LAPTOP, LIVESTOCK DRAWINGS AND RICEWINE: A DEMAND ANALYSIS FOR LIVESTOCK INSURANCE IN NORTHERN VIETNAM

Isabel Fischer[1] and Gertrud Buchenrieder[2]

Abstract

Livestock plays a pivotal role for smallholder production systems in mountainous Northern Vietnam. Economic risks, especially the loss of livestock, are major reasons for slipping into poverty. Normally, insurance systems could step in to assist. In developing countries however, insurance markets are usually underdeveloped. For this study, field research on livestock insurance was carried out. We employed novel interactive computing tools and implemented an Adaptative Conjoint Analysis (ACA). One hundred and fifty five (155) farm households of different ethnic minority groups in Northern Vietnam contributed to the study. The pros and cons of livestock insurance are discussed and policy recommendations are presented to improve the overall situation of vulnerable households in mountainous Northern Vietnam

JEL classification: Q14, Q16 and R22.

Keywords: Livestock Insurance, Adaptive Conjoint Analysis (ACA), Risk Management, Vietnam.

1. INTRODUCTION[3]

Vulnerable[4] rural households in the mountainous regions of Northern Vietnam are exposed to various risks, crises and shocks. In rural livelihood

[1] University of Hohenheim. Email: fischer.isabel@gmx.de.

[2] Leibniz Institute of Agricultural Development (IAMO).

[3] The research for this paper was carried out within the framework of the German-Thai-Vietnamese Collaborative Research Program 'Sustainable Land Use and Rural Development in Mountainous Regions of Southeast Asia' (SFB 564), also known as *The Uplands Program*. The funding from the Deutsche Forschungsgemeinschaft (DFG) and the co-funding from the Ministry of Science, Technology, and Environment of Vietnam is gratefully acknowledged. All errors and omissions are the responsibility of the authors.

[4] Vulnerability refers to "the relationship between poverty, risk and efforts to manage risk," (Alwang, Siegel and Jorgenson, 2001:1). Vulnerable households are characterized by the potential

systems where households are inseparable from their agricultural activities, the households' respective endowment with and access to assets and resources determines the severity of vulnerability. In many developing countries, livestock is an important source of household income and has additional non-economic functions (e.g. keeping social networks alive by lending draught animals to network members). Given the pivotal role of livestock in most farming systems, livestock death after accident or disease is considered one of the main factors for slipping into poverty (World Bank and DFID 1999). According to Evans et al. (2007: 46), "…almost 61% of the ethnic minority population [in Vietnam] is poor." At the time of the survey in 2004[5], the average income per capita for the Northwest region was 265,690 VND per month[6], or 3.2 million VND per annum, respectively, which is equivalent to 52% of Vietnam's average annual per capita income (Evans et al. 2007). In comparison, the average prices[7] for cattle (7 million VND) or buffalo (5 million VND) are enormous.

In livestock-dependent households, the failure of an investment – especially when funded by a loan – can leave a household in an extremely vulnerable position. According to Dufhues et al. (2004), farmers using credit to purchase livestock face two risks at once: (1) loss of the livestock, and subsequently (2) failure of debt-financed investment. The lack of accessible veterinary services and high cost of medical treatment for livestock worsen the situation. Formal agricultural or more general rural insurance products hardly exist in developing countries, therefore rural farm households must rely mainly on informal mutual aid schemes within their social networks to reduce their risks (Vandeveer 2000). The adopted livelihood strategies will differ according to whether people have to deal with gradual changes or sudden shocks and crises. In the mountainous regions of Northern Vietnam, raising livestock and selling it during a livelihood emergency is one of the most popular risk management strategies.

of their well-being to change in a negative direction, or by no change within an existing negative status, i.e. remaining in poverty (Conway and Turk 2001). Dercon (2002:16) proposes defining "vulnerable households as those liable to fall under an agreed-upon poverty line over time with a particular high probability". In 2001, one-third of the Vietnamese population lived in poverty and many of those who were not poor lived close to the poverty line. This figure makes up 45% of the population, if 'the vulnerable' are defined as the poor population in 2001, plus those who were near-poor within a line of 10% above the poverty line (Conway and Turk 2001).

[5] On average, 20,000 Vietnamese Dong (VND) are equivalent to 1€ (EUR) in the survey period.

[6] According to national statistics cited in the article 'Unequal regional development in Vietnam'; source: http://www.euromonitor.com/Unequal_regional_development_in_Vietnam (accessed: 05.02.2008).

