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DER BEITRAG DER CONJOINT ANALYSE ZUR NACHFRAGEORIENTIERTEN ENTWICKLUNG DES LÄNDLICHEN FINANZSEKTORS IN VIETNAM¹

von

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1 Introduction

As the microfinance revolution continues, increasing numbers of microfinance institutions (MFIs) are seeking to diversify the financial services to better serve their clients (Wright 1999). Increasingly MFIs have come to recognize the need to provide savings services (Vogel 1884) 'forgotten half' of microfinance), as a much valued service by their clients, and as a long-term source of refinancing capital for themselves. Nowadays, there is a wide consensus in the economic literature that particularly poor people save and would even more save -rather than borrow- if demand-oriented deposit facilities were supplied (Robinson 2002); (Rutherford 2000); (Wright 1999); (Zeller 2001). Nevertheless, savings services must be designed appropriately to respond to the characteristics of different market segments. As the motives of each particular saver are very complex and the advantages and disadvantages of several different savings forms are compared in order to define the best savings portfolio mix, savings services can only be successful when they suit the needs of the savers.

Savings in Vietnam were boosted during the last decade. However, this development has bypassed rural areas (Izumida and Duong 2001). The Vietnam Bank for Agriculture and Rural Development (VBARD) is the only supplier of savings schemes in rural areas. However, savings services of the VBARD are not attractive to rural customers. Nevertheless, empirical research indicates, nevertheless, that Vietnam's rural population has a true demand for savings services. Thus, it is important to develop demand oriented savings services for the rural population, which also ensure that the operational self-sufficiency level of the MFIs is met. However, the idea of involving the potential clients in the design of new services is still very uncommon in Vietnam, even ten years after Vietnam has entered the path to a market economy.

In order to design services, which meet the needs of their potential user, participatory research approaches have become widely applied. The idea of participation simply calls for activities, which start and end with the people concerned. There is no explicit statement or implicit assumption about the nature or the level of their involvement (Okali, Sumberg, and Farrington 1994). A crosscutting indicator of 'good practice' in all participatory research approaches is that the outcomes of the people's involvement are channelled back to them in the form of refined activities and services. This way, the knowledge, needs, and preferences of the people have weight in each decision along the research process. The development of demand driven microfinance services thus requires more than econometric analysis and can best be supplemented by participatory research methods. Participatory research takes the different requirements and perceptions of different social groups into account and leads to true-life results. Conjoint Analysis (CA) is an interesting marketing research method that combines quantita-

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tive and qualitative aspects and requires to involve the potential clients at different stages of the research process (Schrieder 1996) and can easily be complemented by other participatory methods. Quantitative data are used to make general conclusions. In contrast qualitative data allow the in-depth study of selected issues. There are significant trade offs in selecting one technique over another. Therefore, a growing acceptance of the need to integrate qualitative and quantitative methods to improve the outcome does exist (Bamberger 2000).

CA offers the possibility to involve the potential clients prior to the statistical analysis. This method is one of the few statistical methods that can include the idea of participation into the model design and thus can integrate qualitative and quantitative methods. This paper aims at highlighting the target group participation within the process of designing new saving schemes for the rural population in Northern Vietnam. The moments of target group involvement in the CA will be focused and the results of the CA, namely policy recommendations for the design of demand driven micro-savings schemes will be discussed.

The qualitative and quantitative data were collected between March 2001 and March 2002 in the Ba Be district, Bac Kan province and in the Yen Chau district, Son La province of Northern Vietnam. The survey comprised 258 rural households in ten villages and six different communes in the districts. The sample was stratified according to the wealth status of the households. The Vietnamese government ranks every household once per year according to five different wealth classes: hungry, poor, medium, better-off, and rich. The poverty line is set at 80,000 VND (approximately 5 US\$) per month and person (Dufhues et al. 2002). This means that the poor and hungry households live below the national poverty line.²

2 Methodology for demand driven research in microfinance

CA is commonly used in commercial marketing studies and analysis of consumers' preferences. It has its origin in psychological research. (Green and Srinivasan 1978) define CA as a group of methods that estimates the structure of consumers' preferences, given a consumer's evaluation of a set of alternatives that are pre-specified in terms of attributes and different levels.³ Assuming that the evaluation of a service is based on its attributes' levels, it becomes theoretically possible to relate preference to attributes (Janssen et al. 1991). Similar to shelf products, financial services can be specified as a bundle of attributes with different levels. In the research underlying this paper, the attributes and levels have been identified using participatory methods. This is described in the following sections.

