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Impact of PRIME interventions on Monga mitigation in greater Rangpur region in Bangladesh- Institute of Microfinance

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IMPACT OF PRIME INTERVENTIONS
ON MONGA MITIGATION IN
GREATER RANGPUR REGION IN BANGLADESH

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List of Acronyms

ASOD	Assistance for Social Organization & Development
ATT	Average Treatment effect on the Treated
BEES	Bangladesh Extension Education Services
CBN	Cost of Basic Needs
CFW	Cash for Work
CIA	Conditional Independence Assumption
DiD	Difference in Difference
ESDO	Eco-Social Development Organization
FFW	Food for Work
FGD	Focused Group Discussion
GBK	Gram Bikash Kendra
GK	Grameen Kalyan
GoB	Government of Bangladesh
GUK	Gram Unnayan Kendra
HA	Health Assistant
HH	Household
IGA	Income Generating Activity
InM	Institute of Microfinance
JCF	Jagarani Chakra Foundation
MFI	Microfinance Institution
MIS	Management Information System
NGO	Non Governmental Organization
PKSF	Palli Karma Sahayak Foundation
PMUK	Padakkhep Manabik Unnayan Kendra
PO	Partner Organization
POPI	People's Oriented Program Implementation
PRIME	Programmed Initiatives for <i>Monga</i> Eradication
PSM	Propensity Score Matching
RDRS	Rangpur Dinajpur Rural Service
SHARP	Self-Help Rehabilitation Program
SKS	Somaj Kallyan Sangstha
SSS	Society for Social Service
Tk	Taka
TMSS	Thengamara Mohila Sabuj Sangha
VGD	Vulnerable Group Development
UDDIPAN	United Development Initiatives for Programme Action

Preface

This report presents impact of PRIME program of PKSF being implemented in greater Rangpur region. The benchmark of all poor households was conducted in 2006 and 2007. The questionnaire that was administered was brief. The impact study conducted in 2008-09 was quite comprehensive. The questionnaire was quite long. The survey was conducted over a total poor households of 5400 including 720 control poor households in non-program area.

Conducting the survey was difficult one for the Institute of Microfinance as the country was going through a two levels of election - one was Parliamentary election held in December 2008, and the other one was Upazila level election conducted in March 2009. As such, we had to conduct the survey in two phases. It was a realistic approach to the prevailing environment. This led to delay in the survey to some extent.

Despite the constraints, the study was completed to our satisfaction. More than one hundred enumerators collected data. PKSF management extended all out supports to us. Dr. Md. Jashim uddin, General Manager, PKSF, and his team members facilitated us in possible ways including logistics to the enumerators. We deeply acknowledge their support. Special thanks are due to Dr. Quazi Mesbahuddin Ahmed, Managing Director, PKSF, Dr. M. A. Hakim, General Manager, PKSF, and Mr. Fazlul Kader, General Manager, PKSF, for their supports whenever we asked for. Managers of the branches in the sample unions and villages were very instrumental. They and their field level staffs extended all facilities including visits to the villages, information on FGD households. Without their support, it would have been almost impossible. We deeply appreciate their contribution. The sample households had all the patience to provide us all relevant information. We acknowledge with thanks their time and patience.

Dr. Shahidur Rahman Khandker, Lead Economist, and Mr. Hossain Samad of the World Bank contributed enormously to the processing and analytical framework of the study. We gratefully acknowledge their contribution. We also thank Dr. Md. Mosleh Uddin Sadeque, Acting Executive Director, Institute of Microfinance (InM) for his active support and assistance.

The draft report was submitted to PKSF and DFID in 2009. This report is now finalized after careful editing and reanalysis of some of the data, based on the comments that we received from our colleagues and stakeholders. In this process, we received contributions from Dr. Atonu Rabbani, Dr. Meherun Ahmed, Dr. Kazi Iqbal, Ms. Tahmina Rahman, Ms. Faria Ahmad and S. Badruddoza. We deeply appreciate their contributions. Financial support from DFID in conducting the impact study is recognized. Extensive support and cooperation that we received from Ms. Shahnida Azher and Ms. Syeda Touhid of DFID, and Dr. Amanullah Khan of PCU are gratefully acknowledged.

M. A. Baqui Khalily
Team Leader

Executive Summary

The present study was undertaken with the objective of assessing impact of PRIME program at the household level. PKSf introduced the PRIME (Programmed Initiative for Monga Eradication) in Lalmonirhat on pilot basis in 2006. The program interventions include cash for work, seasonal emergency loan, flexible micro credit, support to promote profitable IGAs and micro enterprises. In 2006, PKSf started with cash for work program. In 2007, it extended to other four districts - Kurigram, Nilphamari, Gaibandha and Rangpur. Cash for work program was also implemented in these districts. In 2008, cash for work program under PRIME was not implemented as the GoB introduced guaranteed 100-Day Employment Scheme. Therefore, PRIME is essentially now a micro finance program although terms and conditions are different from traditional micro finance.

The PRIME program targets ultra-poor. Ultra poor households were selected based on certain criteria. The criteria are: (i) landholding of HHs should not be more than 50 decimal; (ii) wage employment is the major source of income, (iii) monthly income should not exceed Tk.1500 a month. These criteria are standard, but PKSf targets lower strata of poor households under the program. The beginning of a process to identify ultra poor households was benchmark survey of households through FGD. Not all upazilas and HHs were surveyed in 2006 and 2007. Twelve upazilas in three districts - Rangpur, Nilphamari and Gaibandha - were surveyed only in 2008. PRIME is yet to be implemented in those 12 upazilas. As such, the present implementation areas under PRIME are 23 upazilas.

The present study is based on a sample survey of some 5308 including 702 control households. Samples in the program areas were selected from a target population of some 482,000 households. Sample design included coverage of all districts, selection of upazilas, unions, villages and households randomly on proportionate basis. The survey was conducted in December 2008 and January 2009. Therefore, analysis in this report essentially reflects achievements of PRIME until December 2008. A short questionnaire was prepared for benchmark survey, and quite a longer version was prepared for impact survey. Therefore, we have panel data on selected number of parameters of both participants and non-participants in program villages, and cross-sectional data for a large number of parameters for participants, non-participants in program villages and non-participants in control villages. We provided analysis of the impact of PRIME using both the data sets.

Major findings derived from the **Panel Data** are as follows:

First, there has been significant increase in consumption ordering (occasional starvation, consumption rationing and three full meals). Major positive change is found in reduction in the percentage of households in occasional starvation in *monga*. It reduced by five percentage point. Consequently, there is also a change in consumption rationing. It increased by three percentage point from pre-prime level. Difference-in-Difference test shows a net gain for the participants.

Second, around 45 percent of the HHs in occasional starvation in pre-prime *monga* remained in occasional starvation. This implies, fifty five percent moved to higher level of consumption ordering during 2008-*monga*. On the other hand, around 35 percent of the HHs in

consumption rationing and three full meals during pre-prime *monga* slipped into occasional starvation during 2008-*monga*. Therefore, there had been substantial changes in consumption ordering during the past two years.

Third, higher income, shift from wage employment to self employment, decrease in family size, increase in borrowed amount from MFIs and increase in savings have contributed to higher consumption ordering for the participants than the non-participants III program villages.

Fourth, econometric analysis shows that probability of becoming worse in subsequent *monga* is quite low. Based on the data of 2007 and 2008, we estimated the probability of being in occasional starvation to be 0.24 and 0.30 in having three meals. The probability of remaining in the same level of consumption ordering is 0.46.

Fifth, impacts of PRIME on other household outcomes are positive. Percentage of households having some savings is 70 percent higher than non-participants. At the disaggregate level, the gain is higher in all four districts except Kurigram for the participants. In Kurigram, percentage of households having savings has declined, but the rate of decline is lower than the non-participants.

Sixth, livestock is a major income generating asset for the poor households. Change in total livestock is higher for the participants than the non-participants. While it decreased by 0.38 for the non-participants, the mean number of livestock increased for the participants 0.49, implying net gain of 0.87 for the participants. Mean number of cows declined for both participants and non-participants, it increased for the participants in the case of goats. Change in mean number of goats was higher (1.25) for the participants than 0.92 for the non-participants. Change in mean number of chicken was negative for both the participants and non-participants probably due to bird flu.

Seventh, except in Gaibandha, change in number of livestock was positive for the participants in all other districts. In the case of non-participants, it declined in all other districts except Nilphamari. Therefore, the gain in number of livestock was higher for the participants than the non-participants.

Eighth, there have been some changes in fixed assets - landholding and number of rooms in living houses. Although duration of the PRIME program is only two years, it is interesting to observe that some significant positive changes have taken place in landholding. It has increased for both the participants and non-participants. But the net gain for the participants was in Nilphamari, Lalmonirhat and Rangpur. Mean landholding is higher for the participants in Lalmonirhat than in other districts.

Ninth, no significant change in mean number of rooms was found for participants and non-participants at the aggregate level. Nevertheless, it declined in Kurigram and Nilphamari at a higher rate for the participants. This may be due to higher vulnerability of the districts.

Tenth, intensity of migration reduced for both participants and non-participants, but not significant.

Eleventh, percentage of households having wage employment as principal occupation has declined to 48 percent from 76 percent for the participants, and it declined by 22 percent for

the non-participants. Hence, the rate of decrease was higher for the participants. In the case of self-employment in non-agriculture, percentage of participating households is higher than the non-agriculture.

Twelfth, Propensity Score Matching estimates suggest that the participants were better off than the non-participants. The positive and statistically significant change was found in the average number of meals, savings, and number of cows, number of goats. Compared to non-participants, number of cows declined by 9.8 percent, number of goats increased by 8 percent, and percentage of HHs having savings increased by 28.7 percent. In case of other outcome variables, the estimates were statistically significant.

Major Findings Using Cross Sectional Data

The Panel data provided us differences in extent of outcomes between participants and non-participants. In such analysis, there is a possibility of under-estimation of the effects of program intervention for the participants because of spill-over effects of the program for the non-participants. Therefore, estimates may be biased. Moreover, we had parameter limitations in panel data set. The cross-sectional data is comprehensive, and contains major information on poverty, income, expenditure, among other variables. Furthermore, it contains non-participants in control villages. As a result, effective comparison between participants in program villages and non-participants in control villages can be made for assessing impact outcomes of PRIME. Therefore, the findings will be comprehensive and in possible cases, may be validated by the findings from the panel data analysis. Major findings derived from the cross-sectional analysis are as follows:

First, participants are better off compared to both non-participants in program villages and non-participants in control villages in terms of consumption ordering in normal times. More than 28 percent of the participants had three full meals compared to 23 percent of the non-participants in program villages and 11 percent in control villages. The difference is statistically significant.

Second, participants remain also better off in consumption ordering during *monga* although percentage of participating HHs has declined to around 7 percent compared to 3 percent for the non-participants in control villages. Percentage of participating HHs in occasional starvation during *monga* is lower than that of non-participants in both program and control villages. The pattern was observed also at the district level.

Third, food consumption expenditure of the participant-households was higher than the non-participants in control villages. Average annual food expenditure per capita for the participants was Tk. 10,212 as against Tk. 8,652 for the non-participants in control villages. The difference was statistically significant. This implies higher ability of the participants. It is perhaps due to higher income and borrowing for income generating activities.

Fourthly, average annual income of the participant-HHs was Tk. 53,394 compared to Tk. 38,160 for the non-participants in control villages. The mean difference was statistically significant. The major share in total income was self-employment (44 percent) for the participants compared to 24 percent for the non-participants in control villages.

Fifth, higher income of the participant-HHs will lead to higher savings. Average saving was Tk. 483 compared to Tk. 126 for the non-participants in control villages and Tk. 296 for the non-participants in program villages. The differences were statistically significant. Around sixty percent of the sample HHs had membership with MFIs. This also has contributed to differences in savings and borrowing.

Sixth, higher income, savings and borrowing are likely to increase investment. Average investment was Tk. 3,448 for the participants compared to Tk. 565 for the non-participants in control villages and Tk. 2,137 for the non-participants in program villages. This implies that participant-HHs have developed higher capability. Its effect will be higher indeed if the share of such investment is largely capital investment for productive purposes. Most part of the total investment was for capital investment. Consequently, it increases income generating capability of the participant-HHs than the non-participants in terms of amount.

Seventh, average number of livestock of participant-HHs (3.5) was significantly different from that of non-participants in program villages (2.97) and non-participants (2.12) in control villages. It reinforces our earlier finding of the panel data analysis.

Eighth, econometric analysis of the impact of PRIME intervention suggests significant impact of PRIME interventions was increase in savings (Tk. 237), increase in total income excluding remittance (Tk. 3,931), increase in HH expenditure per capita (Tk. 2367), increase in number of goats (0.76), and increase in the probability of higher number of meals by 30 percent. These positive impacts are differences between average effects of PRIME indicators on the participants and non-participants in control villages. The positive effects of PRIME interventions are unambiguous compared to the non-participants in program and control villages.

The findings derived from both panel data and cross-sectional data are similar in trend and effects. Findings derived from the analysis of cross-sectional data are validated by the findings from the analysis of panel data. Therefore, the findings are consistent and robust. All the positive impacts that we have summarized should have some effects on poverty.

Effects of PRIME on Poverty Reduction

We estimated poverty ratio based on both calorie method and cost of basic needs method (popularly known as expenditure approach). Based on the calorie method, percentage of participant-HHs above poverty line of 2112 calories was 57 percent and that of non-participants in program villages was 55 percent. The difference was not significant as most of poor HHs consume cereals. The share of cereals in total per capita calorie consumption was around 70 percent. The difference was more pronounced when poverty ratio (ratio of number of HHs below poverty line to total number of HHs) was calculated using cost of basic needs method.

The cost of basic needs provides information on per capita cost of consumption per day based on required balanced diet. Around 23 percent of the participant-HHs was above poverty line compared to 20 percent of the non-participants in program villages and 12 percent in control villages. This means, around 77 percent of the participants as against 80 percent of the non-participants in program villages and 87 percent of the non-participants in control villages were below poverty line. The differences were statistically significant.

Poverty ratio varies by district. Gaibandha (78 percent) and Lalmonirhat (80 percent) have lowest poverty ratio and Kurigram (82 percent) has the highest poverty ratio. Although difference in poverty ratio is small but in absolute number it will be substantial. Nevertheless, the difference was significant statistically. There exist positive relationship between poverty ratio and household size, as expected. An inverse relationship exists between landholding and poverty ratio. Poverty ratio of the landless HHs were around 80 percent, and for the HHs with landholding of above 50 decimals was 64 percent, the percent of poverty ratio with respect of landholding was higher for the non-participants. In terms of occupation, poverty ratio of wage labor was 82 percent and for the non-participants it was 74 percent, in the participants group. This was higher for the non-participants. Difference was substantial. In brief, poverty ratio is high among the HHs that are more dependent on wage labor, have small landholding and higher family size.

We estimated the extent of the effect on PRIME interventions on poverty ratio, we found that PRIME has contributed to lowering of poverty ratio by 3.9 percent compared to non-participants in program villages and control villages. Although this is quite encouraging, the percentage of reduction in poverty ration should be used with caution. This will sustain in long run when environments in 2007 and 2008 prevail. *Monga* was less severe in 2008 largely because of minimum flood, increase in self-employment among other reasons.

Amidst all positive outcomes of PRIME, there is an area of concern that around 25 percent of the sample HHs maintains their livelihood with calorie of less than 1800. These HHs belong to the category of extreme poverty. Almost 100 percent of these HHs do not have minimum agricultural equipment, they either don't own or own only one room thatched house, they are mostly on wage employment, and they do not either have any or one livestock.

Policy Implications

The findings lead to several policy implications for PKSF and DFID. They are as follows:

First, PKSF needs to continue with the program in long run as the program has made some positive impact. But they need to reevaluate design of the program as poor households live in dynamic and ever-changing economic conditions.

Second, although the program has already identified targeted poor HHs, it is also a dynamic process. Some households will slip into poverty. PKSF needs to revise and update list of targeted poor HHs every 3 or 4 years.

Third, although PRIME has made some positive impact, the area of major concern is the HHs that are living below the poverty line of 1800 calorie. Indeed they are under the program. It will take some long time to bring them near or above the poverty line with the present design. Bringing them near or above poverty line will take multiple interventions - short run and long run. Combination of short and long run programs will enable these extreme poor HHs to move forward at a faster rate. One of short run interventions should be *conditional cash transfer program*. Such conditional cash transfer scheme should be available during lean or *monga* season. One may argue against such scheme when the government social safety net programs have wide coverage and are very effective. The 100-day employment guarantee scheme has failed to make any inroad. Only 12 percent of the targeted poor HHs in greater Rangpur had access to the 100-day employment guarantee scheme. In such a situation,

leaving the extreme poor HHs on micro credit, seasonal or flexible, alone will be less effective. There has to be some form of seasonal interventions. PRIME had a component of cash-for-work scheme. This has not been implemented in 2008. This program may be transformed into conditional cash transfer for these extreme poor HHs.

Fourth, we could not evaluate impact of IGA or micro enterprise support service as these programs have just taken off. We had very small sample on IGA or micro enterprise support service.

Fifth, poor remains poor not only because of low income but also because of high risk associated with borrowing, health and natural calamities. Both properties and health remain under risk. Poor HHs may gain from access to micro finance and subsequent investment, but such gain may be undermined by degree of risk associated. Lumpy expenditure for medical treatment may take all their savings out, and may even lead to borrowing from informal sources. Similarly, natural calamities destroy their properties, some time even are forced to migrate leaving behind damaged properties. All these take them back to square one. The gains from micro credit are all lost. Effect of micro credit will be much higher if gains from it are retained over time. This can only be possible if alternate mechanisms are developed for health and property risk.

Regarding health risk, under PRIME, an alternate health check-up or treatment system can be developed but such system should be sustainable and should not be an ad-hoc component. The other scheme can be referral arrangements with local doctors or upazila hospital. In such a case, one will have to take care of possible moral hazard problem. Arrangement can also be made with those MFI-NGOs or health centres of Grameen Kalyan who have been implementing health scheme for the poor HHs.

It is not only the problem of medical treatment that may affect higher outcome of PRIME, but it is also the risk of death of earning member which will adversely affect family earning but also capability to repay loan. In such a situation, some form of insurance mechanism can be introduced. More than fifty percent of the MFIs have been implementing insurance scheme for credit risk or family income loss risk. PKSf has been contemplating to introduce it formally. A design is underway. Therefore, a product on insurance mechanism to cover risk of death and accident may be developed during the life of PRIME. This will contribute to higher impact of micro credit.

Sixth, success of multi-dimensional program like PRIME needs to be evaluated and be dynamic. It is not the annual impact study that will unearth dynamics of the program. There is a need for continuous inquiry into effectiveness of each element of PRIME program. Therefore, PKSf needs to think beyond annual impact assessment, and should work closely with institution like Institute of Microfinance (InM) for continuous assessment of dynamics of each element of the program as well as dynamics of rural economy. This will enable PKSf to understand the dynamics, and revise and refocus the program to make it more effective.

Seventh, the forgotten part in the PRIME program is supply side. The process of strengthening partner MFIs should go beyond thinking of some training or expansion of branches. The supply side issue involves capability of partner MFIs with long run sustainability. Donor driven or subsidized program often makes the whole approach ad-hoc from the supply side. PKSf has been providing to its partner MFIs supports to build their

capacity. Long run capacity of these institutions has to be developed with appropriate organizational capability.

Eighth, savings should be given a top priority in the PRIME design. HHs will perhaps be able to stand on their feet if they have some savings. Poor people can save but it depends on the type of available savings instruments. This is well documented in literature. Even the microfinance statistics of Bangladesh will validate this notion. If a poor can save Tk. 20,000 in three/four years, she will not require any more loan until she desires to move further up. PRIME should design an appropriate saving scheme to strongly encourage ultra poor to save.

In conclusion, PKSF has embarked on a very challenging project that will have lasting impact on the process of alleviating poverty in Bangladesh. Therefore, it needs to be excellently netted with all possible socio-economic dynamics. PRIME should not be a project which will be over after 2013. DFID needs to support dynamic changes that may be incorporated into the design of PRIME that will provide both short and long run services to the poor HHs in Bangladesh. Lessons from the experiences of successful international programs can be drawn.

Chapter One

Introduction and Methodology

Introduction

The north-west region (greater Rangpur district) of Bangladesh experiences seasonal poverty every year that is due to several factors: (i) inequitable distribution of land; (ii) higher percentage of poor households being dependent on agricultural labor for their subsistence; (iii) limited opportunities for sustainable off-farm economic activities, and (iv) natural calamities (InM 2008; Rahman; Zug). Seasonal poverty is a situation of scarcity of employment during the *Bangla* months of *Bhadra-Kartik* (September–November). Consequently, poor households live in a situation of starvation. It is commonly known as '*monga*' or '*abhab*'.

Monga is not a crisis of recent years. This is a century old problem. Every year, it draws attention of the policymakers, professionals, human rights group and civil society. No sustainable strategy has been undertaken to address this age old problem. Several strategies are being undertaken and implemented largely by the Government of Bangladesh (GoB) to mitigate *monga* in short run. They are: (i) direct cash transfer to poor households through commonly known mechanisms like 'cash for work', 'food for work', '100-day employment guarantee'; (ii) expansion of social safety net programs (such as old age pension) so that poor do not remain unfed, and (iii) expansion of temporary measures like provision for food. In recent years, non-government organizations have emerged as important players in combating *monga*. They are implementing both financial and non-financial programs to address both aspects of structural and seasonal poverty of *monga*.

Palli Karma Sahayak Foundation (PKSF), a wholesale lending agency and a central institution committed to poverty alleviation, has undertaken *monga* mitigation program what is commonly known as PRIME (Programmed Initiatives for *Monga* Eradication). The program contains elements of both short and long run measures. The short run interventions are earth cutting (cash for work) and emergency seasonal loan. The earth cutting scheme is a direct transfer of cash to the poor households, particularly to ultra poor, who are the worst affected by *monga*. Emergency seasonal loan is also a short run measure that enables households to financial consumption during the crisis when cash for work is not available.

Long run interventions include continuous provision for access to finance and provision for promotion of profitable income generating activities and/or micro enterprises. Short run measures are oriented towards mitigating *monga*, and therefore solving immediate problem of food scarcity while long run measures are for creating options for permanent income and employment opportunities so that vulnerability to *monga* is reduced.

PRIME started its journey in 2006 from Lalmonirhat with implementation of short run measures like cash for work and seasonal emergency loan. In 2007, it was extended to other four districts – Kurigram, Gaibandha, Nilphamari and Rangpur. The cash for work program was implemented in those districts in 2007. Following the government program of 100-day employment scheme, the program was not implemented in 2008. At present, PRIME also

includes elements of seasonal loan, flexible micro credit and provision for promotion of profitable IGAs or micro enterprises. Now this has essentially become a purely finance based program, although some non-credit elements like provision for primary health services are incorporated in the design.

PRIME program is three years old. What has been its impact? Only one impact study was conducted on impact of 'cash for work' program in Lalmonirhat at the household level in 2007 (Faridi and Khalily 2008). It was found that the program had contributed to reducing intensity of *monga* or vulnerability to consumption. In 2008, PKSF extended its program to other four districts with both short and long run credit interventions. This study evaluates impact of PRIME interventions at the household level in 2008.

The Study Questions

Impact study requires a multi-dimensional approach from the perspective of nature and extent of impact. The critical questions that guide this impact study are as follows:

First, what interventions have been introduced and to what extent? Answer to this question will essentially provide information on program deepening.

Second, is PRIME well targeted? Who have been brought under the program? If the program itself is not appropriately targeted, the impact will not be goal-focused. Therefore, it is imperative to examine at the first step about the placement of PRIME program.

Third, what has been the impact of PRIME program at the household level? The results will provide information on the nature and extent of benefits generated by the program beneficiaries or participants compared to the non-participants.

Fourth, what constraints have been faced by micro finance institutions (MFIs) for implementing PRIME? What constraints have influenced the outcomes of the PRIME program? Answer to these questions will help improving the quality of PRIME interventions and its impact.

The above questions are needed to be examined properly so that the results are robust, and the impact outcomes are properly evaluated.