[7] Source: http://www.vietnamnet.vn/ (accessed: 20.02.2008).

Microinsurance is hypothesized to reduce the economic hardship from livestock loss and its consequences for vulnerable rural households. A computer-based Adaptive Conjoint Analysis (ACA) was carried out in two provinces of Northern Vietnam, Son La and Bac Kan. The demand analysis focused on insurance options for livestock loss and its consequences for vulnerable rural households. Based on empirical data, smallholders' insurance preferences will be presented and policy recommendations will be given to improve the overall situation of vulnerable rural households in Northern Vietnam. While most literature on insurance in developing countries discusses crop insurance schemes and micro-insurance for health and life, little research has thus far been conducted on livestock insurance schemes. This article will help to close that gap.

2. METHODOLOGY AND DATA BASE

ACA is derived from the original Conjoint Analysis[8] (CA). According to Green et al. (2001), ACA was first introduced by Sawtooth Software in 1985 and has since become the world's most widely used conjoint analysis technique for quantitative marketing research. ACA is a hybrid model that incorporates self-explicated desirabilities and importances followed by the presentation of pairs of partial profiles drawn from the full set of attributes. The applications focus on consumer preferences and attempt to assess the effect of specific product features on overall preference. In contrast to other conjoint models[9], e.g. full-profile techniques or choice-based conjoint (CBC)[10] studies, respondents evaluate product alternatives (concepts) described by previously selected attributes and indicate which product alternative they prefer.

Research on the adaptive and coping strategies to shocks will have to consider a wide range of attributes of the supply and demand side. Hence,

[8] According to Green and Srinivasan (1978), CA is recognized as the most frequently used marketing research technique for measuring consumer trade-offs among attribute levels in choice among products and services. It is used to measure the perceived values of specific product features, to learn how demand for a particular product or service is related to price, and to forecast what the likely acceptance of a product would be if brought to market (SKIM, 2002, Orme, 1998).

[9] Green et al. (2001) provides an overview of CA's history and development, as well as different conjoint models.

[10] Concerning CBC, "the respondent's tasks are extensive, since respondents may have to evaluate 10 (or more) scenarios. Each scenario could contain eight or more brands, each with several attributes and with levels within attributes," (Green et al. (2001:13).

respondents may be provided with too much information to be considered thoroughly. The quality of the research is also constrained by limitations in the respondents' time and attention. ACA moves beyond those limitations by adapting the interview for each respondent[11]. Focusing on each respondent's values and areas of importance, so-called 'average utilities[12]' and 'average importances' are calculated during each interview, using ordinary least square (OLS) regression.

In 2004 and 2005, a computer-based ACA was carried out in six villages in the provinces of Son La and Bac Kan in Northern Vietnam. Qualitative data served as the basis for the conceptual outline of the demand analysis for livestock microinsurance. This ACA used a stratified cross-sectional sample with 155 responding farm households of different ethnic minority groups. Eighty-three male and 68 female respondents participated in the ACA interviews. Three interviews had to be deleted from the sample due to incomplete data; one interview was cut short after the respondent explained that he is (due to a bad past experience) neither interested in livestock insurance in general, nor willing to purchase any kind of insurance in the future.

3. LIVESTOCK INSURANCE

In global terms, various livestock insurance schemes were developed over the past centuries. According to Dunlop and Williams (1996, cited in Spinage 2003), a system of indemnity against loss of animals was first introduced in 400BC, during the Zhou dynasty in China. In Europe[13], e.g. in Germany, mutual assurance societies for stock existed as early as the 12th century, and became obligatory in Silesia for all cattle owners in 1765 under a law of Frederick the Great. Informal mutual insurance schemes emerged in France in 1553. Private cattle insurance companies, such as the Farmers' and Graziers Mutal Cattle Insurance Company, were set up in Britain in 1844. However, after a short time, many of the insurance schemes failed due to problems with mounting fraud or premiums that did not cover the claims.

Nowadays, several types of national livestock insurance systems exist in

[11] According to the ACA User Manual (3-1), "An ACA survey includes a series of questions used to first estimate approximate preferences for features, and then later refine them through focused trade-off-questions."

[12] According to the ACA User manual, "Products or services are thought of as possessing specific levels of defined attributes, and a respondent's 'liking' for a product is modelled as the sum of the respondent's 'utilities' for each of its attribute levels" (ACA User Manual: 3-2).

