly, microcredit products, as typically offered, were not designed to achieve reduced fluctuations in consumption or protection against shocks. Few microcredit products are geared towards this objective, even if the return to consumption credit has been shown to be very high (Karlan and Zinman, 2007b). Secondly, credit allows individuals flexibility to smooth their consumption over time, but only generates quite crude risk pooling between group members; the effects of a shock to an individual may be spread over time, but the shock will ultimately be borne by that individual, rather than shared with other, luckier individuals. Finally, and most importantly, microcredit can actually make borrowers more vulnerable to large shocks as the credible promise of severe financial, social or psychological penalties on loan default is necessary to keep borrowers honest. The relative natural division in domains between credit and insurance could be that credit is suitable for relatively small shocks, complementing more general savings and other informal insurance mechanisms, while insurance could become a key instrument for dealing large or catastrophic risks. However, interactions between credit and insurance need to be taken into account as well.

4. Credit, Insurance and Crowding out

4.1 Insurance Can Crowd Out Credit

It is instructive to be reminded of why credit markets may fail to emerge or function competitively. One reason is related to problems of enforcement in the context of informational asymmetries. Its implications for poverty persistence are explored by various authors; Banerjee (2000) offers one plausible stylised model. In his model, wealth can be invested in a particular generic profitable project; borrowed funds could be used in the same way. Lenders can only enforce credit contracts with a particular probability; they also cannot distinguish between moral hazard and bad luck as the cause of a household's default. Households that default and are caught are pushed back to some minimum welfare level. The higher this minimum level, the more likely households are to default on the loan – the welfare costs of defaulting are lower. However, this makes borrowers more reluctant to lend. Wealthy households can offset this safety net effect by investing some of their personal wealth in the project, so that the repayment required to the bank for the same project size is relatively smaller, making default less attractive, and the borrower more creditworthy. To be able to ensure that the poorest are reached, a few options emerge. Firstly, one could ensure that there is more information on the actions and circumstances of the poorer households, but this is costly, reducing profitability and the willingness to lend to these households. Secondly, the contract could be designed to ensure that alternative incentives are in place to ensure maximal repayment efforts – the tried and tested solution of many microcredit schemes, including use of group liability and/or dynamic incentives. Thirdly, one could make it easier for an individual to contractually agree to be punished harshly on default. Such a voluntary system, in some sense similar to the debtors' prisons so loathed by Dickens might ex-ante improve the lives of the poorest, but might be socially or morally unacceptable.

Introducing forms of insurance or social protection (whether via insurance of the basic livelihood, such as unemployment, or a basic safety net) is not innocent in these circumstances: by increasing the minimum welfare level that can be reached in case of default, it reduces the incentives for repayment, and reduces the amount of credit that lenders could profitably offer. Systems that offer individuals more livelihood

protection are also likely to undermine the cross-reporting and monitoring incentives in group-based microcredit schemes, undermining the sustainability of the groups.

Are these problems real? They plausibly are when insured risks are subject to moral hazard and insurance payouts cannot be reclaimed by the lender. Insuring risks free from moral hazard, such as rainfall or mortality, wouldn't result in crowding out of credit as strategic default is very unlikely. However, insuring general business risks in such a way that the lender could not reclaim any insurance payouts would crowd out credit as lenders would need to reduce loan amounts to protect against strategic default as described above. Such complexities highlight the importance of well-designed products that are robust to moral hazard and adverse selection, such as rainfall insurance, or a well-designed health insurance product with clear selection and monitoring.

At the same time, it would be in the interest of microcredit institutions to internalise the provision of insurance, helping their clients protect against default when failure is no fault of their own. Many microcredit organisations offer forms of credit-life insurance – to ensure that repayment occurs in the case of death. Grameen Bank, for instance, charges a surcharge on interest rate payments to pay into an emergency fund for this purpose. In general, if insurance provision is planned where microcredit operations are present, linking these contracts may be of mutual interest for the sustainability of the credit schemes, by optimally internalising the different incentive, monitoring and enforcement problems. Examples would be to offer credit with mandatory insurance, rather than allowing some to opt into insurance to protect against adverse selection. We are effectively suggesting that collusion between providers of complementary financial services for the poor may well be beneficial for the poor. However, any resulting market power would require careful regulation, offering a crucial role for regulatory bodies for microfinance activities.

