# Risk Management for the Poor and Vulnerable

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## ABSTRACT

This paper reviews some literatures on the mechanisms available for the poor in managing risk. Lacking access to formal mechanisms of risk management, the poor rely on informal mechanisms, which are built based on the existing social networks and trust. But when the shocks are big or affecting the entire community, these informal mechanisms may not be adequate. Some policy interventions are then required to help improving the ability of poor people in managing risk. Policy intervention should aim to provide access for the poor on saving, credit and insurance. Microfinance schemes have been applauded as a successful 'best practice' in providing access to saving and credit. However, microfinance institutions still have some room for improvement by expanding their role in providing insurance schemes.

Keywords: poverty, vulnerability, risk management, microfinance.

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# Risk Management for the Poor and Vulnerable

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## Introduction

The existence of risk significantly affects people's life. Risk creates uncertainty, which in turn influence people in making decision. Risk also makes individuals face some probability to experience income shocks. An income shock could make some people's income fall below the poverty line. In other words, risk makes some individuals *vulnerable* to poverty.

This paper presents a literature review on the significance of risk to the low-income individuals, and the mechanisms available to manage it. The discussion is outlined as follows. Section one reviews the basic concepts on poverty, vulnerability and risk. Section two discusses the informal mechanisms available for the poor to manage risk. Section three presents the policy options to help the poor in managing risk as the informal mechanisms are often inadequate. Finally, section four concludes the discussion.

## Concepts: poverty, vulnerability and risk

Poverty is traditionally defined as "the inability of an individual or a family to command sufficient resources to satisfy basic needs" (Fields 1994:88). Basically, it is a condition in which a person's income or consumption in a certain time falls below a

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certain threshold, which is referred to as the poverty line. However, poverty cannot be regarded as only a static concept that deals with one's welfare condition at a certain point in time. In reality, poverty is also a dynamic concept, since households frequently move in and out of poverty overtime. This raises an issue of 'vulnerability' to poverty.

Vulnerability to poverty can be defined as the probability that a household will become poor in the near future. Since the concept deals with probability, we can say that there is always a chance that a currently non-poor may end up being poor in the near future. Non-poor households may fall into poverty due to events such as natural shocks disasters, economic shock or crisis, security problems and many others. Conversely, people who are currently poor also have a chance to escape from poverty. The improvement in economic situation may bring more job opportunities, providing sources of income to the people, hence enables poor people to climb up from poverty.

There are several approaches and methodologies have been applied in the studies on the dynamics and vulnerability of poverty. The simplest approach is tabulating the frequency of the event when a household falls into poverty over some fixed time frame. Alternatively, Bane and Ellwood (1983)[1] carried the methodology based on the notion of 'spells' of poverty, using exit probabilities to examine the length of time that people spend in poverty. They argued that many households climb in and out of poverty over a given period. They also highlighted the fact that although many only have short spells in poverty, most of them who are poor at a given point in time would have very long spells of poverty before they escape.

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[1] See also Stevens (1995), whose study was based on these authors.

Another approach is measuring the variability of income or consumption. A person with high variance of income is more likely to fall into poverty.[2] Such approach was carried by Chaudhuri (2000), and later applied by Pritchett *et al.* (2000) and Suryahadi and Sumarto (2001) using the data from Indonesia.[3] The studies expand the definition of poverty by combining information on current consumption with the probability that the future consumption levels will fall below the poverty line.

In their study, Suryahadi and Sumarto show the significance of the vulnerability to poverty. The combination of macroeconomic shock and political instability during the Indonesian economic crisis in the late 1990s has doubled the number of poor household almost doubled from 1996 (pre-crisis data) to 1999 (post-crisis). This was equivalent to about 27 million additional poor during the period. However, number households who are statistically not poor but facing relatively high probability of falling below poverty line have increased from 13 million to 38 million; illustrating how the crisis has put near-poor Indonesian households at risk of falling into poverty by three times.

