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Preferences of Micro-insurance products: Evidence from the mutual assistance fund in Vietnam

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This study investigates preferences of clients for microinsurance products using a case study from the Mutual Assistance Fund (MAF), the pioneer microinsurance provider in Vietnam. The study aims to contribute to improving the ability of the young microinsurance industry in Vietnam to meet the needs of its clients, which in turn, will enhance its efficiency, effectiveness and sustainability. In addition, the study examines determinants of microinsurance and identifies potential gateways for microinsurance to serve the uninsured poor in the population. Our results reveal that the current premiums offered by the MAF seem too low and that they have no significant effect to the preferences of clients over product attributes. In the same line with Tran and Yun (2004), we found that clients are willing to pay higher premium in order to receive a higher level of benefit. In addition, the main factors that significantly affect product preferences are experiences in insurance, mathematical ability and attitude towards risk.

Key words: Microinsurance, Vietnam, conjoint analysis, client preferences.

INTRODUCTION

Despite achieving rapid economic growth in the last two decades, Vietnam remains a poor developing nation with a poverty rate of some 40 per cent, with the highest levels of poverty concentrated in rural areas (General Statistical Office, 2009). With the transition of the economy towards a market mechanism and the absence of an effective safety net, the poor are most vulnerable to negative external shocks such as natural disasters and/or death and illness of the main breadwinner. Informal coping strategies such as relatives and friends are limited, while formal insurers often neglect the poor due primarily to high transaction costs. Mutual Assistance Fund (MAF), Vietnam's first microinsurance provider, was started in 1996 as a single line of life–credit insurance (Tran and Yun, 2004). At present, MAF provides a basic health insurance product with capped benefits of VND 1 million (about $50) (The exchange rate at the time of writing this report is US$1≈VND20,000), which is renewable every five years and cover hospital visits and medications (Centre for Women Development, 2009). Low income households can also receive services from commercial insurance companies. For example, the

state-owned Bao Viet (Bao Viet is the State-owned Vietnam Insurance Company), Petrolimex (Petrolimex is the State-owned Vietnam petroleum import-export company) insurance, Vietnam Social Insurance; and foreign insurance companies such as Manulife and Prudential have provided some life and health insurance plans, which are affordable for low income households.

Since the microinsurance industry is relatively new in Vietnam, little research has been conducted into this industry. To the best of our knowledge, no previous research has examined whether current insurance products provided by the MAF satisfy their client's needs. Only a few previous studies have investigated the latent demand for insurance of the uninsured poor in Vietnam. Hence, the main aim of this study is to examine the extent to which the current line of microinsurance offered by the MAF is able to satisfy their client's needs.

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In addition, this study aims to identify preferences of existing and potential clients regarding product attributes.

MICROINSURANCE IN VIETNAM

Overview

Microinsurance is a relatively new industry in Vietnam. MAF was an industry pioneer as very few of the other major service providers were prepared to market their products to the poor. Apart from MAF, which provides credit-life and health insurance, other microinsurance providers include GRET and the Vietnam Bank for Agriculture and Rural Development (VBARD). GRET, a French NGO, started providing livestock insurance in its project areas in the Red River Delta in 1999 (Tran and Yun, 2004). The VBARD provided insurance for agricultural production, which covered crops, livestock and flood (Asian Development Bank, 2008; Hartell and Skees, 2009).

Other mainstream firms provide affordable insurance to the rural poor (Tran and Yun, 2004). For example, Bao Viet, Petrolimex Insurance and the Vietnam Social Insurance provide various health insurance products, some with premium as low as $US2 per person per year. Additionally, Bao Viet and foreign insurance companies such as Prudential and Manulife provide life insurance products with premium options as low as $US1 per person per year.