4.2 Insurance May Help Credit

We can also go a step further. By not offering insurance, but with strict enforcement of credit repayment, microcredit can be very risky and, as suggested before, it may increase vulnerability considerably, particularly for large shocks. Risk-averse poor

families might decide not to borrow to invest in profitable activities if there is a reasonable chance that they will be unable to repay the loan and will be severely punished. An example of an Ethiopian microcredit product that was considered by many to increase vulnerability was analysed in Dercon and Christiaensen (2007). In an attempt to boost modern input use (mainly fertiliser) in agriculture, a credit-cum-extension package has been offered in Ethiopia since the mid-1990s. However, repayment of input credit is harshly enforced, so that the loans are actually very risky – if the harvest fails the loans still have to be repaid. The case for offering insurance in this setting, for example by charging a higher rate of interest but forgiving the loan in the event of poor observed rainfall, is substantial as it would remove the major risk linked to the loan.

Successfully putting such ideas into practice is difficult as demonstrated by the Malawi experiment with rainfall insurance mentioned before (Gine and Yang, 2007). While rainfall risk was substantial, there was less uptake of the credit product when linked with insurance, effectively a counterintuitive result.[8] Whether this is related to problems of understanding insurance and general issues of ambiguity cannot be not easily shown but is of substantial practical interest.

5. The Links between Informal Insurance, Formal Insurance and Safety Nets

5.1 Informal Insurance May Be Crowded Out

The discussion thus far has assumed that there are no informal systems of insurance present, or at least, in common with most microfinance literature, that these are not relevant for the development of further microfinance, such as insurance. This reflects a poor understanding of the mechanisms by which informal insurance can be maintained in communities. Informal insurance systems relate to rather informal mutual support networks of neighbours, kinship groups or local communities, as well as semi-formal groups, such as funeral societies (Morduch, 2002; Dercon et al. 2006). These groups and networks are relatively fragile, and for them to continue

[8] Note that this result is not even consistent with a view that insurance does not matter: There is less uptake, not the same level of uptake for the credit-cum-insurance product compared to the credit product.

successfully incentives must be aligned so that it is in everybody's interest to sustain the system. As only few will receive support in each period, the others must be willing to remain in the system in case of future hardship. It is well-known that commitment is not perfectly enforceable in these settings (Ligon et al., 2002). The implication is that anything that creates incentives to leave the informal system will tend to undermine it (Attanasio and Rios-Rull, 2000).

A general analysis of this problem of crowding-out has been conducted by Arnott and Stiglitz (1989), in relation to formal and informal insurance. Attanasio and Rios-Rull (2000) showed how the informal support system may break down due to the introduction of a formal insurance scheme, even if the formal insurance insures risks that are different from risks insured by the informal system. They show that some members of the informal system may even be made worse off by the introduction of the formal scheme, even if the formal scheme is voluntary, as some members of the informal scheme would withdraw from the informal scheme, leaving the remaining members with less protection. There is only limited evidence from developing countries regarding the above described adverse impact on informal insurance mechanisms of introduction of formal insurance systems , but there is evidence of such impact of introduction of more general safety nets. For example Jensen (2004) analysed the crowding out of private transfers due to introduction of a pension scheme in South Africa. Albarran and Attanasio (2004) showed the crowding out of private transfers after the introduction of the conditional cash transfer scheme as part of the PROGRESA programme in Mexico. Dercon and Krishnan (2003) found evidence consistent with crowding out of informal insurance networks in rural Ethiopia in areas with high formal food aid delivery.

Insurance schemes cannot be introduced without regard to any impact on existing informal systems as the crowding out of informal schemes could seriously undermine the value of any new scheme. If a new insurance scheme is carefully designed, the overall welfare effects may still be positive, although it is likely to be very difficult to guarantee that nobody will be worse off after implementation. Broad inclusion of the population, not least the poor and vulnerable, as well as a careful understanding of the existing systems appear to be minimum conditions.

