

PMMA Network Session Paper

Poverty Targeting and Impact of the National Micro-Credit Program in Vietnam: A Non-Parametric Approach

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Poverty Targeting and Impact of the National Micro-Credit Program in Vietnam: A Non-Parametric Approach

RESEARCH PROPOSAL

First-revised

Presented to

Poverty and Economic Policy Network

By

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The present proposal is a revised version of the first proposal submitted in November 2005. The comments of the PEP network (sent on January 31, 2006) on the first proposal focus on the feasibility of the research in terms of actual data. To present explicit responses to the comments, the additional explanations (compared to the first proposal) are presented in the final section of this proposal paper (section 12).

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Abstract

For the purpose of poverty reduction, the Vietnamese Government has launched a national micro-credit program since 1995 to provide the poor with small credit for production without collateral. The Government has spent huge finance in the program. Until September 2005, the total outstanding loans were VND 13428 billion¹. However, questions on the causal impact of the program remain unanswered so far. Information on poverty targeting and impact evaluation of the program are very helpful in determining whether the program should be expanded, modified or terminated.

Traditional literature of program impact evaluation often deals with impact of a binary single program. More specifically, most studies of micro-credit evaluation focus on a single program, and ignore the fact that in developing countries there can be other programs that might also provide micro-credit for some households. There is no guarantee that impact of the other micro-credit programs is uncorrelated with impact of the program to be evaluated. If there is such the correlation, the estimates of the program impact will be biased.

The objective of the study is to examine how well the national micro-credit program in Vietnam reaches the poor, and to what extent the program has impact on them using panel data from two Vietnam Household Living Standard Surveys in 2002 and 2004. To measure the program impact, the study employs a nonparametric method of propensity score matching² and difference-in-difference and extends it to a general context of continuous program variables and multiple-overlapping programs.

¹ 1 USD \approx 15 800 VND in September 2005

² The method is developed by important researches such as Rubin, 1977, 1979, 1980; Rosenbaum and Rubin, 1983; and Heckman et. al., 1997.

1. Main Research Questions and Core Research Objectives

Vietnam has set up poverty reduction as a major goal of development policy. The Government has maintained an extensive public safety net system to support the poor in all dimensionalities of welfare. One of important antipoverty programs is the provision of credit for the poor. The poor households are characterized by lack of assets, both human and capital. To get rid of poverty the poor need access to all factors of production, of which credit is an important one. It is often argued that, without collateral the poor often face the binding borrowing constraint in credit market. This reason explains the micro-credit program, which was launched in 1995 to provide the poor with small credit for production promotion without collateral. A household who belongs to the list of the poor households and needs capital for production can borrow an amount of credit with favorable interest rates. The total amount of credit is not more than VND 7 million for a household at a point of time.

At the beginning the program was undertaken by the Bank for the Poor, which belonged to the Bank for Agriculture and Rural Development. Since early 2003, the program has been implemented by a separate bank – the Vietnam Bank for Social Policies (VBSP). The program is now a sub-program of the National Targeted Program for Hunger Eradication and Poverty Reduction (HEPR). The HEPR program that was launched by the Government in 1998 aims at eliminating hunger and reducing poverty. The Ministry of Labor, War Invalids and Social Affairs (MOLISA) is assigned as the standing body to assist the Government in the execution of the program. In this research the program of micro-credit in question is called the national program of micro-credit.

The Government has spent a huge amount of finance in the micro-credit program. During the period 1995-2005, more than 3 million households were provided with small credit by the program. Until September 2005 the total outstanding loans for poor households was VND 13428 billion (Vietnam Bank for Social Policies, 2005). There is, however, little research on quantitative evaluation of the micro-credit program impact. Most of evaluation reports simply describe the implementation and the output of the program. Questions on causal impact of the program remain unanswered so far. Information on the quantitative assessment of a program can be of interest for two main reasons. Firstly it is very helpful in determining whether the program should be expanded or terminated. Secondly, the impact assessment can provide useful information for improving the program. Detailed quantitative assessment, e.g. not only on causal impact but also on poverty targeting, can provide suggestions for modification of the program.

One difficulty in evaluation of the micro-credit program is the presence of contemporaneous sources of micro-credit. The poor can find it difficult to get credit from commercial banks, but they can still borrow from relatives or other antipoverty programs that also provide micro-credit. People who fail in getting credit from the program can try to borrow credit from other sources. In addition, it might be the case that participation in the micro-credit program can promote or prevent the participants to join other micro-credit programs, i.e. try to get additional credit from other source. If the participation in the micro-credit program is correlated with the borrowing of micro-credit from other sources, estimation of impact of the micro-credit without taking into account this correlation can lead to biased results. In econometrics term, treating the borrowing of

micro-credit from other sources as an unobserved variable can result in a biased estimator of the impact variable of the micro-credit program if there is correlation between these two variables.

There is a large amount of studies in impact evaluation of a micro-credit program in developing countries such as Bangladesh, Pakistan, Thailand, etc. In assessing impact of a micro-credit program, one often neglects impact of other sources of micro-credit. In other words, they make an implicit assumption that there is no correlation between impact of the program of micro-credit in question and impact of other micro-credit sources. However if this assumption does not hold, results of impact measurement are no longer unbiased. To measure the impact of the micro-credit program, the research combines the method of propensity score matching and the method of difference-in-difference and allows for correlation between the impact of the national program of micro-credit and impact of the others micro-credit sources.