Study Methods

Sample Design

Selection of Households for Program Group

The study used the PKSF-InM (Palli Karma Shahayak Foundation-Institute of Microfinance) census data of 482,948 poor households in the greater Rangpur as its population. The census covered five districts, namely; Kurigram, Lalmonirhat, Rangpur, Gaibandha and Nilphamari. The benchmark survey covered all the upazilas of Kurigram (except the Kurigram Sadar) and Lalmonirhat districts, *ten* upazilas in other three districts – Rangpur, Gaibandha and

Nilphamari. Thus finally, the census covered a total of 23 upazilas, 209 unions, 2531 villages and 482,948 households.

Multi-stage cluster sampling technique was adopted to draw the sample from the census data. In the first stage, district was considered as the primary sampling unit, upazila as the second stage sampling unit, union as the third, village as the fourth and households as the ultimate or final stage sampling unit.

In the first stage, we considered the entire five districts of greater Rangpur in our sample implying that sample households will represent all the five districts. In the second stage, at least two upazilas were selected randomly. This constituted 16 randomly selected upazilas (about 70 percent) out of 23 upazilas. The selected upazilas consisted of 133 unions. In the third stage, 40 percent of the unions or at least three unions, whichever is lower, from each chosen upazila were selected. The selected numbers of unions were 61 (about 46 percent). The selected unions constituted of 701 villages which became the population for the fourth stage. Around 30 percent or at least two villages from each union were selected randomly. The numbers of villages selected were 271 (about 39 percent). Finally, at least 10 households were selected randomly from the villages having a maximum of 150 households and 7.5 percent of the households from the villages having more than 150 households. Therefore, ultimately 5,240 households among the population of 62,520 households were selected from the chosen villages. Through interview method, we could cover 4,606 households. Rest of the households was not completed due to several reasons such as unavailability due to migration, problem with FGD numbers, etc.

Selection of Households for Control Group

A critical element in impact assessment is comparison of outcomes of the participants with those of non-participants in program and non-program villages, ceteris paribus. Therefore, identification of control areas is crucial for effective impact assessment. The purpose of control group was to answer the counterfactual and to isolate the impacts of program factors over non-program factors. Selection of non-participants in program villages was straight forward, but identification of control villages was difficult. It was difficult because we have to identify control villages with similar characteristics of the program villages. We adopted a multi-stage approach. Twelve upazilas in Rangpur, Gaibandha and Nilphamari in 2008 were not under PRIME. Therefore, these became the population for selecting control upazilas. We used the multi-stage sampling technique to select control households. In the first stage of sampling we randomly selected four upazilas (around 33 percent). In the second stage 10 unions (about 20 percent) were randomly selected from the population of 49 unions of the four upazilas. From these selected unions, 40 villages were found as control villages. Out of 40 villages, in the third stage, 27 villages were selected. Total 5726 households were selected from the villages. The ultimate sampling unit covers about 13 percent of the selected villages. Hence, we selected 702 households from the control villages.

Questionnaires

Two questionnaires were used for collecting relevant data. One of them was “Community Questionnaire” and the other was Household Information Questionnaire named “The Impact of PRIME interventions”.

The community questionnaire was intended to know the overall characteristics of the selected villages. This questionnaire was split into seven sections to focus on several sectors of the villages. They are:

- Village roster (family member, population, electricity, solar electricity, bio-gas plant, percentage of using electricity in irrigation, number of money lenders)
- Land description
- Crop production
- Transportation system
- Interest rate on informal market
- Salary of day labor
- Village characteristics (distance from *pucca* road, rail station, bus stop, *kheya*/launch terminal, union parishad, upazila, police station, primary school, secondary school, higher secondary school, primary health care centre, hospital/clinic, business center, post office, MFI offices, others)

The Impact of PRIME Interventions questionnaire was used to collect information of the households in different aspects. The information collected through this questionnaire is presented below:

- Household roster (Name of household head, address, electricity, drinking water, kitchen, latrine facilities etc.)
- Household (HH) characteristics
- Wage labor information
- Information of self-employed member of the HH
- Household assets
- Cultivated land
- Amount of cultivated land and crop production in the previous year
- Non-Agricultural activity
- Income from several sectors
- Consumption status
- Food and Non-food expenditure
- Loan and savings (attainment in MFIs, formal loan sources, informal loan sources, expense of loan, approval of loan, savings and investment)
- Money received in last one year
- Disasters and remedies
- Information on Impact of PRIME

Methods of Data Collection

Household survey approach was adopted for the collection of primary data. The method was directly supervised by PKSf and InM. The enumerators personally communicated with the respondents and collected the required information to fulfill the objective of the study.

Recruitment and Training of the Enumerators

Total 118 enumerators were recruited for data collection. Recruitment criteria included educational attainment, maturity, effectiveness in training, experience in other survey and

ability to spend at least two weeks in the field. A four-day training program was arranged for the enumerators. The training program was focused on passing the objectives, sampling design and survey instruments of the study, and the methods of filling-in the questionnaires to the enumerators and supervisors.

Field Work and Monitoring

Field work for the study was carried out over a period of 5 weeks in November 2008 - February 2009. The enumerators and supervisors were sent to the pre-selected villages with the lists of selected households.

There were three stages of monitoring the data collection procedures. Five Assistant Directors (Research) of the InM supervised the data collection process at field level. They randomly rechecked the filled-in questionnaires to ensure the quality of the collected data. A coordinator was also employed to coordinate the field level operations. Finally the Director (Research and Knowledge Management) of InM directly monitored the data collection procedure.

Data Management and Editing of the Filled-in Questionnaires

A unique identification number was assigned to all the filled-in questionnaires. Each filled-in questionnaire was edited before any entry was made into the computer. Editing of filled-in questionnaires was undertaken to ensure consistency of the data.

Data Entry and Processing

Thirty data entry operators were recruited for the purpose of data entry. A two-day training program was arranged for them to give an idea about the questionnaire and the software for data entry. The data entry was carried out in the computer lab of InM. An Assistant Director (Research) supervised the data entry operators. After the entry of the edited data into computer was completed, revisions were done to check any entry errors.

Definition of Sample Type

We broadly classified the samples into three groups: program participants and non-participants in program villages, and control group in non-program villages. The sample program participants are the households under PRIME program while non-participants in the program village are not the members of PRIME. Households in non-program villages have similar characteristics as of the program participants.

Distribution of sample type of the sample households is presented below:

Sample Type	Frequency	Percentage
Program participants	1,524	28.71
Program non-participants	3,082	58.06
Control households	702	13.23
Total in non program villages	5,308	100.00

Impact Assessment of PRIME Interventions

Evaluating the impact of PRIME interventions requires comparisons of program beneficiaries with the counterfactual of those who have not received the interventions. Program impacts can be evaluated using both cross-sectional and time series data set. In case of cross-sectional data set, impact is evaluated by comparing the outcomes of program households and non-program households. This is commonly known as simple difference method. Time series data, enables us to estimate net marginal effect of PRIME interventions through comparing marginal change of different outcomes of both participants and non participants. This is commonly known as difference in difference method. We use both the methods to assess impact. In order to find the impact, we have a benchmark data of program participants and program non-participants of Gaibandha, Kurigram, Nilphamari and Rangpur districts for *monga* period 2006 and normal period 2007. Only Lalmonirhat district included data of *monga* period 2005 and normal period 2006. We also have a sample data of all five districts for both *monga* and normal period of 2008 for program participants and program non-participants. In addition we have a control group data of households having the similar socio economic characteristics of the program participants group¹.

Difference in Difference Method

The simplest set up of this method is to observe the outcomes comparing two groups in two time period. One of the groups is exposed to a treatment in the second period but not in the first period. The second group is not exposed to any treatment in either period. The indicators or parameters compared between program participants and non-participants by this method are: income, wealth, principal occupation, land, borrowing status, consumption ordering etc.

With the data that are likely to be available, an obvious place to start is the single difference (D) in mean outcomes between the participants and non-participants:

$$D = \bar{Y}^1 - \bar{Y}^0$$

Where Y is the outcome variable, the bar indicates an average of the outcome variable, and the superscript denotes the group (1 for participants and 0 for non-participants).

The above equation immediately results into a selection bias when we want to measure the average treatment effect on the treated (ATT). D correctly measures the ATT only when non-participants are exactly similar to the participants. That means it is assumed non-participants are proxies for participants average outcome variable if they had not participated. Violation of this assumption gives the biased estimate of ATT.

We get a difference of the particular parameter of the program participants by comparing the pre (*monga* period 2006) and post interventions (*monga* period 2008) situation of the households and denote it as D_p . Similarly, we get a difference of the non-participants group

¹ As we will be referring and discussing the characteristics of the households in relation to outcome parameters very frequently, we have not discussed household characteristics in separate chapter. We thought it would be a repetition. Nevertheless we have prepared a short note on the characteristics which has been appended to this chapter.

and denote it as D_{np} . The difference between D_p and D_{np} gives the impact of PRIME interventions of the particular indicator. In the same way, we can compare the pre and post intervention situation of the households for the normal time period and observed whether there is any impact of PRIME interventions.

The current data set is a panel type data and we can apply the panel approach to estimate treatment effects without assuming ignorability of treatment and without an instrumental variable, provided the treatment varies over time and is uncorrelated with time-varying unobservable that affect the response. We have estimated the treatment effects on a set of household outcomes such as savings, migration, livestock - number of goats, chickens and cows, number of meals in *monga* and so many other variables of interest using the following specification.

$$Y_{it} = \alpha_0 + \alpha_1 dum_{08} + \alpha_2 D_T + \gamma(D_T * dum_{08}) + X'\beta + \varepsilon_{it}$$

Here, Y_{it} is the outcome variable of interest for households in year t, dum_{08} is a year dummy that is equal to 1 for 2008 and 0 for 2007, D_T is treatment dummy which is equal to 1 for the participant group and 0 for non-participant group, the parameter γ indicates the differential effect of being the participant in the program and X is the vector of observable characteristics. The parameter of interest is γ gives the required DID estimation. The DID estimator makes explicit assumptions for consistent estimation of the parameter of interest. The basic assumption is that the time effects are common across treated and untreated individuals, that is, the treated and untreated groups would follow the same trend in absence of the program.

Simple Difference or Cross-sectional Method

Simple Difference or Cross-sectional method employed only on the survey data 2008 of program participants, program non-participants and control group households in order to assess the changes due to PRIME interventions. From the data we compare the simple difference between program participant and control group parameter versus simple difference between program non-participant and control group parameter.

Propensity Score Matching (PSM) Approach

The Propensity Score Matching has achieved popularity more recently as a tool of evaluation. It assumes that selection can be explained purely in terms of observable characteristics. Applying the method in principle is simple. For every individual in the treatment group a matching individual is found from the non-treatment group. The choice of match is dictated by observable characteristics. What is required is to match each treatment group individual with individuals sharing similar characteristics. The mean effect of treatment can then be calculated as the average difference in outcomes between the treated and non-treated.

Our goal is to estimate the effect of PRIME program on outcome of interest. Let us define the general formulation of outcome variable:

$$\text{primepart} = \begin{cases} 0 & \text{if the household does not participate in the program} \\ 1 & \text{if the household participates in the program} \end{cases}$$

We then define outcome of the program participant as y_1 and the outcome of program non-participant as y_0 . Our goal is to identify the average treatment effect on the treated (ATT). The average treatment effect on the treated is defined as benefits.

$$ATT = E(y_1 - y_0 | primepart = 1) = E(y_1 | primepart = 1) - E(y_0 | primepart = 0) \quad (1)$$

We can observe the first term of the equation (1), but the second term is not observable as it is not possible to observe the same individuals as participant and non-participant simultaneously. We will use the propensity score matching to estimate the term $E(y_0 | primepart = 0)$.

The estimation of an average treatment effect on the treated (ATT) is an observational study. That is why the estimation procedure can produce the bias if we use a non experimental estimator. The problem is that the assignment of subjects to the treatment and control groups is not random and therefore the estimation of the ATT is usually biased as a result of the existence of confounding factors. For that reason, the matching between treated and control groups becomes difficult when there are n -dimensional vector of characteristics.

One way to tackle this problem is to use propensity score matching (PSM) method which summarizes the pre-treatment characteristics of each subject into a single index variable, the propensity score, which is then used to generate the matching. The propensity score matching is used to reduce the bias by comparing the treatment and control groups whose observational characteristics are quite similar.

For matching certain assumptions must be hold. The fundamental assumption underlying matching is conditional independence assumption (CIA). In our case the assumption is represented by

$$y_0 \perp primepart | X \quad (2)$$

Where X is a vector of variables that are unaffected by the treatment. The assumption states that, conditional on a set of variables X , outcome of interest for those who do not participate is independent of actual treatment status. In our study we consider the following explanatory variables in determining the effect of PRIME program on several outcomes of interest: age of household head, family size, number of working male members over 12 years in the family, own land (homestead, arable) employment status (salaried, agriculture, non-agriculture, day labor, beggar), presence of NGO and *Char*, equipment (agricultural tools, transport), own business, etc.

Secondly, to identify the treatment effect on the treated, matching also requires that.

$$\Pr(primepart = 1 | X) < 1 \quad (3)$$

This common support condition is required at each level of X , where the probability of observing non-participant is positive.

Matching on all variables in X becomes impractical as the number of variables increases. Rosenbaum and Rubin (1983) show that if the conditions of equation 2 and 3 both hold,

matching can be performed conditioning on an index function $P(X)$ alone rather than on X , where $P(X) = \Pr(\text{primepart} = 1|X)$ is the probability of participating conditional on X . If outcomes are independent of treatment status given in X , then they are also independent of treatment status given in $P(X)$. Propensity score matching matches on a single index $P(X)$ instead of all variables in X . This powerful result overcomes the problem of dimensionality in multi-dimensional matching.

In order to estimate the propensity score, any standard model such as Logit or Probit can be used. It is important to remember that the role of propensity score is only to reduce the dimensions of the conditioning; as such, it has no behavioral assumptions attached to it. For case of estimation, we use the Logit model as follows:

$$p(\text{primepart}_i = 1|X_i) = \frac{e^{\lambda h(X_i)}}{1 + e^{\lambda h(X_i)}} \quad (4)$$

Where $h(X_i)$ is made up of linear and higher-order terms of the covariates on which we condition to obtain an ignorable treatment assignment. The coefficients λ can be estimated by using the maximum likelihood estimation method.

The propensity score can be expressed as:

$$P(X_i) = P(\text{primepart}_i = 1 / X_i = x_i) \quad (5)$$

Besides predicted probability itself, Logit, $\log\left(\frac{P(X)}{1 - P(X)}\right)$, Odds Ratio and Linear Index can also be defined as propensity scores as long as its distribution approximates to normal. In our study we use the predicted probability as the propensity score to determine the effect of PRIME program on several outcomes of interest.

APPENDIX TO CHAPTER ONE

Characteristics of the Sample Households

The purpose of the annexure to this chapter is to evaluate some basic household characteristics so that we understand that who have been benefited from the PRIME interventions. We, at first, have to acquire some ideas about the characteristics of the surveyed households, and then evaluate the characteristics of the participants, non-participants and control households separately. We shall try to find out differential household characteristics, if any, by district.

To consider the characteristics of the sample households, we have emphasized on land, family size, occupation, income-expenditure and their savings. It is noted that for facilitation of the objective, land is classified broadly only into three groups – no land, land up to 10 decimal and above 10 decimal. On the other hand, as a demographic factor, the household size is classified into two categories – families with size of up to 4 members, and the households of above 4 members. The rationale behind this typology is that, the mean family size of the surveyed area is around 4. The income and expenditure characteristics are measured on annual basis, that is, annual income and annual expenditure of the households. The characteristics reported in Table A-1.1.

Table A-1.1
Basic household characteristics in year 2008

Characteristics		Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Rangpur	All districts
Land (percent)	No land	22.71	26.17	25.22	33.21	29.28	26.77
	Up to 10	55.55	48.99	38.72	50.62	51.24	49.36
	Above 10	21.74	24.85	36.06	16.17	19.49	23.87
Family size (percent)	Below 4	67.61	64.76	53.10	63.56	65.58	63.23
	Above 4	32.39	35.24	46.90	36.44	34.42	36.77
Wage employment (percent)		46.02	52.33	53.99	64.93	55.98	53.65
Savings (Tk.)		263.86	130.15	375.11	318.89	135.83	240.4928
Income without remittance (Tk.)		48617.32	41136.42	52726.48	43584.82	39131.56	41077.15
Total Expenditure (Tk.)		34423.54	35249.28	37150.91	32703.68	34742.94	34921.97
Total food expenditure (Tk.)		27329.56	27627.21	29613.74	26013.96	27207.73	27607.59
Non-food expenditure (Tk.)		7093.97	7622.06	7537.17	6689.72	7371.40	7283.23

The table shows that around 27 percent of the households surveyed in the five districts are landless. The disparity or inequality in land holdings is apparent from the district analysis. The highest number of landless households is in Nilphamari (33.2 percent) and the lowest is in Gaibandha (22.7 percent). The number of landless households in Rangpur exceeds the overall scenario while the other districts – Kurigram and Lalmonirhat exposed the identical features of overall landlessness. The number of marginal landholders is highest in Gaibandha, and around 50 percent in Kurigram, Nilphamari and Rangpur districts. The households having above 10 decimals of land are the inhabitants of Lalmonirhat, which is identified as relatively less vulnerable areas.

Demographically, the distribution of households in terms of family size is quite comparable. Around 63 percent of the households have family size of 4 or less. By district, they basically have the same distribution except in Lalmonirhat. The number of large families (above 4

members) mainly belongs to Lalmonirhat. Around 47 percents of HHs have family size of above 4 members, while the lowest percentage (32 percent) is found in Gaibandha. Around 53 percents of the HHs in greater Rangpur have wage employment (day labor), while Nilphamari experiences the highest (about 65 percent) dependency on wage employment. The lowest intensity of wage employment is noted in Gaibandha. In other districts - Rangpur, Kurigram and Lalmonirhat; percentage of HH Heads having wage employment as principal occupation centers on regional percentage of around 53 percent. Higher dependency on wage employment, probably, explains the problem of *monga*.

The mean savings of Nilphamari, Lalmonirhat and Rangpur exceed the mean regional savings of Tk. 243 per HH. However, the mean savings of the remaining two districts, Kurigram and Gaibandha, lie below the regional mean. Savings is largely determined by income. Households of Lalmonirhat district have higher average income than that of five other districts. The mean income for households of Kurigram converges to the overall mean, whereas for Rangpur it is below, and for other remaining districts it is above the overall mean income. But the expenditure scenario is quite consistent with the overall scenario. That is, the mean expenditures of households from different districts are in the vicinity of the overall mean expenditure. The gap between income and expenditure is the lowest in Rangpur and highest in Lalmonirhat.

On the basis of the above characteristics we find that the households in Lalmonirhat are relatively better-off than those in other four districts. They have higher amount of land, higher mean income and expenditure along with larger family size.

Since our dataset consists of three types of households – participant households in the program villages, non-participants in program villages and non-participants in control villages. Therefore, to understand the characteristics of the treated and non-treated households, we have made a comparative analysis of the households by treatment typology (Table A-1.2).

Household characteristics of the participants and non-participants in program villages are different from the control villages. Participants, in terms of economic characteristics, are better-off. They have higher annual income as well as annual food and non-food expenditures, and lower percentage of wage labor. Non-participant households in program villages are relatively better-off than the non-participants in non-program villages. Non-participant HHs in program villages are marginally worse-off than the program participants in terms of income and expenditures. PRIME interventions may have contributed to such influences.

Table A-1.2
Overall Household Characteristics by Treatment Typology in 2008

Household Characteristics	Participants in program villages N=1,100	Non- participants in program villages N= 3,505	Non- participants in control villages N= 702	Overall N= 5308
	Mean	Mean	Mean	Mean
Land holdings	15.57 (42.37)	17.05 (97.43)	9.47 (27.21)	15.74 (82.12)
Family size	4.27 (1.54)	4.09 (1.62)	3.94 (1.53)	4.10 (1.60)
Age of HH head	41.53 (12.59)	42.59 (13.52)	41.09 (13.76)	42.17 (13.38)
HH annual Income including remittance	45720.65 (73139.88)	41054.09 (64280.48)	33916.19 (33453.85)	41077.15 (63212.38)
HH annual Income excluding remittance	47487.06 (73495.70)	42842.81 (65122.6)	34371.34 (33678.76)	42684.85 (63900.37)
Remittance (yearly)	1766.414 (5539.14)	1788.725 (7376.85)	455.15 (2413.77)	1607.69 (6577.54)
HH annual expenditure	38113.23 (19898.72)	35234.02 (21098.68)	28358.8 (13826.63)	34921.97 (20346.89)
HH annual food expenditure	30105.21 (13937.18)	27678.63 (13957.96)	23509.21 (10202.78)	27630.54 (13740.99)
HH annual non-food expenditure	8008.02 (10856.84)	7555.39 (11651.84)	4849.59 (7113.643)	7291.42 (11046.26)
HH wage labor (%)	48.96 (50.01)	52.27 (49.95)	67.95 (46.70)	53.65 (49.87)

Notes: Figures in parenthesis indicates standard deviations
HH stands for Households

Similar HH pattern or trend is observed when HH characteristics are evaluated by district along with treatment typology. Non-participant HHs in control villages in all the districts have lower annual income and expenditure (Table A-1.3) than in program villages. Participants in program villages in all the five districts have higher mean incomes and expenditures. Such differences may be attributed to PRIME interventions and the average size of land.

Table A-1.3
Household characteristics* by district
Year: 2008

Household Characteristics	Gaibandha			Kurigram		Lalmonirhat		Nilphamari			Rangpur		
	P	NP	C	P	NP	P	NP	P	NP	C	P	NP	C
	(N= 275)	(N= 999)	(N= 69)	(N= 280)	(N=855)	(N= 270)	(N=745)	(N= 135)	(N= 355)	(N= 314)	(N= 141)	(N= 551)	(N= 319)
Land holdings	12.05	18.65	4.39	14.33	18.78	24.7	22.19	9.42	6.76	6.31	13.25	11.15	13.69
Family size	3.97	3.9	4.1	4.19	4.05	4.77	4.34	4.22	4.04	4.02	4.1	4.17	3.82
Age of HH head	40.33	41.19	40.17	42.4	43.26	43.48	43.52	39.81	42.08	40.15	40.06	43.16	42.21
Annual Income (with remittance)	52585.1	52021.85	25941.35	45749.45	41809.71	60883.08	51990.01	53344.76	48014.98	38056.78	52206.65	45445	40412.13
Income without remittance	50063.29	49793.5	25825.4	44326.7	40091.65	59062.14	50430.34	51894.24	45868.34	37430.62	51037.29	44264.58	40051.94
Annual expenditure	36441.78	34411.92	26547.95	36768.09	34751.89	40854.39	35808.71	39609.32	35307.22	26791.21	37362.86	36648.49	30293.52
Annual food expenditure (mean)	29352.46	27056.89	23215.12	29501.04	27013.56	31971.37	28759.29	29857.05	27447.13	22741.38	29437.17	28525.9	24328.63
Annual non-food expenditure (mean)	7089.32	7355.03	3332.83	7267.05	7738.33	8883.02	7049.42	9752.27	7860.09	4049.83	7925.69	8122.58	5964.89
Household's wage labor (%)	42.55	44.74	78.26	51.07	52.75	51.48	54.9	54.07	65.07	69.43	47.52	53.36	64.26

Note: P = Participants in the program villages;
NP = Non-participants in the program villages;
C = Non-participants in the Control villages.

* Except wage employment, mean of all other characteristics are in Taka.

During *monga*, in most cases, affected households receive supports from government, non-government agencies and wealthy individuals. The nature of supports varies from food, clothing, cash money, livestock to even housing materials. Though quantity and quality of support received may not be sufficient, but these supports help *monga*-affected HHs to cope with *monga* in short run; to avoid occasional starvation and to reduce consumption vulnerability. But not all affected HHs get the supports during *monga* period.

Table A-1.4 provides information about the percentage of HHs having access to different supports during *monga*. There is not much difference by participants and non-participants. Around two-thirds of the program participants did not receive any support during *monga*. These HHs are left out from coping up with the situation. Among the assistances, food support was dominant, followed by 100-day employment guarantee schemes. The differences in terms of participants and non-participants are negligible although there are differences in terms of absolute number (Table A-1.4).