5.2 Building on Existing Informal Insurance Structures

A further means of avoiding crowding out of informal systems is to build on the existing system, firstly by offering complementary rather than substitute insurance, and secondly to build on the membership of existing groups. Complementary insurance is likely to protect against those risks that cannot easily be pooled within the groups. Most informal insurance networks can only offer protection from idiosyncratic shocks. For example, Dercon et al. (2006) documented the risks insured by a sample of 78 Ethiopian semi-formal insurance groups (the *iddir*), usually sub-village-based and focused on funeral insurance. In return for premiums, they insure the cost of the funeral of a family member. House destruction (usually linked to the rains) was insured by 40 percent of groups. Fire and health insurance was offered by about 30 percent of the groups. Very few offered insurance for idiosyncratic crop losses. It is striking that drought or other large covariate risks, which were shown in Table 1 to be by far the most important risks, were not insured, while health shocks – the most important idiosyncratic shock – or asset protection only by less than a third. Clearly, there is scope for more formal insurance systems to focus on these products.

Table 3 Types of additional insurance offered in Ethiopia

(percentage of those groups offering additional cover)

Funeral expenses	100%
Destruction of House	40%
Illness	30%
Fire	28%
Death of Cattle	24%
Harvest	14%

Source: Dercon et al. (2006)

Building on existing systems is also often appropriate when a public agency or an NGO aims to specifically target the poor for improved insurance. In particular, any semi-formal existing groups serving the poor should be targeted, especially those that have developed forms of insurance provision and mutual support within their ranks. In Europe much social security provision in the form of health or unemployment

insurance was first developed within cooperatives or trade unions before public interventions turned them into fully fledged national insurance schemes. In developing countries, such as India, there is ample evidence of functioning self-help groups and cooperatives. There are also long-standing institutions, such as funeral societies, that tend to be highly inclusive of the poorest segments of the community (Dercon et al., 2006). These existing groups could be strengthened by providing cost-effective risk-pooling and reinsurance solutions that offer protection for other risks they cannot help on their own, most notably covariate and catastrophic risks.

Working with groups has considerable advantages. First, it avoids or at least considerably reduces adverse selection for existing groups or where coverage is uniform across members in the group. Second, if members of the group can monitor each other at lower cost than a formal insurer can do, formal contract costs can be reduced by delegating much of the monitoring to group members.[9] Third, as long as groups are chosen that also include poorer segments of society, targeting can be devolved further in line with the rules governing the functioning of groups. Fourth, by focusing on groups that have already set up some mutual support systems within the group, it will be easier to ensure that formal insurance is complementary to existing informal schemes. If individuals were targeted instead, then their newfound protection may well induce them to withdraw from existing mutual support, possibly leaving others with even less protection than before.[10]

Working with existing groups also accords well with the model that proved successful in currently developed countries when these were in early stages of economic development. Until recently most developed country insurance companies have been mutual insurance companies (mutuals) where, in addition to receiving claim payouts, policyholders share in the profits of the company. Section 3.1 introduced the idea that any viable insurance company must price individual products as though it were averse to ambiguity, charging more for products where the true claim odds are not known. This can lead to very expensive premiums, particularly for

[9] This ability of a microfinance institution to structure contracts to delegate costly monitoring to group members was shown for microcredit by Armendariz de Aghion (1999).

[10] It can be shown that in the theoretical models of e.g. Attanasio and Rios-Rull (2000) that internalising the formal insurance provision to the group rather than to individuals within the group, will avoid the crowding-out problems referred to earlier, as the individuals are only covered for the formal insurance on the condition that they remain a member of the group.

new classes of insurance. However, contracts can be made much better valued without sacrificing prudential financial management if the insurance company is structured as a mutual company that partially refunds premiums, if realised insurance claims in a given year are not too high. Mutuality should work well in developing country contexts when the insurance company (or NGO) is not sure of the precise claim odds, holding ambiguous beliefs about the insured risks. By allowing better value products to be sold, profit sharing may also induce more groups to enter into the insurance arrangement, boosting uptake and further reducing costs.

6. Credit, Safety Nets or Insurance?

6.1 Microcredit Subsidies?

As discussed in section 2, asset creation programmes based on transfers and safety nets can be usefully seen as part of a continuum of measures to alleviate the problems created by constrained credit and insurance markets. Safety nets are an insurance-substitute for which no premium had to be paid; transfers provide access to capital without any requirement to repay.