Although there are number of insurance providers in rural Vietnam, poor households still depend on traditional means (that is, supports of friends and relatives) to cope with financial shocks (Tran and Yun, 2004). Our research has revealed similar findings; traditional resources still play an important role, even in households which have purchased insurance. According to Fischer and Buchenrieder (2008), there are several possible reasons for this. First, the majority of poor rural households have very little awareness of the availability of insurance services. Secondly, households may have a poor understanding of insurance contracts, and hence do not exercise their rights. Thirdly, high transaction costs such as travel costs to contact insurance firms may prevent insured households from filing their claims.

In summary, microinsurance is a new industry in Vietnam, pioneered by the MAF and currently is operated by NGOs and microfinance programs. However, the main mechanism to cope with risks among the poor in Vietnam is still through informal channels such as friends and relatives.

TYM and MAF

In 1989, the Vietnam Women's Union (VWU), a mass-based national organisation designed to promote the welfare of Vietnamese women, took an interest in the Grameen Bank's approach to poverty-focused lending. A pilot program was launched in 1993 with a $US55,000 seeding grant from the Grameen Trust and the Asian and Pacific Development Centre. The microfinance model was named TYM, which is the abbreviation of a colloquial Vietnamese phrase "*Tao Yeu May*" for "I love you". In June 1996, with permission of the VWU and TYM, the MAF was established, with the aim of reducing the vulnerability of the poor against misfortunes in life such as death or sickness of its members. Each member contributed VND 200 (about 1 US cent) per week as a form of insurance premium. When the member was hospitalised, the policyholder would receive a once-off benefit of VND 200,000 ($US10) towards the cost of hospitalisation. If a member's husband, wife or child passed away, they would receive a payment of VND 200,000 for funeral costs. If a member passed away, her family would receive a funeral benefit of VND 500,000 ($US25) and her outstanding loan would be written off (Centre for Women Development, 2009). At present, the weekly premium has increased to VND 1,000; the hospitalisation benefit has been adjusted to VND 1 million renewed every five years; and the funeral benefits increased to VND 3 million and VND 1 million for member and their family member, respectively (Centre for Women Development, 2011).

MAF gradually improved its capacity and professionalism due to technical supports from various international agencies such as the Ford Foundation. MAF technical officers have been able to design and test new products, conduct actuarial analyses, and develop business plans. For example, in 2009 MAF introduced a new credit insurance called "loan mutuality". The additional attributes are that apart from writing-off any outstanding loans, any repayments made by the deceased are returned to the family. Owing to these continual improvements, MAF operations have expanded rapidly during the past decade. For example, the total number of clients increased from 13,000 in 2001 to 55,000 in 2010 (Figure 1).

Microinsurance research

To the best of our knowledge, there are only four previous studies, which examine microinsurance in Vietnam. Vandeveer (2001), who pioneered research on rural insurance in Vietnam, has investigated the demand for insurance among litchi producers in the north of Vietnam. This study interviewed 100 litchi growers in Luc Ngan province regarding their production, and stated preferences for hypothetical crop insurance. The author found that high income farmers were more willing to purchase crop insurance. In addition, since the premium was relatively low compared with expected crop revenue, the study revealed that these farmers were not responsive to changes in premiums.