2.1 Participatory determination of attributes and levels for microsavings services

Each service possesses an almost infinite number of attributes. Many of these attributes do not have a measurable influence on the purchasing decision of a potential consumer or are considered only by a very small market segment as important. Therefore, it is neither possible nor useful to grasp all existing attributes and their levels in market research. It is rather necessary to reduce the attributes and their levels to a manageable number and to those, which are most relevant to consumers in forming their preferences. Such a reduction requires an interaction with the potential consumers to determine the most relevant attributes and their levels to them. This reduction usually requires intensive qualitative research at the target group level. From the perspective of the target population, the attributes and their levels have to be determined in a 'participatory' process because this is preeminent for getting true-life results in the statistical analysis. Engineers and/or economists assigned with developing new products or services may have other priorities (e.g. ensure durability or simple administration) than the po-

² One US\$ is equal to 15,709 VND (Sunday, October 14, 2001, <http://www.oanda.com/convert/classic>).

³ For instance, a possible attribute of a savings product is the interest rate, with the possible levels of 10% or 5% interest per year.

tential customer (durability is not important if technological progress is fast and the customer prefers to update technology accordingly, e.g. as observed with information technology).

As it concerns the development of demand driven microfinance services for the rural poor in northern Vietnam, a detailed literature review, and interviews with experts and key persons provided a first impression about the socio-cultural and economic background of the rural poor. More importantly, the rural population, particularly farmers, in the above mentioned districts were encouraged during open discussions to describe their financial background and economic conditions with the help of several participatory research tools.⁴ The outcome was differentiated according to wealth and gender. The qualitative data gathered allowed to specify possible attributes of financial services, that is microcredit and microsavings services. Here, the focus is on microsavings services. Then, a pre-selection of relevant microfinance attributes and corresponding levels was done. These pre-selected attributes were again presented to the rural target group during group discussions and rankings. Here the importance of each attribute was verified or the attribute was devalued respectively. The attributes with their levels for the potential microsavings services finally chosen by the rural households are presented in Table 1.

Table 1 **Microsavings attributes and their levels**

Attributes	Levels
1. Savings term	<p>1) <i>Interest bearing (0.5% per month), three months time deposit</i> If money is not withdrawn after this time, automatic extension for another 3 months.</p> <p>2) <i>Interest bearing (0.3% per month), one month time deposit</i> If money is not withdrawn after this time, automatic extension for another month.</p> <p>3) <i>No interest bearing checking account</i> Withdrawal and deposit at any time.</p>
2. Incentive	<p>1) <i>With a lottery scheme</i> Clients receive a free ticket for the monthly lottery for each 10,000 VND deposit. After withdrawals, clients have to skip three months of lottery except they deposit at least 10,000 VND more than they have withdrawn. For every 50,000 VND on the account they receive one ticket.</p> <p>2) <i>No lottery scheme</i></p>
3. Place of transaction	<p>The saving transaction will be done in either of the following locations.</p> <p>1) <i>District</i></p> <p>2) <i>Commune</i></p> <p>3) <i>Village</i></p>
4. Minimum deposit amount at opening	<p>1) <i>20,000 VND</i></p> <p>2) <i>No minimum deposit necessary</i></p>

2.2 Participatory creation of microsavings stimuli

Typically, a CA is carried out using hypothetical descriptions of the service, so-called stimuli.⁵ Data for CA experiments may be collected by three types of stimulus presentation: (1) verbal, (2) paragraph (descriptive cards), and (3) pictorial or in-kind presentation (Green and Srinivasan 1978). These stimuli describe distinct concepts (product or service alternatives) and will be assessed by the respondents (Backhaus et al. 1996).⁶

This research work follows the recommendation of (Schrieder and Heidhues 1991) who suggest a mixture between verbal, paragraph and pictorial design for the creation of stimuli in

⁴ PRA-tools were applied such as cash-flow diagrams, mobility maps, unstructured interviews, different rankings, social mappings, and Venn diagrams.

⁵ In this context a stimulus is defined as the presentation of the attributes' levels to the respondent.

⁶ A concept consists of the combination of the attributes' levels, e.g. no interest rate/ no lottery/ transaction in village/ no minimum deposit.

developing countries. Much emphasis was given to the visualization of the attributes' levels of the microfinance concepts. This is because they do not only have an explanatory role but also act as a mnemonic aid if some of the surveyed potential clients are illiterate (Fussel and Haaland 1978); (Jenkins 1978). Therefore, the construction of the hypothetical stimuli ought to be based on a participatory decision process together with the target group. In this way, the levels can be designed in a directly understandable way for the respondents and can thus positively support the conjoint interview.