The main objective of the research is to assess the poverty targeting and causal impact of the micro-credit program and other sources of micro-credit on the general and poor recipients. In doing so, the research extends the method of propensity score matching from the evaluation of a single program using single cross section data to the case of evaluation of multiple but overlapping and continuous programs using two-period panel data. Specifically, the research aims to answer the following questions:

- (1) How well does the national micro-credit program reach the poor, i.e. the poverty targeting of the program?
- (2) Can the poor get access to other sources of micro-credit besides the national micro-credit program, i.e. how well do other sources of micro-credit reach the poor?
- (3) How to extend the method of propensity score matching in a general context of continuous treatment variable and multiple overlapping programs using two-period panel data?
- (4) To what extent does the national micro-credit program have impact on its general recipients and its poor recipients?
- (5) To what extent do the other sources of micro-credit have impact on the general and poor recipients?
- (6) What are policy implications on design and modification of the national micro-credit program?

2. Scientific Contribution of the Research

The main objective of impact evaluation of a program is to assess the extent to which the program has changed outcomes of subjects³. The average impact of a program on a group of subject is defined as the difference between their outcome in the status of the program and their outcome in the status of no-program. However for each subject, we are not able to observe the two potential outcomes at the same time. For example, for a participant in a program, we can observe her outcome in the presence of the program, but we cannot observe her outcome if she had not

³ In literature of impact evaluation, a broader term “treatment” instead of program/project is sometimes used to refer an intervention whose impact is evaluated.

participated in the program, i.e. the outcome in the absence of the program. Different econometric methods are devised to estimate these missing data, thereby the program impact parameters.

In traditional econometrics, the problem in impact evaluation can be regarded as the program of the endogeneity of the program selection variable in the outcome equation. The endogeneity results from the correlation between the selection of the program participants and their potential outcomes. This is the case for all antipoverty programs including the micro-credit for the poor, since the programs are targeted at the poor population. The standard methods to deal with the endogeneity problem are instrumental variables and sample selection. These methods are widely applied in evaluating impact of micro-credit programs, e.g. Pitt and Khandker, 2003; Zaman, 1999, Khandker and Faruquee, 2001. However the main problem in the sample selection method⁴ is that it requires an assumption on the functional form of the joint distribution of the error terms in the program selection equation and the potential outcome equations. In addition, as the method of instrumental variables, the method of sample selection often requires a good instrumental variable to get efficient estimators of the program impact. However it is very difficult to find an instrumental variable which is required correlated with the program selection variable but at the time uncorrelated with the error term in the outcome equation. When an instrumental is not available, one tries to get so-called experimental or quasi-experimental data in which the program administrators delay the program for some eligible people who will serve as a control group, e.g. Pitt and Khandker, 1998; and Coleman, 1999. Those who get the program at the beginning are called the treatment group. The program impact is then estimated based on a sample of the treatment and control groups, but using more simple techniques because the control and treatment groups have the similar unobservable terms, and there is no correlation between the program selection and the potential outcome given that the observable variables are already controlled. Although this method produces robust results, it is difficult to be implemented in reality. In aspects of ethnics and politics, it is not acceptable to delay the supports which are very necessary for someone.

In literature of impact evaluation, the matching method is popularly applied. The basic idea of the method is to find a comparison group who characteristics are similar to the participants. The difference in outcome between the comparison and treatment groups can be attributed to the program impact. The main limitation of the method lies on its assumption that the program selection is independent of the potential outcomes once conditioning on observable characteristics variables. The limitation can be overcome if the method can be combined with the method of difference-in-difference using panel data which allow for selection of the program based on unobservable variables. However this method has not been used in micro-credit program. One reason might be that the traditional literature of impact evaluation often deals with binary treatment variable, while the amount of credit is a continuous variable. Thus the application of the method is not straightforward. Recently, Hirano and Imbens (2004) have extended the propensity score matching into the continuous treatment variable context. In this study, this method will be further developed into the panel data context and combined with the difference-in-difference estimator. The proposed method will be applied into the evaluation of the micro-credit program.

⁴ The sample selection method is proposed by Heckman (1978),

Traditional literature of impact evaluation of a program as well as a micro-credit program often neglects other simultaneous programs that also have impact on the participants and non-participants in the program in question. Imbens (1999) and Lechner (2001) extend the method of the propensity score matching into the multiple mutually exclusive programs. However, in reality the programs are often overlapping. Some people can join several programs at the same time. Thus the study will extend the propensity score matching into this more general context in which people are participating in several programs simultaneously. In addition, the asymptotic distribution of the proposed estimators is also constructed⁵. Heckman et. al. (1998) develop the asymptotic theory for kernel matching estimators for the binary treatment variable. Their work will be extended in this study to derive the matching estimator's asymptotic distribution in the general case of multiple-overlapping continuous treatments using panel data.

In short, the study aims to make scientific contribution to the theory of impact evaluation by developing the method of propensity score matching in a more general case. It extends the works by Hirano and Imbens (2004), Lechner (2001), Imbens (1999), and Heckman et. al. (1998) so that the propensity score matching can be used in the context of panel data, continuous treatment variable, and especially multiple-overlapping treatment programs. The study also contributes the literature of micro-credit program evaluation by applying a new technique into this field.