Vulnerability to poverty is closely related to the concept of risk. Risk refers to "uncertain events that can damage well-being" (World Bank 2000:139). There are many sources of risk. The nature and environment are sources of risk, as well as health, economic and socio-political condition. Some types of risk affect just the individual or a household (idiosyncratic), for example accident, sickness or crime. Other types of risk affect a wider range of people (covariant). Small natural disaster, epidemic disease, riots or bad weather may affect the entire community within a village. Big disaster, war,

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[2] By definition he or she will also be more likely to escape from poverty. Nevertheless, in most cases the likelihood to escape from poverty is lower than to fall into it.
[3] See Appendix for the model.

economic crisis or regime change will affect the entire nations or even create a contagious effect to the neighboring countries.

A person with high risk exposure is expected to have greater income variance; hence he or she will be more vulnerable to poverty. But there is also a reverse effect – poverty brings more exposure to risk. Most of poor people live in unhealthy and unsafe environments, which expose them to a greater risk of health and security. A study by Jalan and Ravallion (1996) using data from the rural China confirms that consumption level of the bottom decile of population is the least protected against income fluctuations. Morduch (1994:221) furthermore characterize three factors that contribute to greater vulnerability to poverty in low-income countries:

1. Since most of the poor in low-income countries are in the agricultural sector, weather and price variability are responsible for a large part of income fluctuations and, thus, poverty.

2. Poorly developed financial institutions, which accounts for the lack of access to protection against risk such as credit, savings or insurance.

3. Weak social insurance institutions.

## How the poor manage risk?

Whether they are wealthy or poor, people can not avoid risk. But people can manage risk. Risk management can be classified into risk mitigation *(ex-ante)* and risk coping *(ex-post)*. The main idea of risk management is to deal with the fluctuation of

income and consumption through income diversification, insurance or savings-borrowing schemes.[4]

The main difference between the rich and poor people in managing risk is the latter have more limited access to formal mechanisms of risk management. Formal risk management mechanisms include those that are available in the market or publicly provided. Private insurance, bank credits and pension funds are example of market-based formal mechanisms. Examples of publicly provided mechanisms are public health care or social security systems. The lack of access to these formal mechanisms makes poor people rely mostly on informal mechanisms of risk management.

*Individual risk management*

Poor individuals or households mitigate the effects of income shocks by diversifying their sources of income. In rural agricultural areas, where most of the world's poor people live, farmers often diversify their crops and use multiple seed varieties. In some cases they also diversify their occupations. For example, in addition to work in farms, rural agricultural people tend to work as part-time workers in the nearby towns.

If a shock occurs, the poor cope with falling income by adjusting their expenditure. Usually, adjusting expenditure means spending less for non-basic needs, eating less or making dietary changes, like consuming less meat and other side dishes. Another way of coping is work for longer hours. If there is not too many alternatives to

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[4] Another purpose of risk management is risk reduction. Building dams reduces the risk of flooding. Public immunization reduces the risk of epidemic disease. But not all risk can be significantly reduced. At least without certain mechanisms (Jütting 2005, World Bank 2000).

work more in their village, they usually move to the other places seasonally or temporary. Income shocks also create the needs for the other family members who were previously not working to search for a job. This in turn creates the increased number of child labor or school drop-out rate during economic shocks.

Even though income fluctuates, people would try to smooth consumption level over time. People smooth their consumption by saving some of the current income instead of consuming everything they earn today. During bad times, they eat up some or all of what they have saved. Or, they may borrow from someone else and repay it back later in the future.

Wealthier people have access to the saving, credit and insurance do their consumption smoothing through financial market. They save some of their wealth into bank deposits or other financial assets. Then during periods of low income they use their savings or ask for credits. However, poor people generally lack access to formal financial system. As the result, they can not save in modern financial assets or instruments. Instead, they to save their wealth in terms of land, cattle or durable goods and other valuables assets like jewelries.[5] They will sell their assets or consume their cattle when bad time comes.

*Community or group risk management*

The above illustrations are examples of how poor people manage risk individually. But in most cases, poor people rely on the others in the group or community in managing their risk. In the most common case, poor people borrow from their

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[5] Rozensweig and Wolpin (1993) presents a study on the importance of bullocks as an important part of portfolio assets for rural farmers in India.

extended family members, distant relatives or neighbors when facing financial hardships. Apart from that, there are also social institutions that serve as community-based risk management arrangements.[6] Table 1 lists examples of informal mechanisms of risk management which are common in developing societies.