Ideas for the visualization of the stimuli, each representing one level, were gained throughout the whole research process. For example, the target group was consulted during workshops on how to visualize the attribute levels so that they are understandable for everybody when presented in form of stimuli. Later, these rough images and ideas were converted into pictograms by a local painter.

The pictograms were very detailed and very realistic but included only images which were important for the understanding since too many details can distract people for example, one pictogram showed in detail a village stilt-house in Northern Vietnam, but left out any disturbing background scenery. So called simple styled drawings making greater demands on the person trying to interpret them (Fussel and Haaland 1978). However, details in pictures need to be absolutely accurate. There should be no mistakes in realism. Mistakes may simply distract respondents or lead them to misinterpretations (Jenkins 1978).

Farmers did not always find it easy to carry out the CA-survey. Some of the lesser-educated people needed very long to respond. Nevertheless, the easy understandable pictograms were helpful and encouraged even illiterate farmers to respond to the CA-survey.

2.3 Conjoint analysis

Even if the attributes and levels are reduced within a selection process to their most relevant and important ones, usually, the number of possible combinations, which has to be assessed, is too large to be managed effectively. For instance in this research, two attributes with two levels and two attributes with three levels have been identified as most relevant (see Table). This results in 36 possible attribute-level concepts. According to (Backhaus et al. 1996), the CA design should not exceed 20 concepts. Therefore, a reduced design was applied. The basic idea behind a reduced design is to create a manageable number of concepts, which represent the full design as closely as possible. The number of concepts are selected in such a way to permit the statistical decomposition and quantification of each attribute's level contribution to the consumers' choice (Randolph and Ndung'u 2000). The Orthogonal Main Effect Design for asymmetrical factorial experiments has been applied to reduce the number of concepts (Addelman 1962). An Orthogonal Main Effect Design was created with SPSS 9.0. Hence, the full design for the CA, was reduced from 36 to nine combinations without losing any information.

CA focuses on comparisons among conjunctive stimuli, defined on multiple attributes, so that the response requires a trade-off between highly preferred levels on one attribute with less preferred levels of other attributes. CA assumes that a consumer assigns an utility value to each level of each attribute and makes the final decision based on the total utility values across attributes for a given service (Randolph and Ndung'u 2000). Applied consumer research focuses on the determination of the contributed portion (part-worth utility) of each attribute level to the dependent variable. The part-worth utility is defined as the contributed portion of various attribute levels to the overall acceptance perceived (Green and Srinivasan 1978). The respondent of a CA interview shows the preferences for different concepts, which are characterized by different attributes and levels. By using an estimation procedure, the value of each attribute level can be calculated from the overall preference. An advantage of this technique is that it can be used to assess hypothetical as well as existing products or ser-

vices and thus it is often used to evaluate new commercial products before they are released to the market, or even before they are developed (Randolph and Ndung'u 2000). Thus, one of the main objectives of the CA is to develop a new product or service according to the true multi-attribute preferences of a certain target group (market segment). In addition, it quantifies the impact on consumer acceptance if the demanded attribute concepts are not met. CA can be applied to any type of overall judgments of products or services.

The traditional CA involves asking consumers to rank or rate according to preferences of different product alternatives. However, this research uses the so-called 'Choice Based Conjoint Analysis' (CBC) approach. CBC does not involve any ranking or rating but simply asks potential clients which concept they would choose or 'purchase'. This approach is more realistic and better reflects what customers actually do when evaluating and buying products in the real world. Another major advantage of the CBC method is the 'none' option. As in the real world, respondents can decline to purchase in a CBC interview by choosing the 'none' option. CBC 2.6 was used for data analysis.⁷ It applies a multinomial logit analysis. A multinomial model estimates the probabilities of choosing a product from a number of competing alternatives. The pictograms created by the local painter were arranged on DIN-A4 cards according to the orthogonal design and titled with an explanatory headline in Vietnamese. One card was designed for each of the nine concepts. The farmers always understood the pictograms and even illiterates could handle the interview situation. One representative of the 258 selected households was invited to participate in the CA-survey. The respondent was asked to choose the three best alternatives represented by the stimuli-cards or none. Furthermore, a short interview was conducted to collect data for market segmentation (e.g. sex, age, etc.) and complementary questions on the ideal saving service (e.g. amount of savings).

