Why should the poor insure? Theories of decision-making in the context of health insurance

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Increasingly, low- and middle-income countries are looking to community-based health insurance (CBHI) as a means of ensuring access to health care for the poor. However, little evidence exists about the determining factors that affect poor individuals' insurance decisions. This article reviews the economic and social literature on theories of decision-making, and presents empirical findings from different socio-economic contexts to describe individuals' insurance enrolment decisions in a low-income environment. Evidence from these studies suggests that several factors may explain poor households' decision to insure or remain uninsured. Combining empirical evidence with theories may serve to develop health policies to address issues related to the insurance design, the socio-economic and the informational context; with the overall objective of improving access to care for the poor.

Key words: demand, health insurance, decision-making, uncertainty, low-income areas

Introduction

Many low- and middle-income countries promote community-based health insurance (CBHI) to improve access to health care for the poor. Health insurance is a risk-sharing mechanism that lowers the out-of-pocket price for medical care at the time of purchase by smoothing medical payments across individuals and time (Barr 1992). Studies conducted in low-income contexts have found that households with access to insurance can diversify their financial risk and potentially raise income levels (Townsend 1995). This suggests that excluding the poor from health insurance may contribute to inequality in access to care and negatively affect health status. These are important health policy concerns in many countries (Wagstaff et al. 2001).

While there has been a proliferation of thinking about the demand for insurance and medical care in recent years (Propper 1993; Cameron et al. 1988; Nyman 1999; Waters 1999), few attempts exist to understand demand for voluntary health insurance like CBHI in low-income countries (ILO 2002). CBHI is mainly offered in the informal or agricultural sectors; or to formal sector groups where social health insurance is absent (Bennett et al. 1998). However, the small size of many CBHI suggests that there are factors that impede individuals from enrolling. These include unaffordable premium levels, cultural aspects, mistrust in the health care system (Abel-Smith and Dua 1988), and inferior quality of care (Criel and Waelkens 2003). Hence, if CBHI is to improve access to care for the poor then health policy needs to understand and address the reasons why poor households insure or remain uninsured.

This paper reviews economic and social theories on decision-making to describe the determinants of the insurance enrolment probability; and presents empirical evidence from studies conducted in different socio-economic contexts on insurance demand. Factors that affect insurance demand are identified and health policy implications derived. The impact of health insurance on equity in access to health services and other aspects of the household economy is relevant; however, it is beyond the scope of this paper to address these issues.

Generally, insurance demand studies use expected utility theory to explain individuals' decision of whether or not to insure. Under expected utility theory, the demand for insurance reflects individuals' risk aversion and demand for income certainty (Schoemaker 1982). This theory is silent about the association between households' socio-economic status and insurance enrolment. The poverty literature suggests that poor households are expected to become increasingly risk averse if they move closer to or further below the poverty line (Wagstaff 2000). Other economic and social theories may inform analysis of insurance demand, and serve to better understand poor people's decision-making concept in the context of health insurance enrolment. Among them are state-dependent utility, endowment effect, status quo bias, regret and disappointment paradigms, prospect theory, and theories related to trust and social capital.

The paper is organized as follows. The literature review summarizes insights from economic and social theories on the factors that influence the decision-making process. Then empirical evidence from different studies is presented and policy implications derived.
Review of decision-making theories

This section reviews economic and social theories on decision-making and relates them to empirical findings on the insurance demand.

Consumer theory

Consumer theory assumes that if consumers are perfectly informed, they maximize their utility as a function of consuming various goods, given relative prices, their income and preferences. Changes in prices and income influence how much of different goods rational consumers will buy (Begg et al. 2000). Health insurance is expected to be a normal good with a positive income elasticity of demand, implying that the poor are less likely to insure. A price increase of a substitute for insurance – such as user fees – is expected to raise the insurance demand, as is a decrease in insurance premium. However, due to uncertainty about the unknown future health, insurance choice is not made based on utility alone but on consumers’ expectation about factors such as their health status (Cameron et al. 1988). Thus, theories on decision-making under uncertainty are generally used to describe insurance enrolment.

Decision-making under uncertainty

Among the theories that analyze decision-making under uncertainty are expected utility, state-dependent utility, endowment effect, status quo bias, regret and disappointment paradigms, and prospect theory.