3. Policy Relevance

The national micro-credit program is an antipoverty program that has been paid considerable attention by the Government in Vietnam. Until September 2005, the total outstanding loans for poor households was VND 13428 billion (Vietnam Bank for Social Policies, 2005). Except the infrastructure construction program, the national micro-credit program is the biggest antipoverty program, and policy makers are very interested in knowing whether the program brings any positive effect for the poor households. However, questions on causal impact of the program on poverty remain unanswered so far. One reason might be that impact evaluation is a complicated work, especially for the micro-credit program in which households participate in the program based on not only observable but also unobservable variables. Unless a good instrumental variable, experimental design or panel data are available, the impact of the program cannot be estimated without bias. In many studies or reports of the VBSP and other governmental agencies, one often reports the number of the poor households who have received the credit from the program, and the number of household recipients escaped the poverty, e.g. see Le Duc Thuy, 2003; and Ha Dan Huan, 2003. What is implicitly stated in these studies is that some households can get rid of poverty owing to a number of factors, not only the credit program. There are several studies that suggest an increase in the amount of the credit provided for the poor (e.g. Ha Quang Dao, 2003). It is implied that the present micro-credit program does not have effective impact on the poor households.

Thus impact evaluation of the program impact will provide very helpful information for the government to know whether the present program actually reaches the poor households, and to

⁵ An practical method to obtain the standard error of estimates in impact evaluation is to use bootstrap techniques. Although this method is convenient, there is no guarantee that it will produce correct results in a specific case.

what extent it has impact on the recipients and the poor recipients. If the program does not target well the poor and the impact is not significant, then the program must be modified by changing the program selection criteria or the amount of credit provided for the recipients. The impact evaluation is allowed in this study because of the availability of panel data of Vietnam Household Living Standard Survey 2002-2004.

Besides, the causal inference analysis will be presented thoroughly in the study, which can help policy makers have more clear ideas on causal impact of a policy or a program on certain interested subjects.

4. Methodology

4.1. Evaluation of Poverty Targeting of the Program

To assess how well the micro-credit program for the poor reaches the poor and ultra-poor, two common measures are used in the research. The first is the percentage proportion of poor and ultra-poor recipients of the credit over the total number of the poor and ultra-poor, respectively. This measure is called the coverage rate of the program. The second measure is the percentage proportion of credit recipients who are found non-poor over the total number of the credit recipients (participants in the program). This proportion reflects the accuracy of the program in targeting the poor, and is called the leakage rate. A good targeting program will have a high coverage rate and a low leakage rate.

4.2. Impact Evaluation Methodology

The research uses a method that combines the propensity score matching and difference-in-difference method but in a general context of continuous and multiple overlapping programs. The difference-in-difference method using propensity score matching can be regarded as a nonparametric version of the first-difference regression using two-period panel data.

The matching method identifies impact of a program based on the assumption of conditional independence of treatment and potential outcomes (Rubin, 1977). Under this assumption, the program impact on the participants can be identified by comparing the outcome of the participants and the outcome of non-participants who have distributions of conditional variables similar to those of the participants. The bias due to the difference in unobservable variables between the comparison group and the treatment group (participants) is assumed to be zero. This assumption is too strong for the micro-credit program, since the participants and non-participants can have very different unobservable variables which affect both outcome and the program selection. The difference-in-difference method relaxes this assumption in a sense that it allows for this bias provided that this bias is time-invariant so that taking the difference in outcome before and after the program will remove the bias due to the difference in outcome between the comparison and treatment groups.

This section presents brief and simple introduction without proof how the program impact is identified in the study. The formal and more general development of the method including estimation techniques will be conducted during the research. To illustrate the ideas, assume for simplicity that there are only two programs of the micro-credit denoted by D and T, which are

allowed to be continuous variables. Whether a households can receive credit from one or both the programs depends on their owned decisions and the program selection criteria. Suppose that we are interested in effect of receiving an amount of credit d from the program denoted by D on an outcome variable Y , i.e.:

$$ATT_{D=d} = E(Y_{D=d} | D = d) - E(Y_{D=0} | D = d) \quad (1)$$

where ATT means average treatment effect on the treated⁶; $Y_{D=d}$ and $Y_{D=0}$ are potential outcomes for a household if they do receive and do not receive an amount of credit $D = d$, respectively.

The second term in (1) is not observed, and needs to be estimated. If the independence assumption conditional on observable variables X (Rubin, 1977)⁷ hold, then:

$$E(Y_{D=0} | D = d, X) = E(Y_{D=0} | D = 0, X) \quad (2)$$

As a result, (1) becomes:

$$\begin{aligned} ATT_{X,D=d} &= E(Y_{D=d} | D = d, X) - E(Y_{D=0} | D = d, X) \\ &= E(Y_{D=d} | D = d, X) - E(Y_{D=0} | D = 0, X) \end{aligned} \quad (3)$$

Now all terms in the second line of (3) are observed, and the program impact can be identified conditional on the variables X . If there is no correlation between D and T , then we will have:

$$\begin{aligned} E(Y_{D=d} | D = d, X) &= E(Y_{D=d} | D = d, X, T) \\ E(Y_{D=0} | D = 0, X) &= E(Y_{D=0} | D = 0, X, T) \end{aligned}$$

As a result, (3) is unchanged. However if there is such an correlation, then (3) should be revised to include T in the conditional expectation:

$$ATT_{X,T,D=d} = E(Y_{D=d} | D = d, X, T) - E(Y_{D=0} | D = 0, X, T) \quad (4)$$

For the program of micro-credit credit, (2) no longer holds if there are unobservable variables affect the program selection and the outcome. If panel data before and after the program are available, we allow $E(Y_{D=0} | D = d, X)$ to differ from $E(Y_{D=0} | D = 0, X)$ provided that this difference is unchanged during these two period data collection. Then, we can identify the program impact in the following simplest form:

$$\begin{aligned} ATT_{X_A,T,D=d} &= \left[E(Y_{A,D=d} | D = d, X_A, T) - E(Y_{A,D=0} | D = 0, X_A, T) \right] \\ &\quad - \left[E(Y_{B,D=d} | D = d, X_B, T) - E(Y_{B,D=0} | D = 0, X_B, T) \right] \end{aligned} \quad (5)$$

where the subscript “A” and “B” mean “after the program” and “before the program”, respectively.