3 Results

The main effects are assessed by using the part-worth and relative importance of individual attributes.⁸ In the following the rural households are segmented by wealth (two classes)⁹ and by sex. The results from the modeling show that households in both wealth groups and both sexes give special emphasis to high interest rate (see Table 2). Corresponding to economic theory (time preference rate), this tendency is more distinct in poor households. In comparison to poor households, the better-off households favor the lottery as an incentive to save. However, it does not play an important role within the decision process and poor women do even value the lottery negatively. All farmers understood the lottery, but some had difficulties to understand that this is a kind of an incentive to save. Some farmers thought the lottery was a form of gambling. Local authorities consider gambling as a so-called 'social evil'. Therefore, some households may have been afraid of the lottery. The risk adverse behavior of poor households might deliver another explanation, to win a price in a lottery is not secure, but interest rates are. Some poor farmers even mentioned that they would never win the price, simply because they are poor.

As saving is normally a much more regular activity than getting a credit it is not surprising that the attribute level 'saving in the village' is valued very high by all, especially by the poor and women. Members of poor households do not often leave the village and the small amounts they intend to save are easily eaten up by the transport costs. Women do more strongly prefer to save in the village than men. This might be related to the fact that transaction costs may vary by gender, e.g. a woman farmer with reproductive responsibilities within

⁷ This software is specially developed for analyzing 'choice based conjoint' data.

⁸ The main effect describes the effect of a single attribute or level on the purchasing decision of a client.

⁹ As the hungry and poor classes represent the households below the poverty line both classes have been united to the indigent group. The remaining three groups have been united to the well-off group.

the household may face higher opportunity costs when leaving the village to seek financial services than a male farmer (Randolph and Ndung'u 2000). Therefore, women prefer to save in the village.

Table 2 Average utility values for savings attributes (first and second choice)¹

	Male (189 respondents)		Female (68 respondents)	
	Indigent (101) N = 202	Well-off (88) N = 176	Indigent (32) N = 64	Well-off (36) N = 72
	No interest rate / demand deposit	-2.302***	-1.891***	-2.326***
0.3% Per month for a one-month deposit	0.707**	0.258	0.470	0.295
0.5% Per month for a three-month deposit	1.595***	1.633***	1.857***	0.851***
Relative importance in %	57%	50%	59%	38%
No lottery	-0.312	-0.503**	0.122	-0.264
With lottery	0.312	0.503**	-0.122	0.264
Relative importance in %	9%	14%	3%	10%
Transaction place, village	1.170***	1.180***	1.381***	1.103***
Transaction place, commune	-0.246	-0.526**	-0.339	0.119
Transaction place, district	-0.924***	-0.654***	-1.042***	-1.222***
Relative importance in %	30%	26%	34%	44%
No minimum requirement	0.126	0.346**	0.139	0.236
20,000 VND Minimum requirement	-0.126	-0.346**	-0.139	-0.236
Relative importance in %	4%	10%	4%	9%
Percentage of households choose none option	19%	7%	13%	14%
Chi-Square	294.492	301.816	97.769	79.236

Note: * Significant at the 10% level; ** at 5% level; *** 1% level.

¹ This model has 7 degrees of freedom. With 7 degrees of freedom, a Chi-Square of about 25 would be significant at the 0.001% level. The obtained Chi-Squares from the logit analysis are safely larger than this. Therefore, it is safe to say that respondent choices are significantly affected by the attribute composition of the concepts. Due to the relatively small sample size the first and second choice were considered.

4 Conclusion

The results of this paper support the hypothesis that rural households in developing countries, even the poor and poorest, demand microsavings services. However, this empirical result contrasts the official views of the Vietnamese government and the two state-owned banks for rural development. They still consider credit as the only financial measure to promote rural livelihoods and strongly believe that the rural poor are unable to save. Besides, the organizational structure within the Vietnamese state-owned banks is strictly top down. Therefore, a demand driven approach is difficult to accept, particularly as the outcome might not be consistent with government policies.

The CA modeling showed that different market segments demand different microsavings services. In other parts of the world, lotteries appear effective in encouraging poor households to save in MFIs. The results of this study show that the risk adverse poor farmers, particular women rather reject this kind of incentive and favor high interest rates. Close physical proximity to customers is a key factor in being able to offer microsavings services to lower-income clients, especially in rural areas. A close by transaction place within the village or nearby is of high importance, particular for women. This finding is supported by research from (World Bank and DFID 1999). Women are responsible for many tasks in the household and on the farm. It is much more difficult and costly for them to reallocate time towards other activities than men. Any kind of policy intervention must consider women's tight time sched-

ules. Nevertheless, the strongest decision parameter is the interest rate. Farmers want to get paid for a temporary delay of consumption due to their high time preference rate.