Tran and Yun (2004) were the first to research the operation of a microinsurance institution in Vietnam. The
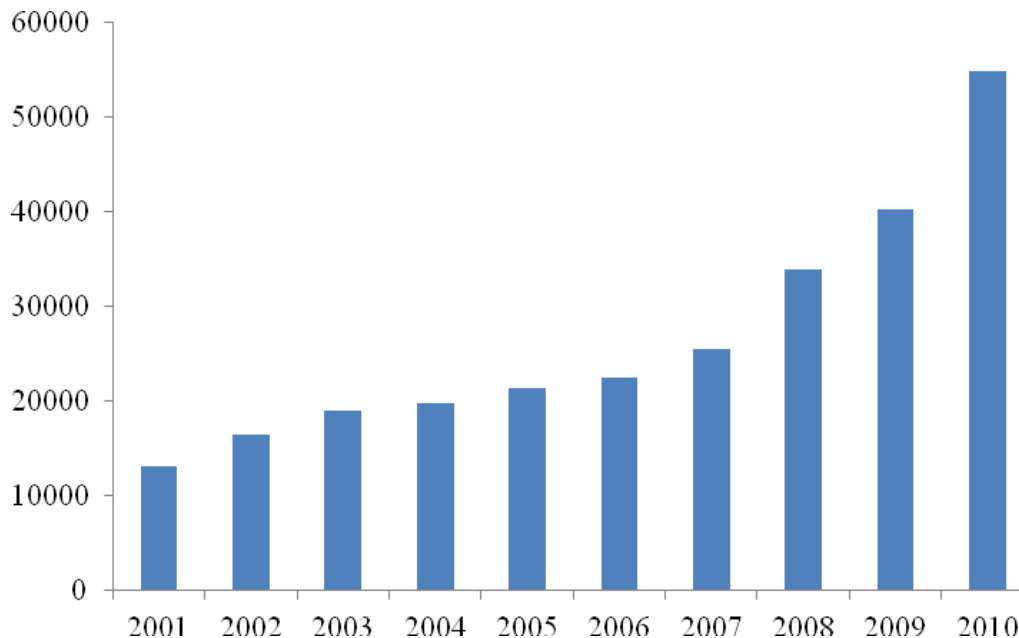
Figure 1. Membership of the MAF in 2001-2010. Source: Own illustration using MIX data (www.mixmarket.org).

authors examined the performance of the MAF, which is one of series studies analysing the positive and negative aspects of microinsurance, supported by the Consultative Group to Assist the Poorest (CGAP). The authors recommended that the MAF should periodically adjust premiums and benefits to reflect the changing needs of their clients. As reported by this study, the authors found that clients were willing to pay higher premium for additional benefits.

Another important study published by Fischer and Buchenrieder (2008), analysed the demand for livestock insurance using an adaptive conjoint analysis. The authors surveyed 155 households in two northern mountainous provinces, Son La and Bac Kan and found that rural households expressed a strong desire to purchase livestock, especially water buffalo. In addition, most households surveyed revealed a preference for products which combined insurance with credit and savings. The marketing of these hybrid financial products is currently practiced by MAF.

Alip and David-Casis (2008) investigated the operational environment of microinsurance in Vietnam and advocated that the MAF should transform into a sustainable microinsurance service provider. The authors suggested that microinsurance providers such as MAF should focus on improving information dissemination and education to increase the population's awareness and acceptance of insurance. Additionally, they suggest that the MAF should consult with international insurance experts to improve their operational capacity. Furthermore, they recommend the Vietnamese

government reviews its current legislation to facilitate access to insurance by lower income groups.

In short, there are only a few previous studies relating to consumer preference and products design of microinsurance in Vietnam. The two studies of the MAF (Tran and Yun, 2004; Alip and David-Casis, 2008) are mainly desk reviews and strategic planning. The remaining two studies (Vandeveer, 2001; Fischer and Buchenrieder, 2008) focused on exploration of interests for potential insurance programs. This present study combines both the examination of existing programs and analysing preferences of clients to design future products.

METHODOLOGY

The analytical framework of this study is based on the agricultural household model of Singh et al. (1986), and Taylor and Adelman (2003), in which the household's objective is to maximise their expected lifetime utility, subject to time and budget constraints. Based on their attitude toward risk, the framework suggests that poor households would purchase microinsurance products if they are available, affordable (including both direct and transaction costs) and help increase their expected lifetime utility. In addition to maximising expected lifetime utility, households would be willing to purchase suitable microinsurance products because they prefer a stable than a variable level of utility over time.

The preference of consumers for products can be revealed through market behaviour indicators such as

Table 1. Attributes and value for conjoint analysis.