Under expected utility (EU) theory, insurance demand is a choice between an uncertain loss that occurs with a probability when uninsured and a certain loss like paying a premium (Manning and Marquis 1996). EU theory assumes that people are risk averse and make choices between taking a risk that has different implications on wealth. At the time of insurance choice, consumers are uncertain whether they will be ill or not, and of the related financial consequences. Insurance reduces this uncertainty. Through insurance, they can level out their income over two different states, ill/not ill, which makes the aggregate outcome relatively certain. This certainty allows the insured to reach a higher utility in case of illness than those without insurance. Accordingly, the insurance demand reflects individuals’ risk aversion and demand for certainty, implying that the more risk averse individuals are, the more insurance coverage they will buy (Begg et al. 2000). This theory is silent about the level of consumers’ income and its impact on the insurance choice.

Using longitudinal data from the UK, Propper (1993) examined the demand for private health insurance that covers care in a private sector that exists alongside a public health care system which is free to patients. She finds that private health insurance enrolment can be explained by demographics, income and the quality of care in the public and private sector. Based on data from the US, Phelps (1973) finds that the insurance demand correlates with income, and is positively related with other variables that tend to be linked with income, such as education level, urban areas and white households. Using time-series data, he identifies a positive relationship between insurance demand, and user fee levels, and with higher mean level of illness; and a negative association between insurance demand and premium level (Phelps 1973). Findings from these studies are consistent with consumer theory, implying that insurance is a normal good.

EU theory has been criticized. Laboratory studies have shown that the model’s prediction of choice behaviour is poor, and additional factors need to be included such as the societal context about prudent behaviour or regret considerations (Schoemaker 1982). Individuals’ insurance decisions may not only be affected by risk aversion but also by the access motive of insurance. The access motive reflects the gains from the availability of medical care that would otherwise be unaffordable for the poor. Gaining higher access to care when insured may cause the poor to insure if they are unable to obtain needed health care when uninsured. Without insurance, the poor would not have enough money and time to save for an expensive health care procedure, and lending institutions may be reluctant to lend money when the ability of the patient is limited to repay these loans (Nyman 1999). Despite these critiques, EU theory is most commonly used in models of decision-making under risk (Marquis and Holmer 1996). However, other theories have emerged that aim to account for these weaknesses.

State-dependent utility theory suggests that consumers’ utility level and tastes are influenced by their state, such as their health or socio-economic status. Accordingly, people may have different degrees of risk aversion, which could influence their insurance decision and the magnitude of their expected insurance pay-off. Most people insure when they are healthy. A healthy person might optimistically expect to remain healthy in the near future, which has implications on the insurance choice. The resulting insurance coverage may be below full loss coverage, if the anticipated insurance pay-off is below the real loss in case of illness. Hence, the anticipated need for medical care given the current state, and the magnitude of the related insurance pay-off in case of sickness will affect individuals’ insurance demand (Phelps 1973).

Manning and Marquis (1996) estimate insurance demand by adding the value of medical care to the value of risk avoided in the purchaser’s utility function. At the end of the RAND study, participants were asked to select from hypothetical insurance plans with different co-insurance rates. Results suggest that enrolment in a hypothetical insurance is not affected by household income and premium levels but rather by the expected pay-off individuals will receive when sick (Manning and Marquis 1996). The poor may expect less pay-off when sick, which could influence their insurance decision. They may anticipate purchasing single tablets of medicine from a market vendor for self-treatment, not covered by insurance. Also, the richer may not enrol in CBHI because the magnitude of the expected pay-off from CBHI is not ‘good enough’ for them. They might prefer to pay user fees or purchase private insurance coverage allowing them to use more expensive hospital care.
Prospect theory questions the assumptions made by EU theory, and states that the choice is about prospects of gains or losses, and not the level of uncertainty. Individuals assume an optimal risk level for every expected gain or loss. The point from which an individual perceives gains and losses to occur may influence the choice; and gambles are judged in terms of their deviations from this optimal risk level (Kahnemann and Tversky 1979). Applied to the insurance context, prospect theory suggests that people insure from a gain perspective and not because insurance reduces uncertainty. Given a premium level, people will first assess their individual health risk level and the eventual deviation from it (for example, my health is bad and it could get worse). They may decide not to insure because of a gain prospect: they expect to pay less for their health risk than the deviation from it. This is a risk because the deviation may be greater than expected and cause a loss. So, prospect theory says that, with respect to losses, individuals are risk preferring. Following from this, individuals will only insure if the loss will occur with certainty, and not because they are risk averse as suggested by EU theory (Kahnemann and Tversky 1979).