[13] Examples presented in this paragraph are based on Spinage (2003: 301-302).

most developed countries. The majority are focused on direct losses due to epidemic diseases and/or the associated consequential losses. In developing countries, animal insurance schemes have developed mainly in Asia, e.g. in India, where a fairly successful, credit-tied cattle insurance scheme exists (Otte, Nugent and McLeod 2004). However, most farm households in developing countries must still rely on informal mutual aid schemes within their social networks to reduce their risks (Vandeveer 2000). According to Kaweesi (2005), informal livestock insurance arrangements, which usually involve restocking and changing the herd composition, exist, for instance, in West African countries. Formal livestock insurance is challenging, especially if it is meant to serve low-income households. In some countries, public intervention has been the only alternative available in the provision of livestock insurance, where the livestock insurance services are invariably supplied by state-owned or state-subsidized organizations. In other countries, developmental projects, community-based organizations and non-governmental organisations (NGOs) have been involved in the supply of livestock insurance services.

Private livestock insurance is available in some developing countries, including the south of Vietnam[14]. The drawback is that subsistence farmers (or some semi-commercial farmers) are usually below the "threshold of insurability" for the offered insurance products because they are considered incapable of paying the commercially-rated premium due to their generally low income levels. Consequently, the livestock insurance schemes are not commercially viable and the private sector insurance, solely on their own and without assistance from the public sector, may not be able to play a substantial role in providing livestock insurance in developing countries. Nevertheless, the interests of the poorer farmers ought not be ignored, either politically or from the human, social, and economic point of view. Hence, the critical issue is how to design an insurance package that can benefit poor farmers the most and which also keeps the possible state support at a minimum.

Vulnerable households have developed sophisticated (ex-ante) risk-management and (ex-post) risk-coping strategies. Although they provide some protection in the short run, the coping strategies limit the poor's long-term prospects of escaping poverty (Kanbur and Squire 2001: 210). In contrast,

[14] Groupama is one of Europe's leading multi-line insurers and has specialized in agricultural insurance worldwide. In September 2002, Groupama began offering livestock insurance in thirteen provinces of the Mekong Delta in Vietnam. The main target group are shrimp farmers and the minimum premium per contract is 200.000 VND. According to national statistics, the average monthly income of farmers in the Mekong Delta is 471.070 VND. For more detailed information, please refer to Dufhues et al. (2004).

adaptive livelihood strategies (e.g. accessing insurance[15]) may seek to mitigate risks through livelihood adjustment, or change and the diversification of income-creating activities. However, Skees et al. (2002) state that since farming remains the dominant activity in many rural areas, diversification may not actually spread certain types of risk. Moreover, the average household income in a diversified portfolio may be lower than in a specialized portfolio, but the variation in income is also normally less in a diversified portfolio. Thus, potential economic gains exist if households are offered options that provide them with alternative mechanisms for reducing and managing risk, such as formal savings and insurance mechanisms (Dunn 1997 cited in Kaweesi 2005).

4. ADAPTIVE CONJOINT ANALYSIS IN NORTHERN VIETNAM

Focusing on financial market research, especially on insurance options for livestock loss and its consequences for vulnerable rural households, this demand analysis for livestock microinsurance is based on the results of a computer-based ACA.

4.1 Adaptation of the ACA to the Local Context

In northern Vietnam, as elsewhere, the demand for livestock microinsurance is dependent on numerous economic and non-economic (cultural and social) attributes of both the insurer and the insured. Research quality is constrained by limitations in the respondents' time and attention, and respondents may be provided with too much information to be digested thoroughly. Computer-based ACA moves beyond those limitations by customizing the interview for each respondent, basing subsequent questions on previous answers. Hence, the respondent is asked in detail only about those attributes and levels of greatest significance.