Attributes	Value	Coding
Premium	*VND 1000 (about 5 US cents)	1
	VND 2000	2
Sickness benefits	*VND 1 million for 5 years	1
	VND 0.5 million for 2 years	2
	VND 0.3 million every year	3
Death benefits**	*VND 1 million	1
	VND 2 million	2
	*Nil	0
Other benefits	VND 0.2 million every year	1
	VND 0.5 million for 2 years	2

*These values are applied to the existing products of MAF. **benefits paid to member of client's family.
The level of benefits paid to the family for clients' own funeral remains unchanged.

prices and quantity of products purchased; or can be stated through the decision of clients to select their desired products through discrete alternatives. This study focuses on analysing stated preferences such as information on some attributes of new products under this study has not been introduced by the MAF.

Based on the framework of Lancaster (1966), consumers maximise utilities by selecting an optimal combination of product attributes. Therefore, we designed a discrete choice experiment in which consumers select products based on fixed and mutually exclusive products with different combinations of attributes. The choice of product attributes is affected by both observable and unobservable determinants, and hence, the random utility model proposed by McFadden (1974) is selected for the analysis of consumer preference in this study.

Empirically, we analyse preferences for insurance by developing different products with combinations of attributes modified from the current products of the MAF. Since each individual can best assess their willingness to bear risk attitude and preferences, it is expected that they will choose the products that maximise their utility. By using regression analysis we will be able to determine the main determinants of product choices, including product attributes and characteristics of individuals and households. To control for unobservable individual effects, we use econometric treatment such as a random effect estimator instead of standard regressions.

After discussing with the MAF staff, we selected four product attributes for analysis: premium, hospitalisation payout, death payout, and other payouts. To keep the number of combinations of attributes manageable, we choose arbitrarily two options of premium and other benefits, and three options for sickness and death benefits. The existing attributes of MAF at the time of the study included a weekly premium contribution of VND 1000, and benefits for sickness claims of VND one million, renewable every five years, death claims of VND

three million for the decreased client plus the writing-off of any outstanding loan, and VND one million for funeral costs when a member of the family has passed away.

The new proposal will include some variations from the current characteristics. The premium has been fixed at VND 1000 for a long period, but with increasing inflation it is suggested that the premium should increase. In this study, we proposed to double the premium. While this may sound a significant increase, it represents only a 10 US cent increase in absolute terms. Regarding the sickness payout, the proposal is to reduce the time frame for claim limits.

The present time frame of five years for sickness claim was too long, and hence we proposed new choices: VND 500 thousand for every two years, and VND 300 thousand each year. Also to reflect the increase in inflation, the funeral support was also proposed to double to VND 2 million. Apart from existing benefits, we have included two levels of insurance for sudden financial hardship such as loss of business, fire or burglary with two choices: VND 200 thousand per year or VND 500 thousand for two years (Table 1).

From these attributes, we are able to form a total of 36 combinations but surveys with more than a threshold of 18 combinations are associated with boredom for the interviewees, which may result in poor quality of data (Malhotra and Birks, 2000). Therefore, we randomly selected 16 combinations, organised in 8 pairs, using the Federov's algorithm (Wheeler, 2004) to make it manageable for both interviewees and interviewers. The interviewees are asked to choose one product or none from each pair, uniformly coded as A and B (Table 2). Product A includes attributes of the current products offered by MAF whilst product B offers some attributes modified from the existing product.

The relative importance of each attribute is measured by regression analysis. In particular, each choice is treated as a separate observation, and hence the data were stacked with 8 observations per respondent. The

Table 2. Example of a pairwise comparison question for conjoint analysis.