Finally, we can get the average treatment effect on the treatment unconditional on X and T by taking the expectation of (5) over the range of X and T . The program impact can estimated for the

⁶ There are many others parameters in impact evaluation, such as average treatment effect, marginal treatment effect, local treatment effect, etc. For simplicity, we discuss only the average treatment effect on the treated in this proposal.

⁷ In fact we will need a more stronger assumption than Rubin (1977) in a sense that the assumption holds for all values of the program treatment D .

groups of poor or ultra-poor households by letting (5) be conditional on the indicator variables of these groups.

5. Data requirement and sources

The analysis of the study relies heavily on data from the two Vietnam Household Living Standard Surveys (VHLSS) that were conducted by the General Statistical Office of Vietnam (GSO) with technical support from World Bank in the years 2002 and 2004. The survey collected information on household characteristics including basic demography, employment and labor force participation, education, health, income, expenditure, housing, fixed assets and durable goods, the participation of households in the most important poverty alleviation programs. The full household sample of the 2002 VHLSS covered the 75000 households, of which 30000 households were asked for detailed information on consumption expenditure and income. Similarly, the full sample of the 2004 VHLSS covered 45000 households, of which 9000 households are surveyed expenditure and income. Data on expenditure and income are collected using very detailed questionnaires. Small and detailed items on expenditure and income are collected, and then aggregated into the expenditure and income per capita. At the moment, the 2002 VHLSS sample of 30000 households and the 2004 VHLSS sample of 9000 households are already released by the GSO. The samples are representative for the whole country and 8 geographic regions. It is very interesting that these samples of VHLSS 2002 and 2004 construct a panel data of 4500 households, which are representative for the whole country, and regions of large population. The data collected information on the recipients of the credit from the micro-credit program of VBSP during the period 2002-2004.

Besides, data on the implementation of the micro-credit program from the VBSP are also used for review of the program implementation and analysis of poverty targeting of the program. The data will be obtained from the headquarter of the VBSP.

6. Dissemination Strategy

One of the main objectives of the study is to provide the policy makers with understanding of impact evaluation and convincing information on the targeting and impact of the national micro-credit program so that they will take into account these ideas when preparing reports and policies. The study also aims to present the knowledge and methodology of causal impact analysis in assessing a development program/project or even an economic policy to local researchers. Besides, the results from the study are expected to make contribution to the current literature of the program impact evaluation. To do so, first of all, the team members will try to disseminate the findings, knowledge, and techniques from the research during their daily works. Then after the research, the findings from the study are expected disseminated to a wide range of interested audiences via seminars, training, and papers.

The study will be presented in detailed in at least three key local seminars. The first seminar will take place in the Vietnam Bank for Social Policies, which undertakes the program of micro-credit for the poor in Vietnam. The second one will be held in the Ministry of Labor, Invalid and Social Affair (MOLISA). MOLISA is a ministry that takes charge of implementation, monitoring and

evaluation of all targeted poverty programs in Vietnam⁸. The third seminar will be in the National Economics University, Hanoi, Vietnam. Besides, the study can be presented to several international agencies such as WB, UNDP, IMF or DFID⁹, and other NGOs in Vietnam. WB and IMF are willing to prepare the place (often in their office) for seminars on development studies. Finally, the report can be also sent to other international conference so that the team can present their findings to other international researchers. It should be noted that the results from the study will be prepared in the most simple and understandable, non-technical formats to the policy makers and non-technical audiences. However for scientific conferences, the study will be presented in more technical, mathematic and statistical ways for technical discussion and dissemination.

Main findings of the study will be published as one working paper and at least three domestic journals. The whole report will be presented as the working paper in Institute of Labor Science, and Social Affairs, MOLISA. The brief findings and conclusion will be published in *Journal of Banking Review*, the State Bank of Vietnam. More detailed methodology and results will be published in *Journal of Development Economics*, National Economics University (NEU), Hanoi, or the *Journal of Economic Studies*, Institute of Economics. The technical part will be published in *Journal of Mathematical Application*, the Mathematical Association of Vietnam.

The team will make great efforts to present the study in a format of PEP working paper and at least two international papers. Full report will be put in a PEP working paper.. Brief methodology and findings are expected in journals such as *World Bank Research Observer* or *Journal of Development Economics*, or *World Development*. The technical part of the study is expected to be published in *Vietnam Journal of Mathematics* (Springer-Verlag) or *Evaluation Review*, or a suitable journal.

The findings of the study will be also put in an international website of PEP, and Vietnamese websites of MOLISA and VBSP. Finally, the team can find finance to arrange a training course in Impact Evaluation of Program/Project for researchers and staffs from MOLISA, VBSP, and NEU.

7. Key References

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⁸ The Committee of Ethnic Minority and Mountainous Areas is the standing organization of the Program 135 that is targeted at the communes with special difficulties.

⁹ The Department of For International Development, The Government of the United Kingdom of Great Britain and Northern Ireland.