Following Green and Srinivasan (1978), those attributes that are most frequently regarded as relevant for consumers were identified through expert and group interviews. As economic shocks, e.g. livestock loss, affect all members of a household, gender-sensitive group discussions were carried

[15] Summing up the essential characteristics of insurance, it may be observed that insurance is a social device that aims at reducing the uncertainty of loss through the combination of a large number of similar uncertainties and through the use of accumulated funds, thus distributing the burden of loss, should there be any, over space and time (Ray 1967 cited in Kaweesi 2005).

out concerning issues like ownership and use of assets, labor division and decision-making, as well as risks, management strategies and social networks. Based on this information, the questionnaire for the ACA was developed and divided into a conjoint and a non-conjoint part. Combining the traits of a potential livestock microinsurance scheme, for instance 'insured animal', with respondents' explanatory background variables (e.g. 'gender' and 'wealth strata') provides more profound insights into the design of suitable and adapted livestock insurance products. The exclusive analysis of the conjoint data, the 'average importances' of the attributes, as well as the 'average utilities' of the attribute levels tells only part of the story. Only by including the non-conjoint data can the real demand for a certain product be assessed, in this case livestock insurance for ethnic minority farm households in northern Vietnam.

The non-conjoint part offers the option of including additional questions into the analysis that are asked at the beginning and therefore (1) serve as an ice-breaker and (2) have the provide more information without substantially prolonging the interview time. In this ACA, the following non-conjoint issues were included in the questionaire: gender, age and wealth strata of the respondent, number of working family members in the household, preferences concerning certain insurance schemes and level of premiums, as well as ability to pay. The questions in the conjoint part relied on the attributes and levels listed in Table 1. With respect to the respondents' time availability and in order to retain the necessary clarity, the number of attributes and levels were kept as low as possible.

Table 1: Attributes and Levels of the ACA on Livestock Microinsurance

Attributes	**Attribute levels**
Insured animal	– buffalo – cow – pig – goat – poultry
Coverage	– death A (after accident) – death D (after disease) – death A&D (after accident & disease)
Payment	– monthly – yearly
Contract	– individual – group

4.2 Use of Stimuli

In order to ensure that future insurance products reflect the necessities and preferences of the potential clients, profound participation of the target group throughout the research process is important. In a challenging intercultural research context, where one has to deal with different languages, educational levels, illiteracy, as well as different perceptions of risks and problem solutions, the use of so-called stimuli reduces misunderstandings and improves communication. In this ACA, innovative stimuli in the form of black and white drawings were used to present attribute levels to the respondent (see Figure 1).

Figure 1: Examples of Black and White Drawings Used as Stimuli in the ACA

Geppert and Dufhues (2003) found that the role and functions of pictures as communication tools for research and extension is widely discussed in the literature and scholars mostly agree about the concept's advantages and disadvantages. For example, Hoffmann (2000) states that pictures and drawings can mediate particularly well between the observer and reality and bridge cultural differences. According to Green and Srinivasan (1978), important advantages of pictorial representation in CA provide several benefits over verbal profiles, including reduced information overload, higher homogeneity of perceptions as well as more realistic and interesting stimuli. In this research, computer-based ACA was combined with the use of black and white drawings[16] as stimuli.

The ACA-interview consists of a number of sections, each designed for efficiency in obtaining the information needed to estimate respondent preferences. The interviews employ the 'paired comparison' approach to collect-

[16] The drawings were designed by a local student, thus they were locally adapted and the production costs were very low. Once successfully pre-tested, the drawings were laminated to make them stronger and durable. Due to their small size and light weight, they could be transported easily, even to remote villages.

ing respondent trade-offs, and present concepts customized for each respondent, each composed of combinations of the abovementioned four attributes. In addition, level order presentation within an attribute can be randomized in 'priors (rankings)' to control for potential order presentation bias. Further sections in this ACA survey included 'importances' and 'calibration concepts'. Stimuli were used throughout the conjoint portion of the ACA to simultaneously visualize the respective questions that were selected by the software and displayed on the laptop screen (see Figure 2).

Figure 2: Application of Stimuli During the 'Ranking' and the 'Pairs' Section of the ACA-Interview

5. RESULTS

The empirically-derived results are twofold and can be divided into two components, one regarding content, another focusing on methodology. Starting with the latter, it can be summarized that jointly applying a 'traditional' tool such as black and white drawings and a computer-based ACA revealed very satisfactory results for all participants, researchers, interpreters and responding household members. The stimuli fully served their purpose of supporting the interview by "translating" the more or less complex attribute levels into visual aids. In order to ensure that all drawings were comprehensible, the interpreter explained the meaning of each drawing at the beginning. However, the respondents were able to ask for more information during the interview process. Second, by listening to the translator and working with the drawings, the smallholder farmers were less distracted by the laptop computer. The following sections will present major results of this ACA.