Table A-1.4
Distribution of support for the poor in greater Rangpur region
by program participation status
Year: 2008

Types of Support	Participant		Non participant	
	Pre	Post	Pre	Post
No support	708 [65.07]	740 [67.70]	2,228 [64.26]	2,629 [69.00]
Food only	334 [30.70]	215 [19.67]	1,061 [30.60]	666 [19.08]
Cash only	10 [0.92]	20 [1.83]	15 [0.43]	62 [1.78]
Clothing only	11 [1.01]	2 [0.18]	17 [0.49]	5 [0.14]
Livestock only	0 [0.00]	21 [1.92]	17 [0.49]	11 [0.32]
HH fittings	4 [0.37]	2 [0.18]	7 [0.20]	0 [0.00]
100 days program	0 [0.00]	61 [5.58]	0 [0.00]	221 [6.33]
Any combination	21 [1.93]	32 [2.93]	122 [3.52]	117 [3.35]
Total	1,088 [100.00]	1,093 [100.00]	3,467 [100.00]	3,490 [100.00]

Notes: Figures in parentheses show row percentage

The question is who received these supports? Supports, in general, provide short term benefits to the poor households. It might have different level of impact on different types of households. As we discussed earlier, it is necessary to understand the dynamics of support on household

characteristics. Thus we evaluate supports received by household characteristics in order to have influence of such support on consumption and income smoothening.

Table A-1.5
Types of support received by family size and land size in year 2008

Types of Support	Household land size (mean)				Household size (mean)			
	Participants		Non participants		Participants		Non participants	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Food	7.12	15.38	6.86	14.97	4.02	4.31	3.89	4.12
Cash	10.81	22.82	3.11	19.31	3.81	3.96	3.07	3.66
Clothing	4.96	19.00	3.50	29.54	3.88	5.86	3.89	2.88
Livestock	7.00	10.57	5.95	5.46	3.73	4.22	3.34	3.74
HH fittings	2.46	45.38	2.11	27.70	3.43	5.00	3.39	3.80

Table A-1.5 shows that, for all the supports that both participants and non-participants received in 2008, the mean value of the land size was higher. Placement of support services may appear to be well targeted when looked at from the perspective of wage employment and micro finance membership. The percentage of wage laborer, who received support, declined in case of major support programs (Table A-1.6). This means in 2008, supports tend to be given to the relatively economically advantageous groups compared to that of previous year. But relatively non-micro finance member HHs had higher access to different government support services.

Table A-1.6
Types of support received by wage employment and MF membership
(percent) in year 2008

Types of Support	Households having wage employment				HHs having MFI membership			
	Participants		Non participants		Participants		Non participants	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Food	32.03	23.74	35.52	22.11	36.75	23.93	34.38	26.01
Cash	0.92	2.62	1.05	2.85	2.63	2.95	1.04	1.95
Clothing	2.22	0.19	3.27	0.38	2.63	0.33	1.74	0.36
Livestock	0.52	2.06	1.13	0.71	0.72	5.57	0.83	0.43
HH fittings	0.78	0.37	0.52	0.05	0.24	0.98	0.14	0

Households that received different supports appeared to have borrowed from informal credit market (Table A-1.7). This is true mainly for the households receiving food grant. On the contrary, the borrowings from the institution tend to be lower in 2008.

Table A-1.7
Types of support by sources of borrowing in Taka
Year 2008

Types of Support	Borrowing from Informal Market				Borrowing from Formal Market			
	Participants		Non participants		Participants		Non participants	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Food	376	2524.82	208.51	2507.07	564.42	364.75	511.24	349.67
Cash	0	5316	133.33	1785.71	1285.71	0	750	0
Clothing	0	1000	262.5	1245.83	2000	0	1750	0
Livestock	0	2308.33	312.5	1287.5	333.33	0	235.29	0
HH fittings	0	5000	53.33	400	0	0	133.33	0

Thus it could be safely stated that, the support recipients, in general, are in a diverse group from that of the MFIs or PRIME are targeting. Besides, the participants of PRIME, who have an option or substitutability between support and PRIME intervention, seem to choose PRIME. Thus from the perspective of the impact analysis of PRIME, support might not be biased in assessment of PRIME.

Along with private supports, government also initiates some programs to mitigate the extent of the severity of *monga*. Therefore, we also pay attention to the distribution of social safety-net programs initiated by the government. Social safety-net programs are provided to targeted people who are old, poor or vulnerable to shock. Government of Bangladesh provides social safety-net facilities to the old aged, homeless, landless and poor women in different forms, such as; vulnerable group development (VGD), vulnerable group feeding (VGF), food for work (FFW), and pension for the old aged poor people. These programs are designed in a way that it will benefit the targeted group and prevent them from sudden economic and environmental shocks. In 2008, GoB introduced another seasonal safety-net program for the *monga*-affected poor households in greater Rangpur region. It is known as ‘100-day employment scheme’. Such program helps trimming down the extent of starvation; like permanent or seasonal food insecurity situation, and complement poor HHs in preserving their assets. The long term goal of the social safety-net program is to prevent transmission of poverty from present cohort to the next one.

The GoB social safety net programs have expanded enormously during the last two years. This is reflected in the percentage of beneficiaries in our sample HHs (Table A-1.8).

Expansion is more evident for VGD – increased from 9.20 percent of households in pre-PRIME period to 28.4 percent in post-PRIME in 2008. However, the food for work program declined from 2.90 percent to 1.22 percent during the same period. It may be due to the introduction of new program entitled “hundred days employment scheme”. Number of HHs getting old age pension increased from 2.09 percent to 4.82 percent in the year 2008.

Table A-1.8
Access of the poor HHs to different social safety net programs in year 2008

Social safety net	Participant (N=1093)		Non participant (N=3490)		Overall (N=4583)	
	Pre	Post	Pre	Post	Pre	Post
VGD	93 (8.55)	315 (28.82)	326 (9.40)	986 (28.25)	419 (9.20)	1301 (28.39)
FFW	39 (3.58)	18 (1.65)	93 (2.68)	38 (1.09)	132 (2.90)	56 (1.22)
Old age pension	21 (1.93)	42 (3.84)	74 (2.13)	179 (5.13)	95 (2.09)	221 (4.82)
100-day employment program		126 (11.53)		327 (9.37)		453 (9.88)
No program	938 (86.21)	633 (57.91)	2993 (86.33)	2072 (59.37)	3931 (86.30)	2705 (59.02)

Note: () shows percentage of N in each group – participants and non-participants. Sum of column percentages may not be 100 because of some HHs having access to multiple programs.

There is not much difference in case of the percentage of HHs having access to different social safety-net programs in 2008. Around 28 percent had access to VGD for both participants and non-participants HHs. Similar pattern is observed for FFW. However, difference is observed in case of old age pension and 100-day employment scheme. In the case of old age pension, a little more than five percent of non-participating HHs had higher access to old age pension. But over 11 percent of the participating HHs had participated in 100-day employment scheme compared to 9 percent for non-participating HHs. It implies that this program is targeted for the people who need it more.

Except the annual safety-net program, there may be variation in benefits in Taka derived by the beneficiaries. Table A-1.9 shows the mean benefits in Taka received by participating and non-participating HHs in 2008. The participating HHs derived higher benefits at the last row of the table, which shows that, the percentage of household getting any of the programs increased from the pre-intervention period. It increases a little bit more for the participant group.

Table A-1.9
The mean value of social safety net program in the greater Rangpur in Taka
Year 2008

Social safety net program	Sample type				Mean Difference	
	Participant	Non participant	Control	overall	P-NP	P-C
VGD	112.92	102.55	93.17	103.46	10.37	19.75
FFW	23.19	25.50	25.68	25.04	-2.31	-2.49
Old age pension	72.91	92.02	45.38	81.89	-19.11	27.53
Hundred days employment scheme	544.10	431.48	232.69	428.55	112.62	311.41

Notes: P indicates participants, NP stands for non-participants, and C refers to Control

For the year 2008, if we take a cross sectional snap on the mean of the different types of social safety net programs then it is observed that monetary value of the programs are higher for those of participants. The control group people get the minimal of all the programs. In case of VGD program the participant group has a higher mean receipt than that of both non-participant and control group. For FFW the receipt of the participant is a little bit lower than that of participant group. This is due to a higher contribution for the participant group from the hundred day employment program. Hundred day program was distributed more for the participant group (Table A-1.10), so they benefit from the safety net program more than the non participant counterpart.

It is to identify the changes in the basic characteristics of the households who participated in the safety-net programs. The effectiveness of the social safety-net program can be derived from the changes of household characteristics.

From the table it can be found that the households getting VGD card have average age of 41 to 44. By the time the household head became less competent in economic activities, VGD is provided to the poor households to cope up with any shock.

Twenty five percent of those who get VGD are landless and twenty five percent Household have less than 5 decimal lands. The land size of the household who get the VGD; increases for both participant and non participant group after the PRIME intervention. It is not due to the safety-net program, rather, due to the extension of coverage of VGD to those who have substantial amount of land.

In case of food for work program, the age of the household head involved in the program declines for the participant group, and increases for that of non participant group.

The average age of the household head getting old age pension is above fifty. This implies that the program is necessarily given to the targeted people. The average age reduces for the participant group and increases for the non participant group.

Households involved in wage employment are benefited from the social safety-net programs. In 2008, wage laborers were getting most of the safety-net programs, while the wage earners get less of those. Social safety-net programs shifted to the self employment in agriculture and self-employment in non agriculture. So this implies that the distribution of social safety-net program is moving against the wage labor for both participant and non participant groups.

In case of hundred day employment program, all of the households involved in this program are having the main occupation of wage laborer. So this program is initiated for those who have greater variation in their annual income and more vulnerable to any shock. Their coping capabilities are less due to shortage of asset, land and savings from different sources. This scheme helps the hardcore poor to meet up the minimal basic needs of life by taking part in the program. The hundred day program had targeted the people who need external support like this to improve their living standard by uplifting them above the poverty line. This type of program creates seasonal employment and helps wage laborers to feed themselves in absence of job at the market. This program is operated from September to November when *monga* takes place in the

greater Rangpur region. Such employment opportunity for the landless wage labors reduces their vulnerability to some extent.

To summarize, it can be said that the impact of social safety-net programs on the household characteristics is mixed. Generally, the social safety net program helps to improve the livelihood of the poor and reduces the seasonal poverty. To prevent seasonal poverty in the greater Rangpur region, social safety-net program needed to be expanded more to this *monga*-prone area as a supporting tool for poverty eradication.

Table A-1.10
Household characteristics by social safety net program
Year 2008

Social Safety net program	Participants								Non participants							
	Pre				Post				Pre				Post			
	HH land size (decimal)	HH size	Age of HH head	Wage labor	HH land size (decimal)	HH size	Age of HH head	Wage labor	HH land size (decimal)	HH size	Age of HH head	Wage labor	HH land size	HH size	Age of HH head	Wage labor
VGD	7.44	4.09	41.46	67 (72.04)	11.27	4.36	41.51	166 (52.69)	7.38	4.00	42.46	240 (74.08)	13.37	4.13	43.84	539 (54.67)
FFW	11.10	3.54	45.28	30 (76.92)	7.58	4.06	41.22	8 (44.44)	9.03	3.89	40.17	66 (70.97)	10.03	3.63	47.29	11 (28.95)
Old age pension	6.14	2.71	55.90	14 (66.67)	16.21	4.10	53.12	17 (40.48)	5.99	3.35	51.92	40 (54.05)	16.03	3.41	57.08	61 (34.08)
100 days program					10.60	4.42	43.26	126 (100)					11.68	4.34	41.47	327 (100)

Note: () shows percentage of the program get by the wage labor
HH stands for Household

Chapter Two

PRIME Design and Program Deepening²

Although *monga* has been a century old problem, the efforts to combat it had been mostly limited to crisis management. Consequently, there was no sustainable impact on the lives and livelihood of the poor people. Sufferings and miseries of the poor recur every year. The benchmark data of the poor households in the Rangpur region showed that only one third of these poor had access to micro credit and could cope with *monga*, but others had to resort to strategies like sale of assets or agricultural equipments or even borrow from informal moneylenders for coping with the shocks. Repetition of the process over time makes them poorer and more vulnerable. PKSf with its long experiences realized that a sustainable and coordinated approach was necessary for eradicating *monga* in the greater Rangpur region. It was realized further that such coordinated and sustainable approach must be multi-dimensional. From this perspective, PKSf designed a multi-facet program what is commonly known as PRIME. This will provide year-round support to the *monga* affected poor including the lean season.

Objectives and Visions of PRIME

The major objective of PRIME is to prevent the consequences of *monga* by generating income through wage employment and self-employment opportunities for the *monga*-affected people. However, the ultimate PRIME vision is to ensure year-round food and nutrition security of *monga* affected households of the greater Rangpur region and similar situation throughout the country.

Monga is a state of food insecurity or near famine because of extreme unemployment during September-November, the period of flood. The situation of extreme unemployment is created during the period because of higher dependency on agriculture for wage employment, as described in Chapter One. The *monga* mitigation strategy, therefore, will require both short and long run interventions. The affected households will require smooth consumption during *monga* period. The long run interventions will include creation of off-farm employment opportunities for the *monga* affected poor households through microcredit, and promotion of selected off-farm enterprises through advisory and technical services. The PRIME design contains both of these short and long run interventions (Table-1).

² This chapter was prepared with direct inputs from PKSf PRIME unit. Thanks to Dr. Md. Jashimuddin and Dr. Sharif Ahmed Chowdhury for their contribution.

Table-1
Type and Nature of interventions under PRIME

Duration of Interventions	Nature of interventions
Long run	<ul style="list-style-type: none"> (a) Flexible micro-credit services. (b) Promote Income Generating Activities (IGAs) such as crop production, poultry and livestock production, vegetable cultivation, small business, handicrafts, van pulling and other non-farming activities. (c) Provide technical training, field level technical services and input services for different farming and off-farming IGAs. (d) Provide remittance services for the external and internal migrant beneficiaries, who need to transfer money from abroad or from other parts of the country. (e) Ensure primary health care facilities to its beneficiaries.
Short run (seasonal)	<ul style="list-style-type: none"> (a) Provide emergency loan for consumption in time of need e.g. natural disasters, socio-economic calamities. (b) Introduce short run employment opportunities through cash for work programs for infrastructure development activities e.g. raising homesteads, schools, religious establishments and village markets; construction of flood shelters, repairing roads, dams and cleaning ponds, canals, lakes, etc.

Identification and Mobilization of Targeted Households

PKSF defined the targeted beneficiaries as those who are most likely to be affected by *monga*. PKSF identified these households as follows:

- Households headed by poor women, including widows, abandoned and divorced affected by *monga* and having irregular source of income;
- Families (in urban and rural areas) suffering from food shortage (*monga*) and have malnourished individuals;
- Families with irregular income from manual labor and/or depending on migration/child labor and prone to *monga*;
- Poor people living in disaster prone or inaccessible areas (such as *chars*), or on encroached land affected by *monga*;
- Disabled people and households with chronic health problems affected by *monga*;
- Families with very poor housing conditions or without homestead and agricultural land affected by *monga* and
- Poor families of ethnic minorities affected by *monga*.

However, the *monga* affected households are identified using the following criteria:

- Have less than or equal to 50 decimals of land.
- Earn livelihood through selling their labor.
- Have monthly income not more than 1,500 taka during *monga* period.

The process of identifying targeted households starts with census of poor households in every village. Defined criteria, as outlined above, are applied to identify the targeted households under PRIME. A detailed survey is conducted on the targeted households (HHs) to collect benchmark information. The survey was conducted by PKSf with advice from Institute of Microfinance (InM).

After identifying the *monga* affected HHs, they are brought under the PRIME group. Typically, a PRIME group consists of 25-30 beneficiaries, who meet at weekly basis at their mutually agreed time and place and follow most of the conventional micro-credit group practices with few differences. Members can save any amount of money and borrow at any time they want regardless of the amount of savings. Under PRIME group, each member is provided with a PRIME-ID card.

Nature of Program interventions

As noted above, PRIME contains two major interventions – cash for work, and flexible micro credit – and three complimentary interventions – promotion of specific income generating activities through advisory services, provision for health services and technical training to PRIME participants. In this sub-section, we provide a short description of the interventions.

The basic objective of *cash for work* is to provide income support to targeted households during *monga*. Intensity of this intervention depends on the infrastructural development (new or renovation) needs in the village. Generally it includes construction/maintenance of link roads, raising of homesteads and/or premises of educational and religious institutions. PRIME started its journey with this intervention only in Lalmonirhat. Only the PRIME-ID holders could participate in such program. The only limitation is limited opportunity of cash for work for all who needed this intervention; not everybody can be provided with such income transfer intervention. In 2007, it was extended to Kurigram and other selected areas of Rangpur, Gaibandha and Nilphamari districts.

There are provisions for *emergency loan* mostly during *monga* or any other disaster period to support *monga* prone households who cannot participate in the infrastructure development activities. This is a service-charge free loan and repayment as per beneficiary's convenience. PRIME beneficiary can utilize the emergency loan for purchasing food or other needs of immediate importance both during *monga* and during the period of natural or other disasters.

The most important intervention is the *flexible micro-credit* program specially designed for the extreme poor. Under the scheme, *monga* affected poor can borrow from MFIs under flexible loan contract. The terms and conditions of the flexible micro credit program are provided in the Box-1.

Flexibility is noted in the area of lending interest rate, requirement of savings, and repayment mode. Lending interest rate is 10 percent or less; lower than the interest rate of conventional

micro credit. There is no fixed amount of weekly savings. Although repayment period is one year, borrowers will fix the mode of payment of installments. No membership fee is required for becoming members of PRIME.

Box-1: Special Features of Flexible Microcredit

- Except for the 1st time, loan size can vary as per requirement of the beneficiary. In order to familiarize the borrower with credit culture, loan size remains within Tk. 4000 for the 1st loan. Trained up borrowers will receive loan as per their demand.
- Repayment schedule would be flexible and loan repayment schedule must be determined in consultation with borrowers.
- Although this loan is given for income generation, in certain cases it can be used for other areas like consumption.
- Service charge for the ultra poor borrowers would be at or below 10%.
- No proportionate savings are required for the 1st loan.
- Weekly savings amount depends on the capacity of the beneficiaries.
- Provision for convenient savings withdrawal decides by the beneficiaries.
- Flexibility in attendance at meeting. Places and times of meeting are decided as per borrower conveniences. The meeting may be arranged in weekly, fortnightly or even monthly basis.
- Ultra poor beneficiary are exempted from admission fee and other charges such as pass book insurance, etc.

Field staffs of PRIME provide *advisory services* to the program participants on selection of income generating activities. Commonly used IGAs includes livestock and poultry production, crop production, vegetable and fruit production, small business, and handicrafts.

In addition, under the program, *technical services* are also provided in promotion and development of IGAs. The common PRIME provides technical training to the beneficiaries on selected IGAs like vaccination, deworming, housing, management, bio-security, feeds and feeding technology for livestock and poultry rearing, and inputs support for different farming and non-farming IGA implementation.

Since migration is the predominant *monga* coping mechanism, PRIME contemplates to provide *remittance services* to its beneficiaries through its POs. PRIME beneficiaries can utilize this remittance services at free of cost. PRIME also facilitates the process of overseas employment of the *monga* affected household. PKSF bears the migration and training cost

approved by the Government. PRIME also provides skill development training of selected beneficiaries on different trades.

PRIME provides *primary health care services* to its beneficiaries through Health Assistant (HA) in 235 branches. These HAs conduct awareness training on primary health, nutrition, hygiene among the PRIME beneficiaries especially for the pregnant and lactating women, children and aged member of the family. Besides, PRIME also provides enthelmentics and vitamin and mineral to the selected beneficiaries.

Operational Achievements of PRIME

PKSF launched a very ambitious program to mitigate *monga*. This is quite challenging. It is challenging from three perspectives – developing organizational network of both PKSF and its POs, mobilizing the poor in the region and providing services to the millions of the poor who need supports. We evaluate achievements of PKSF using these three major parameters.

I. Developing PRIME Network

Two indicators are used to evaluate development of PRIME network. They are setting up of PRIME branches and operational supports to the POs for implementation of the program. A brief discussion is made here.

Setting up of PRIME Branches

Not all areas can be brought under the program network. PKSF decided to expand PO network under PRIME in three phases. During the period 2006-09, PRIME targeted to bring 15 POs and establish 235 PO branches to bring the whole region under this program. During 2006-07, six PRIME POs (ASOD, ESDO, PMUK, POPI, RDRS and TMSS) have established 25 PRIME branches in five upzilas of Lalmonirhat district covering 44 unions. During 2007-08, a total number of 11 POs (ASOD, ESDO, PMUK, POPI, RDRS, TMSS, GUK, GK, UDDIPAN, SSS and SKS) have established another 127 branches covering 175 unions under 18 upazilas of Rangpur, Kurigram, Nilphamari and Gaibandha districts. In 2009-2010, it contemplates to establish 83 new branches to bring the remaining 12 upazilas of the greater Rangpur region. By mid-2010, PRIME expects to cover a total number of 354 unions in the greater Rangpur region.

A total of 354 branches of 16 POs have been delivering PRIME interventions to the *monga* affected households of 354 unions under 35 upazilas of the greater Rangpur region (Table-2). Preliminary report on PRIME baseline survey indicated that there are 901,141 *monga* affected households in the greater Rangpur region, of which, PRIME targeted 535,633 households.

Table-2
Geographical Coverage of the PRIME, 2006-2009
Year ending on June 30

Districts	Union coverage			Total union
	2006-2007	2007-2008	2008-2009	
Lalmonirhat	44	-	-	44
Rangpur	-	24	61	85
Kurigram	-	64	8	72
Gaibandha	-	58	33	91
Nilphamari	-	29	33	62
Total	44	175	135	354

Shares of *monga* affected households to be covered by different PRIME POs are shown in Figure-1.

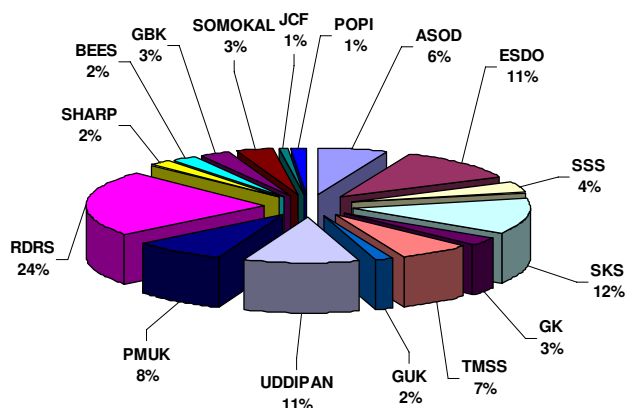


Figure – 1: Share of Each PO in coverage of households

The highest share is with RDRS (24 percent) followed by SKS (12 percent), ESDO (11 percent), UDDIPAN (11 percent), PMUK (8 percent), TMSS (7 percent), ASOD (6 percent). The rest (28 percent) of the *monga* affected households will be covered by the remaining 9 POs.

Operational Support to PRIME POs

PRIME has been quite focused on its mission to mitigate *monga*. It provides operational supports to its POs. The nature of supports includes salary payment of PO PRIME branches, and development of model technical houses for promotion of poultry, livestock and nursery. PRIME has, in order to encourage POs to expand their branch network, been providing extended operational grant to its 16 POs to cover salary of branch staffs. This will continue until it achieves sustainability. Presently PRIME is financing 16 MIS and 16 IGA implementation officers in 16 POs, and providing monthly salary of 52 Branch Managers, 52

Accountants, 235 Program Assistants (Tech), 235 Health assistants and 557 Field organizers for 235 PRIME branches of 16 POs. Besides, PO staffs are being trained on different aspects of branch management, micro credit operation, income generating activities, primary health care. In order to provide quality inputs for IGAs implemented by the *monga* affected beneficiaries, PRIME has supported some of its POs to establish model goat/sheep breeding farm, poultry hatchery and nursery projects. The basic objective of such projects is to promote these enterprises and encourage borrowers to invest in these profitable activities.