	Product A	Product B
Premium	VND 2000	VND 1000
Sickness benefits	VND 0.3 million per year	VND 0.5 million per 2 years
Funeral benefits	VND 1 million	VND 2 million
Other benefits	VND 0.5 million per 2 years	VND 0.5 million per 2 years

equation to be estimated is:

$$\Delta U_{ij} = \sum_{k=1}^{4} \beta_{kij} X_{kij} + \varepsilon_i + \mu_{ij} \qquad (1)$$

where ΔU_{ij} refers to changes in utility of individual i for ranking pair j when moving from product A to product B (this variable was coded as: 1 = the new product is worse than the current product; 2 = the new product is as good as the current product; and 3 = the new product is better than the current product); X_{kij} (k = 1, 2, 3, 4) are the attributes of the insurance products; $\varepsilon_i \sim N(0,1)$ is individual unobserved characteristics (i.e., it captures variations within individuals regarding their choices of products), and $\mu_{ij} \sim N(0,\delta^2)$ is a random error term representing *between* individual variations. Coefficients $\beta_1, \beta_2, \beta_3$ and β_4 represent the importance premium, and the level of payouts for sickness, death and other benefits. The ratio of β_k/β_1 (k = 2, 3, 4) represents how much premium the clients are willing to pay in order to increase their level of benefit. Due to the presence of the unobserved individual effect, the application of standard regressions to Equation (1) will generate bias results due to the correlation between the error term ($\varepsilon_{i+}\mu_{ij}$) and exogenous variables (X_{ij}). Therefore, unobserved individual effects in this specification can be mitigated using suitable econometric methods such as the random effect ordered logit estimator.

SURVEY DESIGN AND DATA

A household level survey was conducted to examine the preference for insurance for both existing clients and non-clients of MAF. The sample frame of the existing clients includes   members of microfinance programs provided by TYM, who automatically become members of MAF. Based on the report of Tran and Yun (2004), we suspect that most microfinance members will purchase life credit insurance but their participation rate in the voluntary health insurance may not 100 per cent. In addition, health insurance is also offered by other service providers and hence it is of interest to examine the extent to which MAF occupy the market.

The sample frame for non-clients includes those who live outside the coverage areas of TYM microfinance programs. To mitigate the issue of self-selection we selected non-villages with similar characteristics as that of member villages (i.e., geographical proximity, similar

level of wealth, which is proxied by the proportion of poor households in the village). In order to improve the efficiency of sampling, a two-stage cluster sampling process was applied. In the first stage, two member villages and one non-member village were selected randomly from their respective sampling frames. In the second stage, we aimed to sample 100 household per village for the main group (clients and low-income households in the non-client village) and 20 households per village for the group of richer households. The target sample size for non-participating members of MAF will be decided upon by their availability but limited to 100 households per village. Since the sizes of villages are likely to differ, the sampling weight (that is, the inverse ratio at which households are selected) is applied in all analyses to produce consistent results.

The descriptive statistics of the data in Table 3 revealed that most of the household and individual characteristics (e.g., years of schooling, occupation, household size, risk type and level of mathematical competence) of clients and non-clients of MAF are similar. However, there are some noticeable differences. Most respondents from the non-client group are male whilst more females responded at interviews of client households. This reflects the fact that MAF was developed from a microfinance program which targeted women while the majority of households in the survey area are headed by men.

An interesting observation is that the proportion of households that reported having an adverse incidence in the past 12 months is significantly higher among client households (33%) compared with that of non-clients (20%). This may due to the fact that all client households are covered by some insurance products from MAF whilst only 68% of non-client households purchase insurance. The presence of adverse-selection and/or moral hazard is one possible reason for the significant association between coverage and claimable events.

The descriptive statistics also reveal that client households have significantly more chance to access credit and have more outstanding loan volumes as a result. In addition, client households have significantly higher income and consumption levels. For example, the average household income of clients and non-client households are VND 100 million and VND 65 million respectively. Based on the average household size in the sample (4 persons) and the exchange rate at the time of this survey ($1US≈VND20,000), the average annual

Table 3. Descriptive statistics of main variables (means).