Using RAND study data, Marquis and Holmer (1996) found that the demand for insurance appears not to be affected by premium level, and families consider losses smaller than US$200 as irrelevant. When evaluating risky prospects in their demand decision, people evaluate them as gains and losses from a reference point. They will first assess their individual health risk level and the eventual deviations from it (for example, my health is bad and it could get worse). They may decide not to insure because of a gain prospect: they expect to pay less for their health risk than the deviation from it. This is a risk because the deviation may be greater than expected and cause a loss. So, prospect theory says that, with respect to losses, individuals are risk preferring. Following from this, individuals will only insure if the loss will occur with certainty, and not because they are risk averse as suggested by EU theory (Kahnemann and Tversky 1979).

Cumulative prospective theory combines state-dependent utility and prospect theory: people assign different weights to the probability that an event will occur. Then, they make choices between prospects through the weighted probabilities of losses and gains. However, they tend to overweight small probabilities, whereas high probabilities are underweighted. For example, over-weighting of small probabilities explains why people purchase lottery tickets (Tversky and Kahneman 1992). Applied to the insurance demand, cumulative prospective theory suggests that people insure because they overweight the relatively small probability of the event of illness. However, poor individuals, who do not have the luxury to let health compromise their daily work (Case and Deaton 2002) might underweight the illness probability and remain uninsured.

The endowment effect assumes that decision-making is affected by individuals’ risk aversion about something new. People perceive greater costs in giving something up than benefits in acquiring something new. Therefore, they will charge a higher selling price for a good than they would be ready to pay for it. They would rather stay with the old if they do not know whether the benefits of an unknown alternative exceed the costs of giving up something well known (Kahnemann et al. 1991). Under the endowment effect, poor individuals will insure if they perceive the benefits of insurance (for example, access to better quality care) as higher than the cost related to giving up being uninsured. But they will most likely remain uninsured if insurance does not improve access to care and eliminate informal under-the-table payments charged by providers. The latter is particularly important where CBHI members are requested to pay a co-payment as a percentage of their health care bill, as is the case in many African mutuelles (Bennett et al. 1998). Where illiteracy rates are high and patients are not familiar with percentage calculations, paying a co-insurance rate gives ‘mathematical discretion’ to providers, and takes control away from the consumer, who as a consequence might mistrust providers and not insure. The status quo bias is similar to the endowment effect. Studies suggest that consumers prefer the status quo they are familiar with instead of undergoing an unknown, innovative medical procedure (Salkfeld et al. 2000). Apparently, people consider departures from the status quo as more detrimental than beneficial. In addition, individuals tend to stay with the status quo if there is an increasing number of alternatives to choose from, and if choices become more complicated (Kahnemann et al. 1991). This ‘veil of experience’ appears to determine choices, especially when lacking full information on the alternatives. Marquis and Holmer (1996) found that when presented with hypothetical offers to purchase additional insurance coverage, RAND study participants showed inertia in plan choice, which may be interpreted by the status quo effect or veil of experience. It highlights the importance of information when offering insurance to poor and illiterate groups; particularly, if the concept of insurance is new.

Regret and disappointment theories are based on the assumption that people have a loss aversion and conservative preferences. Individuals try to avoid regret and disappointment and do not just consider the eventual outcome, as suggested by EU theory. They factor in their feelings of regret, in case the decision would have been wrong, and of disappointment, if the outcome does not correspond to what they have expected (Bell 1982, 1986). Hence, individuals may prefer to remain uninsured because they might regret their decision, or be disappointed if they do not benefit from an insurance payout; or they insure to avoid feelings of regret from falling ill while uninsured. Regret and disappointment theory may be combined with state-dependent utility theory: an individual in a less fragile health state may factor in a ‘smaller amount of regret’ when deciding whether to insure. These theories are silent about eventual differences in the amount of regret and disappointment between wealthier and poor individuals. Despite the criticism of EU theory, none of the other decision-making concepts has provided superior results based on empirical findings on individuals’ real market decisions. Based on RAND study data, Manning and Marquis (1996) conducted a robustness check between expected utility and prospect theory, and found that the two theories do not affect results significantly. Even if risk aversion is not the dominant motivation to insure, the influence of other factors in the choice process will not alter results (Manning and Marquis 1996).
Poverty literature

The poverty literature describes additional concepts that influence decision-making, namely time preferences and poor households' risk aversion against risky investments. This literature suggests that households are expected to become increasingly risk averse as they move closer to poverty, as any further drop in income can push them below the survival point (Wagstaff 2000; World Bank 2000). Poor households who are more likely to have credit constraints in the future may be more willing to sacrifice current income and insure in order to have less risk in the future (Morduch 1995). According to concepts of time preference, those with a higher value for future protection than current consumption are more likely to purchase insurance (World Bank 2000). On the other hand, the poor might not insure, as out of necessity they may have to choose present over future consumption.