II. Identifying and Mobilizing the Poor

The most difficult job is to identify and organize the targeted poor households affected by *monga*, although micro finance institutions are skilled to mobilize the poor households. In this sub-section, we discuss the process of identifying and organizing the poor.

Identifying monga Affected Households Baseline Survey

PRIME activity was initiated with a baseline survey in 2006 to identify the *monga*-affected population in Lalmonirhat district (except Lalmonirhat *pourosava*, although slum-people were included) covering Lalmonirhat Sadar, Aditmari, Kaligonj, Hatibanda and Patgram Upazila. All households (HHs) were surveyed initially through focus group discussion (FGD). Households (HHs) having monthly income of Taka $\leq 1,500$ during *monga* period, or dependent on day labor, or having less than 50 decimals of land were identified as *monga* affected HHs. This was followed by collection of benchmark socio-economic data using “Prime Questionnaire”. The questionnaire comprises 29 broad indicators such as family size, income, assets, employment, consumption, and *monga* coping strategy: internal but seasonal migration, sale of assets, borrowing from formal and informal sources; food security – consumption ordering during the last *monga* and present time and so on. Using the same methodology, a similar survey was conducted in the extended 18 upazilas (in 2007) and 12 upazilas (in 2008) of Kurigram, Gaibandha, Nilphamari and Rangpur. Specially trained enumerators were involved in data collection.

The preliminary results are reported in Table-3 and Table-4. Table-3 shows that around 47 percent (9,01,141 households) of the total poor households of 19,18,560 were *monga* affected. It further shows that around 40 percent of the *monga*-affected HHs had access to micro credit (Table-3).

Table 3
Total and *monga* affected households
of 35 upazilas of Greater Rangpur Region

Variables	Number
Total households (HHs)	1,918,560
<i>Monga</i> affected HHs	901,141
HHs covered by MFIs	365,508
PRIME target HHs	535,633

Source: PKSF 2008.

As discussed early in this chapter that around sixty percent of the *monga* affected HHs are the targeted HHs under PRIME. Around 16 partner organizations are involved in the implementation of the program. Not all the POs are of similar size. PKSf has allocated the areas in accordance of size, capacity and prior experience in the region. Table-4 shows the distribution of targeted HHs under PRIME. Although sixteen POs are involved in implementation, essentially four POs are assigned with around sixty percent of the responsibilities. Rangpur based RDRS having long experience with extensive network in the region, have been assigned with the task of mobilizing almost one-fifth of the total targeted PRIME HHs. The three other major institutions are ESDO, SKS and UDDIPAN.

Table 4
Distribution of PRIME targeted households by POs

Organization	Total HHs	<i>Monga</i> affected HHs	MFI-linked HHs	PRIME targeted HHs	Share of each PO in PRIME*
ASOD	105,603	52,176	17,521	34,655	6.46
ESDO	220,738	99,917	38,782	61,135	11.41
GK	38,856	21,614	6,068	15,546	2.90
GUK	31,109	14,151	5,521	8,630	1.61
PMUK	153,820	78,829	33,304	45,525	8.50
POPI	30,148	13,969	6,728	7,241	1.35
RDRS	355,335	190,526	68,050	122,476	22.87
SKS	265,771	121,372	54,941	66,431	12.40
SSS	94,637	38,744	17,862	20,882	3.90
TMSS	211,843	86,173	50,892	35,281	6.59
UDDIPON	186,076	76,119	19,215	56,904	10.62
SHARP	35,102	20,918	8,624	12,294	2.29
BEES	50,076	24,099	12,820	11,279	2.10
GBK	56,565	24,891	10,071	14,820	2.77
SOMOKAL	64,336	29,124	10,887	18,237	3.40
JCF	18,554	8,519	4,222	4,297	0.80
Total	1,918,560	901,141	365,508	535,633	100

* Share for each PO is: number of PRIME targeted HHs as percentage of aggregate PRIME targeted HHs.

Mobilization of Targeted Households

Monga affected households of five districts of the greater Rangpur region are mobilized and organized into groups once PRIME targeted HHs are identified. Table 5 shows that up to June 2008, a total number of 166,143 households were mobilized under PRIME project. The highest number of households (41,542) was covered in Gaibandha district.

It is followed by 40,830 HHs in Lalmonirhat and 39,558 in Kurigram. Over the next six months, around 28,000 HHs were mobilized with an increase of around 27 percent. During the first quarter of 2009, the rate of increase was phenomenon.

Table-5
Monga affected households mobilized under PRIME
in five districts of greater Rangpur region

Districts	Period				Total
	Up to June'08	July to September'08	October to December'08	January to March'09	
Gaibandha	41,542	1,111	0	4,096	46,749
Kurigram	39,558	7,517	7,844	3,967	58,886
Lalmonirhat	40,830	0	0	0	40,830
Nilphamari	30,111	4,407	233	5,902	40,653
Rangpur	14,102	1,157	5,501	25,274	46,034
Total	166,143	14,192	13,578	39,239	233,152

The number of HHs mobilized was 39,239, an increase of around 300 percent from the last quarter of 2008. As a result, out of 535,633 PRIME targeted beneficiaries, 233,152 beneficiaries were mobilized and organized into groups (Figure 2). This is nearly 44 percent of the total PRIME target. All PRIME beneficiaries are identified with identity card and receive different PRIME interventions.

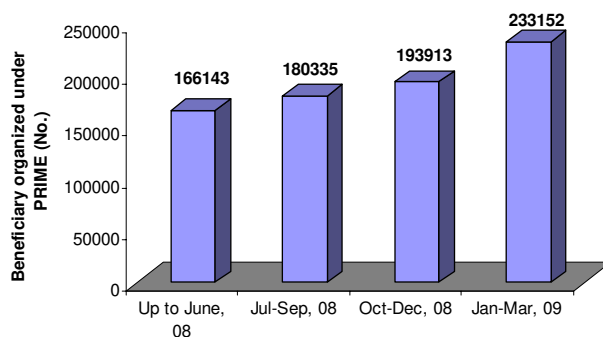


Figure 2: *Monga* Affected Households Mobilized under PRIME

III. Providing Services to the PRIME Participants

PRIME Seasonal Intervention

Cash for Work (CFW): PRIME has conducted cash for work (CFW) activity to reduce the vulnerability of extreme poor during *monga* (September - November) of 2006 and 2007. This includes construction/maintenance of link roads, raising homesteads, raising premises of educational institutions and religious establishment. Under the program, PKSf could create substantial man-days of employment during *monga* in 2006 and 2007. It paid Tk. 60 as daily wage in 2006 and Tk. 70 in 2007. A total of 9,25,552 man-days was utilized with the highest 30,955 individuals working on a single day in 2006. It increased substantially to a total of

35,21,297 man-days with the highest 86,000 individuals working on a single day in 2007. It increased by 3.82 times in 2007 (Table-6). Such increase was due to expansion in geographical areas. In 2006, cash for work program was limited in Lalmonirhat. It was later expanded to a total of 23 upazilas in all five districts.

The cost of implementing CFW program was enormous. During October-November 2006, a total of Tk. 55.53 million was spent used for the cash for work (CFW) in 5 upazilas of Lalmonirhat district. In September-November 2007, it increases to Tk. 246.49 million for implementing the CFW in 18 upazilas of Rangpur, Gaibandha, Nilphamari and Kurigram districts.

Participants of CFW program were the most vulnerable among *monga* affected HHs. These HHs could cope with *monga* in 2006 and 2007 with the income support. PKSf did not implement CFW in 2008 as the Government of Bangladesh implemented the “100 days Employment Generation” program in the greater Rangpur region.

Table - 6
Wage employment created under Cash for Work (CFW) program under PRIME
in 2006 and 2007

Partner Organizations	2006 ^a		2007 ^b	
	Man-days	Money spent (Tk)	Man-days	Money spent (Tk)
PMUK	43,897	2,633,820	370,900	25,963,000
ESDO	214,955	12,897,300	489,374	34,256,180
TMSS	210,950	12,657,000	534,083	37,385,814
ASOD	110,505	6,630,297	190,882	13,361,740
RDRS	236,239	14,174,340	879,851	61,589,570
POPI	109,006	6,540,360	106,779	7,474,530
SKS			427,676	29,937,320
GUK			79,927	5,594,890
GK			44,839	3,138,730
UDDIPAN			73,595	5,151,650
SSS			323,391	22,637,370
Total	925,552	55,533,117	3,521,297	246,490,794

^a In 2006 wage rate for CFW was Tk 60/day

^b In 2007 wage rate for CFW was Tk 70/day

PRIME Long Run Interventions

PRIME’s long run interventions are essentially micro credit interventions. But it also includes some complimentary programs like skill development for PRIME beneficiaries through training, providing technical training for IGA promotion and implementation, and providing health and remittance support services.

Flexible Micro-credit Support

With excellent achievement in the mobilization of the targeted HHs, the program has been effective in extending financial services to its members. Table-7 provides information on the

number of borrowers that received flexible microcredit. The total number of flexible micro credit borrowers was 1,41,262 by June 2008. It increases by some 60,000 borrowers over the last two quarters of 2008. But the growth rate in the first quarter of 2009 was enormous - around 300 percent – from the last quarter of 2008. In absolute number, it was 80,465.

Table 7
Number of Flexible Microcredit Borrowers under PRIME

Districts	Number of flexible micro credit borrowers				Total
	Up to June 2008	July - September 2008	October – December 2008	January – March 2009	
Gaibandha	28,725	7,242	10,101	16,921	62,989
Kurigram	23,836	6,759	7,459	20,991	59,045
Lalmonirhat	69,407	7,136	7,910	12,750	97,203
Nilphamari	11,699	4,456	3,622	12,077	31,854
Rangpur	7,595	3,638	2,602	17,726	31,561
Total	14,1262	29,231	31,694	80,465	282,652
Rate of Change			8.42%	153.88%	

A total of 282,652 borrowers received flexible micro credit till March 31, 2009. A clear trend emerges in Figure 3.

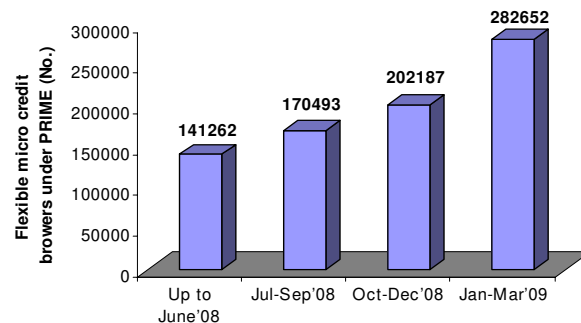


Figure -3 : Number of Flexible Micro-credit Borrower under PRIME

As a result of geometric increase in the number of flexible micro credit borrowers, total amount of disbursement has also increased which is shown in Table-8. Up to June 2008, Taka 417.04 million was disbursed under flexible micro credit. Average loan size was around Tk. 3,000. The average loan size increased to Tk. 4070 implying that loan size has been increasing over time. It is plausible because of repeat borrowers. This is evident from the total number of borrowers in Lalmonirhat. Total amount of loans disbursed has been increasing at an increasing rate. During January-March 2009, it was 346.66 million taka. It increased by over 86 percent from the last quarter of 2008. Loan size, as reported by the PRIME unit, varied from less than Tk. 500 at start to over Tk. 10,000. On an average of Tk. 4934 per borrower. Overall loan recovery rate is 98 percent.

Table 8
Amount of flexible microcredit (Tk) disbursed under PRIME

Districts	Flexible micro credit (Taka in Millions)				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	73.07	50.17	61.06	78.88	263.18
Kurigram	55.52	36.01	39.07	88.52	219.12
Lalmonirhat	238.00	63.02	53.35	64.58	418.95
Nilphamari	28.63	25.00	15.57	46.01	115.21
Rangpur	21.82	26.18	17.19	68.67	133.86
Total	417.04	200.38	186.24	346.66	1150.32
Rate of change			- 7.06%	86.14%	

The geographical distribution of micro credit under PRIME shown in Table-8, shows that Lalmonirhat had a share of around 38 percent. Such concentration may make sense when we consider the fact that the program started from Lalmonirhat district in 2006. Kurigram, being the most vulnerable district, had its share of around 24 percent, and the amount of disbursement in the first quarter of 2009 was highest. Since not all upazilas were covered under the program, it is somewhat difficult to make the conclusion about biasness of the PRIME management in placing the program. But certainly Lalmonirhat has received the priority as it stands now.

Emergency Loan

Emergency loan is a substitute for income transfer (cash for work) program during *monga* in the early years of PRIME. Neither every targeted poor can be given work during *monga* nor can everyone be physically capable. In such situations, provision for emergency loan has been made. Up to March 2009, the number of borrowers of emergency loan in five different districts was 13,653 (Table-9). Most of the emergency loan borrowers were from Lalmonirhat – over 70 percent. Around 17 percent of total emergency loan borrowers were from Kurigram. This is a matter of inquiry as to why 70 percent of the borrowers were concentrated in Lalmonirhat.

Table - 9
Number of emergency loan borrowers under PRIME
in 35 upazilas of greater Rangpur region

District	Number of emergency loan borrower				Total
	Up to June 2008	July – September 2008	October – December 2008	January - March 2009	
Gaibandha	575	0	0	0	575
Kurigram	373	1,156	367	303	2,199
Lalmonirhat	8,984	19	563	264	9,830
Nilphamari	0	0	57	198	255
Rangpur	0	147	626	21	794
Total	9,932	1,322	1,613	786	13,653

Total amount of disbursement was Tk. 20.94 million. As evident from Table-10, total amount of loans disbursement (Tk. 1.61 million) increased in the last quarter of 2008 and it decreased to Tk. 0.79 million in the first quarter of 2009. This is because poor HHs faced *monga* during the last quarter of 2008. From this perspective, PRIME could attain its objective of smoothening consumption of the borrowers during *monga*. Average Loan size varied from Tk. 500 to Tk. 2000 with an average of Tk. 1533 per borrower. Over all emergency loan recovery rate is 98 percent.

Table 10
Amount of emergency loan (Tk) disbursed under PRIME

Districts	Emergency Loan Disbursement (Tk. in Millions)				Total
	Up to June'08	Jul-Sep'08	Oct-Dec'08	Jan-Mar'09	
Gaibandha	1.15	0.00	0.00	0.00	1.15
Kurigram	0.60	2.29	0.70	0.78	4.37
Lalmonirhat	11.45	0.03	0.47	0.47	12.42
Nilphamari	0.00	0.00	0.10	0.47	0.57
Rangpur	0.00	0.14	2.20	0.09	2.43
Total	13.20	2.46	3.47	1.81	20.94

Emergency loans are substitute of cash for work program. The program had major in-road in Lalmonirhat. We understand that PRIME started from Lalmonirhat only in 2006, but then in subsequent years, it was extended to other districts including Kurigram. This might have some impact. Nevertheless, it will of great interest to see what led to placement of emergency loans in so disproportionately in different districts. Was it due to demand side or supply side?

Savings by PRIME members

One of the major strengths of micro finance is the promotion of savings habit for the poor members. This is developed through both voluntary and compulsory approaches. In case of PRIME, savings is flexible. It is not mandatory that PRIME members to be borrowers will have to have a certain percentage of loan as minimum savings. This is more flexible in year one of their participation in PRIME. They are allowed to save any amount of money according to their capacity. They are also allowed to withdraw their savings at their convenience. Table-11 reports the amount of savings deposited with PRIME POs.

A total of Tk. 145.91 million as savings was deposited by the members with PRIME POs till March 2009. Average amount of savings per capita was Tk. 626, which is around 12 percent of per capita loan. The geographical distribution of savings shows that around sixteen percent of the total gross savings were mobilized in Lalmonirhat, followed by Kurigram and Gaibandha. Quite interestingly, net savings per capita has remained quite high. It was Tk. 474.

Table 11
Amount of gross savings by PRIME members
in five districts of greater Rangpur region

Districts	Savings by PRIME members				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	11,720,550	5,135,556	6,420,980	7,001,215	30,278,301
Kurigram	12,031,209	5,750,526	6,193,598	8,561,846	32,537,179
Lalmonirhat	33,205,334	5,069,970	5,629,584	6,161,572	50,066,460
Nilphamari	5994,754	3,038,527	3,038,258	4,700,661	16,772,200
Rangpur	3,881,152	2,109,863	2,951,364	7,309,622	16,252,001
Total	66,832,999	21,104,442	24,233,784	33,734,916	145,906,141

This implies that only around 25 percent of the gross savings were withdrawn by the members to meet their demand. Table-12 shows that aggregate saving withdrawal by PRIME members were Tk. 35.276 million, leaving a saving outstanding of Tk 110.63 million. Major withdrawal took place in Lalmonirhat. The rate of withdrawal was around forty percent, while it around 10 percent in Kurigram, and around 20 percent in Gaibandha, Nilphamari and Rangpur. It will be quite intriguing to examine such regional variation in the rate of withdrawal.

Table 12
Amount of savings withdrawn by PRIME members
in greater Rangpur region

Districts	Savings withdrawn by PRIME beneficiaries				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	778,504	870,048	2,487,740	3,271,209	7,407,501
Kurigram	187,640	184,991	806,040	2,242,421	3,421,092
Lalmonirhat	7,330,694	4,444,203	4,072,817	4,783,579	20,631,293
Nilphamari	340,969	302,368	659,619	1,518,096	2,821,052
Rangpur	43,216	134,371	227,487	590,236	995,310
Total	8,681,023	5,935,981	8,253,703	12,405,541	35,276,248

IGA implementation

All PRIME borrowers under flexible micro credit program finance their own income generating activities (IGAs). These IGAs can be grouped into three – crop related IGAs, livestock related IGAs, and off-farm related IGAs. The crop related IGAs include farming, production of commercial vegetable, commercial fruit, nursery, homestead gardening, and other allied activities. Livestock related IGAs include goat rearing, sheep rearing, beef fattening, heifer rearing, dairy cattle rearing, production of commercial (layer/broiler) or semi-commercial (*sonali*) chicken, duck and so on. Off-farm IGAs include those activities that are neither crop-related nor livestock related. They are essentially trading and business including manufacturing. Table-13 provides information on the number of IGAs financed so

far under PRIME by districts. A total of 220,395 IGAs were financed by the borrowers under PRIME. At global level, around 43 percent were off-farm related, around 24 percent crop-related, and 33 percent were livestock-related IGAs. The district level scenarios are not consistent with the global picture. They differ by districts. Around forty percent of IGAs in Rangpur and Kurigram are livestock-related. On the other hand, Rangpur has relatively higher concentration (46 percent), and Nilphamari has the highest (50 percent) concentration in off-farm related IGAs. What is interesting is the number of IGAs financed in Lalmonirhat. Lalmonirhat had the largest share (around 40 percent) of total loans disbursed under flexible microcredit; it has the share of 22 percent of the IGAs financed.

Table-13
Distribution of IGAs financed by Borrowers under PRIME

District	Number of crop-related IGAs	Number of livestock-related IGAs	Number of Off-farm related IGAs	Total Number of IGAs
Gaibandha	20,618 (34.14)	15,756 (26.09)	24,018 (39.77)	60,392 (100)
Kurigram	12,876 (23.69)	21,284 (39.15)	20,202 (37.16)	54,362 (100)
Lalmonirhat	10,115 (21.10)	15,763 (32.90)	22,042 (46.00)	47,920 (100)
Nilphamari	5,814 (20.53)	8,119 (28.67)	14,388 (50.80)	28,321 (100)
Rangpur	4,175 (14.20)	11,920 (40.55)	13,300 (45.25)	29,395 (100)
Total	53,598 (24.32)	72,842 (33.05)	93,950 (42.63)	220,395 (100)

The trend in IGAs by type is shown separately in Tables 14-16. Table-14 shows distribution of crop-related activities over time by district. This is consistently evident that PRIME has essentially taken off from 2008-09. The growth rate of IGAs increased at geometric rate in the first quarter of 2009.

Table 14
Number of Different Crop Related IGAs financed by Borrowers under PRIME

Districts	Number of different crop related IGAs				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	9,491	2,099	3,313	5,715	20,618
Kurigram	6,026	1,993	1,438	3,419	12,876
Lalmonirhat	3,652	1,205	1,294	3,964	10,115
Nilphamari	2,510	490	650	2,164	5,814
Rangpur	2,150	373	591	1,061	4,175
Total	23,829	6,160	7,286	16,323	53,598
Δ from previous quarter			18.28%	124.03%	

Contrary to our traditional belief, under PRIME, highest growth (124 percent) in crop-related IGAs is observed (Table-14), followed by growth rate of 114 percent in livestock-related IGAs in the first quarter of 2009 (Table-15). The lowest growth rate is for off-farm related IGAs (Table-16). Among the districts, Gaibandha has the highest number of crop and off-farm related IGAs. Lalmonirhat has the highest number of off-farm related IGAs. Such difference in behavior may be attributed to dispersion in geographical characteristics.

Table 15
Number of different livestock related IGAs financed by borrowers under PRIME

Districts	Number of different livestock related IGAs				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	5,666	1,962	2,064	6,064	15,756
Kurigram	9,086	1,905	3,293	7,000	21,284
Lalmonirhat	4,211	4,511	2,216	4,825	15,763
Nilphamari	3,951	686	1,300	2,182	8,119
Rangpur	7,539	615	1,525	2,241	11,920
Total	30,453	9,679	10,398	22,312	72,842
Δ from previous quarter			7.43%	114.58%	

Table 16
Number of different off-farm related IGAs by borrowers under PRIME

Districts	Number of different non-farming IGAs				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	11,119	2,850	2,961	7,088	24,018
Kurigram	10,646	2,200	3,115	4,241	20,202
Lalmonirhat	9,014	5,093	3,018	4,917	22,042
Nilphamari	7,868	1,721	2,115	2,684	14,388
Rangpur	9,527	960	1,497	1,316	13,300
Total	48,174	12,824	12,706	20,246	93,950
Δ from previous quarter			-0.09%	59.34%	

Complementary Support Services of PRIME

PRIME provide some complementary socio-economic support services to its members. Such services range from technical training for promoting IGAs on sustained basis to health support services for the PRIME beneficiary households. In this sub-section, we present the achievements of the complementary services provided by PRIME.

PRIME provides *technical service* for IGA implementation through Program Assistant and IGA implementation Officer at PO level. They provide technical support to PRIME borrowers on crop, vegetable, livestock and poultry production. Trained program assistant equipped with veterinary kit extends primary veterinary health support, e.g., vaccination, deworming, feeds and feeding technology to the PRIME borrowers. Besides, PRIME borrowers are especially trained on different trades related to IGA implementation. The number of trained PRIME participants at the end of first quarter of 2009 is shown in Table 17. A total of 32,437 people were trained, of which around 44 percent were in Lalmonirhat, followed by around 24 percent in Kurigram.

Table 17
Number of PRIME beneficiaries trained under different trades

Districts	PRIME beneficiaries trained				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	100	25	876	2,545	3,546
Kurigram	471	200	1,720	5,265	7,656
Lalmonirhat	6,849	831	2,146	4,520	14,346
Nilphamari	200	0	870	2,173	3,243
Rangpur	25	75	550	2,996	3,646
Total	7,645	1,131	6,162	17,499	32,437

PRIME has started providing *primary health care support* through its Health Assistant at the branch level. One MBBS doctor oversees the whole health care support operation at the PRIME Cell level.

Table 18
Primary health care services received by PRIME beneficiaries

Districts	Primary health care services received				Total
	Up to June 2008	July – September 2008	October – December 2008	January – March 2009	
Gaibandha	0	943	1,181	4,934	7,058
Kurigram	0	21	1,282	2,412	3,715
Lalmonirhat	11,399	1,378	1,586	2,867	17,230
Nilphamari	0	0	182	1,045	1,227
Rangpur	0	0	0	700	700
Total	11,399	2,342	4,231	11,958	29,930

Trained health assistant equipped with primary health care kit provide basic health support services to pregnant and lactating mothers, children, senior (elderly) members of enrolled PRIME HHs. Table-18 shows the number of persons received primary health care services in five districts under PRIME. A total of 29,930 beneficiaries received primary health care services in five districts. Around 60 percent of the beneficiaries were from Lalmonirhat, followed by around 24 percent from Gaibandha.