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8. List of Team Members' Prior Training and Experiences

(1) Team leader: Nguyen Viet Cuong (Vietnamese; age: 29; gender: male)

- November 2002: Participant in a course “Training of Trainer for Impact Evaluation” in South Korea. The course conducted by the World Bank Institute and National Statistical Office of Korea. Its aim is to develop the capacity of developing countries in assessment of poverty-reducing programs (4 full-time days).
- July - October 2003: Researcher in “Assessing the impact of Vietnam’s programs for targeted transfers to the poor using the Vietnam Household Living Standard Survey 2002”. This research component belongs to the research “Vietnam Development Report 2002” conducted by the World Bank (Part-time work).
- From February 2005 - now: Lecturer in a course “Microeconomic Evaluation of Program Impact”. The course is in Master Programme in Development Economics conducted by Institute of Social Science, the Hague, the Netherlands and National Economics University, Hanoi, Vietnam in Hanoi.

(2) Team senior advisor: Prof. Vu Thieu (Vietnamese; age: 63; gender: male)

- From 1994 - now: Co-founder and leader of The Vietnam-Netherlands Project for Mater’s Degree in Development Economics (MDE) in Vietnam. Director of MDE at National Economics University, Hanoi. Main contributor for sustainable development of MDE International Standard Programme after completion of Dutch funded Project, 1994-2002.
- From 1994 - now: Lecturer in Econometrics at the graduate and graduate levels
- March 2003 - October 2003: National Team Leader and Statistician, WB/ADB joint Study on The Poverty Impact of Public Irrigation Expenditure in Vietnam, 2002-2004, conducting the analysis of the data collected, including advanced data analysis, and report results obtained to the former in formats agreed; organizing and presenting the preliminary findings of the study and its final report and policy brief to a series of policy seminars at the national level [4 months].

(3) Team member: Pham Minh Thu (Vietnamese; age: 29; gender: female)

- May 2005: Participant in a training courses in "Q-Square: Combining Qualitative and Quantitative Approaches in Poverty Analysis", held by International Development Research Centre Canada and Vietnam Academy of Social Sciences and The World Bank, Vietnam.
- From March 2005 - now: Member of Steering Board of the poor households identification survey 2005, MOLISA.
- August 2003: Researcher in the impact evaluation of the project "Miserreor" on the micro-credit for promotion of poverty reduction, MOLISA.

- June 2001: Researcher in a research “Impact Assessment on Hunger Eradication and Poverty Reduction Capital – KWF” in Yen Bai province, MOLISA.

(4) Team member: Duong Khanh Toan (Vietnamese; age: 29; gender: male)

- From October 2003 – now: Credit expert in a National Project of Provision of Loan for Poor Households and the Small Scale Enterprise for Employment Generation, VBSP.
- From September 2005 – now: Credit expert in a Project of Provision of Loan for the Small Scale Enterprise for Employment Generation. The project is funded by the German Government and Vietnamese Government.
- June – December 2004: Participant in a credit training course called " NLFC" that is cooperated by Japan 's National Life Finance Corporation and Bank for Social Policy. The course stressed on credit training in giving loan for medium and small scale enterprises(From June, 2004 to December, 2004)

(5) Team member: Pham Minh Nguyet (Vietnamese; age: 28; gender: female)

- 2005: Project Manager Assistant of Marine Ships Management System Project of Joint Venture VietsovPetro (VSP).

9. Expected Capacity Building

This section presents the capacity building for the team during and after the research implementation. The tasks that will be carried out by each member is also worked out.

9.1. Capacity Building

(1) Nguyen Viet Cuong

- Improve research skills, English language, skills of report and paper writing, and presenting in seminars.
- Deepen knowledge of poverty, and microeconomics theory.
- Deepen knowledge of statistics, impact evaluation theory to better the course “Impact Evaluation” that he teaches in university.
- Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(2) Prof. Vu Thieu

- Deepen knowledge of statistics, impact evaluation theory.
- Help others team members improve the research skills and knowledge of econometrics and statistics.

(3) Pham Minh Thu

- Improve research skills, English language, skills of report and paper writing, and presenting in seminars.
- Deepen knowledge of poverty, and microeconomics theory.
- Improve the knowledge of econometric, regression techniques, and data processing.
- Gain knowledge of causal impact, and impact evaluation of a project/program and a economics policy.
- Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(4) Duong Khanh Toan

- Improve research skills, English language, skills of report and paper writing, and presenting in seminars.
- Deepen knowledge of poverty, and microeconomics theory.
- Gain data process skills, knowledge of causal impact, and impact evaluation of a project/program and a economics policy.
- Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(5) Pham Minh Nguyet

- Improve research skills, English language, skills of report and paper writing, and presenting in seminars.
- Gain data process skills, knowledge of poverty, and microeconomics theory, knowledge of causal impact, and impact evaluation of a project/program and a economics policy.
- Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

9.2. Task Division

The following tasks are assigned to team members based on their education and working experiences. The tasks are planned to be divided according to the following proposed contents of final reports.