Findings from cross-sectional data collected in Rwanda from insured and uninsured households indicate no relationship between CBHI enrolment and households' socio-economic background; about 90% of the target population of 1 million chose to remain uninsured during the first operational year of CBHI. The enrolment probability was determined by geographic variables, such as district of residence and distance to the health facility and to a lesser extent by demographic and asset variables. While poverty was the main reason for non-enrolment, precaution was the main reason members gave for enrolment, independent of their socio-economic background (Schneider and Diop 2001). These findings suggest similar risk aversion across socio-economic groups, implying that other reasons may better describe poor households’ insurance demand. These reasons could include poor households’ increasing risk aversion when moving closer to poverty, their credit constraints in the future, living close to the health facility and eventually knowing the staff there, and trust in the health insurance system.

Instead of insurance, poor households may choose alternative mechanisms to cope with financial risks, like income diversification, credit and savings (Besley 1995). Some households have access to local village organizations such as a rice bank, a housewife fund or rotating savings accounts (Townsend 1995). Others may use money-lenders, assets and credit markets. Alternatively, they may shift the risk among household members to draw from additional income sources, including increased female and child labour participation (Dercon 2000). Households may self-insure through precautionary building up of assets in good years to smooth consumption over bad times. They could invest in livestock that can be sold when money is needed, as well as in the education of one family member in the hope of creating a wealthier relative who can be called on for emergency funding (Townsend 1995). There are, however, limits to what these informal mechanisms can achieve. Nonetheless, they are important alternatives for poor households when insurance premiums are unaffordable, as the following study suggests.

Jowett (2003) uses data from households in Vietnam to identify the factors that affect the demand for public voluntary health insurance. His findings indicate that in the absence of informal credit- and financing-networks, households are more likely to insure in public health insurance. The income variable appears to provide inconsistent results in this analysis, which may be related to the low income inequality in the study area (Jowett 2003).

Trust

The relevance of trust in the context of health insurance is unclear. Yet its potential importance has been discussed (Arrow 1963; Mechanic and Rosenthal 1999; Jowett 2003). Trust has been defined as the expectation that arises among citizens of regular, honest and cooperative behaviour, based on commonly shared ethical norms and values, including reliability, loyalty and solidarity (Fukuyama 1995). Mechanic (1998) describes trust in insurance in three dimensions. First, patients’ trust in providers, which is based on their previous experience with providers’ ability to diagnose and treat illness and to act in patients’ interest. Secondly, trust in insurers, based on the insurer’s reputation of improving access to care. Thirdly, trust generated by the control mechanism for legal enforcement of commitments like contracts. He concludes that insurers can build a reputation of trustworthiness by demonstrating expertise, responsiveness to consumers, and by ensuring quality care in contracting health facilities (Mechanic 1998).

These trust-related components are particularly important in the CBHI context. Many CBHI operate within weakly defined legal and political systems; and are based on mutual, non-written agreements that are monitored and enforced by members. CBHI managers often lack the technical capacities to manage an insurance scheme and negotiate with providers for better care. In addition, financial incentives created by the insurance design can result in inefficient service use and insurance failure (Bennett et al. 1998); and providers’ inferior quality of care negatively affects CBHI membership (Criel and Waelkens 2003).

Table 1 summarises these different theories on decision-making. For each theory, it is shown how individual preferences will affect their motivation to insure, such that they reach their desired outcomes, as well as the factors that predict insurance purchase (column 3) or a decline of health insurance (column 4).

Factors that may stimulate health insurance demand include risk aversion; higher income levels; low insurance premiums and high user fees; knowing with certainty that illness will occur; the over-weighting of occurrences with small probabilities including illness; risk aversion against impoverishment; and trust in providers’ quality of care level and CBHI management.

Among the possible reasons for non-insurance are: low user fee levels; individuals’ risk-seeking behaviour if illness is uncertain; their risk aversion against something new and unknown like insurance; the necessity for current consumption because they are too poor to insure against eventual future risk; mistrust in the insurance mechanism; the veil of
experience and their dislike of eventual feelings of regret and disappointment; and unaffordable premium levels causing them to rely on alternative risk-sharing mechanisms. With their choice, people aim to increase their utility level versus a reference point, and prevent feelings of regret and disappointment.

**Policy implications**

This paper has reviewed the literature on social and economic theories of decision-making and presented empirical findings from different socio-economic contexts to describe the determinants of insurance enrolment. Numerous factors have been derived that may explain poor households’ insurance enrolment decisions. The poverty literature suggests that the poor have liquidity constraints and other behavioural constraints that cause them to remain uninsured even when they might be better off with insurance. They may rely on solidarity from family and friends to smooth out consumption and financial shocks related to ill-health over time. This indicates that offering CBHI to low-income groups might not improve access to health care, because there are other factors that cause them not to enrol. Thus, health policy might focus on addressing these factors by considering first, the insurance design; second, the socio-economic situation; and third, the informational context.