5.1 Smallholders''Knowledge of Insurance' and 'Ability to Pay'

The variables in the non-conjoint part of this ACA have two objectives that are closely interrelated; they were added to obtain more information on the demographic characteristics of the respondents, as well as the respondents' knowledge and preferences concerning insurance. This information is crucial for private and public insurers in order to provide appropriate products and to assess whether the provision under these circumstances is cost-covering or even profitable. Only if the requirements of the target group are met and insurance products cover the real demand could insurance, in the long run, help to decrease household vulnerability.

By asking all respondents about their knowledge of 'insurance' (in general – not only livestock insurance), the following results were gained (cf. Table 2.1 and 2.2):

Table 2.1: 'Knowledge of Insurance' by Gender

	Total (N=151)	Male (N=83)	Female (N=68)
No, not at all	78	31	47
in %	*51.7*	*37.3*	*69.1*
Yes, I know a little bit	48	33	15
in %	*31.8*	*39.8*	*22.1*
Yes, I know insurance	25	19	6
in %	*16.6*	*22.9*	*8.8*

Source: Own data.

Focusing on gender (Table 2.1), more than half (52%) of all respondents have no idea what insurance is or how it works. For female respondents, the percentage is even as high as 69%. Those who state that they have already heard about insurance (e.g. on TV) but have no idea how it works exactly or where they could buy it, make up approximately another third (32%), whereas the male share (40%) is almost double that of the female (22%). The percentage of participants that really know insurance and how it works is as low as 17% in total, by gender 9% of the females and 23% of the males.

Incorporating the respondent's wealth strata (Table 2.2), the results for the 'rich' are mixed, with 20% declaring that they know a little, while half of the remaining 80% either state they know nothing (40%) or everything (40%) about insurance. More than 70% of the 'poor' and more than 55% of the 'av-

Table 2.2: 'Knowledge of Insurance' by Wealth Strata

	Wealth strata				
Knowledge of insurance	Total (N=151)	Poor (N=21)	Average (N=107)	Better-off (N=18)	Rich (N=5)
No, not at all	78	15	59	2	2
in %	*51.7*	*71.4*	*55.1*	*11.1*	*40.0*
Yes, I know a little bit	48	5	31	11	1
in %	*31.8*	*23.8*	*29.0*	*61.1*	*20.0*
Yes, I know insurance	25	1	17	5	2
in %	*16.6*	*4.8*	*15.9*	*27.8*	*40.0*

Source: Own data.

Note: The hungry wealth stratum is not indicated, as none of the respondents belonged to this group.

erage' are not familiar with insurance. While less than one-third (23% 'poor' / 29% 'average') state that they know a little, less than 5% ('poor') / 16% ('average') really know what insurance is. The results clearly differ for the 'better-off'-group, where the majority (>61%) state to know a little and 27% declare to really know the concept of insurance.

After explaining the basic concept of insurance to the unknowing majority, the respondents were asked about their preferences concerning varying possible insurance schemes, premium payment and ability to pay. As displayed in Table 3, the majority (53%) favor a combined 'credit & insurance' package. About one-third (32.5%) select the 'saving & insurance' option and only 14.6% choose the pure 'insurance' option.

Furthermore, the respondents were asked if they would rather pay a lower premium and thus receive lower indemnity or pay a higher premium and accordingly receive higher indemnity in the case of a claim. In total, 37.7% of the respondents (men: 33.7%, women: 42.6%) choose the 'lower premium' option, while 62.3% of the respondents (men: 66.3%, women: 57.4%) prefer the 'higher premium' option. The preference for the 'higher premium' is verified in the results of the respondent's ability to pay for insurance (see Table 4). Focusing on the results by wealth strata (Table 4), the majority of the 'poor' choose low premiums: 0-5,000 VND/year (33.3%) and 5,000-10,000 VND/year (38.1%), respectively. While the 'average' group achieved mixed results, both, the 'better-off' and the 'rich' group clearly favoured paying more than 40,000 VND/year (better-off: 44.4% and rich: 60%), followed by 20,000-30,000 VND/year (better-off: 27.8% and rich: 40%).

Table 3: Possible 'Insurance Schemes' by Gender

	Total (N=151)	Male (N=83)	Female (N=68)
Insurance	22	12	10
in %	*14.6*	*14.5*	*14.7*
Saving & insurance	49	23	26
in %	*32.5*	*27.7*	*38.2*
Credit & insurance	80	48	32
in %	*53.0*	*57.8*	*47.1*

Source: Own data.