Remittance Services and Overseas Employment

The analysis of benchmark data showed that seasonal migration was the dominating coping mechanism in the greater Rangpur region. But migration in general has also been a long term strategy. In most cases, remitting hard earned money had been informal. PRIME has introduced low cost remittance service for the internal migrants. Until March 2009, a total of 2539 internal immigrant PRIME beneficiaries were helped to transfer their domestic remittance through different PRIME POs.

Though Rajshahi division accommodates the largest base of unskilled labor force of the country, yet this region contributes only 1 percent to the foreign remittance market at present. In this context PRIME has taken a pilot initiative to facilitate the process of overseas employment of the *monga* affected HHs. A total of 27 beneficiaries have been sent abroad under the overseas employment program of PRIME in collaboration with Bureau of Manpower, Employment and Training (BMET). As a part of skill development program, these overseas job seeking PRIME beneficiaries are also being trained under different trades e.g., rod binding, shuttering, welding, etc. However, current global recession has an overall negative impact on this program.

Backward and Forward Linkage Services to IGAs

As a long term strategy, PRIME has undertaken backward and forward linkage program for its effective IGA implementation of beneficiaries.

- a) Establishing goat/sheep breeding farm for providing quality breeding animals to PRIME beneficiary.
- b) Establishing nursery to supply quality sapling/seed/cutting to PRIME beneficiary.
- c) Establishing poultry hatchery to supply chick to beneficiaries.
- d) Linking PRIME beneficiary with national/global market by contracting with related agro-industries.

Overall Progress of PRIME

Presently PRIME activities cover all 35 upazilas of the *monga*-affected greater Rangpur region through its 16 POs. The overall progress of PRIME up to March 2009 is shown in Figure 4. PRIME has identified all the *monga* affected HHs of the greater Rangpur region. As some HHs are already under micro finance network, PRIME considers only the left-alone targeted HHs.

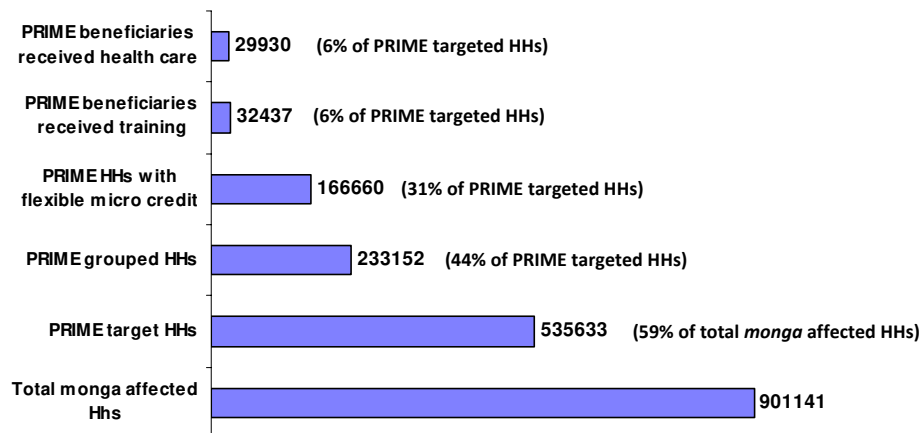


Figure-4: Overall Progress of PRIME until March 2009 in Greater Rangpur Region

It constitutes of 59 percent of the *monga* affected HHs. PRIME has so far organized 44 percent of its target *monga* affected HHs under PRIME group. About 31 percent of these organized PRIME beneficiaries have so far been brought under the flexible micro credit programs who are already involved in some gainful activities for their livelihood. PRIME complementary services have already been extended to nearly 6 percent of the targeted HHs. With its present full functional team PRIME is expected to extend its intervention to all target beneficiaries in due course.

Conclusion

PRIME is one of the interesting and multi-dimensional projects of PKSf. The ultimate outcome of this project will be *monga* mitigation. *Monga* is an age old problem in the region. It is always been a challenging task. PKSf has designed PRIME based on the analysis of benchmark data of the poor households in the region. The program design reflects the wisdom that PKSf has gathered over time through various programs. Although PRIME started in 2006 from Lalmonirhat, the program still remains in its take-off stage. A successful take-off requires placement of appropriate institutional infrastructure. PKSf is yet to extend PRIME in all the upazilas. Twelve upazilas in Gaibandha, Nilphamari and Rangpur remain excluded from PRIME intervention. In other 23 upazilas, the program has penetrated at same pace. As we could understand from the analysis of outreach data under PRIME, the program is more concentrated in Lalmonirhat than in any other districts. This is obvious. Achievements under the program have been spectacular. PRIME network has expanded enormously. We consider the network expansion as the critical element. One of the challenges will indeed be the increasing program deepening in all districts at the same pace, and generating benefits so that *monga* affected HHs consider *monga* as long forgotten event in their lives. In the subsequent chapters we evaluate impact of PRIME interventions on the lives of traditionally *monga*-affected households.

Chapter Three

Impact of PRIME Interventions at the Household Level: An Analysis of Panel Data

Introduction

As stated in chapter one, we evaluate the impact of PRIME using both panel and cross-sectional data. The panel data is generated only on the selected number of variables as the number of variables in baseline survey is very limited. The baseline survey (pre-intervention) in 2007 and impact assessment survey in 2008 (post-intervention) make up the required panel to assess the impact of PRIME. Prior to such analysis, we need to assess targeting of PRIME program. If program is not well targeted, then an attempt to assess impact will be a futile exercise. Therefore, we will assess targeting of the program in the first section before we evaluate outcomes using the panel data.

We first provide a descriptive analysis of the impact of PRIME. The traditional Difference in Difference (DiD) method is used to measure the average impact on the outcome variables. The pre-treatment year is the year of benchmark survey. The post-treatment period is 2008. The participants are those people who received different interventions during this period. Non-participants are the targeted households not yet covered under the PRIME program. These households are from the program villages. In understanding the impact of PRIME interventions, we compare outcome variables of both participants and non-participants. Following are the outcome variables that are considered for this analysis:

1. Consumption ordering
2. Savings
3. Livestock holding
4. Households landholding
5. Total number of rooms available
6. State of migration or workout
7. Employment status of wage laborers

Targeting of PRIME Program

To understand the impact of PRIME it is necessary to identify the effectiveness of the targeting of the PRIME program. Under the PRIME program, poor households with the following characteristics are targeted:

- a) households with total land holding of 50 decimals or less,
- b) households selling manual labor, and are susceptible to *monga*,
- c) households having monthly income of Tk. 1500 or less.

The fundamental question is, to what extent, in practice, the partner MFIs have delivered defined interventions to the targeted poor households? In other words, is PRIME well targeted? This is examined in the context of defined characteristics of targeted households. As we have randomly selected poor households from the targeted households (identified through benchmark survey), we will be able to check if the intervention was delivered to the people it was meant for by comparing the characteristics of both participating and non-participating households in the program villages.

Participating and Non-participating Households in Program Villages

Households that have received any of the interventions are defined as participating households, and other identified targeted households are defined as non-participating households. The basic characteristics of these two households, by definition, should be similar. As would be evident from Table-19, these households have similar characteristics. More than seventy percent of the households in either of the groups – participants and non-participants - have landholdings of up to five decimals including no land.

Table 19
Distribution of landholding of participants and non-participants

Land Category (Decimal)	Program Participation Status			
	Participants		Non-participants	
	Pre	Post	Pre	Post
Landless	231 (21.23)	246 (22.51)	830 (23.94)	928 (26.59)
0-5	472 (43.38)	391 (35.77)	1,419 (40.93)	1,183 (33.90)
5 - 10	173 (15.90)	177 (16.19)	551 (15.89)	511 (14.64)
10-20	90 (8.27)	105 (9.61)	303 (8.74)	345 (9.89)
20-30	55 (5.06)	44 (4.03)	140 (4.04)	129 (3.70)
30-40	35 (3.22)	35 (3.20)	112 (3.23)	111 (3.18)
40-50	22 (2.02)	22 (2.01)	74 (2.13)	53 (1.52)
> 50	10 (0.92)	73 (6.68)	38 (1.10)	230 (6.59)
Total	1,088 (100.00)	1,093 (100.00)	3,467 (100.00)	3,490 (100.00)
χ^2 level of significance	0.000		0.000	

Note: Figures in parentheses are column percentage

Although the program has reached lower strata of poor households with landholdings of up to 5 decimals, it needs to be examined as to whether the program has complied with other criteria. One of the major criteria is manual labor selling of the poor households. This can be examined from principal occupations of participating and non-participating households. This is reported in Table-20. More than 75 percent of both participating and non-participating households have wage labor as principal occupation.

Table 20
Principal occupation of participating and non-participating households

Principal Occupation	Program Participation Status			
	Participants		Non-participants	
	Pre	Post	Pre	Post
Wage labor	765 (75.59)	535 (48.95)	2,480 (75.15)	1,823 (52.23)
Self-Employed: Agriculture	47 (4.64)	95 (8.69)	186 (5.64)	292 (8.37)
Self-Employed: Nonagriculture	200 (19.76)	463 (42.36)	634 (19.21)	1,375 (39.40)
Total	1012 (100.00)	1093 (100.00)	3300 (100.00)	3490 (100.00)

Note: Figures in parentheses are column percentage

Considering two criteria – landholding and occupation, we can conclude that the program has been targeted well. This is quite expected as process of identifying target households was benchmark survey.

Monga Mitigation: Consumption Ordering

The principal objective of PRIME is *monga* mitigation. As *monga* is essentially a state of food insecurity or a state of scarcity of food, *monga* mitigation will, therefore, refer to increase in consumption of *monga* affected households. We will consider the effect of PRIME to be positive when there is an increase in consumption, other things remaining same. In the benchmark data set, we had information on consumption ordering rather than consumption expenditure. Consumption was ordered as 1 for occasional starvation, 2 for consumption rationing and 3 for three full meals. This is also defined in the post-intervention data collected in 2008. As such, effects of PRIME on *monga* mitigation are evaluated in terms of change in consumption ordering both in *monga* period and normal period (non-*monga* time).

Change in Consumption Ordering in Normal Period

Let us first start with consumption ordering in normal time of the last two years. This is evident from Table-21 that poor households had higher consumption in normal period of 2008 than in 2007. The participating households had higher consumption than the non-participating households' at all three levels of consumption ordering. The DiD shows that occasional starvation declined more for the participants by around 1.35 percentage point. Such decline will take some households to the higher level of consumption ordering consumption rationing and three full meals. The percentage of households with three full meals declined for both participants and non-participants, the rate of change was lower for the participants.

Table 21
Consumption ordering during normal times

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-Prime	Post-Prime	% of Change	Pre-Prime	Post-Prime	% of Change	
1	110 (10.12)	21 (1.92)	-8.20	320 (9.23)	83 (2.38)	-6.85	-1.35
2	524 (48.21)	762 (69.72)	21.51	1,782 (51.41)	2,588 (74.15)	22.74	-1.23
3	453 (41.67)	310 (28.36)	-13.31	1,364 (39.35)	819 (23.47)	-15.88	-2.57
Total	1,087 (100)	1,093 (100)	0.55	3,466 (100)	3,490 (100)	0.69	-0.14
χ^2	0.000			0.000			

Note: Figures in parentheses are column percentage

The DiD estimate shows a net difference of 1.23 percentage point implying higher percentage of participating households having three full meals than the non-participants. Major increase took place in consumption rationing for both the participants and non-participants. But there was no significant difference between percentage of households in both participant and non-participant groups with consumption rationing. Variation in consumption ordering for both the groups was statistically significant. Such improvement is also observed at the district level. The change in consumption ordering varies by district implying that difference in socio-economic and topographical conditions impact consumption behavior of households.

Generally, the trend in consumption ordering by district follows the overall regional consumption ordering. The participating households were better off during the normal time. In relation to pre-PRIME period, percentage of households on occasional starvation declined for all the five districts in post-prime in 2008³. However, the decline was more pronounced in Kurigram (declined by 6.35 percentage point) for the participating households compared to the non-participants in the program villages (Table-A-3.1). The decline, compared to non-participants, in occasional starvation of participating households was over two percentage points in Gaibandha (Table A-3.2), Lalmonirhat (Table A-3.3) and Rangpur (Table A-3.4). In Kurigram, as DiD shows, participants had higher consumption ordering for both consumption rationing and three full meals compared to non-participants. The positive value of DiD indicates higher increase in percentage of households in either consumption rationing or in three full meals.

There has not been any significant change in consumption ordering of both participants and non-participants in Nilphamari (Table A-3.5). The participants were worse off in normal time compared to the non participants in Rangpur with respect to consumption rationing and three full meals.

Although the participating households were, in general, better off than the non-participants in normal time, it does not imply that the participants had better consumption ordering during the last two *monga*. The PRIME program will have higher impact if the participants have higher consumption in post-PRIME period compared to pre-PRIME period.

³ District level tables on consumption ordering during normal times are presented in Appendix to Chapter Three.

Consumption Ordering of Households during Last Two *Monga* Periods

The increase in consumption ordering for the participating households in normal time does not necessarily imply that participating households were better off. We need to examine the consumption ordering of the participating and non-participating households during the last two *monga* periods. If the participating households had higher consumption in the last *monga* of 2008 than that of the previous year, we will then be able to conclude that the participating households have really gained from participating in PRIME program. Table-22 reports consumption ordering of both participants and non-participants of last two *monga* – one is termed as pre-PRIME *monga* and another as post-PRIME *monga*.

Table 22
Consumption ordering of households during last two *monga*

Times of meal per day	Participants			Non-participants in program village			Overall DiD
	Pre-PRIME <i>monga</i>	Post-PRIME <i>monga</i>	% of Change	Pre-PRIME <i>monga</i>	Post-PRIME <i>monga</i>	% of Change	
1	517 (47.56)	462 (42.27)	-5.29	1,764 (50.89)	1,612 (46.19)	-4.70	-0.59
2	517 (47.56)	555 (50.78)	3.22	1,584 (45.7)	1,664 (47.68)	2.0	1.22
3	53 (4.88)	76 (6.95)	2.07	118 (3.4)	214 (6.13)	2.73	-0.7
Total	1,087 (100)	1,093 (100)		3,466 (100)	3,490 (100)		
χ^2	0.014			0.000			

Note: Figures in parentheses are column percentage

There have been significant and positive changes in the consumption behavior of the participants during the post-PRIME period in 2008 over the pre-PRIME period, compared to the non-participants. Percentage of participating households in occasional starvation has declined by over five percentage points. Compared to the non-participants, the rate of decline was higher. This is also the case with consumption rationing. There was higher increase in consumption rationing for the participants in *monga* of 2008 over the pre-PRIME period. The net increase was more than one percentage point – half a times the increase for the non-participants. However, although there was an increase in the percentage of households having three full meals during the last *monga* for both the participants and non-participants, the rate of gain was higher for the non-participants. The change between pre and post intervention for both participant and the non-participant groups were statistically significant, and shows the overall positive impact of the PRIME intervention. A district⁴ wise interpretation of consumption ordering of sample type in pre and post intervention might give a better understanding of this scenario.

Matching the overall trend, Gaibandha performed really well in reducing occasional starvation and increasing the capability of consumption rationing among the participant

⁴ District tables concerning changes in consumption ordering during the past two *monga* period are presented in Appendix to Chapter Three.

households compared to the non participants (Table A-3.6). In the first case the incidence of extreme food insecurity reduced more sharply for participants (-22.4 percent) than non-participants (-19.3 percent). This implies that relatively the participants were better off. Such decline contributed to gain in higher consumption ordering. There was an increase in percentage of households in consumption ordering for both participants and non-participants. But the rate of increase was higher for the participants.

Like Gaibandha, in Kurigram similar trend is observed (Table A-3.7). The DiD estimates show, in Kurigram PRIME interventions contributed to reduction in occasional starvation among participant households by 25.61 percent which is 4.36 percent higher than participant households. Both types of households are roughly equal by percentage in consumption rationing level. Though we see a sluggish growth at the 3 meals a day level, it is nevertheless welcome because it definitely indicates progress in one of the most impoverished districts of North Bengal.

Defying the overall trend Lalmonirhat is the district where incidence of occasional starvation actually increased for both participants and non participants. Nonetheless participants are less worse-off than the non participants which is a good sign. Households with consumption rationing for both participants and non participants decreased by roughly equal percentage (7.24 and 7.66 percent respectively). Reduction in 3 meals a day for participants is also less dramatic than non-participants indicating the steady growth of shock absorbing capacity of the participant group.

In Nilphamari, though occasional starvation rose for both participant and non participant groups, it increased less for the participants. In terms of consumption rationing participants did really better than the non participants in the sense that less participant households actually lost this capacity to manage two meals day. Nilphamari is perhaps the only district where participants actually performed better than non participants in terms of securing 3 meals a day.

Rangpur performed well in all three phases of consumption order although at the 3 meals a day level non participants scored a bit higher than the participants. In both reducing occasional starvation and increasing consumption rationing, PRIME interventions seem to have paid off.

Dynamics of consumption ordering during *monga* period

So far we have presented a comparative picture of the difference in consumption pattern of the participants and non-participants households during normal time and *monga* period. We found that participant households were faring relatively well than the non-participant households. But to have a clearer understanding of the movement of these households in consumption ordering we need to have a closer look at the dynamics of consumption ordering between *monga* periods. This will enable us to discern to what extent PRIME interventions have been able to bring any positive change in *monga* prone areas.

Table 23
Dynamics of consumption ordering during *monga* period

Consumption Order in <i>Monga</i> Period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	236 (45.83)	245 (47.57)	34 (6.6)	515 (100)	832 (47.3)	823 (46.79)	104 (5.91)	1,759 (100)
2	210 (40.46)	274 (52.79)	35 (6.74)	519 (100)	706 (44.43)	776 (48.84)	107 (6.73)	1,589 (100)
3	16 (30.19)	31 (58.49)	6 (11.32)	53 (100)	46 (38.98)	70 (59.32)	2 (1.69)	118 (100)
Total	462 (42.5)	550 (50.6)	75 (6.9)	1,087 (100)	1,584 (45.7)	1,669 (48.15)	213 (6.15)	3,466 (100)

Note: Figures in parentheses are row percentage

Generally, both the participants and non-participants had reasonably higher level of consumption during the 2008 *monga* in relation to the 2007 level. But the participant households fared relatively well in terms of upward movement, although it was marginal, at each level of consumption ordering. Percentage of households in occasional starvation during 2008-*monga* declined by 55 percent compared to 53 percent for the non-participants. Similarly, participant-households slipped into occasional starvation only by 30 percent compared to 39 percent for the non-participants. Therefore, it can be concluded that the participants are better off than the non-participant group.

But such trend may not hold for all districts⁵ in the region because of diversity in characteristics. Generally, trend is similar – participants are better off. Gaibandha (Table A-3.11), Kurigram (Table A-3.12) and Nilphamari (Table A-3.13) have the similar trend, but the rate of households in occasional starvation in 2008-*monga* declined more for Gaibandha. Although the trend was similar for Lalmonirhat, it experienced higher percentage of participants in occasional starvation than the non-participants in 2008 *monga* (Table A-3.14). Although Rangpur followed the overall regional trend, the rate of occasional starvation in 2008-*monga* was highest among the districts compared to the non-participants.

The changes in consumption ordering in 2008-*monga* from the 2007-*monga* had all directions. Some households slipped into occasional starvation in 2008 from three full meals a day in 2007. Similarly, some households showed sign of improvement from occasional starvation to three full meals a day. That means, value of changes in ordering may have value of -2 (slipped in 2008-*monga* by two levels of consumption ordering: from 3 to 1) and maximum positive value of 2 (improved by two levels of consumption ordering: from 1 to 3). These changes are indeed determined by household and district level characteristics of 2008. We consider four key household characteristics in Table-24 to understand change in consumption ordering.

⁵ All district level tables are presented in the Appendix to Chapter Three.

Table-24
The determinants of changes in consumption ordering

Change in consumption ordering	Land holding (mean decimal)		Family size (mean)		HH Income (mean Taka)		Percentage of HH Wage employment	
	P	NP	P	NP	P	NP	P	NP
-2	6.5	7.34	4.06	4.52	42917.05	39721.08	75	60.87
-1	9.69	11.33	4.37	4.06	39943.78	41101.74	59.41	57.64
0	13.8	16.65	4.26	4.05	45735.28	38331.91	47.18	52.67
1	15.66	21.3	4.22	4.14	48773.59	48857.88	43.97	49.19
2	32.95	35.12	4.06	4.28	107509.7	74939.76	37.14	33.64

Note: P = Participants; NP = Non-participants.

We find that there is a positive relationship between change in consumption rationing and household landholding. But the level of landholding is relatively less for the participants than the non-participants. Despite little lower landholding, how could the participants maintain higher increase in consumption ordering? It may be due to higher income level of the participants. The participants had mean annual income of Tk. 107,509 compared to around Tk. 75,000 for highest positive movement (by two level) the non-participants. Stability in income perhaps can be attributed to percentage of households in wage employment. Generally, it is lower for the participants than the non-participants. This is the trend that can be observed from Table-22. Households can move to higher level of consumption by higher income but also influencing consumption through lower family size. There is an inverse relationship between change in consumption ordering and mean family size for the participants and positive relation for the non-participants. The positive relation between family size and changes in consumption ordering is little unexpected, but this may due to multiple income earners.

Changes in consumption ordering are also influenced by access to savings and borrowed fund. Table-25 shows changes in consumption rationing by the variables concerning access to finance – savings and borrowed funds. It shows that access to finance matters. This is evident from the positive relationship between higher savings and borrowing. Mean savings is higher for the participants than the non-participants. Mean borrowing is relatively lower too. However, the positive change in consumption ordering may have been influenced by higher access of participants to the amount of supports (both cash and kind) than the non-participants.

In brief, it can be argued that changes in consumption ordering are determined by household characteristics (land size, family size, income and wage employment) and ability to access finance (borrowing, own savings and supports during 2008 *monga*). Participating households had higher income, higher savings, higher access to finance and higher amount of savings than the non-participants. Therefore, they are likely to have higher positive changes in consumption ordering.

Table-25
Relationship between changes in consumption ordering and access to finance

Change in consumption ordering	HH Borrowing from (Informal sector)		HH Borrowing from Institutions		Support from public & private source		HH savings	
	P	NP	P	NP	P	NP	P	NP
-2	593.75	2342.3	0	0	845.63	948.8	50	23.91
-1	1426.92	1608.35	167.36	114.25	674.56	747.85	58.16	33.89
0	2008.9	2189.33	161.17	98.76	903.49	677.55	56.12	32.48
1	3005.92	2588.67	141.84	205.16	1079.66	637.41	53.9	36.41
2	314.29	3611.5	457.14	1570.09	427.14	355.47	68.57	48.6

Econometric Analysis of the Determinants of Changes in Consumption Ordering

Based on the descriptive analysis of the determinants of changes in consumption ordering, we used Ordered Logit technique to estimate determinants of change in consumption ordering. We included household and community characteristics as exogenous variables. Parameter estimates are reported in Table-26.

The signs of the estimates parameters are quite expected and consistent. Most of the coefficients are significant. The likelihood of positive change in consumption ordering reduces if households are in wage employment. That means, households with self-employment are more likely to have positive change in consumption ordering. The probability was estimated to 0.28. Education matters for the households. Years of schooling of household head have positive change. This is also the case with landholding. Higher landholding increases probability of positive change in consumption ordering. Income generating assets have profound positive impact. Ownership of transport, small business and agricultural equipment has higher impact.

Based on the parameter estimates, we calculated probability of changes in either positive or negative direction. Probability estimates are reported in Table-27. The distribution of probability is almost normal. Probability of positive change is 0.30, but probability of negative change is 0.24. Given the probability of no change (0.46) and probability of positive change is 0.30, it can perhaps be argued that targeted households during the last *monga* was better off. There is virtually no difference in probability by participants and non-participants. This is what was expected as the non-participant households were also from the program village. It will be quite clear when we evaluate it using cross-sectional data that includes participants and non-participants in control villages.