**Table 1. Informal Mechanisms for managing risk**

|  | **Individual and households** | **Group-based** |
|---|---|---|
| **Mitigating risk** | | |
| *Diversification* | Crop and plot diversification <br> Income source diversification <br> Investment in physical and human capital | Occupational associations <br> Rotating savings and credit associations |
| *Insurance* | Marriage and extended family <br> Sharecropper tenancy <br> Buffer stocks | Investment in social capital (networks, associations, rituals, reciprocal gift giving) |
| **Coping with shocks** | Sale of assets <br> Loans from money-lenders <br> Child labor <br> Reduced food consumption <br> Seasonal or temporary migration | Transfers from networks or mutual support |

Source: The World Bank, *World Development Report 2000/2001: Attacking Poverty*

One example of such arrangement is agricultural contracting like sharecropping or land tenancy. In many agricultural societies, sharecropping or land tenancy is a means of sharing risk between landlords and tenants. Contracting is also popular among

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[6] In almost all traditional societies, rituals, reciprocal gift giving and other types of communal activities are part of social capital investment, which purpose is to build the social institution for risk management.

agricultural communities because it is often interlinked with credit provision – landlords are also suppliers of credit to share tenants. It is a mutual arrangement, because when tenants receive credits, they can be wealthier and more productive. This means higher income for the landlords as well. Another form of interlinking in agricultural contracts is marketing by landlords. Landlords are the exclusive buyers of tenants' output on a given price. Usually, but not always, the price is set lower than the market price. The landlords would then sell the output in the market. This scheme benefits both – tenants have the certainty and landlords get the profit margin.[7]

Another example of the institution which serves as a way to manage risk is marriage. In many societies, marriage is a contract between two families. The consequence of marriage is an extension of family networks. This implies that a family now has larger members to whom one can seek for income transfers during bad times. A study by Rozensweig and Stark (1989) analyzed how marriage can serve as a tool for 'risk hedging'. They found that many men in rural agricultural households in India tend to marry women from outside of their villages *(patrilocal exogamy)*. A household in a village 'exports' daughters and 'imports' daughters-in-law. The reason behind this pattern is when the home village experiences an income shock, for example due to bad harvest, they still have a family member living in a different village, which possibly does not experience the same shock, who can be the source of income transfer.

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[7] A number of literatures provide discussions on sharecropping and land tenancy. Otsuka, Chuma and Hayami (1992) presented a theoretical literature about the efficiency of agricultural contracting. An earlier study by Shaban (1987) presented some empirical evidences about several types of contracting using detailed data from eight Indian villages. Then, Foster and Rozensweig (1994) discussed the issue of moral hazard in agricultural contracting.

The author confirms this by showing the significance of the amount of inter-village in the region. That is why, according to the study, marriages usually involve a man and a woman from two villages that are relatively far away. By having a family member that lives in a relatively far village, the chance of those two villages experiencing a same shock will be much smaller. Also, two daughters from the same family will not marry partners from the same village.

## Limitations and policy implications

Informal mechanisms are important tools for the poor in managing risk. They can provide protection from risk in some ways. However, informal mechanisms have many limitations. The may protect the poor in small income shocks, but not in big or persistence shocks. Since poor people by definition own only a few amount of assets, the ability to maintain the level of consumption is close to nothing if the income shock is substantially large. Furthermore, if a shock persists for more than one period, assets have been run off in the first period so the poor are left with no protection against income fluctuation in the latter periods.[8]

Another limitation of informal mechanisms is that they often imply a trade-off between risk mitigation and efficient production. Mitigating risk through crop diversification typically lowers the expected profits (Morduch 1995). Farmers will grow some crops which are less risky but yield lower profits. Expected profits are also lower because poor farmers tend to be reluctant in adopting new technologies and taking

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[8] Morduch (1994) raised this argument, quoting the case of investment in analyzed mentioned by Rozensweig and Wolpin (1993).

advantage of new economic opportunities, as shown in a study by Rozensweig (1993) in Indian rural agricultural villages during the green revolution.