After presenting some results from the non-conjoint part of this ACA, the next sections will focus on results derived from the conjoint part of the ACA. First, looking at the average importances, it appeared that the most important issue for the respondents is the 'insured animal' (35.6%). This confirms previous results from group discussions in different villages of the research area. The least important attribute is 'contract' (19.6%), which is the choice between individual and group contract. The remaining two attributes, 'coverage' (23.1%) and 'premium payment' (21.7%) are ranked second and third.

5.2 The 'Insured Animal' Attribute

Focusing on the 'insured animal' attribute of the conjoint part and combining it with the 'gender' variable of the non-conjoint part, the following results can be presented (cf. Table 5): First, the impressive position of the buffalo remained unchanged. Both male and female respondents consider it the most important animal and therefore would first insure the family's buffalo. As in the total sample, poultry and goats are considered the least attractive for insurance. Second, the remarkable last position of the goat can be explained by the fact that only a minority of all households possess goats, whereas most other animals are more or less common in each household. Usually an average household will possess at least one buffalo (or a bull and/or a cow), one/a few pigs and a few chickens[17]. Very poor households often lack a draught animal or do not possess any animals.

[17] This statement has been true, at least before the Avian Influenza hit Vietnam in 2003/2004.

Table 4: 'Ability to Pay' by Wealth Strata

		Wealth strata			
Ability to pay (VND/year)	Total (N=151)	Poor (N=21)	Average (N=107)	Better-off (N=18)	Rich (N=5)
0 VND	1	–	1	–	–
in %	*0.7*		*0.9*		
0-5,000 VND	15	7	8	–	–
in %	*9.9*	*33.3*	*7.5*		
5,000-10,000 VND	33	8	22	3	–
in %	*21.9*	*38.1*	*20.6*	*16.7*	
10,000-20,000 VND	33	4	27	2	–
in %	*21.9*	*19.0*	*25.2*	*11.1*	
20,000-40,000 VND	31	1	23	5	2
in %	*20.5*	*4.8*	*21.5*	*27.8*	*40.0*
>40,000 VND	38	1	26	8	3
in %	*25.2*	*4.8*	*24.3*	*44.4*	*60.0*

Source: Own data.
Note: The hungry wealth stratum is not indicated, as none of the respondents belonged to this group.

Table 5: Average Utility Values of the 'Insured animal' Attribute Levels by Gender

	Total (N=151)	Male (N=83)	Female (N=68)
Buffalo	51.16	57.28	43.70
Cow	14.49	17.34	11.02
Pig	2.69	-5.41	12.57
Poultry	-22.74	-26.14	-18.59
Goat	-45.60	-43.06	-48.71

Source: Own data.

Cows are usually raised as in-kind savings and are commonly financed by bank loan. Focusing on the data for cows and pigs, it turned out that male respondents clearly prefer insurance for cows (17.35), wheras pig insurance even has a negative utility value (-5.41). In contrast, female respondents prefer pig insurance (12.57) and insurance for cows is ranked third (11.02). One reason for this result might be the traditional Vietnamese division of labor. Participatory, qualitative research reveals that women (besides other tasks) are usually responsible for housework, including the breeding of pigs. Male household members are usually in charge of the big ruminants, although women and children also take big ruminants for grazing. All in all, large ruminants are a crucial part of the household's physical capital assets and therefore considered worthy additional expenditures, e.g. insurance premiums. Small livestock like pigs, which play a very important role in poorer households, are usually only considered worth insuring by those households that do not posess large ruminants.

5.3 The 'Coverage', 'Contract' and 'Payment' Attributes (by Gender)

Taking a closer look at the interrelation of the other three attributes with the 'gender' variable, the following results were revealed (Table 6):

Table 6: Average Utility Values of the 'Coverage', 'Contract' &'Payment' Attribute Levels by Gender

		Total (N=151)	Male (N=83)	Female (N=68)
Coverage	Death (D)	24.01	25.91	21.70
	Death (A&D)	19.58	18.09	21.41
	Death (A)	-43.60	-44.00	-43.11
Contract	individual	16.75	18.22	14.95
	group	-16.75	-18.22	-14.95
Payment	monthly	2.29	-4.36	10.40
	yearly	-2.29	4.36	-10.40

Source: Own data

There is no gender difference concerning the 'coverage' attribute; both male and female respondents follow the trend of the combined sample, where 'death after disease' is considered most important, followed by the

mixed option 'death after accident & disease'. The least attractive option, 'death after accident' was usually only chosen by those respondents residing close to the road or who had recently lost an animal through an accident.