Table-26

Determinants of change in consumption ordering during pre-PRIME and post-PRIME *monga*

Determinants of change in number of meals in <i>monga</i>	Change in <i>monga</i> period meals
	Coefficient
Households head's education: years	0.018*
Households head's age: years	-0.014
Square of household head age	0.000
Household size	0.01
Land asset: decimals	0.001*
HH head's main occupation is wage employment: 0=N, 1=Y	-0.28***
Dummy of ownership of agricultural equipment	0.018***
Dummy of ownership of transport	0.31***
Dummy of small business	0.46***
Dummy of ownership of VGD	-0.07
HH is a member of Old Age program: Y=1, N=0	0.06
Presence of <i>char</i>	0.72***
HH did migration during <i>monga</i> : Y=1, N=0	0.06
Value: total support during <i>monga</i> : Tk.	0.000
N = 9112	
Pseudo R ² = 0.0437	
note: *** p<0.01, ** p<0.05, * p<0.1	

Notes: Change in number of meals in *monga* is equal to *monga* meals in 2008 minus *monga* meals in 2007

Table-27

Probability of change in consumption ordering

Change in consumption ordering in 2008- <i>monga</i> from 2007- <i>monga</i>	Probability of occurrence
-2	0.01
-1	0.23
0	0.46
1	0.27
2	0.03

Impact of PRIME Interventions on Other Household Outcomes

In the previous section, we evaluated the impact of PRIME on *monga* mitigation using consumption ordering as the indicator. We showed both through descriptive and econometric analyses that PRIME has indeed contributed to improvement in consumption, and in turn to minimizing food insecurity. In this section, as we noted at the beginning of this chapter, we evaluate impact of PRIME on other household level outcomes – savings, fixed assets and livestock.

Change in Number of Households with Savings

In the benchmark data, we had a dummy variable of own savings – 1 for yes and 0 otherwise. Therefore, we capture percentage of households having some savings (whether in cash or at bank). If PRIME is to have impact on savings via its effect on income and consumption, we would expect an increase in percentage of households having some savings. There have been significant changes in the percentage of households for both the participants and non-participants. However, changes have been higher for the non-participants. Difference-in-Difference estimates show positive changes in favour of the participants group in Gaibandha.

Table -28
Distribution of own savings by district and program participation status

District	Program Participation Status						DiD
	Participants			Non-participants			
	Pre-PRIME	Post-PRIME	% Change	Pre-PRIME	Post-PRIME	% Change	
Gaibandha	107 [27.37]	159 [25.94]	-1.43	503 [37.26]	319 [26.78]	-15.78	14.35
Kurigram	114 [29.16]	96 [15.66]	-13.5	357 [26.44]	230 [19.31]	-7.13	-6.37
Lalmonirhat	76 [19.44]	176 [28.71]	9.27	168 [12.44]	308 [25.86]	13.42	-4.15
Nilphamari	50 [12.79]	119 [19.41]	6.62	127 [9.41]	215 [18.05]	8.64	-2.02
Rangpur	44 [11.25]	63 [10.28]	-0.97	195 [14.44]	119 [9.99]	-4.45	-5.42
All Districts	391 [100.00]	613 [100.00]		1,350 [100.00]	1,191 [100.00]		
χ^2 level of significance	0.000			0.000			

Note: Figures in parentheses are column percentage

Determinants of Own Savings

From the traditional microeconomic literature we know that savings is a function of income. But our benchmark survey data did not have information on income. Thus we have some proxy on income on asset variables like agricultural equipment, transports and ownership of small business. We also included socio-economic variables in our model. Following variables were used to determine the savings behavior:

- Households heads education in years
- Households age and age squared in years
- Households family size
- Households land asset in decimal
- Principal occupation of self employed agriculture
- Principal occupation of self employed non- agriculture
- Principal occupation of wage laborer

- h) Agricultural equipments
- i) Transport
- j) Owner of small business
- k) Member of VGD/ VGF
- l) Member of old age program
- m) Presence of *char*
- n) Seasonal migration
- o) Support during *monga*

We run a panel Probit regression to estimate the impact on savings of each determinants as own savings is a binary variable. Parameter estimates are reported in Table-29.

The household head's education has a significant impact on savings. This is plausible because education creates better employment opportunity and hence household heads with higher education have higher probability of generating savings. We found that both the variables age and age squared are insignificant. We also did not find any significant relationship between landholdings and savings. This finding is not odd, because by criterion, targeted households are largely homogenous.

Table-29
Probit regression of own savings by its determinants

Determinants	Coefficient
HH head's education: years	0.012**
HH head's age: years	0.001
Square of age of HH head	-0.000
HH size	0.029***
HH's land asset: decimals	0.000
HH head's main occupation is agricultural self employed : 0=N, 1=Y	0.421***
HH head's main occupation is non-agricultural self employed : 0=N, 1=Y	0.205***
HH head's main occupation is wage laborer: 0=N, 1=Y	0.155***
Dummy of agricultural equipments	0.113***
Dummy of transport	0.130***
Dummy of small business	0.172*
Member of VGD: 1 VGD or VGF 0 No	0.080**
HH is a member of Old Age program: Y=1, N=0	0.042
Presence of <i>char</i>	-0.261***
HH did migration during <i>monga</i> : Y=1, N=0	-0.020
Value: total support during <i>monga</i> : Tk.	-0.000**
Member of MFIs	1.208***
_cons	-1.303***

Note: *** p<0.01, ** p<0.05, * p<0.1

We found that all the principal occupation has significant impact on savings. But different classes of occupation have different probabilities on generating savings. Households with self-employment in agriculture as principal occupation have higher probability (42 percent) to save as opposed to 20 percent for self-employment in non-agriculture and 15 percent for wage employment. Wage laborers have lower probability of savings. This is quite consistent as it generates relatively lower income.

Income generating assets do have positive impact on savings. Ownership of agricultural equipment increases the probability of savings by 11 percent. Similar estimates are found for owning transports or small business. Owning transport increases the probability of savings by 13 percent whereas owning a small business increase it to 17 percent. Those who have higher incomes and assets have higher probability of generating savings.

In case of VGD or VGF we have a significant relationship. As income from VGD/VGF is regular, it is a part of permanent income of the households. On the other hand, it may be considered as transitory income because such VGD/VGF allowances are received not on monthly basis. Therefore, the beneficiary households may find income from VFD/VGF or old age pension as potential savings. It is true for participation in VGD/VGF, but not for the households receiving old age pension. Supports in the form of cash, food grant, clothing and capital grants are expected to complement income. Therefore, we expected that support will have positive impact on savings. This is proved to be wrong. The negative and significant coefficient probably suggests that supports are not adequate. This might have created extra pressure on existing savings of the households. We did not find any significant relationship between seasonal migration and savings. Households living in *char* areas are most vulnerable because of limited economic opportunities. Consequently, as our model shows, households in *char* area are 26 percent less likely to save. The result is significant.

Being member of MFI increases the probability of savings. This is because of the design of micro finance program. Savings is related to borrowing. Micro finance members are strongly encouraged to save.

Changes in Number of Livestock

In rural areas, poor households generally consider two types of assets – land and livestock – as sources of stability and income opportunity. Land is a source of security, and livestock becomes a significant source of future income. In this section we assess the impact of PRIME on livestock. It is very difficult to assign any direction of change, as households sell livestock very frequently. But again, in some cases, households hold livestock for higher return.

Table - 30

Distribution of mean number of farm animal and poultry by program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre	Post	Pre	Post			
Livestock	3.03	3.52	3.35	2.97	0.49**	-0.38***	0.87
Cow	0.38	0.37	0.50	0.42	-0.01	-0.08**	0.07
Goat	.37	1.62	0.38	1.30	1.25***	0.92***	0.33
Chicken	2.48	1.53	2.62	1.23	-0.95***	-1.39***	0.44

There has been significant gain in livestock for the participants than the non-participants. While average number of livestock of the participant increased 3.52, it decreased for the non-participants to 2.97. Therefore, the net gain for the participants was 0.87, based on DiD. The post treatment gain for participant and non participant households is negative in terms of cow. On the other hand, both participants and non participants made some progress in terms of raising the number of goats. Low investment cost of raising goats, their fertility etc. might have contributed to this gain. It is interesting to note that the mean differences for both participants and non participants are statistically significant though the participants actually end up relatively better off in DiD measurements. Chicken as a livestock category showed a negative trend in the post treatment situation for both participant and non participant households, but the rate of decline was higher for the non-participants (-1.39). Consequently, relative to non-participants, there was net gain of 0.44 for the participants. However, the sudden attack of avian flu last year might have been responsible for this situation to some extent. In brief, participants seem to have done better than non participants after receiving interventions.

The subsequent part of this section focuses on examining the issue of variations in livestock by district. Now the distribution of mean number of livestock by district and program participation status is given below to have a broader idea about the difference in performance between these districts (Table-31).

Table-31
Distribution of mean number of livestock by district and program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre	Post	Pre	Post			
Gaibandha	3.82	3.63	4.85	3.76	-0.19	-1.09***	0.9
Kurigram	2.99	3.39	3.00	2.88	0.4	-0.12	0.52
Lalmonirhat	3.61	4.40	3.24	2.95	0.79	-0.29	1.08
Nilphamari	1.87	2.77	1.74	2.31	0.9**	0.57***	0.33
Rangpur	1.56	2.64	2.44	2.16	1.08**	-0.28	1.36
All District	3.03	3.52	3.35	2.97	0.49**	-0.38***	0.87

Note: Mean difference=post intervention – pre intervention
DiD= participant mean difference – non participant mean difference
***, **, implies significant at 1% and 5% level respectively

All values of DiD as reported in Table-31 suggest an increase in livestock for the participants compared to non-participants. This indicates that livestock has increased in greater quantity for the participants than the non-participants. Except in Nilphamari, there was decline in mean number of livestock for the non-participants in all other districts. On the other hand, except in Gaibandha, addition to mean number of livestock was higher and significant for the participants in other districts. As livestock aggregates the number of cows, goats and chicken; let us now disaggregate it to better understand the cases.

In table 32 we observe the distribution of mean number of cows by district and program participation status. Here we also see the slight positive change in favor of the participants though the mean difference is not significant. This is plausible because PRIME is targeted for hardcore poor people and cow is pretty big investment for such poor. As such, it would be more reasonable to expect that ultra poor households will focus on other type of livestock -

goats or chicken – that will require small investment and at the same time it is easy to raise them.

Table-32
Distribution of mean number of cow by district and program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre	Post	Pre	Post			
Gaibandha	0.41	0.41	0.59	0.48	0	-0.11**	0.11
Kurigram	0.45	0.37	0.50	0.42	-0.08	-0.08	0
Lalmonirhat	0.46	0.44	0.59	0.49	-0.02	-0.1	0.08
Nilphamari	0.20	0.32	0.28	0.36	0.12	0.08	0.04
Rangpur	0.17	0.20	0.36	0.24	0.03	-0.12**	0.15
All District	0.38	0.37	0.50	0.42	-0.01	-0.08**	0.07

Note: Mean difference=post intervention – pre intervention
DiD= participant mean difference – non participant mean difference
***, **, * implies significant at 1% and 5% level respectively

In table 33, the distribution of mean number of goat by district and program participation status has been presented. It is quite interesting to observe that there has been an increase in mean number of goat for both participants and non-participants in all five districts. But the rate of change has been higher for the participants in all districts. Consequently, As a result, participants have higher net gain relative to non-participants.

Table-33
Distribution of mean number of goat by district and program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre	Post	Pre	Post			
Gaibandha	0.33	1.74	0.42	1.81	1.41***	1.39***	0.02
Kurigram	0.4	1.46	0.36	1.15	1.06***	0.79***	0.27
Lalmonirhat	0.48	1.97	0.49	1.30	1.49***	0.81***	0.68
Nilphamari	0.33	1.25	0.25	1.04	0.92***	0.79***	0.13
Rangpur	0.19	1.39	0.3	0.81	1.20***	0.51***	0.69
All Dist	.37	1.62	0.38	1.30	1.25***	0.92***	0.33

Note: Mean difference=post intervention – pre intervention
DiD= participant mean difference – non participant mean difference
***, **, * implies significant at 1%, less than 5% and 5% level respectively

This apparent success might be lower for the cost of raising goats. Since participant households are making more progress compared to non participant households, it can be assumed that in future these livestock will come to the use of hard core poor households as valuable savings in days of extreme hardship. In that way, they will be less susceptible to seasonal famines like *monga* and more prepared to face it. Interestingly, as argued earlier, change in mean number of chicken in post-PRIME period in relation to pre-PRIME period has been negative for all districts and for both participants and non-participants (Table-34). But the rate of decline has been lower for the participants. There might be various reasons. This could be due to avian flu.

Table-34
Distribution of mean number of chicken by district and program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre	Post	Pre	Post			
Gaibandha	3.08	1.48	3.84	1.47	-1.6***	-2.37***	0.77
Kurigram	2.93	1.56	2.74	1.31	-1.37***	-1.43***	0.06
Lalmonirhat	2.67	1.99	2.16	1.16	-0.68	-1***	0.32
Nilphamari	1.34	1.20	1.21	0.91	-0.14	-0.3	0.16
Rangpur	1.20	1.05	1.78	1.11	-0.15	-0.67***	0.52
All District	2.48	1.53	2.62	1.23	-0.95***	-1.39***	0.44

Note: Mean difference=post intervention – pre intervention
DiD= participant mean difference – non participant mean difference
***, **, implies significant at 1% and 5% level respectively

As the non-participants were better on economic condition they had greater number of chickens and consequently they lost higher number of chickens. On the contrary, there were “bird flu” and because of this farm chicken died, and thus demand for *desi* (local) chicken rose. Households may have sold their chicken for higher profit and consequently, the number of chicken decreased. Thus, the exact reason may never be known.

In brief, there has been an increase in the number of livestock in the region. It is due to the participation in PRIME. In most cases, mean number of livestock has declined for the non-participants. Though the mean number of cow has declined, there has been increase in the mean number of goats for both the participants and non-participants. The gain has been more for the participants. Change in livestock varies by district. Mean number of chicken has declined for both participants and non-participants in all districts.

Changes in Fixed Asset

It is less likely that there will be any significant change in fixed assets of the participants and non-participants as fixed assets do not change in short run. In case of poor households, and particularly ultra-poor households, change may be inevitable because of any unforeseen contingency. However, in some situation like remittance and/or surplus from IGAs or borrowing from other sources, there may be positive increase in fixed assets. We consider two fixed assets in this section – landholding and number of rooms. We present mean landholdings and number of room and its changes in Table-35.

Table 35
Distribution of mean physical assets (land holding and total number of rooms) by program participation status

District	Participants status				Mean Difference		DiD
	Participant		Non participant		P	NP	
	Pre-PRIME	Post-PRIME	Pre-PRIME	Post-PRIME			
Land holding	8.07	15.63	7.90	17.11	7.55***	9.2***	-1.65
Total room	1.35	1.33	1.34	1.31	-0.022	-0.028**	0.006

Note: P = Participants; NP= Non- Participants. The notion * imply that the mean difference is significant at 5% level and DiD shows difference in difference.

The land holding of both the participants and the non participants increased in 2008. But non participants seem to have gained more than the participants. But when it comes to possession of rooms, the table shows a decreasing trend among both participants and non participants. District wise distribution gives a better idea about this negative trend among participants highlighting the fact that the negative changes in possession of rooms by participants in natural disaster prone Nilphamari and Kurigram districts might have contributed to this overall trend of declining assets (Table-36).

Table 36
The distribution of total mean land by district and program participation status
land holding

District	Participants		Non-Participants		Mean difference		DiD
	Pre	Post	Pre	Post	P	NP	
Gaibandha	7.42	12.18	8.79	18.89	4.7**	10.11**	-5.41
Kurigram	7.34	14.42	7.13	18.72	7.08***	11.59***	-4.51
Lalmohirhat	11.44	24.79	9.67	22.19	13.34***	12.51***	0.83
Nilphamari	6.19	9.35	6.42	6.78	3.16***	0.365	2.795
Rangpur	6.12	13.20	6.07	11.16	7.08**	5.09**	1.99
All District	8.07	15.63	7.90	17.11	7.55***	9.2***	-1.65
N	1,088	1,093	3,467	3,490			

Note: P = Participants; NP= Non- Participants. The notion * imply that the mean difference is significant at 5% level and DiD shows difference in difference.

As shown earlier, non-participants have greater landholding compared to the participants. In Gaibandha and Kurigram, the gain has been higher for the non-participants, but in Nilphamari and Rangpur, there has been greater positive change of landholding for the participants than the non-participants. Changes in landholding for the participant group are statistically significant.

Total number of rooms

There is hardly any change in the number of room across participants and non-participants. Average number of room is essentially the same, 1.33. Even when we find a positive change in the number of room for the participants, the difference is insignificant. However, there has been a decline in the mean number of rooms for both the participants and non-participants in Kurigram and Nilphamari (Table-37). Such decline is statistically significant.

There could be several reasons behind this. One plausible explanation could be natural disaster like river erosion or cyclone destroyed number of available rooms. This could very well be the case because Kurigram is known to have a lot of *char* areas. Another is number of family size. Because of increased eligible married members, families are fragmented and thus number of homes declined to the specific households that we surveyed.

Table -37
The distribution of total mean room by district and program participation status

District	Participants		Non-Participants		Mean difference		DiD
	Pre	Post	Pre	Post	P	NP	
Gaibandha	1.17	1.20	1.19	1.22	0.029	0.025	0.004
Kurigram	1.46	1.33	1.41	1.31	-0.125**	-0.097**	-0.028
Lalmonirhat	1.39	1.46	1.39	1.41	0.071	0.0163	0.0547
Nilphamari	1.57	1.31	1.54	1.34	-0.266***	-0.204***	-0.062
Rangpur	1.23	1.36	1.28	1.32	0.131*	0.035	0.096
All District	1.35	1.33	1.34	1.31	-0.022	-0.028**	0.006
N	1,088	1,093	3,467	3,490			

Note: P = Participants; NP= Non- Participants. The notion * imply that the mean difference is significant at 5% level and DiD shows difference in difference.

Other Outcomes: Migration and Occupation

Seasonal migration is common in greater Rangpur. This was evident in the Benchmark Report 2008. Gaibandha was the district with highest percentage (52 percent) of households having at least one member as seasonal migrant. It was followed by Nilphamari and Kurigram (over 45 percent). There seems to have some changes in seasonal migration. There is no significant differences in percentage of households having a member migrated during *monga* by participants and non-participants (Table-38).

Table 38
Distribution of people migrated by districts and program participant's status

District	Participants			Non participants			DiD
	Pre	Post	% change	Pre	Post	% change	
Gaibandha	109 [34.28]	54 [26.34]	-7.94	357 [35.56]	195 [29.73]	-5.83	- 2.11
Kurigram	76 [23.90]	59 [28.78]	4.88	189 [18.82]	183 [27.90]	9.08	- 5.80
Lalmonirhat	53 [16.67]	42 [20.49]	3.82	173 [17.23]	133 [20.27]	3.04	0.72
Nilphamari	62 [19.50]	33 [16.10]	-3.4	174 [17.33]	86 [13.11]	4.22	- 7.26
Rangpur	18 [5.66]	17 [8.29]	2.63	111 [11.06]	59 [8.99]	2.07	0.66
All District	318 [100]	205 [100]		1004 [100]	656 [100]		-

Note: Figures in parentheses are column percentage

A decrease in migration means better employment opportunity is generated in the home region. Generally more than two-third households have wage employment. Implementation of PRIME may have contributed to increase in self-employment. This could be verified by observing the principal occupations of the households (Table-39).

Table 39
Distribution of principal occupation criterion and program participation status
between pre-treatment and post treatment

Principal Occupation	Program Participation Status						DiD
	Participants		Non-participants				
	Pre	Post	% change	Pre	Post	% change	
Wage labor	765 (75.59)	535 (48.95)	-26.64	2,480 (75.15)	1,823 (52.23)	-22.92	-3.72
Self-Employed: Agriculture	47 (4.64)	95 (8.69)	4.05	186 (5.64)	292 (8.37)	2.73	1.32
Self-Employed: Non-agriculture	200 (19.76)	463 (42.36)	22.6	634 (19.21)	1,375 (39.40)	20.19	2.41
Total	1012 (100.00)	1093 (100.00)		3300 (100.00)	3490 (100.00)		

Note: Figures in parentheses are column percentage

In both cases of participants and non-participants, the percentage of wage labor has decreased. But for the participants it decreased by 3.72 percent more than the non-participants. Also percentage of self employment generated both in agriculture and non-agriculture is higher for the participants, notably in non agriculture sector. This also confirms our earlier discussion that seasonal migration has decreased. Seasonal migration has decreased as the opportunities of self-employment have been expanded.

Econometric Analysis of Impact of PRIME on Household Level Outcomes Using Panel Data

We have observations on two groups for two periods, which enable us to perform a sophisticated panel analysis technique. The two groups include participant and non-participant households. Two techniques are used to estimate the parameter of interests. One is Probit for binary outcome variables, such as, household savings and migration, and the other is panel regression for continuous variables like number of meals during *monga*, number of goats and poultry, land holdings, total rooms and coping strategies including the value of advance crop and asset sale.

To analyze the efficacy of the program, we first focus on the coefficient of the dummy associated with the participation of the program or treatment variable. During the estimation process upazila dummy is used to capture the regional heterogeneity. Outcome estimates of PRIME interventions, using PSM, are reported in Table-40.

The objective is to find out the impact of PRIME on consumption ordering during *monga*. Similitude attempts are made to scrutinize the change in other outcome variables over the benchmark year. The coefficient of the treatment variable is positive and its standard error is small enough, showing the statistical significance of the rise in consumption ordering over the benchmark. The significance of the coefficient of the treatment variable in the case of improvement of food security implies that the program has effectively successful in extenuating the food deficiency of the participant group. Note that the number of meals taken

in a day has been improved from the most vulnerable state to a well-being state. The gain in consumption ordering is high for those households having low family size comparative to the large family size.

Table-40
Outcome estimates of PRIME using PSM

Outcome variables	Coefficient	SE	Z-score
Meals in <i>monga</i>	0.03***	0.014	2.06
Savings	-0.287***	0.033	8.75
Migration	-0.06*	0.042	-1.32
Number of goats	0.08*	0.06	1.37
Number of chicken	0.047	0.100	0.47
Number of cows/buffalo	-0.098***	0.024	-4.05
Household lands in decimal	-1.636	1.551	-1.05
Total room	0.004	0.017	0.21

Notes: SE indicates standard errors, coefficient of the treatment variable and its standard error and z-score are reported here

The dissection of migration behavior in greater Rangpur is quite interesting. The theory on migration probes that migration decision depends on household characteristics, access to market (labor and commodity market) and on community characteristics. With the development of community characteristics and access to labor market eventually lower the migration tendency among the non-educated agro-based employers. In benchmark study we found that the migration tendency among the participants was about 29 percent, which eventually declined to 18 percent in the follow up year. The coefficient of the treatment variable “PRIME participant” is negative, indicating that there is a negative association between the propensity to participate the PRIME program and the migration attitudes of the households and it is statistically significant at 10 percent level. Therefore, it can be argued that the program assistance to the targeted participant household provide disincentives to migrate.

Household savings is another important outcome variable of interest. We have paid attention on the assessment of the program impact on accumulating savings and raising the propensity of saving tendency. Although the follow up survey contains savings in continuous format, the benchmark survey defines savings in binary terminology. For methodological issue, we have used the panel probit technique to estimate the propensity to save over the benchmark year. The estimated coefficient of the treatment variable is positive and statistical significance.

The most common source of raising income of the household is to increase the number of livestock. Cow rearing or goat rearing is the most important. We disaggregate livestock into three categories – number of cows/buffalos/calves, number of goats, and number of poultry. Three separate panel regressions are estimated to assess the impact of PRIME on the outcome variables. The estimated treatment effect is positive for the number of goats and the number of poultry but these estimates are insignificant. On the other hand, the coefficient of the treatment variable is negative for the number of cows.

The asset holding of the household has slightly changed over the two years. The asset structure contains only land and numbers of rooms the households have. It is found that there is a negative relationship between land holdings and the program participation. But the

coefficient is not significant. On the other hand, the number of total rooms has increased but the magnitude is small and it is statistically insignificant.

In brief, PRIME program has made some significant impacts. Impacts are found in consumption ordering (higher level of consumption), percentage of households having savings, increase in number of livestock, especially goats, and increase in landholding. Participant households are better off than the non-participants in program villages. Such comparison between participants and non-participants might underestimate benefits derived from PRIME program because of possible spill-over effects. Despite this possibility, the gains derived by participants are substantial. Indeed if compared with non-participants in control villages, impact of PRIME will be much higher. This is discussed in Chapter Four where program impact is evaluated and discussed using cross-sectional data.