Community-based informal mechanisms are also limited. They are ineffective to protect against covariate shocks such as big natural disaster or economic crisis that affect everybody in the community. Moreover, since informal mechanisms are based on local rules which are sometimes unwritten, enforcement sometimes becomes the problem.[9]

These limitations give the room for interventions. There is a wide range of possible policy interventions. Policies can improve risk management indirectly. Prudent monetary and fiscal policy helps controlling inflation, which reduces the risk of falling real income. Education policy improves human capital, which then brings poor people to a wider range of job options. Public health quality improvement helps reducing the risk of illness. But policies should also directly improve the ability of the poor to manage risk. Three main areas of policy intervention in helping poor people managing risk are providing mechanisms for saving, access to credit and insurance.

The roles of saving are serving as the means for accumulation of asset and precautionary purpose. Asset accumulation is important for an individual or household to provide income security, for example during the old age or to finance children's education. Precautionary motive is driven by the needs to smooth consumption when a shock occurs. Zeller and Sharma (2000:160) argued that the saving as a precautionary purpose is more important when the agent is poorer and more vulnerable, since poor, income insecure people would "want easy and quick access to their money at all times."

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[9] The common problem of enforcement is members of the community end up playing strategic behavior. As Bloch, Genicot and Ray (2005) argued in their study that lack of commitment is an example of a source of instability in social networks.

The importance of credit is quite obvious. Production credit relaxes the liquidity constraint that prevents the poor to be productive. Consumption credit serves as an external source of consumption smoothing when there is an income shock. Meanwhile, the presence of insurance maintains a degree of income certainty over a period of time. When access to insurance exists, agents do not need to sacrifice more productive and profitable economic activities for the more certain income.[10]

Since access to the markets of saving, credit and insurance are generally not available for the poor, they rely on the informal mechanisms of risk management, which are built on the community's social capital. Two important components of social capital are networks and trust. The above examples of community credit association, contracting and marriage reflect the importance of social networks and trust for the poor people in providing protection against risk. Networks provide the basis of building the institutions, and trust is what makes the institutions sustained. A good and effective intervention should be built on the existing social capital. It should neither eliminate nor displace it.

Microfinance is perhaps the most applauded example of an intervention that is built on existing social capital. The basic idea of microfinance is providing small-scale loans to people who can not borrow from the banks because they do not have assets to serve as collateral.[11] As the solution to the collateral constraint, instead of granting loans to a single individual, the scheme provides group lending. Referring to the Grameen Bank practice, in each village groups of 3-5 self-selected members are formed. Loans

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[10] The types of insurance needed vary among different population. Poor rural farmers will need weather insurance to guarantee a certain level of income during bad weather. Urban poor working in factories or industrial complexes will need unemployment insurance. And in general, health insurance is needed by everyone.
[11] Pioneered by Grameen Bank in Bangladesh, founded by Dr. Mohammad Yunus, microfinance is now a widely applied scheme of community savings and lending.

will be made to individuals, but if any one member fails to repay, all members in the group will receive collective sanctions. The sanctions ranged from an obligation to pay the collateral or exclusion from next lending.

In addition to provide loans, many microfinance schemes have also succeeded in inducing poor people to save because in the latter stages of loans, further collateral requirements could be substituted by requiring members to form collective funds after the loan has been disbursed. However, microfinance institutions (MFI) in some countries have also faces several problems, like the ineffective use of loans. Instead of using the loans for productive activities, borrowers use them loan for other purposes such as to repay existing debts (if borrowers have been in a vicious circle of high debt) or serve as lending to a third party.[12] Another kind of problem is the profitability of an existing MFI may attract competitors (Morduch 1999:1592). Competition may reduce the power of existing institution in giving sanctions to borrowers, therefore increasing the number of unpaid loans, hence threatening the sustainability of MFI.