Variables	All (N=353)	Clients (n=194)	Non-clients (n=153)	p-val.[a]
Age of respondents (years)	45.14	45.89	44.23	0.16
Gender of respondents (1=male)	0.58	0.47	0.72	0.00
Marital status (1=married)	0.82	0.80	0.85	0.27
Years of schooling (years)	8.42	8.38	8.47	0.76
Occupation (1=farmer)	0.76	0.76	0.76	0.97
Household size (persons)	4.25	4.32	4.18	0.31
Risk type[b] (1=risk adverse)	0.50	0.51	0.48	0.53
High math score[c] (1=yes)	0.15	0.15	0.14	0.79
Adverse incidence[d] (1=yes)	0.27	0.33	0.20	0.00
Have insurance (1=yes)	0.86	1.00	0.68	0.00
Life insurance (1=yes)	0.60	1.00	0.12	0.00
Credit insurance (1=yes)	0.54	1.00	0.00	0.00
Health insurance (1=yes)	0.62	0.64	0.60	0.52
Other insurance (1=yes)	0.13	0.06	0.22	0.00
MAF fund (1=yes)	0.55	1.00	0.00	0.00
Bao Viet (1=yes)	0.26	0.28	0.23	0.28
National social insurance (1=yes)	0.33	0.26	0.41	0.00
Prudential (1=yes)	0.07	0.06	0.08	0.35
Access to credit (1=yes)	0.60	0.81	0.35	0.00
Outstanding loan (VND 1000)	17,783	23,299	11,053	0.04
Total income (VND1000)	84,778	100,884	65,105	0.00
Production expense (VND 1000)	21,855	32,327	9,927	0.00
Living expense (VND 1000)	53,266	54,279	52,030	0.51
Total expense (VND 1000)	75,506	87,745	61,564	0.01

[a]t-test for the difference between TYM and non-TYM, only p-value is reported for brevity. [b]this is based on the response of clients on a simple risk game. The results are coded as a dummy variable: those who take the safe option are coded as one and zero otherwise. [c]this is based on a simple mathematics quiz of five questions. Those who answer at least four corrected answers are coded as one. [d]this is the response to the question "did your family face any adverse incidence such as fire, severe sickness, death or burglary in the past 12 months?"

income per person is $US1250 and $US813 for client and non-client households, respectively. This level of income is in-line with the average national income of $US1168 in 2010 (Department of States, 2011). As it is well-known that the distribution of income can be highly skewed, we mitigated this issue by taking the natural logarithm (Singh and Maddala1976).

One interesting observation from income and consumption is that, there is no significant difference in the level of living consumption between client and non-client households. The main source of significant difference in total consumption was due to production expenses.

RESULTS AND DISCUSSIONS

Clients perception of the MAF

As mentioned previously, despite our attempt to find similar households that have not joined the MAF, the data revealed that 68.75% of non-member households had purchased some types of insurance (e.g., health insurance or life insurance) from other providers (e.g., Bao Viet and Manulife). One reason for this issue is that some poor households were given free basic cover of health insurance by Ha Noi City. However, since poor households often purchased (or donated) a very basic level of insurance cover, the most important source of finance to cope with adverse incidence was savings and loans for clients and non-client groups, respectively. Nevertheless, insurance payout is the second most important finance source in both groups. For those who do not purchase insurance, support from relatives is the most popular approach to overcome difficult times, followed by sale of assets, loans and sale of produce (Figure 2).

This study also explores household perceptions about the advantages and limitations of the MAF. A majority of client households (64 per cent) suggested that low premium (VND 1000 per week) is the biggest advantage of MAF. However, only 35 per cent of the households were happy with the current claim procedure. The main