Proposed content of the report	Main conductors
Chapter 1: Introduction	Prof. Vu Thieu Nguyen Viet Cuong

Chapter 2: Overview of the national micro-credit credit program (i) Brief introduction of antipoverty programs in Vietnam (ii) Overview of the micro-credit program (iii) The poverty targeting of the program.	Duong Khanh Toan Pham Minh Thu
Chapter 3: Research Methodology (i) Overview of Impact Evaluation Methods (ii) Development of the propensity score matching in general context. (ii) Monte Carlo simulation of the proposed estimators (or/and asymptotic theory).	Nguyen Viet Cuong Prof. Vu Thieu
Chapter 4: Empirical Analysis (i) Data processing (ii) running Stata programs to estimate the program impact (iii) analyze the results.	Pham Minh Thu (data processing) Pham Minh Nguyet (data processing) Nguyen Viet Cuong (running model and results analysis)
Chapter 5: Policy Implication and Conclusion	Nguyen Viet Cuong Duong Khanh Toan Pham Minh Thu

- Note:** (i) All members need to have comments on all chapters of the report.
- (ii) Duong Khanh Toan collects reports and documents on the micro-credit programs from his bank.
- (iii) Pham Minh Nguyet undertakes the logistic activities such as meeting, seminar arrangements, and translation during and after the research implementation.

10. Ethical, Social, Gender or Environmental Issues, or Risks

The main data used in the research are from the Vietnam Household Living Standard Surveys 2002 and 2004. These surveys allow for analysis representative at the national and regional levels. It is impossible to identify the interviewed households from these data sets, since identification information were deleted from the released data.

11. List of Past, Current, or Pending Projects in Related Areas Involving Team Members

(1) Project title: Methods for identifying poor households and communes in Vietnam through proxy-indicators.

Funding institution: World Bank (WB)

Team members involved: Nguyen Viet Cuong (team leader), Pham Minh Thu

Time: January 2005 – now

(2) Project title: Assessing the impact of Vietnam's programs for targeted transfers to the poor using the Vietnam Household Living Standard Survey 2002

Funding institution: WB

Team members involved: Nguyen Viet Cuong (team leader)

Time: July - October 2003

(3) Project title: The Poverty Impact of Public Irrigation Expenditure in Vietnam, 2002-2004

Funding institution: WB/Asian Development Bank (ADB)

Team members involved: Prof. Vu Thieu (team leader)

Time: March 2003 – October 2003

(4) Project title: Vietnamese Economics Research Networking (VERN) on Evaluation of Economic Development Study Proposal

Funding institution: Canada Government

Team members involved: Prof. Vu Thieu (consultant)

Time: October – November 2003

(5) Project title: Impact evaluation of the project "Miserreor" on the micro-credit for promotion of poverty reduction.

Funding institution: MOLISA

Team members involved: Pham Minh Thu

Time: August 2003

(6) Project title: Impact Assessment on Hunger Eradication and Poverty Reduction Capital – KWF in Yen Bai province

Funding institution: MOLISA/GTZ

Team members involved: Pham Minh Thu

Time: June 2001

(7) Project title: National Project of Provision of Loan for Poor Households and the Small Scale Enterprise for Employment Generation

Funding institution: VBSP

Team members involved: Duong Khanh Toan

Time: From October 2003 – now

(8) Project title: Provision of Loan for the Small Scale Enterprise for Employment Generation

Funding institution: German Government/VBSP

Team members involved: Duong Khanh Toan

Time: From September 2005 – now

12. Supplementary Issues to the First Proposal

This section presents explanations that respond to the comments of the PEP network (sent on January 31, 2006) on the first proposal (submitted in November 2005). There are 3 sub-sections: the first rewrites the comments of PEP network on the first proposal. The second and the third present the explanations based on the comments.

12.1. Comments of PEP Network on the first Proposal

Evaluation of PEP proposal PRO-PEP-10529

General Comment:

The proposal titled “Poverty Targeting and Impact of the National Micro-Credit Program in Vietnam” is relevant from a policy perspective, includes key references, proposes an adequate methodology and can make a relevant and important empirical contribution. However, a key aspect is missing in the proposal: Do the authors have access to the datasets they propose to study? If they do have access, then I suggest presenting preliminary statistics and detailed information about which variables are included in the datasets. So far, it is not clear that the datasets include the necessary information to estimate the causal effect of micro-credit program.

Additionally, the authors propose to make a theoretical contribution by extending propensity score matching with continuous treatment in a panel data context and allowing individuals to participate in several programs at the same time. This appears as an interesting theoretical contribution.

Specific comments:

- Scientific Contribution: Besides the potential theoretical contribution, the proposal can make a relevant empirical contribution if the authors actually have access to the datasets and depending on its characteristics. For example, the proposal emphasizes the importance of taking into account alternative sources of micro-credit when analyzing the impact of a particular micro-credit program. However, it is not clear if the datasets (i.e. VHLSS and VBSP) have enough information to solve the mentioned problem. I suggest explaining in detail which variables are available in the datasets and providing preliminary statistics (e.g. how many households in the 2002 sample were micro-credit recipients? How many in 2004? Are they the same? Do we observe similar characteristics among micro-credit participants and non-participants? Do we actually observe the

performance of participants before and after treatment? Which variables are included in the VBSP sample?).

- Policy Relevance: Studying targeting and impact of micro-credit in Vietnam is clearly relevant from a policy perspective.
- Methodology: Propensity score matching and difference in difference estimates appear as an adequate methodology to estimate the causal effect of micro-credit given that the data is non-experimental and the same household can be followed over time. One limitation seems to be that the panel only covers the years 2002 and 2004. Two years may be a very short period of time to evaluate the impact of micro-credit programs.
- Literature: The authors include key references.