APPENDIX TO CHAPTER THREE

Table A-3.1
Consumption ordering of households
by participation status in Gaibandha (Current times)

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	55 (20.07)	6 (2.18)	-17.89	111 (13.14)	22 (2.56)	-10.54	-6.35
2	177 (64.6)	211 (76.73)	12.13	598 (70.77)	688 (80)	9.23	2.90
3	42 (15.33)	58 (21.09)	5.66	136 (16.09)	150 (17.44)	1.35	4.31
Total	274 (100)	275 (100)	0.36	845 (100)	860 (100)	1.78	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.2:
Consumption ordering of households
by participation status in Gaibandha (Current times)

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	0 (0)	7 (2.58)	-2.58	15 (1.54)	16 (1.63)	-0.19	-2.39
2	129 (47.6)	155 (57.2)	9.6	474 (48.52)	649 (66.16)	17.64	-8.04
3	142 (52.4)	109 (40.22)	-12.18	488 (49.95)	316 (32.21)	-16.74	4.56
Total	271 (100)	271 (100)	0.00	977 (100)	981 (100)	0.41	
χ^2	0.001			0.000			

Note: () shows percentage.

Table A-3.3
Consumption ordering of households
by participation status in Lalmonirhat (Current times)

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	17 (6.32)	2 (0.74)	-5.48	42 (5.65)	18 (2.42)	-2.93	-2.45
2	67 (24.91)	194 (72.12)	47.21	253 (34.05)	565 (75.84)	42.79	4.42
3	185 (68.77)	73 (27.14)	-41.63	448 (60.3)	162 (21.74)	-38.56	-3.07
Total	269 (100)	269 (100)	0.00	743 (100)	745 (100)	0.27	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.4
Consumption ordering of households
by participation status in Rangpur (Current times)

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	26 (18.71)	3 (2.11)	-16.60	119 (21.76)	15 (2.73)	-19.03	-2.43
2	79 (56.83)	97 (68.31)	11.48	273 (49.91)	421 (76.55)	26.64	-15.16
3	34 (24.46)	42 (29.58)	-5.12	155 (28.34)	114 (20.73)	-8.39	3.27
Total	139 (100)	142 (100)	2.16	547 (100)	550 (100)	0.55	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.5
Consumption ordering of households
by participation status in Nilphamari (Current times)

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	12 (8.96)	3 (2.21)	-6.75	33 (9.32)	12 (3.39)	-5.93	-0.82
2	72 (53.73)	105 (77.21)	23.48	184 (51.98)	265 (74.86)	22.88	0.60
3	50 (37.31)	28 (20.59)	16.72	137 (38.7)	77 (21.75)	16.95	-0.23
Total	134 (100)	136 (100)	1.49	354 (100)	354 (100)	0.00	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.6
Consumption ordering of households during last two *monga* periods
by participation status in Gaibandha

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	142 (52.4)	84 (31)	-22.4	549 (56.19)	361 (36.8)	-19.3	-3.1
2	128 (47.23)	153 (56.46)	9.23	426 (43.6)	502 (51.17)	7.5	1.73
3	1 (0.37)	34 (12.55)	12.18	2 (0.2)	118 (12.03)	11.83	0.25
Total	271 (100)	271 (100)	0.00	977 (100)	981 (100)	0.41	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.7
Consumption ordering of households during last two *monga* periods
by participation status in Kurigram

Times Of Meal Per Day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	164 (59.85)	122 (44.36)	-15.49	524 (62.01)	419 (48.72)	-13.29	-2.20
2	110 (40.15)	145 (52.73)	12.58	319 (37.75)	418 (48.6)	10.8	1.78
3	0 (0)	8 (2.91)	2.91	2 (0.24)	23 (2.67)	2.43	0.38
Total	274 (100)	275 (100)	0.36	845 (100)	860 (100)	1.78	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.8
Consumption ordering of households during last two *monga* periods
by participation status in Lalmonirhat

Times of meal Per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	69 (25.65)	109 (40.52)	14.87	198 (26.65)	308 (41.34)	14.69	-0.19
2	152 (56.51)	141 (52.42)	4.09	444 (59.76)	410 (55.03)	4.73	-0.64
3	48 (17.84)	19 (7.06)	-10.82	101 (13.59)	27 (3.62)	-9.97	-0.95
Total	269 (100)	269 (100)	0.00	743 (100)	745 (100)	0.27	
χ^2	0.000			0.000			

Note: () shows percentage.

Table A-3.9
Consumption ordering of households during last two *monga* periods
by participation status in Nilphamari

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	49 (36.57)	73 (53.68)	17.11	122 (34.46)	202 (57.06)	22.40	-5.29
2	83 (61.94)	56 (41.18)	-20.76	225 (63.56)	134 (37.85)	-15.71	-5.05
3	2 (1.49)	7 (5.15)	3.66	7 (1.98)	18 (5.08)	3.10	0.56
Total	134 (100)	136 (100)	1.49	354 (100)	354 (100)	0.00	
χ^2	0.002			0.000			

Note: () shows percentage.

Table A-3.10
Consumption ordering of households during last two *monga* periods
by participation status in Rangpur

Times of meal per day	Participants			Non-participants			Overall DiD
	Pre-PRIME	Post-PRIME	% of Change	Pre-PRIME	Post-PRIME	% of Change	
1	93 (66.91)	74 (52.11)	-14.80	371 (67.82)	322 (58.55)	-9.27	-5.53
2	44 (31.65)	60 (42.25)	10.60	170 (31.08)	200 (36.36)	5.31	5.29
3	2 (1.44)	8 (5.63)	-4.19	6 (1.1)	28 (5.09)	3.99	0.20
Total	139 (100)	142 (100)	2.16	547 (100)	550 (100)	0.55	
χ^2	0.017			0.000			

Note: () shows percentage.

Table 3.11
Dynamics of consumption ordering during *monga* period in Gaibandha

Consumption order in <i>monga</i> period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	49 (34.51)	72 (50.7)	21 (14.79)	142 (100)	206 (37.52)	276 (50.27)	67 (12.2)	549 (100)
2	35 (27.34)	80 (62.5)	13 (10.16)	128 (100)	152 (35.68)	224 (52.58)	50 (11.74)	426 (100)
3	0 (0)	1 (100)	0 (0)	1 (100)	2 (100)	0 (0)	0 (0)	2 (100)
Total	84 (31)	153 (56.46)	34 (12.55)	271 (100)	360 (36.85)	500 (51.18)	117 (11.98)	977 (100)

Note: () shows percentage.

Table 3.12
Dynamics of Consumption ordering during *monga* period in Kurigram

Consumption order in <i>monga</i> period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	74 (45.68)	82 (50.62)	6 (3.7)	162 (100)	246 (47.4)	260 (50.1)	13 (2.5)	519 (100)
2	49 (43.75)	62 (55.36)	1 (0.89)	112 (100)	151 (46.6)	163 (50.31)	10 (3.09)	324 (100)
3	- -	- -	- -	- -	0 (0)	2 (100)	0 (0)	2 (100)
Total	123 (44.89)	144 (52.55)	7 (2.55)	274 (100)	397 (46.98)	425 (50.3)	23 (2.72)	845 (100)

Note: () shows percentage.

Table 3.13
Dynamics of consumption ordering during *monga* period in Nilphamari

Consumption order in <i>monga</i> period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	28 (57.14)	20 (40.82)	1 (2.04)	49 (100)	76 (62.3)	45 (36.89)	1 (0.82)	122 (100)
2	44 (53.01)	33 (39.76)	6 (7.23)	83 (100)	122 (54.22)	86 (38.22)	17 (7.56)	225 (100)
3	0 (0)	2 (100)	0 (0)	2 (100)	3 (42.86)	4 (57.14)	0 (0)	7 (100)
Total	72 (53.73)	55 (41.04)	7 (5.22)	134 (100)	201 (56.78)	135 (38.14)	18 (5.08)	354 (100)

Note: () shows percentage.

Table 3.14
Dynamics of consumption ordering during *monga* period in Lalmonirhat

Consumption order in <i>monga</i> period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	32 (46.38)	34 (49.28)	3 (4.35)	69 (100)	79 (39.9)	112 (56.57)	7 (3.54)	198 (100)
2	61 (40.13)	80 (52.63)	11 (7.24)	152 (100)	192 (43.24)	234 (52.7)	18 (4.05)	444 (100)
3	16 (33.33)	27 (56.25)	5 (10.42)	48 (100)	36 (35.64)	63 (62.38)	2 (1.98)	101 (100)
Total	109 (40.52)	141 (52.42)	19 (7.06)	269 (100)	307 (41.32)	409 (55.05)	27 (3.63)	743 (100)

Note: () shows percentage.

Table 3.15
Dynamics of consumption ordering during *monga* period in Rangpur

Consumption order in <i>monga</i> period (2007)	Participants				Non-Participants			
	Consumption order in <i>monga</i> period (2008)				Consumption order in <i>monga</i> period (2008)			
	1	2	3	Total	1	2	3	Total
1	53 (56.99)	37 (39.78)	3 (3.23)	93 (100)	225 (60.65)	130 (35.04)	16 (4.31)	371 (100)
2	21 (47.73)	19 (43.18)	4 (9.09)	44 (100)	89 (52.35)	69 (40.59)	12 (7.06)	170 (100)
3	0 (0)	1 (50)	1 (50)	2 (100)	5 (83.33)	1 (16.67)	0 (0)	6 (100)
Total	74 (53.24)	57 (41.01)	8 (5.76)	139 (100)	319 (58.32)	200 (36.56)	28 (5.12)	547 (100)

Note: () shows percentage.

Chapter Four

Impact of PRIME at the Household level: An Analysis of Cross Sectional Data

In this chapter, we are presenting descriptive (univariate) as well as multivariate analysis to evaluate the impact of PRIME interventions and exploit the cross-sectional nature of the data. The purpose is to assess whether PRIME interventions can be associated with reduction of food insecurity in the *monga* affected regions of Bangladesh by strengthening coping capacity of the agricultural laborers and marginal farmers through creation of seasonal employment through social transfers and skill training on income generating activities. This chapter attempts to give answers to the question that whether or not the PRIME is able to mitigate *monga*, and to what extent, if at all.

The follow up survey questionnaire contained more detailed information on the households. This motivated us to use the data using cross-sectional univariate and multivariate econometric techniques. This poses a serious problem for comparing results. However, this has been sorted out by separating our analysis into two parts. One part contains the analysis of the common variables in both surveys and in the other part we have compared the results of the participants of the program areas with those of the non-participants of the control areas that were included in the follow up survey. From our previous panel analysis, we have made the conclusion that in the program villages the participants under PRIME are doing better than the non-participants. One may question that since the participants and non-participants belong to the same villages there may be some spill-over effects of the program on the non-participants. As a result comparison between participants and non-participants may be biased.

So, to get a clear picture of the impact of PRIME, we need to make a cross sectional analysis of the follow up survey where we shall include non-participants from some control villages. Since the control villages are detached from any other kinds of intervention including the PRIME, comparison between the participants of the program villages and non-participants of the control villages would give us a better picture to understand the impact. This is done by comparing single difference (D) in mean outcomes of the participants and non-participants.

Outcome variables for the analysis

We have identified the following outcome variables of households for the present analysis:

- Consumption
- Expenditure
- Savings
- Income
- Investment
- Livestock
- Landownership
- Room size

Description of the outcome variables

The program was started in 2006 and it is very difficult to make any final comment on the impact of the program. So, we just consider whether the mean differences are statistically significant. We are also analyzing the district level outcomes to get the disaggregated level picture. We draw the conclusions from comparing participants from villages where the PRIME was introduced and non-participants from the same villages and villages where PRIME was not available. Here, we selected the control villages from three program districts, namely, Gaibandha, Rangpur and Nilphamari.

Monga Mitigation: Consumption Ordering as an Indicator

Almost every year the rural areas of Bangladesh are struck by seasonal food insecurity before the *aman* harvest during the months of September to November. Households depending on irregular income from agricultural wage employment, lacking productive assets and ability to supplement income through other sources are the most vulnerable to food insecurity. The PRIME, has been providing these households with different kinds of income generating activities to overcome the crisis and secure a stable level of consumption.

We have panel information on three types of consumption ordering. But in the cross sectional part (follow-up survey) we have disaggregated the consumption ordering into four parts to capture the actual consumption scenario of the groups. The normal time consumption scenario by participation status is presented in Table-41 below.

Table-41
Distribution of the sample households by consumption ordering during normal time

Normal time consumption ordering	Participation Status			Total
	Participants	Non-participants in the program villages	Non-participants in the control villages	
Occasional starvation	21 [1.91]	83 [2.37]	6 [0.85]	110 [2.07]
Only two meals	360 [32.70]	1,405 [40.09]	342 [48.72]	2,107 [39.69]
Consumption rationing	408 [37.06]	1,192 [34.01]	274 [39.03]	1,874 [35.31]
Three full meals	312 [28.34]	825 [23.54]	80 [11.40]	1,217 [22.93]
Total	1,101 [100.00]	3,505 [100.00]	702 [100.00]	5,308 [100.00]

Note: Figures in [] indicate column percentage.

Table-41 shows that more than 28 per cent of the participants had three full meals a day. The corresponding figure for the non-participants of the program villages is less than 24 per cent, and it is higher than 11 per cent for the households of the control villages. The proportion of households having either occasional starvation or only two meals is less for the participants than for the non-participants of the program villages. On the other hand, the proportion of households having either only two meals or consumption rationing is higher for the control households than for both the participants and non-participants of the program villages. But

this is not the focal point of our analysis. We need to look into the results of the *monga* time consumption to justify the impact of the PRIME.

In *monga* time, the percentage of the participants having three full meals is slightly higher than that of the non-participants in the program villages, and it is almost double of the non-participants in the control villages. In the case of having two meals all three groups score roughly the same. But the non-participants of both the program and control villages starve occasionally more than the participants of the program villages. It follows, therefore, that the PRIME has positive impact on *monga* mitigation.

Table-42
Distribution of the sample households by consumption ordering during *monga* time

<i>Monga</i> time consumption ordering	Participation Status			Total
	Participants	Non-participants in program villages	Non-participants in control villages	
Occasional starvation	465 [42.23]	1,620 [46.22]	355 [50.57]	2,440 [45.97]
Only two meals	394 [35.79]	1,255 [35.81]	245 [34.90]	1,894 [35.68]
Consumption rationing	166 [15.08]	412 [11.75]	79 [11.25]	657 [12.38]
Three full meals	76 [6.90]	218 [6.22]	23 [3.28]	317 [5.97]
Total	1,101 [100.00]	3,505 [100.00]	702 [100.00]	5,308 [100.00]

Note: Figures in [] indicate column percentage.

In order to get the clearer picture of their consumption pattern, we need to estimate their overall condition between current versus *monga* time.

Table-43
Distribution of the sample households by consumption ordering

Normal time Consumption pattern	<i>Monga</i> time consumption ordering				Total
	Occasional starvation	Only two meals	Consumption rationing	Three full meals	
Occasional starvation	65 (59.09)	36 (32.73)	5 (4.55)	4 (3.64)	110 (100.00)
Only two meals	1640 (77.84)	421 (19.98)	38 (1.80)	8 (0.38)	2,107 (100.00)
Consumption rationing	555 (29.62)	1061 (56.62)	242 (12.91)	16 (0.85)	1,874 (100.00)
Three full meals	180 (14.79)	376 (30.90)	372 (30.57)	289 (23.75)	1,217 (100.00)
Total	2,440 (45.97)	1,894 (35.68)	657 (12.38)	317 (5.97)	5,308 (100.00)

Note: Figures in () indicate row percentage.

Table-43 shows that 59 per cent of all households had one meal during *monga*. Nearly 78 per cent of all households reduced their consumption from two meals in normal time to one meal in *monga*. Shifting consumption ordering from consumption rationing in normal time to occasional starvation in *monga* is around 30 per cent, and the movement was about 57 per cent towards having two meals in *monga*. Nearly 31 per cent of the households having three full meals in normal time reduced their consumption ordering to two meals in *monga*. The percentage is the same for those shifting from three full meals to consumption rationing. So, we find that during *monga* majority of the households fails to maintain their normal consumption ordering.

However, we are in need of a two way comparison of consumption ordering between *monga* and normal time in order to understand the proportion of households shifting to worse off or better off position or remaining in the same consumption ordering. Table-43 gives us the relevant results.

From table 44 we can see that slightly more than 74 per cent of the participants shifted their consumption ordering from having two meals in normal time to occasional starvation during *monga*. The corresponding figure for the non-participants of the program villages and control villages are found to be about 77 per cent and 86 per cent respectively. This means that the participants are shifting to worse position less than the non-participants. In other cases, we do not have any major differences between the two. This is basically because they belong to the same villages.

We can also see from the table that the proportion of the participating and control households shifting from three full meals to two meals is 29 per cent and 36 per cent, respectively. At the same time the proportion of the participant and control households shifting from three full meals to consumption rationing is 33 per cent and 40 per cent respectively. So, the overall conclusion is that participants are doing better during *monga*. This is the overall scenario of the three groups. The district-wise condition may be competitive and would give us clearer picture of the district-wise performance of the groups.

Table-44
Distribution of the sample households by shifting of consumption ordering: all districts

Normal time consumption ordering	<i>Monga</i> time consumption ordering for participants					<i>Monga</i> time consumption ordering for non-participants of program villages					<i>Monga</i> time consumption ordering for non-participants of control villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total
Occasional starvation	14	6	1	0	21	46	29	4	4	83	5	1	0	0	6
	(66.67)	(28.57)	(4.76)	(0)	(100)	(55.42)	(34.94)	(4.82)	(4.82)	(100)	(83.33)	(16.67)	(0.00)	(0.00)	(100)
Only two meals	267	86	6	1	360	1,080	299	20	6	1,405	293	36	12	1	342
	(74.17)	(23.89)	(1.67)	(0.28)	(100)	(76.87)	(21.28)	(1.42)	(0.43)	(100)	(85.67)	(10.53)	(3.51)	(0.29)	(100)
Consumption rationing	140	210	56	2	408	361	672	151	8	1,192	54	179	35	6	274
	(34.31)	(51.47)	(13.73)	(0.49)	(100)	(30.29)	(56.38)	(12.67)	(0.67)	(100)	(19.71)	(65.33)	(12.77)	(2.19)	(100)
Three full meals	44	92	103	73	312	133	255	237	200	825	3	29	32	16	80
	(14.1)	(29.49)	(33.01)	(23.4)	(100)	(16.12)	(30.91)	(28.73)	(24.24)	(100)	(3.75)	(36.25)	(40.00)	(20.00)	(100)
Total	465	394	166	76	1,101	1,620	1,255	412	218	3,505	355	245	79	23	702
	(42.23)	(35.79)	(15.08)	(6.9)	(100)	(46.22)	(35.81)	(11.75)	(6.22)	(100)	(50.57)	(34.9)	(11.25)	(3.28)	(100)

Note: *Figures in () indicate row percentage.

In Gaibandha district, 31 per cent of the participants and 37 per cent of the non-participants of the program villages had one meal during *monga*. In the program villages of the district, 64 per cent of the participants and 68 per cent of the non-participants reduced their consumption from two meals during normal time to one meal during *monga* time (Table A-4.1). In Kurigram district, we have found that, in terms of consumption ordering, there is no systematic distribution pattern of the participants and non-participants (Table A-4.2). In terms of shifting of consumption ordering from normal time to *monga* time in Lalmonirhat district, the participant households are in a better position than their non-participant counterparts (Table A-4.3). In Nilphamari district, there is no wide difference of the shifting of consumption ordering between the participants and non-participants of the program villages, although the participants' consumption pattern changed less than that of the control group (Table A-4.4). In Rangpur district, more than 70 per cent of the participants moved from two meals category to one meal category. The corresponding figure for the non-participants of the program villages is above 81 per cent and that for the control group is above 86 per cent. This suggests that during *monga* the participants in Rangpur are more vulnerable compared with other groups of poor households (Table A-4.5).

Table 45
Vulnerability of the sample households during *monga*: by district

Vulnerability	District					
	All	Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Rangpur
-3	180 (3.39)	60 (4.47)	31 (2.73)	21 (2.07)	23 (2.86)	45 (4.45)
-2	931 (17.54)	203 (15.12)	180 (15.86)	213 (20.99)	176 (21.89)	159 (15.73)
-1	3,073 (57.89)	666 (49.59)	686 (60.44)	623 (61.38)	486 (60.45)	612 (60.53)
0	1,017 (19.16)	403 (30.01)	209 (18.41)	132 (13.00)	93 (11.57)	180 (17.80)
1	90 (1.70)	9 (0.67)	25 (2.20)	21 (2.07)	23 (2.86)	12 (1.19)
2	13 (0.24)	2 (0.15)	3 (0.26)	4 (0.39)	2 (0.25)	2 (0.20)
3	4 (0.080)	0 (0.00)	1 (0.09)	1 (0.10)	1 (0.12)	1 (0.10)

Note: Figures in () indicate column percentage.

Table-45 presents the district-wise distribution of households by movement of vulnerability. In the table, the figure 'zero' in vulnerability column means no change of vulnerable position from normal time to *monga* time. The extent of the shift of vulnerability is the highest if the value is -3 and so on. Similarly, the positive number in vulnerability column indicates improvement in vulnerability and the larger the number the higher is the improvement of vulnerability. It is clear from the table that the vulnerable position of a vast majority of the households for all districts deteriorates during *monga*. There is no change in vulnerable position of 19 per cent of the households for all districts together. The figure varies from as low as 12 per cent for Nilphamari district to as high as 30 per cent for Gaibandha district. The improvement of vulnerability during *monga* from the normal time is negligible as expected.

Monga Mitigation: Food Expenditure as an Indicator

The mean difference of per capita expenditure on food between the participants and non-participants of the program villages is not statistically significant. On the other hand, the mean difference of food expenditure between the participants and the control group is positive and statistically significant. This means that PRIME has some positive impact on expenditure on food (Table-46).

Table-46
Food expenditures and their difference by participation status: all districts

Participation status	N	Mean (Taka)	Mean difference	
			P – NP	P – C
Participants (P)	1,101	10,212.28	-409.82	1,559.56*
Non-participants in program villages (NP)	3,505	10,622.1		
Non-participants in control villages (C)	702	8,652.72		

Note: * indicates t test is statistically significant at 5% level.

Monga Mitigation: Other Indicators

Household Income

It is expected that the income of the participants would be higher than that of the non-participants of the program and control villages. This is because the participants are getting the opportunity to involve themselves in different income generating activities due to program interventions.

As Table-47 shows, the total household income of the participants is the highest of all groups of households (the difference is significant with a p-value less than 0.05). At the disaggregated level we have found that the income of the participants from self-employment activities is significantly higher than that of the non-participants in the program villages and this difference explains the bulk of difference in the total household income. Also, the household incomes of the participants from self-employment activities, remittances and other sources are significantly higher than those of the control group. In our sample, a large part of the self-employment income comes from rickshaw pulling, which is financed basically by MFIs. Since this activity does not have any direct link with seasonal variation of agricultural output the income from rickshaw pulling does not fluctuate much by seasons. At the same time, wage income does not differ much between the three groups of households.

Table-47
Average income (in Taka) of sample households by participation status

Income type	Participant (P)		Non-participant (NP)		Control (C)		Mean difference	
	Mean	%	Mean	%	Mean	%	(P-NP)	(P-C)
Total income	53,394	100.0	48,505	100.0	38,160	100.0	4,842.74*	14,990.70*
Wage income	22,741	42.6	22,691	46.8	24,802	65.0	50.47	-2,060.92
Self income (farm and off-farm)	22,980	43.4	18,363	37.9	9,114	23.9	4,616.09*	13,865.38*
Other income	5,907	11.2	5,662	11.7	3,789	10.0	244.85	2,117.74*
Income from remittance	1,766	3.4	1,789	3.7	455	1.2	-22.31	1,311.26*

Note: * Indicates t test is statistically significant at 5% level.