a) With insurance[*]   b) Without insurance
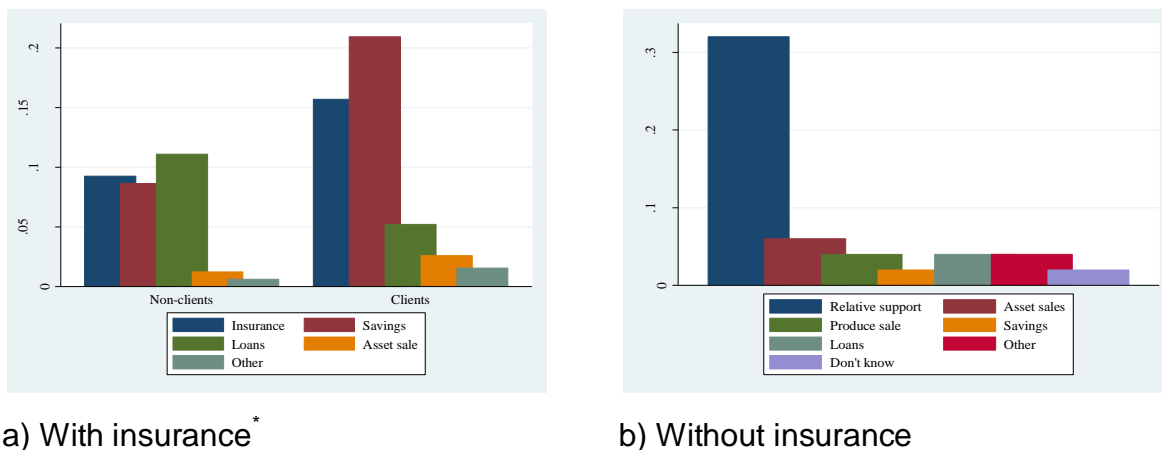
Figure 2. Means to cope with adverse events. *Among those who purchase insurance 63% are clients of the MAF (Clients), the remaining 37 per cent purchase insurance from formal insurers such as Bao Viet (Non-clients).

a) Advantages   b) Suggestions for improvement
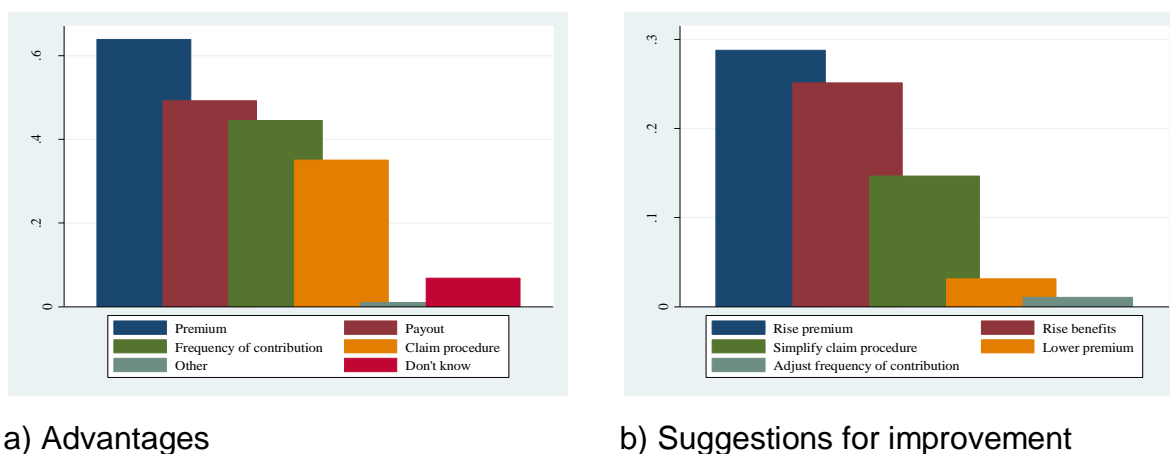
Figure 3. Clients' evaluation of MAF.

criticism of the current procedure was that it required an official seal of the treatment hospitals, which requires considerable time and effort. While most clients value the current low premium setting, the most popular response to the question of the improvement of the MAF was an increase in the premium and payout plus a simplification of the claiming procedure (Figure 3).