12.2. Detailed Descriptions of Vietnam Living Standard Survey

The section presents additional explanations and responses to the comments sent by the PEP network on January 31, 2006. Clearly the feasibility of the research depends heavily on the availability of the data set. To estimate the impact of the micro-credit program implemented the Vietnam Bank for Social Policies (VBSP), the research uses household data from the two Vietnam Household Living Standard Surveys (VHLSS) that were conducted by the General Statistical Office of Vietnam (GSO) with technical support from World Bank in the years 2002 and 2004. Both surveys use quite similar questionnaires to collect information on household living conditions and characteristics at the commune and household level. The research uses the household data collected by household questionnaires. More specifically:

In VHLSS 2002, household data include 9 sections:

- Section 1: Household members
- Section 2: Education of household members
- Section 3: Household member employment
- Section 4: Health of household members
- Section 5: Income
- Section 6: Consumption expenditure
- Section 7: Fixed assets and durables
- Section 8: Housing
- Section 9: Participation in poverty reduction programs

In VHLSS 2004, household data include 10 sections:

- Section 1: Household members
- Section 2: Education of household members
- Section 3: Health of household members
- Section 4: Income and employment
- Section 5: Consumption expenditure

- Section 6: Fixed assets and durables
- Section 7: Housing
- Section 8: Participation in poverty reduction programs
- Section 9: Agriculture, forestry, and aquaculture activities
- Section 10: Business, non-agriculture, non-forestry, and non-aquaculture activities

The full household sample of the 2002 VHLSS covers the 75000 households, of which 30000 households are asked for detailed information on consumption expenditure. It means that the large sample of 75000 households does not collect information on household expenditure but it does collect detailed information on the other sections including the income section. Similarly, the full sample of the 2004 VHLSS covers 45000 households, of which 9000 households are surveyed expenditure. Data on expenditure and income are collected using very detailed questionnaires. Small and detailed items on expenditure and income are collected, and then aggregated into the expenditure and income per capita. At the moment, the 2002 VHLSS sample of 30000 households and the 2004 VHLSS sample of 9000 households are already released by the GSO. The samples are representative for the whole country and 8 geographic regions. It is very interesting that these small samples of VHLSS 2002 and 2004 construct a panel data of around 4000 households, which are representative for the whole country, and regions of large population. The panel data VHLSS 2002-2004 in the large sample covers around 22000 households. It is important that the surveys collect information on the recipients of the credit from the micro-credit program of VBSP during the period 2002-2004.

12.3. Some Household Variables in VHLSS 2002-2004 Related to Impact Evaluation of the Micro-Credit Program

Variables of Program Participation

The VHLSS 2004 collects information on whether a household borrows from various sources of credit including the VBSP during the years 2003 and 2004. Table 1 reports the number of households who get credit from the VBSP and other sources of credit in the small sample of VHLSS 2004 and the panel data of the small sample VHLSS 2002-2004. Other sources of credit are other banks, relative and friends, private lenders, and other social funds. In this table the other sources of credit besides VBSP are aggregated.

Table 1: Number of observations in panel data 2002-2004 (small samples)

Households who (in the years 2003 and 2004):	In VHLSS 2004		In panel data VHLSS 2002-2004 (Repeated households)	
	Obs. Number	Percentage	Obs. Number	Percentage
Do not receive any credit	5035	54.8	2178	54.34
Receive credit from only VBSP	374	4.07	168	4.19
Receive credit from both VBSP and other sources	134	1.46	56	1.40
Receive credit from other sources (not VBSP)	3645	39.67	1606	40.07
Total	9188	100	4008	100

Source: Authors' estimation from VHLSS 2002-2004

Although the number of credit recipients from the VBSP is not very large in the panel data VHLSS 2002-2004 for the small samples, this number will be relatively large in the panel data from the large samples of VHLSS. The panel data from the large samples cover around 22000 households, and the number of observations would be 5 times as much as the number in Table 1. Currently data from the large (full) samples of VHLSS 2002 – 2004 are not available, but the authors will be able to get these data in several months.

Outcome and Conditioning Variables

Credit that a household borrows can be used directly in consumption or invested in the production. If the credit is used effectively, income will be increased in long term. As a result expenditure consumption will be increased. The VHLSS 2002 and 2004 collect information on detailed items of household expenditure and income, e.g. food and non-food consumption, and farm and non-farm income. If the time duration of 2 years (between 2002 and 2004) are not long enough for the credit program to have effects on income or expenditure, other outcome variables such as the amount of agricultural product or livestock can be used to investigate the program effect. These outcomes can be regarded as short-term outcomes which are more directly affected by the credit. Table 2 presents the average of several outcome variables for households who receive and do not receive credit using panel data VHLSS 2002-2004.

Besides, there are a large number of the potential outcome variables such as expenditure on healthcare, schooling, or production inputs and outputs. Household assets can be used as outcome variables as well. By using these outcome variables, we can assess the impact of the credit on multi-dimensions of poverty.

It is argued that these outcome variables and program selection are correlated with household characteristics such demography, education and household assets, and geographic variables, etc. The VHLSS 2002 and 2004 (also panel data) collect substantial information on these variables at the household level (Table 2). It should be noted that some asset variables e.g. owning a television or telephone can be affected by the program if they are measured after the program. However pre-program variables, i.e. variables measured in the VHLSS 2002 including household assets, can always serve as the conditioning variables in estimating the program impacts.