Simple microsavings services can coexist with more complex market-segment-oriented savings services. Therefore, a range of services should be implemented and promoted. However, before this can happen a change of paradigm must take place. The authorities in Vietnam must accept the capability and the demand of the rural population to save. A CA might be of help in convincing them as it allows involving the view of the target group and at the same time produces a statistical base to convince government officials and bank managers. The combination of qualitative and quantitative research tools gives particular strength to the policy recommendations.

References

- ADDELMAN, S. (1962): "Orthogonal main-effect plans for asymmetrical factorial experiments." *Technometrics* 4: 21-46.
- BACKHAUS, K., B. ERICHSON, W. PLINKE and R. WEIBER. (1996): *Multivariate Analysemethoden - Eine anwendungsorientierte Einführung*, 8 ed. Berlin, Germany: Springer-Verlag.
- BAMBERGER, M. (2000): *Integrating Quantitative and Qualitative Research in Development Projects*. Washington D.C., USA: The World Bank.
- DUFHUES, T., P.T.M. DUNG, H.T. HANH and G. BUCHENRIEDER (2002): "Information and targeting policies and their principal-agent relationships – The Case of the Vietnam Bank for the Poor." *Quarterly Journal of International Agriculture* 41: 335-62.
- FUSSEL, D. and A. HAALAND (1978): "Communicating with pictures in Nepal: Results of practical study used in visual education." *Educational Broadcasting International* 11: 25-31.
- GREEN, P.E. and V. SRINIVASAN (1978): "Conjoint Analysis in consumer research: Issues and outlook." *Journal of Consumer Research* 5: 103-23.
- IZUMIDA, Y. and P.B. DUONG (2001): "Measuring the progress of rural finance in Vietnam." *Savings and Development* 15: 139-66.
- JANSSEN, W., J. ASHBY, M. CALIER and J. CASTANO (1991): "Targeting new technology at consumer food preferences in developing countries." *Food and Quality Preference* 3: 175-82.
- JENKINS, J. (1978): "Using pictures in non-formal education." *Educational Broadcasting International* 11: 32-8.
- OKALI, C., J. SUMBERG and J. FARRINGTON (1994): *Farmer participatory research*, 1 ed. London, UK: Intermediate Technology.
- RANDOLPH, T. and L. NDUNG'U (2000): *Gender and transaction cost: A conjoint analysis of choice livestock health service among smallholder dairy farmers in Kenya*. 2000. Berlin, Germany, Background paper for a poster presented at the 24th Congress of the IAAE, Berlin, 18-24. August 2000.
- ROBINSON, M.S. (2002): *The microfinance revolution - Sustainable finance for the poor*, 1 ed. Washington D.C., USA: The World Bank.
- RUTHERFORD, S. (2000): *The poor and their money*, 1 ed. New Delhi, India: Oxford University Press.
- SCHRIEDER, G. (1996): *The role of rural finance for food security of the poor in Cameroon*, 1 ed. Frankfurt am Main: Peter Lang Verlag.

- SCHRIEDER, G. and F. HEIDHUES (1991): "Conjoint Analysis and its predictive power for financial market development: A methodological framework." *Finance and Rural Development in West Africa. Proceedings of the 12th Seminar on Rural Economics.* C.Cuevas and M.Benoit-Cattin, eds. Montpellier, France and Columbus Ohio, USA: Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) and Ohio State University.
- VOGEL, R. (1984): "Savings mobilization, the forgotten half of rural finance." *Undermining rural development with cheap credit.* D.W.Adams, D.Graham, and J.D.Von Pischke, eds., 248-65. Boulder: Westview Press.
- WORLD BANK and DFID (1999): *Vietnam, voices of the poor; synthesis of participatory poverty assessments.* Hanoi, Vietnam, The World Bank and Department for International Development (DFID).
- WRIGHT, G. (1999): "Beyond basic credit and savings: Developing new financial service products for the poor." *Challenges of microsavings mobilization: Concepts and views from the field.* A.Hannig and S.Wisniwski, eds., 45-54. Eschborn, Germany: Gesellschaft für Technische Zusammenarbeit (GTZ).
- ZELLER, M. (2001): "Promoting institutional innovation in microfinance - Replicating best practices is not enough." *Development and Cooperation (D+C):* 8-11.