Product preferences

In this section we examine the contribution of product attributes to client's preferences on insurance products by estimating Equation (1) using random effects ordered logit. Although the total sample was 353 observations, we excluded 7 observations because of inconsistent responses, which may have resulted from the failure to understand the choice exercise and the risk game. The

results in Table 3 suggest that premium is not a significant determinant of the preference for products of the MAF. This is as expected because the current level of premium is very low; hence an increase in premium would not raise too much concern. However, a rise in the level of benefits payout significantly determines the preference for insurance products (Table 3). The ratio of β_2/β_1 is 5 (that is, 0.15/0.03) suggesting that clients are willing to increase the premium by 5000 VND in order to increase their sickness payout by VND one million. Recent study by Klein (2011) in India and Heenkenda (2011) in Sri Lanka also revealed a similar findings: households were willing to pay higher premium for increased benefits than existing insurance plans.

We could not directly examine individual and household characteristics collected in the survey in the random effect ordered logit regression as the regression was not determined (that is, no variation within individual).

Table 4. The importance of product attributes.

Attributes	Coef.	Std. err[#]	t-val.
Premium	-0.03	0.03	-0.90
Sickness benefit	***0.15	0.02	9.28
Funeral benefit	***0.08	0.02	3.60
Other benefit	***0.12	0.01	8.69

Note: 2669 observations are available for 346 valid individuals. *** represent a significant level of 1 per cent. [#]Robust standard errors are calculated using the sandwich methods of White (1980).

Table 5. Factors affecting consumer preferences.

Variables	Test-statistics$-\chi^2(4)$	p-value
Attitude towards risk (1=risk adverse)	*8.71	0.07
High math scores (1=yes)	**10.10	0.04
Adverse events (1=yes)	**9.85	0.04
MAF client households (1=yes)	**11.93	0.02
Times in MAF (years)	*9.19	0.06
Education (1=finished years 10-12)	**9.91	0.04
Education (1=finished years 7-9)	0.51	0.97
Log of household incomes	7.48	0.11
Age (years)	5.77	0.22
Occupation (1=farmers)	0.53	0.97
Age of spouse (years)	3.85	0.43
Spouse's education (years at school)	0.84	0.93
Spouse's occupation (1=farmer)	6.66	0.15

Note: Significant levels: ***=1%, **=5% and *=10%.

Therefore, we determined the significance of these covariates, by interacting them with the product attributes and conducted a likelihood ratio test for the nesting of the regression with interaction term and the original regression in Table 4.

The results in Table 5 reveal that attitude towards risk, mathematical ability, the level of prone to risk, level of seniority in the MAF and education level. This finding is in line with previous studies on consumer preferences of microinsurance such as Harms (2008) who found that risk aversion and financial literacy affect insurance preferences. It is expected that people with a risk adverse attitude and high mathematical ability will be able to select products that provide more utility. Likewise, we also expect that people with an education level of at least year 10 are more are likely to be able to calculate a better contract, compared with those who only have primary school education. The significant association between insurance purchase and the level of risk (that is, having a higher probability of adverse events like severe sickness, business failure and burglary) is popularly referred to in economics as adverse selection. This is confirmed in this study although it is only significant at 10%. The significant association of time in the MAF with product preferences may due to their experience in the insurance sector.

Again, this finding is consistent with previous studies (e.g., Harms, 2008) that experience with insurance is a significant determinant of product preferences.

Conclusions

This study has examined preferences of client and non-client households of the Mutual Assistance Fund (MAF), the pioneer microinsurance provider in Vietnam. We interviewed 353 households in three villages (two client villages and one non-client village) using a two-stage sampling process. Our results reveal that clients are willing to pay higher premiums in order to receive higher levels of payouts with simpler claim procedure. In particular, clients are willing to pay a premium five times above the current level in order to receive a relevant level of increase in benefit payouts. In addition, clients expressed a preference for a simpler claim procedure such as using standard receipts from hospital instead of those with stamps from heads of departments at treatment hospitals to accompany the claim paper.

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