First, combining empirical evidence with decision-making theories may help in designing health insurance that responds to the needs of low-income groups. As suggested by the endowment effect, the poor might not insure if they do not know whether the benefits of insurance exceed the costs of being uninsured (Kahnemann et al. 1991).

Critical CBHI design features that affect enrolment include the co-payment and waiting period for insured patients, the insurance benefit package, CBHI management and the provider payment. If the uncertainty of whether informal payments will be charged remains, then the poor will regret having enrolled in CBHI, as they may have to continue to pay providers ‘under the table’. Many CBHI have a 6-month waiting-time for new members before they may benefit from insurance coverage (Bennett et al. 1998). This feature may create mistrust about the financial management of CBHI and negatively affect the expected pay-off of CBHI, as well as enrolment. Whether the size and composition of the CBHI benefit package corresponds to poor people’s needs will also affect their enrolment decision. In addition, the provider payment mechanism will set financial incentives to providers to either increase the number of services and related costs (which may lead to premium increases and financial instability) or to increase the use of preventive care and provide better quality care. Both provider reactions will affect enrolment. While the former will create mistrust in CBHI financial viability and impede enrolment, the latter may lead to improved quality of care, causing individuals’ expected insurance pay-off to increase, and may attract more members. It also implies regular monitoring of quality of care in health facilities to prevent declining enrolment.

Health policy could focus on these design-related barriers, as the poor might more likely insure if the CBHI pay-off corresponds to their needs and if they perceive providers and CBHI management as professional.

Secondly, the few empirical findings with income-independent insurance demand from low-income areas suggest that factors other than households’ socio-economic background may motivate the poor to insure (Schneider and Diop 2001; Jowett 2003). These include poor households’ increasing loss aversion the closer they move towards the poverty line; their higher probability of illness; the anticipated magnitude of

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<tr>
<th>Theories</th>
<th>Motivation</th>
<th>Effects predicting purchase of insurance</th>
<th>Effects predicting decline of insurance</th>
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<tr>
<td>Consumer choice</td>
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<td>High income; high user fees Low premium insurance</td>
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<td>Expected utility</td>
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<td>Prospect</td>
<td>Prospect of gain in reference to risk level</td>
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<td>Cumulative prospect</td>
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<td>Endowment / status quo / veil of experience</td>
<td>Higher utility versus reference point</td>
<td>Loss aversion High probability of illness High value of future protection High risk aversion when near to poverty line Strong social capital Trust in insurance system</td>
<td>Mistrust in insurance system</td>
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<td>Maximize utility</td>
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Table 1. Theories of decision-making applied to the health insurance context
insurance pay-off when sick given their weak health status; their certain prospect of loss related to ill-health; and the depletion of social network due to widespread poverty. However, this does not mean that the insurance premium is easily affordable for the poor. Rather, as results from Rwanda suggest, the poor may have endured additional economic hardship in order to pay enrolment fees and gain income certainty through CBHI (Schneider and Diop 2001). A possible policy solution is to set an income-dependent progressive insurance premium and subsidize the premium for low-income groups.

Finally, and as suggested by the endowment effect and status quo bias, the decision to insure may be complicated for individuals, particularly in areas where insurance is a new concept and illiteracy rates are high. Hence, information on insurance, transparency in financial management as well as regular supervision of CBHI and providers are key for the poor to develop trust in the CBHI-provider system. Otherwise, CBHI could be perceived as an investment that is too risky.

Analysis on decision-making in the context of health insurance and low-income population groups is still limited, and the theories and evidence discussed above highlight the need for further research in this area. Since these theories were developed and tested in Western contexts, they may not necessarily be appropriate in low-income country settings and may contribute to inconsistent results. Thus, if economic theory is to be applied in low-income settings, then these theories should be tested in the relevant real market situation. Also, additional data on decision-making collected in low-income areas could shed more light on households’ enrolment behaviour. From a government and donor perspective, combining theories with improved information on the reasons why low-income groups remain uninsured may serve to develop CBHI that encourages the poor to insure and improve their access to medical care.

Endnotes

1 These pooling mechanisms are also called micro-health insurance (MHI), community-managed, or community-financed insurance schemes, mutual health organizations (MHO), ‘mutuelles’, or prepayment schemes with risk-sharing.

References


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