To introduce the discussion on whether subsidised insurance is to be preferred to safety nets, it is instructive to revisit the subsidy issue in relation to microcredit. The experience with microcredit schemes is such that they are rarely profitable without subsidies. Armendariz de Aghion and Morduch (2005) cite a few examples of profitable microfinance schemes (e.g. ASA in Bangladesh), but most still rely on donor funding, hidden subsidies or cross subsidies from other activities, particularly when serving poor clients. Arguably, with the current cost of technology and expertise, microfinance for the very poorest will never be profitable: The costs are just too high. However, despite this, there is every reason to suspect that subsidising microcredit may be a cost-efficient way of improving the lives of the poor. Grameen and other pioneers have developed loan contracts that don't adversely distort incentives or decisions but still manage to serve the poor. Subsidies for microcredit institutions may be a permanent fixture if the poor are to continue to be served. Karlan and Zinman (2007a) show that raising prices is unlikely to be able to negate the need

for subsidies, using experimental evidence from South Africa: higher rates increase profits but only by tiny amounts.

6.2 Subsidised Insurance or Safety Nets?

Superficially, safety nets may be seen as insurance schemes with zero premium. If safety nets work well, then they should be able to offer protection against a wide range of risks, not least the catastrophic risks that are difficult to protect against using other methods, such as loan facilities, savings or informal mutual support systems. The key practical difference between private insurance and public safety nets is the presence, or lack thereof, of an enforceable contract with clear payout terms. Safety nets do not tend to have such a clear enforceable right, even if support is legally guaranteed. In rural Ethiopia, for example, food aid is widely distributed but, nevertheless, access remains rationed. For example, Dercon and Krishnan (2004) finds that although food aid delivery was correlated with rainfall, many poor in drought affected areas did not receive any support in certain years. Sometimes they got support, sometimes they did not. Safety net support may not be enforceable in general; it is definitely not in Ethiopia.

Reliable safety nets that are set at a universal level for everyone usually automatically target the poor. First, the closer you start to the net, the smaller the shock that is needed for the individual to draw on the safety net. Poor individuals might be expected to start closer to and be more likely to need support from the net. Second, the safety net may make risky behaviour more attractive by limiting any downside risk, particularly for those that are already close to the net. This behavioural response to safety nets is similar to the idea of gambling for resurrection by limited liability firms in which firms close to liability floors take large risks, having little to lose and much to gain (Stiglitz 1972, Merton 1978). However, if a safety net is not reliable or universal, it may not automatically target the poor.

Subsidised private insurance has the potential to avoid some of the problems of weak safety nets, because, if properly designed, everyone can acquire a policy covering themselves against the serious risks one faces, such as drought. Rainfall insurance is an example of a policy that could even be offered to non-farmers; for instance it could

be purchased by landless labourers whose livelihood depends on rain even if they have no crops of their own. Insurance is also offered by groups such as funeral societies, known to be offering insurance to most or all members of the community, without exclusion, at least for those risks they can insure.

If widespread insurance is being offered, the onus is put on those requiring more security to acquire insurance. Private insurance has a nonzero cost, usually paid by a single upfront premium or regular premiums. It has been suggested that a single upfront premium could be difficult for households facing liquidity constraints to pay, thereby affecting uptake. For example, Gine et al. (2007), on the basis of the rainfall insurance scheme piloted in Andhra Pradesh, suggested that in order to overcome the relatively high cost of the premiums, subsidies should be given to encourage uptake, for example allowing the premiums to be paid in arrears (effectively offering them on credit). Given that current uptake was only about 5 percent of eligible farmers, this may not be enough and an *ad hoc* incrementalist innovation has the potential to adversely distort incentives and behaviour if not carefully thought through. If the most vulnerable are not purchasing the insurance, then they remain exposed to serious risks.[11] Working with informal insurance groups that have experience of offering and communicating insurance to its members could help. Subsidies could help inclusion and uptake, but they are perhaps better targeted at trialling and evaluating innovative microinsurance products instead of directly subsidising existing microinsurance products.

There is nevertheless a leap of faith required to suggest that private insurance systems could ever replace wide-ranging social safety nets. At least three serious problems have to be recognised. First, given that insurance products are relatively complicated to comprehend, underinsurance is likely to remain present in any voluntary system.[12] Second, private insurance is only possible for defined perils but many perils are difficult to specify in advance. Third, many risks are not easily quantified, and data does not exist to accurately price policies, hindering the development of effective

[11] This is somewhat concerning. As noted by Morduch (2006), if only some individuals buy rainfall insurance we might expect price effects in the event of poor rainfall similar to those as analysed in Sen's (1981) work on the Great Bengal Famine: In the event of poor rainfall, individuals with rainfall insurance may drive consumer prices beyond affordability for others accentuating the effect of the poor rainfall.