Unlike the relative success in providing access to saving and credit, MFI still overlook the potential to provide insurance to the poor. Understandably, insurance service is more difficult to provide due to the problems of asymmetric information and moral hazard. This creates some room for MFI to improve their role in helping the poor by providing insurance schemes to the poor. Some MFI, however, have innovated their businesses by linking saving, credit and insurance, as Zeller and Sharma (2000:163-4) noted:

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[12] Coleman's study (1999) has provided empirical examples of these situations in Thailand.

For example, the Association for Social Advancement in Bangladesh and Bank Rakyat Indonesia require borrowers to buy life insurance for safeguarding loan repayment in case of the death of the borrower. The Indian self-help organization SEWA allows pregnant borrowers to reschedule their loans, and the members of the Caisses Villagoises, for example in Mali or The Gambia, allow the provision of consumption loans at lower interest rate if financed through internal savings of the members.

## Concluding remarks

Poverty alleviation strategy should not focus only on reducing the headcount poverty rate, or the percentage of poor households to total population. Declining headcount poverty rate may be a short-term objective. But in the longer-run, policy objective should be to reduce the level of vulnerability to poverty by providing mechanisms for the poor to manage risk.

Policy intervention should aim to provide access for the poor on saving, credit and insurance. MFI schemes have been applauded as a successful 'best practice' of intervention. Not only MFI help poor people in providing risk management for the poor; it has been built on – not substituting – the existing social networks. While most MFI focus on providing credit and saving, there is still some room MFI's to improve their role by providing insurance schemes. ■

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# APPENDIX

Suryahadi and Sumarto (2001) and Pritchett, Suryahadi and Sumarto (2000) proposed a methodology to measure the vulnerability to poverty using the estimate of the household's variance of consumption expenditures. Consider the household's consumption expenditure function as follows:

$$(1) \qquad \ln c_h = X_h \beta + \varepsilon_h$$

where $c_h$ is per capita consumption expenditure, $X_h$ is a set of household characteristics, $\beta$ is a vector of parameters and $\varepsilon_h$ is stochastic errors. If a certain poverty line is set as $\underline{c}$, then a household is poor if the consumption level is below the poverty line ( $c_h < \underline{c}$ ). A non-poor household may be considered as 'vulnerable' if it has a certain level of probability (for example 0.5) to become poor in the near future. The probability of a household to become poor is defined as:

$$(2) \qquad \hat{v}_h = \Pr(\ln c_h < \ln \underline{c} | X_h) = \phi \left( \frac{\ln \underline{c} - X_h \beta}{\hat{\sigma}} \right)$$

where $v_h$ denotes the vulnerability to poverty, that is the probability that the per capita consumption level ( $c_h$ ) will be lower than the poverty line ( $\underline{c}$ ) with a given household characteristics ( $X_h$ ). Meanwhile, $\phi(\cdot)$ represents the cumulative density of the standard normal distribution, and $\sigma$ is the standard error of equation.

Using the above calculation to define each household's status of poverty and vulnerability, we can group households into several categories:

- Poor households: those whose current consumption below the poverty line ($c_h < \underline{c}$). Poor households can be divided into two sub-categories. Chronic poor are those whose vulnerability is high ($v_h \geq 0.5$), and most likely to remain poor in the future. Transient poor are those whose vulnerability are low ($v_h < 0.5$), and have a considerable probability to become non-poor.

- Non-poor households: those whose current consumption is above the poverty line ($c_h > \underline{c}$). The non-poor can also be sub-categorized as 'high vulnerability' or non-poor with high probability to become poor ($v_h > 0.5$), and 'low vulnerability', who are basically non-poor with low probability to become poor ($v_h < 0.5$).

Using the information of the household categories, the next step of the research is to evaluate the determinants of vulnerability by estimating the vulnerability function:

(3) $\qquad \hat{v}_h = X_h \gamma + \tau_h$

where $v_h$ is the estimated household's level of vulnerability obtained from (2), $X_h$ is a vector of household characteristics including personal (age, education level, gender), household (household size, marital status), geographical (province, urban/rural), sectoral etc., $\gamma$ is a vector of parameters and $\tau_h$ is stochastic errors.