Table 2: Main household variables of households by credit statuses in panel data VHLSS 2002 – VHLSS 2004

VARIABLES	2002					2004				
	CREDIT STATUSES in VHLSS 2004: HOUSEHOLDS WHO					CREDIT STATUSES in VHLSS 2004: HOUSEHOLDS WHO				
	Do not receive credit	Receive credit only from VBSP	Receive credit from both VBSP and other sources	Receive credit from other sources	All	Do not receive credit	Receive credit only from VBSP	Receive credit from both VBSP and other sources	Receive credit from other sources	All
OUTCOME VARIABLES										
Income per capita (thousand VND)	4809.75	2582.60	2757.96	4074.33	4384.15	5769.65	3233.68	3401.35	4649.91	5155.88
Expenditure per capita (thousand VND) ¹⁰	4016.80	2236.22	2475.30	3028.38	3508.76	4351.65	2599.47	2619.57	3525.24	3903.96
Percentage of working people over people who are above 14 years old	82.29	89.34	90.20	84.09	83.43	77.85	85.98	83.38	81.31	79.74
Percentage of households who have cow, houses, buffalo	20.06	38.69	36.04	20.26	21.08	14.54	16.05	17.92	18.89	16.49
Percentage of households who have pig	14.58	17.86	22.71	16.74	15.73	19.58	36.09	32.44	20.44	20.83
Percentage of households who have poultry	2.56	6.86	0.00	3.35	3.03	2.45	3.42	2.53	3.73	3.03
CONDITIONING VARIABLES										
Assets										
Percentage of households who have color television	60.29	31.75	42.40	53.46	56.06	71.86	52.45	56.51	67.64	69.04
Percentage of households who have black-white television	13.19	14.27	13.14	15.47	14.19	8.08	13.17	13.55	13.00	10.45
Percentage of households who have radio	34.74	31.22	32.10	27.73	31.60	21.12	28.13	16.37	22.06	21.75
Percentage of households who	15.62	5.08	3.86	8.75	12.15	26.28	10.85	4.13	17.07	21.43

¹⁰ Both income and expenditure in 2002 and 2004 are measured at price in January 2002 so that they can be comparable between 2002 and 2004.

have telephone										
Percentage of households who have motorbike	46.69	28.54	20.55	38.51	42.19	56.33	36.91	30.11	49.51	52.26
Percentage of households who have computer	3.94	0.00	0.00	0.82	2.41	7.18	0.00	2.2	3.2	5.13
Demography										
Percentage of households who are ethnic minorities	11.57	25.67	34.31	13.12	13.08	11.33	29.68	29.21	13.79	13.4
Household size (the number of household members)	4.97	5.40	5.13	5.30	5.13	4.87	5.59	5.12	5.22	5.05
Percentage of people who are above 60 years old	10.50	5.56	5.18	6.49	8.54	11.78	6.71	7.32	7.34	9.63
Percentage of people who are under 16 years old	30.23	37.11	34.31	33.03	31.74	27.82	33.5	30.92	30.56	29.26
Percentage of female members in household	50.25	49.41	51.42	49.12	49.75	50.98	49.5	50.15	49.5	50.28
Housing										
Area of living area (m ²)	60.20	53.39	48.80	56.57	58.25	64.94	53.68	51.97	60.88	62.56
Percentage of households who live in permanent house	18.92	6.37	15.31	12.94	15.85	21.04	6.76	12.23	16.23	18.28
Percentage of households who live in semi-permanent house ¹¹	59.21	53.52	49.62	61.44	59.80	60.41	62.22	62.77	61.47	60.96
Percentage of households who use flush toilet	25.72	6.82	3.24	13.58	19.55	32.22	12.28	5.73	19.48	25.62
Percentage of households who use other types of toilets ¹²	58.28	67.86	89.50	71.31	64.56	54.6	65.77	81.63	64.89	59.8
Annual crop land area (for those who manage this land type) (m ²)	5521.65	6371.40	5396.04	5540.81	5568.12	5340.6	5832.97	4629.92	6260.57	5771.6
Perennial crop land area (for those who manage this land type) (m ²)	3693.97	2742.07	5214.27	4515.97	4053.56	6562.43	4585.77	17039.95	8392.56	7500.9
Forest land area (for those	47099.53	23603.65	8100.00	47417.98	42396.33	11446	33345.58	13303.22	18254.46	16144.71

¹¹ The remaining households live in temporary house.

¹² The remaining households have no toilet.

who manage this land type) (m ²)										
Aquaculture surface area (for those who manage this surface type) (m ²)	1874.00	2257.24	1304.07	1473.16	1693.22	5433.06	526.12	1426.06	4640.93	4719.31
Household Head										
Age	49.02	46.74	44.43	46.67	50.11	46.87	46.86	48.09	49.07	50.11
Percentage of household head who are male	79.21	83.73	80.08	83.81	77.67	83.88	77.24	82.5	79.97	77.67
Highest education of household head (in percent) ¹³										
Lower than primary school	31.97	41.11	20.58	30.41	31.53	28.04	40.04	19.34	29.99	29.25
Primary school degree	21.43	26.10	31.72	27.28	24.22	24.13	26.65	29.94	25.51	24.9
Lower-secondary degree	27.11	21.25	31.39	29.30	27.85	25.26	18.74	32.36	27.39	25.98
Upper-secondary degree	8.69	7.35	11.72	6.71	7.84	8.24	5.17	7.8	5.06	6.76
Technical degree	5.92	4.05	4.59	4.07	5.04	8.87	9.4	10.55	9.21	9.06
Post-secondary degree	4.89	0.14	0.00	2.23	3.52	5.47	0	0	2.84	4.05
Sub-total for education	100	100	100	100	100	100	100	100	100	100
Note: The program variables, i.e. credit recipients, are defined using the VHLSS 2004. Source: Authors' estimation from VHLSS 2002 and VHLSS 2004										

¹³ A similar variable of education for head's spouse can be defined and estimated from the VHLSSs.