[12] Health insurance in the United States is still far from universal despite sophisticated insurance companies and high levels of education, even among the uninsured.

insurance for those risks. Wide-ranging public safety nets, guaranteed in a credible way, will continue to be required for protection as a last resort. Nevertheless, this should not stop one from using public funds to support the wider development of insurance schemes targeted at the poor.

Conclusion

Risk remains a serious problem in the developing world, and private insurance provision is one of many different mechanisms that should be developed to offer broader protection and reduce poverty and vulnerability. This paper has argued that insurance is just one of the many ways in which households can try to avoid welfare fluctuations and hardship. Credit provision, asset creation programmes, and safety nets, as well as household saving, accumulation, risk-coping and risk-management strategies are all alternative ways of reducing vulnerability. Any analysis of whether private insurance provision should be the focus of policy should take into account the role and interactions of these different ways of potentially coping with risk.

Underlying market imperfections make it difficult to stimulate the growth of insurance markets in the developing world. Information asymmetries, enforcement problems, transactions costs, and ambiguity aversion of insurers all suppress the development of insurance markets, and any public action to improve insurance is also bound to be affected by these problems.

This has implications for the type of products that can be developed, and has inspired innovations with intuitively desirable properties, such as rainfall insurance. However, the experience of rainfall insurance trials has been disappointing so far, with very low uptake in trial areas, and difficulty in reaching the most vulnerable. The suggested explanation is that insurance is complex, trials incorporating innovations are costly, and substantial time and education are necessary to encourage uptake for a given project.

Microcredit is well placed to offer an insurance function, and evidence for access to microfinance helping to smooth income and consumption was discussed. However, as punishment on default in most schemes is harsh, microcredit is only useful as

insurance for small risks; microcredit can actually magnify large shocks. Informal mechanisms could similarly offer protection against small risks, leaving large or catastrophic risks a clear focus for insurance schemes.

Besides the obvious complementarities between insurance, credit, and informal insurance schemes, their interactions are important and can have substantial effects on optimal policy. In particular, we argued that insurance for perils subject to moral hazard where insurance payouts cannot be pledged to lenders could potentially crowd out credit markets. However, there are strong incentives for microcredit providers to provide insurance for specific perils, and interlinked contracts may well be beneficial, effectively suggesting a role for collusion in these markets.

When developing formal insurance (or safety nets), one should also not ignore informal insurance systems. Both theory and evidence are presented on how formal insurance could crowd existing informal mutual support systems. The lesson is that it will often make sense to build on existing systems, both in terms of products and in methods of delivery. Providing insurance for risks that the local network could not provide, particularly catastrophic and covariate risks, are obvious targets for formal insurance providers. Furthermore, as in many poor settings semi-formal groups engage in insurance (for instance through funeral societies), entering the community in collaboration with these groups may be the best option. Working with existing informal insurance groups cuts informational and other costs, reduces adverse selection issues, while offers means of reaching larger numbers of people more rapidly. As it was in the early development phase of western financial markets, mutuality seems the most promising economic structure for formal insurers.

It is also argued that the boundaries between safety nets and socially provided microinsurance are potentially blurred. Safety nets are bound to stay, but the enforceable nature of an insurance contract offers additional rights that a safety net typically cannot offer. Private insurance allows the household to choose its ideal insurance package, but by allowing individuals to adversely select against insurers, it may lead to higher costs and sparse coverage compared to universal public insurance.

In the introduction it was argued that risk not only causes costly fluctuations in welfare but also contributes to the persistence of poverty, as risk-avoiding actions

have to be taken suppressing returns to activities and assets, while assets may have to be sold off when serious shocks take place, undermining the future scope for accumulation. Well-designed insurance schemes, building on existing informal systems, and focusing on catastrophic and covariate risks, could offer protection against risk and contribute to a sustained reduction in poverty beyond the combined impact of microcredit programmes, safety nets, and existing informal mutual support systems.

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