A similar result was generated by the 'contract' attribute. Here, women and men agreed that an 'individual' contract is more desirable than a 'group' contract. During the interviews, respondents gave several reasons for their choice. The most common reason for an individual contract is the perception of having 'less trouble', as well as having the 'freedom of choice'. Supporters of group contracts appreciate, for instance, the idea that a bigger part of all villagers would be included in the insurance scheme, which implies that everybody would take better care of their own animals and thus reduce the spread of diseases.

For the remaining attribute 'payment', the analysis produced contradictory results. Women approved the overall result and preferred 'monthly' payments, while male participants mainly supported the 'yearly' payment option. The explanations for either option were almost identical during all interviews, hence, it may be summarized that a 'monthly' payment is more suitable for less wealthy households. In contrast, a 'yearly' premium payment is considered 'easier', because one doesn't have to worry about it each month. The perfect time for the yearly payment would be after the maize harvest, when cash is more readily available in households.

5.4 The Distribution of Wealth

In Vietnam, households are classified once a year, according to their standard of living, into one of five classes: 'hungry', 'poor', 'average', 'better-off', or 'rich'. The ranking is based on the household's monthly income. The threshold for classifying 'hungry' and 'poor' households is defined by the Ministry of Labour, Invalid and Social Affairs (MOLISA). The communes can adjust the boundaries only slightly depending on the local situation[18].

In order to obtain more significant information concerning the demand for livestock insurance in households with different income levels, the 'wealth strata' variable was applied in the analysis. The results of the analy-

[18] For example, the classifications in Xuan La and Nghien Loan communes (Bac Kan province) for the years 2001-2005 (the research period) were (in VND person^{-1} month^{-1}): 'hungry': <55,000/60,000; 'poor': <80,000; 'average': 80,000 – 150,000/180,000; 'better-off': >150,000/200,000; 'rich': >4.5mio VND person^{-1} year^{-1}. The classifications were considerably increased for the years 2006-2010. For example, in Xuan La commune (in VND person^{-1} month^{-1}): 'hungry': <100,000; 'poor': <200,000; 'average': >200,000; 'better-off': >300,000 (Source: own data, personal communication with commune officials; 07.09.2004).

sis of the 'average utility' values, as well as the 'average importances', are summarized in Table 7.

Table 7: Average Utility Values and Average Importances by Wealth strata

			Wealth strata			
Average utility values		Total (N=151)	Poor (N=21)	Average (N=107)	Better-off (N=18)	Rich (N=5)
Insured animal	buffalo	51.16	61.45	49.35	51.74	44.79
	cow	14.49	-1.66	14.72	28.22	28.16
	pig	2.69	-4.52	5.42	1.95	-22.93
	goat	-45.60	-46.50	-43.75	-61.74	-23.46
	poultry	-22.74	-8.77	-25.74	-20.17	-26.56
Coverage	death (A)	-43.60	-24.55	-45.83	-47.43	-62.06
	death (D)	*24.01*	*18.08*	*25.82*	13.06	*49.75*
	death (A&D)	19.58	6.47	20.01	*34.37*	12.31
Payment	monthly	2.29	27.22	0.90	-11.62	22.64
	yearly	-2.29	-27.22	-0.90	11.62	-22.64
Contract	individual	16.75	19.66	14.10	23.77	36.01
	group	-16.75	-19.66	-14.10	-23.77	-36.01
Average importances						
Insured animal		35.61	31.38	35.86	38.70	36.84
Coverage		23.10	15.19	24.27	23.97	28.07
Payment		21.71	28.44	21.24	17.96	17.08
Contract		19.59	25.00	18.64	19.37	18.01

Source: Own data.
Note: There were no 'hungry' households in the sample, thus this column is not displayed in the table.

Starting with the 'average importances', the most important issue to all respondents remains the 'insured animal' attribute. The three remaining attributes, 'coverage', 'payment' and 'contract' change their ranking in different wealth groups. Average households, which mainly determined the total results, considered 'coverage' more important than 'payment'. The least im-

portant attribute is 'contract'. Both the 'better-off' and the 'rich' households ranked 'coverage' second. 'Contract' was considered more important than 'payment'. In contrast to all other groups, the 'poor' consider the 'payment' attribute second most important before 'contract' and 'coverage'.

Focusing on the average utility values of the 'insured animal' attribute, the abovementioned striking preference for the buffalo remains unchanged for all wealth groups. Whereas the 'poor' only focus on the buffalo[19], other groups also consider insuring their cows and pigs (only the 'average' and 'better-off'). Taking a closer look at the levels of the 'coverage' attribute, the 'better-off' prefer to cover 'death after accident & disease', while all others choose 'death after disease'. 'Death after accident' was uniformly ranked last. Likewise, only the 'better-off' favored 'yearly' payment, whereas all other wealth groups prefer 'monthly' payment. Finally, the households of all four groups select an 'individual' rather than a 'group' contract.

6. CONCLUSION AND RECOMMENDATIONS

One of the challenges facing microinsurance practioners and policy makers is trying to understand what clients want. A precondition[20] for the success of any livestock microinsurance product is ensuring that clients want it. This paper introduces a new way of coming to know what clients want from livestock insurance, using adaptive conjoint analysis. This methodology help clients with little formal education or experience of insurance to articulate wether they need it and if they do need it, what features they would wish it to have. It made use of visual aids to help understand client needs. It applies this methodology to sample of clients living in the rural Northern Vietnam.

There are no functioning insurance markets in mountainous, rural northern Vietnam. Therefore, farmers are still forced to sell assets, primarily livestock, when a livelihood emergency strikes. The situation grows even more acute if a household loses a credit-financed animal, which immediately increases household vulnerability, substantially limits its long-term livelihood strategies, and very often directly sustains poverty or makes them slip into poverty.

[19] Although the 'poor' might not possess a buffalo right now, it was repeatedly mentioned during the interviews that they would be willing to spend some of their scarce money to buy buffalo insurance, because the buffalo is the most valuable animal. In contrast, poultry insurance is not requested by anybody.

[20] This is of course not the only precondition for the sustainable provision of livestock microinsurance there are other important preconditions such as the existence of veterinary services.

Based on the above results, it can be concluded that:

- both men and women are in general interested in livestock insurance,
- only a very small percentage of potential clients is really familiar with the concept of insurance.
- Out of the informed minority, some have already had negative experiences with previously held insurance products (including different kinds of products, e.g. motorbike insurance or health insurance).
- Respondents of all wealth strata emphasized their demand for insurance products, e.g. livestock insurance, which they believed would help them to reduce their vulnerability and enables them to cope more easily with livelihood emergencies.

Taking into consideration the four analyzed attributes, it turned out that the 'insured animal' is the most important attribute for all respondents and the buffalo is the most valued animal. This comes as no surprise because of the the pivotal role of buffalos in the farming systems of mountainous, rural northern Vietnam. Insurers would do well to note the the differential importance of various animals to the these households and make sure that they focus cover on the most important animals. In this case, buffalos.

Crucially any insurer considering providing livestock insurance to the households in this region, would need to ensure that the product be suitable for a variety of households (male/female, poor/average/better-off) and ensure that the most important animal to the household is covered,with a degree of flexibility around key contract terms such as premium levels and associated benefits. It is also useful to note that that most respondents would prefer a mixed product that combine 'insurance & credit' or 'insurance & saving'.

In order to stop the gradual downward spiral trend of many smallholders in Northern Vietnam and to guarantee sustainable development for vulnerable households, a bundle of strategies have to be initiated. One possible strategy is microinsurance. In order to deliver this is crucial to understand what policy holders want from insurance policies. Adaptive conjoint analysis is one new and effective manner of determining this.

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Résumé

Dans les régions montagneuses au nord du Vietnam, le bétail joue un rôle central pour les petits propriétaires d'exploitations agricoles. Les risques économiques, particulièrement de perte de bétail, sont parmi les facteurs majeurs menant à la pauvreté. Habituellement, les systèmes d'assurances interviennent alors. Cependant, dans les pays en développement, ces systèmes sont encore souvent précaires. Pour cet article, une enquête de terrain utilisant des outils informatiques interactifs a été réalisée, permettant l'Analyse Conjointe Adaptative (ACA) des réponses de 155 ménages appartenant à différentes minorités ethniques des provinces de Son La et Ban Kan. Sur cette base, les options de recours à l'assurance sont examinées et les avantages et inconvénients d'assurer le bétail, discutés. Des recommandations politiques sont avancées contribuant à améliorer la situation des ménages vulnérables dans les régions concernées par l'étude.