Household Savings

MFIs mobilize savings of the client households. Moreover, since the participants are engaged in different of income generating activities, their ability to save may be higher from the incomes earned from these activities. It can be estimated from the figures in Table-48 that the average amount of savings per participating household is higher than that of the non-participating households in the program villages by 63 per cent and than that of the control households by 283 per cent. Thus, the findings support our hypothesis.

Table-48
Household's average savings by participation status

Participation status	N	Mean (Taka)	Mean difference	
			(P-NP)	(P-C)
Participants (P)	1,101	483.75	187.03	357.57
Non-participants in program villages (NP)	3,505	296.72	*	*
Non-participants in control villages (C)	702	126.18		

Note: * Indicates t test is statistically significant at 5% level.

Determinants of savings

Private savings is an important factor of many economic decisions. There is a symbiosis between private savings and private investment. Savings has an important role in making economic decision like investment. Therefore, a dissection of private savings and identification of its plausible determinants is an urge to the researchers. Based on the urges we have attempted to identify these determinants.

Determinants of Micro-savings

We have defined private savings broadly. Private savings include amount saved in bank accounts, voluntary savings, fixed deposits, and money at hand etc. There are both theoretical and empirical justifications behind classifying the determinants of savings into different categories. Loosely speaking they may be grouped as demographics determinants that contain age distribution and life expectancy of household, family size, dependency ratio, education level of the households; stimulating factors that contain the presence of NGOs, banks and any financial institutions in the locality as well as membership of NGOs; occupational factors that include employment in agriculture and employment in non-agriculture, day laborer and non-day laborer, possessive factors that contain landholdings, infrastructural factors to which the presence of *char* and river belong; and finally supportive factors such as cash support, food support and housing equipment supports.

Since the data on savings is of continuous type and hence simple regression is available for determining the determinants of savings. But it is to be mentioned that the data on savings is of censored type and hence instead of normal regression, the Tobit model is used – especially censored from below technique is used.

To capture household characteristics, age of household head, the square of age of household head, human capital (education of the household head), and family size are used as observed variables in the model. Income is the main determinants of savings. Since income is calculated based on occupation which is included into the model, we have omitted the income from the model for estimation to avoid the endogeneity problem. The classical theory of saving implies that saving is the gap between income and expenditure, the occupation is used as an instrument of income and family size plays the instrumental variable for family expenditure. The Table-49 displays the output of the Tobit regression results.

Table-49
Econometric results of determinants of savings

Determinants of Private Savings	Coefficient
HH head's education: years	19.69
HH head's age: years	41.49
Square of age of households head	-0.58*
HH size	34.45
HH's land asset: decimals	-0.13
HH head's main occupation is self off-farm: 0=N, 1=Y	-607.63***
HH head's main occupation is wage employment: 0=N, 1=Y	-938.00***
Household having agricultural equipment	580.62***
Households having any transport	473.87***
Household having small business	757.67***
HH is a member of VGD: Y=1, N=0	247.55
HH is a member of Old Age program: Y=1, N=0	161.03
Presence of <i>char</i>	-187.71
HH did migration during <i>monga</i> : Y=1, N=0	-26.01
Value: total support during <i>monga</i> : Tk.	-0.03
HH is a member of MFIs: Y=1, N=0	1,143.01***
Constant	-4,387.96***

Note: *** p<0.01, ** p<0.05, * p<0.1

Demographic Determinants

From the analysis of Ando and Modigliani (1963), it is strongly recommended that the demographic determinants have a great influence on savings decision of the households as households characteristics specially age of the household, dependency ratio, etc. follow a cycle which is popularly termed as “Life Cycle” demographics determinants sometimes referred to life cycle determinants. The cornerstone of the life cycle hypothesis is the age related consumers’ heterogeneity and the belief that saving follows a hump shaped pattern, indicating that saving tendency will be high among the middle aged people and low for the young and old aged people. The result shows that the coefficient of age of household head is positive and the coefficient of the square of age of household head is negative; this pattern supports the traditional hump pattern of savings. The coefficient for the household size is positive suggesting possibly higher number of income earning individuals in the household who contributed to the total household savings.

Human capital⁶ and savings decision

Education plays an important role in developing human capital. Educated people in general have higher income than non-educated people and higher educated people earn more than less educated people, other things remaining the same. From this, we can derive that education level (years of schooling) has a positive effect on saving decision. This is evident from our regression result.

Occupation of the household heads and savings

Occupation structures of the households also considered as factors of savings differentials among the households. Some of the households head may have occupations that are permanent and so their saving pattern follows a distinct shape, because their income is

⁶ Human capital consists of the acquired abilities, skills, and knowledge of individual workers.

permanent and so proportion of saving to income is consistent in different period of times. On the other hands, the household heads who are temporary employers do not save in a distinct pattern. Their income fluctuates and so the savings; they save in boom period and dis-save in lean period. The results explain that the coefficients of occupation – wage employee and employee in non-agricultural sector are negative and significant.

Household asset structure and savings decision

The asset structure of household has a crucial impact on savings decision. Any asset that increases the income will in fact increase the savings. The coefficient of agricultural equipment, transport vehicle are positive, indicating that ownership of these tools will promote the saving tendency of the respective household.

Role of MFIs in Savings

The extension of microfinance program in rural areas has increased the saving tendency among the households. Two types of savings strategies are followed by the MFIs – voluntary savings and forced savings. Moreover, the extension of microfinance activity in the rural area has created an opportunity of access to finance the enterprise development without collateral. Such opportunities apparently increase the savings of the household. This is perceptibly verified by the result. The coefficient of member of any MFI is positive and statistically significant underscoring the importance of participation in the formal rural financial market as to motivate savings. Living in *char* also shows a negative correlation suggesting lack of available financial institutions may deter savings. However, social safety net programs like VGD, old pension schemes etc had a positive but statistically insignificant effect on household savings.

Household Investment

Table-50 shows that the total investment of the participants is significantly higher than the non-participants in the program villages as well as the non-participants of the control villages. At the disaggregated level the capital investment is also significantly higher for the participants than the other two groups of households.

Table-50
Mean investment (in Taka) by participation status

Investment types	Participation Status						Mean difference	
	Participant (P)		Non-participant(NP)		Control (C)			
	Mean	%	Mean	%	Mean	%	(P-NP)	(P-C)
Total investment	3,448	100.0	2,137	100.0	565	100.0	1,311*	2,883*
Capital investment	3,034	88.0	1,739	81.4	512	90.7	1,295*	2,522*
Household investment	400	11.6	368	17.2	47	8.4	32	353*
Financial investment	14	0.4	31	1.4	5	0.4	-17	9

Note: * indicates t test is statistically significant at 5% level.

Livestock and poultry

The current stock of livestock and poultry birds, on average, is found to be significantly higher for the participants than for the non-participants and control households (Table-51). This indicates that the PRIME participants are more involved in livestock and poultry rearing for income generation.

Table-51
Mean of current stock of livestock and poultry by participation status

Participation status	N	Mean (Number)	Mean Difference	
			(P-NP)	(P-C)
Participants (P)	1,101	3.50	0.54*	1.39*
Non-Participants in program village (NP)	3,505	2.97		
Non-Participants in control village (C)	702	2.12		

Note: * indicates t test is statistically significant at 5% level.

But the district-wise data show that the average number of livestock and poultry in Lalmonirhat district is far higher than the overall average. This may be attributable to the fact that PRIME was implemented first in Lalmonirhat district and the observed result is due to this. The least average is found for Rangpur and Nilphamari. None but in Lamonirhat district, the number of livestock and poultry is found to be significantly higher for the participants than for their non-participants. In Gaibandha and Nilphamari districts, the relevant number is significantly higher for the participants than the control group only (Table-52).

Table-52
Mean of current stock of livestock and poultry (in number) by district and participation status

District	Participants (P)		Non-Participants (NP)		Control (C)		Mean difference	
	N	Mean	N	Mean	N	Mean	P-NP	P-C
Gaibandha	275	3.59	999	3.73	69	1.14	-0.14	2.44*
Kurigram	280	3.35	855	2.89	-	-	0.46	-
Lalmonirhat	270	4.38	745	2.95	-	-	1.43*	-
Nilphamari	135	2.79	355	2.30	314	1.89	0.49	0.91*
Rangpur	141	2.66	551	2.16	319	2.56	0.51	0.10
All Total	1,101	3.50	3,505	2.97	702	2.12	0.54*	1.39*

Note: * indicates t test is statistically significant at 5% level.

Since the total number of livestock and poultry is the sum of the number of cows, buffaloes, goats, and poultry birds, we need to give a focus on the disaggregated part of livestock and poultry. By estimating the result we found that the number of goats is significantly higher for the participants than for the other two groups of households (Table-53).

Table-53
Mean current stock of goat by participation status

Participation status	N	Mean (Number)	Mean Difference	
			(P-NP)	(P-C)
Participants (P)	1,101	1.61	0.31*	0.88*
Non-Participants in program village (NP)	3,505	1.30		
Non-Participants in control village (C)	702	0.73		

* indicates t test is statistically significant at 5% level.

The current average stock of poultry birds is significantly higher for the participants than the control households only. But there is no significant difference in the number of cows, buffaloes and calves together among the three groups of households (Table-54).

Table-54
Mean current stock of cows, buffaloes, calves and poultry birds (in number)

Participation status	N	Cow, buffalo and calf (Mean)	Mean Difference		Poultry (Mean)	Mean difference	
			(P-NP)	(P-C)		(P-NP)	(P-C)
Participants (P)	1,101	0.37	-0.05	-0.07	1.52	0.27	0.58*
Non-Participants in program village (NP)	3,505	0.42			1.25		
Non-Participants in control village (C)	702	0.44			0.94		

Note: *Indicates t test is statistically significant at 5% level.

Number of Rooms

Number of rooms or houses is an indicator of household's standard of living. The higher the number of rooms for a household the higher would be the standard of livings. But the survey shows no significant difference of the number of rooms between the groups (Table-55). This means that the living standard is the same for all groups of households. District-wise data show that the average number of rooms per household is nearly the same (Table-56) across districts.

Table-55
Mean number of rooms per household by participation status

Participation status	N	Mean (Number)	Mean difference	
			(P-NP)	(P-C)
Participants (P)	1101	1.33	0.02	-0.03
Non-Participants in program village (NP)	3505	1.31		
Non-Participants in control village (C)	702	1.36		

Note: *Statistically insignificant at 5% level.

Table-56
Mean number of rooms per households by participation status and districts

District	Participants (P)		Non-Participants (NP)		Control (C)		Mean Difference	
	N	Mean	N	Mean	N	Mean	P-NP	P-C
Gaibandha	275	1.20	999	1.21	69	1.17	-0.01	0.03
Kurigram	280	1.32	855	1.31	-	-	0.01	-
Lalmonirhat	270	1.47	745	1.41	-	-	0.06	-
Nilphamari	135	1.31	355	1.33	314	1.5	-0.02	-0.19
Rangpur	141	1.36	551	1.32	319	1.27	0.044	0.09
All Total	1101	1.33	3505	1.31	702	1.36	0.02	-0.03

Note: *Statistically insignificant at 5% level.

Landholding

PRIME targeted those households who are basically land-poor and are in vulnerable condition during *monga*. So, it is logical that their land holding would be low. We have found from the survey data that the households of the control villages have significantly lower landownership than the participants. But there is no significant difference in landownership between participants and non-participants of the program villages (Table-57).

Table-57
Distribution of household's land asset by participation status in PRIME program

Participation status	N	Mean (Decimals)	Mean Difference	
			(P-NP)	(P-C)
Participants (P)	1101	15.57	-1.49	6.09*
Non-participants in program villages (NP)	3505	17.05		
Non-participants in control villages (C)	702	9.47		

Note: * indicates t test is statistically significant at 5% level.

The district-wise disaggregated data also show the similar pattern of landownership between groups except for Gaibandha district where the average landownership is found to be significantly higher for the participants than for the control households (Table-58).

Table-58
Household landownership (decimals) by participation status and district

District	Participants (P)		Non-Participants (NP)		Control (C)		Mean Difference	
	N	Mean	N	Mean	N	Mean	P-NP	P-C
Gaibandha	275	12.05	999	18.65	69	4.39	-6.60	7.66*
Kurigram	280	14.33	855	18.78	-	-	-4.44	-
Lalmonirhat	270	24.70	745	22.19	-	-	2.52	-
Nilphamari	135	9.42	355	6.76	314	6.31	2.66	3.11
Rangpur	141	3.25	551	11.15	319	13.69	2.10	-0.44
All Total	1101	15.57	3505	17.05	702	9.47	-1.49	6.09*

Note: * indicates t test is statistically significant at 5% level.

Econometric Analysis of Impact of PRIME

To assess the impact of the treatment in a snapshot cross sectional approach, we have used propensity score matching approach which provides an estimate of the effect of a “treatment” variable on an outcome variables that is largely free from bias arising from an association between treatment status and observable variables. We have assessed the impact of the PRIME program on various dimensions of income and savings, asset status, plausible pattern consumption of treatment group than the non-treatment group like non-participants and control groups.

Comparison between participants and non-participants groups

Our data consists two types of non-treated groups – one group is living in the program villages but do not participate the program, this group is termed as non-participant group and the other group belongs to the villages where the program is not initiated; this group is referred as control groups. For clarity and to assess the robustness of change in outcome of interest we have compared the treated effect on the treated group with the outcome of non-participants as well as controls.

Table -59
Comparison between participants and non-participants based on outcome variables

Outcome variables	Nearest neighbor matching		Radius matching	
	ATT	T-Stat	ATT	T-Stat
Savings	174.56	3.78	162.45	4.2
Total income excluding remittance	33,747.11	1.05	37,101.36	1.13
Total income including remittance	33,048.15	1.01	37,062.75	1.13
Migration	-0.013	-0.65	-0.011	-0.83
Current meals	0.094	2.31	0.13	4.52
<i>Monga</i> meals	0.067	1.53	0.089	2.79
Household land (decimal)	1.96	1.10	0.45	0.22
Total rooms	-0.005	-0.14	0.025	1.11
Coping intensity	0.006	0.96	0.002	0.36
Household expenditure	1.1	0.16	5.74	1.32
Poverty (CBN approach)	-0.039	-1.96	-0.043	-2.91
Calorie intake	33.21	1.14	30.07	1.44
Poverty (Calorie intake approach)	-0.046	-1.91	-0.026	-1.48
Number of goat	0.15	0.88	0.33	2.84
Number of cow	-0.078	-1.79	-0.046	-1.59
Number of chicken	0.46	2.07	0.26	1.22

The above table (Table-59) depicts the estimated treatment effect from the prescribed specification of the model and this will vividly divulge the treatment effect on the treated in relative to the non-participants (households living in the same regional characteristics). The outcomes of interests are of binary and continuous type. As a result, probit technique is followed for the binary outcomes such as savings (having savings? yes or no), migration (whether worked outside? yes or no) while regression approach is used for the continuous

variables like number of meals – meals in current and *monga* period, income (income that includes remittances and income that does not include remittances). Before describing the pattern of effect of treatment let us first clarify the suitability and robustness of the balancing conditions. It is noted that the propensity score computation has been restricted to the common support region by testing the balancing property using those observations whose propensity scores lie in the intersection of the support of the propensity score of the treated and the non-treated units. This restriction reduces the original sample a little bit. The size of non-participants drops from 3505 units to 3496 under our common support specification.

Table-60
Propensity score by participation status

Minimum propensity score	Non-participants	Participants	Total
0	235	29	264
.1	506	62	568
.15	705	147	852
.2	1,339	423	1,762
.3	566	318	884
.4	143	118	261
.6	2	3	5
.8	0	1	1
Total	3,496	1,101	4597

The balancing property is satisfied during the estimation process. The table displays the number of participants and non-participant units in different blocks after the balancing is carried out by the balancing property criteria. The table shows that the proportion of treated units to non-participants is very low for the very first blocks, compared to the remaining blocks.

Table-59 contains two average treatment effects on treated (ATT) – one from the nearest neighbor matching technique and the other is from radius matching techniques. The ATT of nearest neighbor matching indicates that the program has a positive effect on savings of the households which is significant at one-tail test but this significance is exemplified in radius matching technique. The ATT of nearest neighbor is approximately 175, indicating that the non-participant group has a lower savings of 175 than the participants of the program, while the ATT of radius technique is approximately 162 indicating that the participants have a higher saving of 164 than the non-participant groups. Income is one of the most important outcomes of interest, but for perplexity of the estimation technique of income in reality has jeopardized the assessment process, but still it is obvious from table-41 that incomes that include the remittance or that do not include the remittance are both positive but insignificant. Therefore, from it we cannot avow that the participant relative to non-participants has gained sufficiently in terms of income. This applies for both – income that includes remittance and that of which does not include remittance.

Next, we consider the impact of PRIME on consumption pattern of treated over non-participants. The estimated treatment effects of nearest neighbor matching and radius matching are positive, which is an indication of a positive impact of the program on the participant group and the significance of these estimated treatment effects is revealed by the corresponding t-statistics. Both t-statistics shows that the treatment effects on treated is highly significant at 1 percent. Up to now, we would assent that this welfare improvement in

terms of meals taken in normal time and meals taken in *monga* time is due better placement of the program commensurate with various dimensions of assistances. This finding is an evidence of the attenuation of indigence of food.

The improvement in terms of number of meals taken in normal and *monga* time is also validated by the improvement in amount of calorie taken. We defined the variable associated with calorie intake by defining per member calorie per day. The radius matching estimate of treatment effect on the treated is 30 and this refers that participants have a higher amount of calorie intake than the non-participants.

Now, we turn our attention to assess the impact of the program on asset structure of the participating households. We find that the program has a positive yet insignificant effect on total land holdings. On the other hand, the livestock status of the households is somewhat ambiguous. The program has a positive significant impact on number of goats and an insignificant effect on number of poultry but the effect of the program on number of cows is negative. The tendency of erosive coping strategy is intensified insignificantly among the participants' relative to non-participants. Migration is one of the prominent coping strategies and its dynamics is important for our analytical purpose. The program aims to create opportunities of employment and thereby reduces the migration tendency. The estimated treatment effect suggests that there is a lower migration tendency among the participants however the difference is not statistically significant.

The poverty status is to be evaluated with other dimension of impacts of the programs. Here, poverty is defined in two ways – in terms of calorie intake and in terms of cost of basic need (CBN). Standard procedure is followed to define poverty. In case of calorie intake approach, a dummy is generated and this is equal to 1 for those households whose members have a total calorie of below 2,112 kilo-calorie per day and 0 otherwise. On the other hand, for expenditure approach we also generate a dummy, taking value 1 for those households who have expenditure on basic need of below Tk. 13,773 per member per year (threshold expenditure level on basic need). The estimated coefficients of the treatment variable for both types of poverty are negative, suggesting that poverty participant group has declined compared to the non-participant groups. The relative strength of diminution of the poverty level is evident from the cost of basic need approach of poverty. When we define poverty based on CBN method, the coefficient of treatment variable of both techniques – nearest neighbor matching and radius matching – is significant at 5 percent significance level (two tail approach) whereas ATT of both estimation techniques are negative and statistically significant at 10 percent significance level (one tail approach).

Comparison between participants and control groups

We have mentioned that controls are those who live in a village where the PRIME program did not take place at the time of the survey. Therefore, we attempt to observe the patterns of changes in outcomes of interest for the PRIME participants in comparison to control households to assess the impact of PRIME. The following table provides the findings.

If we compare the effects on the outcome of interest of the treated relative to controls, we will obtain analogous findings of the comparison group: participant and non-participant. The analysis show that household savings have boosted up to a significant level than the control group. The estimated average treatment effect on the participant group over the control group

is substantial and this is endorsed by ATT of both techniques used to estimate the effects. There is also positive impact of the program on income and this rise in income of treated relative to control is significant at 10 percent level and one tail test.

Table -61
Comparison between participants and control group by outcome variables

Outcome variables	Nearest neighbor matching		Radius matching	
	ATT	T-Stat	ATT	T-Stat
Savings	237.34	4.88	262.76	7.4
Total income excluding remittance	36,397.74	1.11	42,950.65	1.32
Total income including remittance	37,543.04	1.15	44,320.24	1.36
Migration	0.076	2.9	0.12	7.8
Current meals	0.309	4.6	0.284	7.48
<i>Monga</i> meals	0.089	1.15	0.15	3.36
Household land (decimal)	1.29	0.42	5.58	3.28
Total rooms	-0.068	-1.07	-0.001	-0.04
Coping intensity	-0.028	-4.25	0.015	2.68
Household expenditure	2366.98	5.11	2321.23	6.39
Poverty (CBN approach)	-0.094	-2.91	-0.118	-6.33
Calorie intake	16.51	0.313	10.59	0.35
Poverty (calorie intake approach)	-0.064	-1.40	-0.022	-0.876
Number of goat	0.76	4.54	0.88	7.12
Number of cow	-0.125	-1.52	-0.08	-1.76
Number of chicken	0.5	1.93	0.56	2.51

The improvement in number of meals is quite evident from this table (table-61). Albeit estimated treatment effects of nearest neighbor matching technique is positive but insignificant while the estimate of treatment effect of radius matching technique which gives the bias free estimates than the nearest neighbor matching technique indicates a significant positive causal effect of the program on number of meals in *monga* period.

The ATT of radius matching technique indicates that the participants have higher amount of land than the control, while nearest neighbor matching yields an insignificant results. The gains of participant group relative to control in terms of number of goats and poultry are significantly positive whereas the same is negative for number of cows.

The status of household expenditure on per member on per year basis, we give another scenario of interest. The reported result suggests that household per member expenditure in a year has increased in relative to the control group. Albeit one may argue that the rise in expenditure may be due to an inflationary effect. But we have to remember that one can spend more when he is able to spend. We have shown that income of the household increases and they are capable to spend on the respective items.

Earlier we have compared the participants and non-participants in terms of poverty reduction and we have discovered that the participants are better off. This finding gives a scenario between treated and non-participants in the same community characteristics. Therefore it is important to see whether the reduction in poverty varies under different community and regional characteristics. We have compared the reduction of poverty in program villages relative to non-program villages. Table 42 shows that the incidence of poverty defined in

terms of CBN is much lower among household in the treatment group compared to the control group and this is more so when we compared the participants and the non-participants in the same village. Therefore, we may conclude that the program can be associated with poverty eradication and its strength is high compared to the control villages.

Robustness of the estimated treatment effects

Robustness of the welfare gain can be assessed if we juxtapose the tables describing the effect on treated relative to non-treated, i.e. non-participants as well as controls. From both tables it is clear that the program has a significant positive effect on savings, number of meals taken in normal and *monga* period, intake calorie, household expenditure on foods. The gains of the participant in terms of household savings, income, number of meals in normal and *monga* period is higher if we consider the control group than if we consider the non-participant groups.

The ATT estimates give the change in outcome of interest of treated relative non-treated based on propensity score, but it is unable to provide the source of changes of the outcome, that is, it does not show the determinants of savings. To find the possible determinants of savings, simple regression is attempted to run, but the data on savings is censored and so Tobit model, especially censoring from below technique of Tobit model, is applied to find the determinants. The coefficient of the treatment variable is just reported in the table for convenience.

The household participating in the PRIME program have gained in the same region as well as in comparison to the households living in the villages where the PRIME was not introduced and their gains are higher when we compared the different outcomes of interest. For example, for savings, poverty reduction, number of meals in epoch of *monga*, the gains were substantial compared to other outcomes of interest.

Therefore, we can say from the cross-sectional analysis that the PRIME program is associated with positive effects on household savings, number of meals taken during *monga* and non-*monga* periods, household spending on food and livestock such as goats and poultry, incidence of poverty, while it had a small, positive but insignificant effect on land holdings and number of rooms.

APPENDIX TO CHAPTER FOUR

Table A-4.1
Distribution of sample households by consumption ordering: Gaibandha district

Normal time consumption ordering	Monga time consumption ordering for participants					Monga time consumption ordering for non-participants of program villages					Monga time consumption ordering for non-participants of control villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total
Occasional starvation	4	3	0	0	7	14	2	0	0	16	0	0	0	0	0
	(57.14)	(42.86)	(0.00)	(0.00)	(100.00)	(87.50)	(12.50)	(0.00)	(0.00)	(100.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Only two meals	46	25	0	1	72	235	109	1	1	346	5	3	0	0	8
	(63.89)	(34.72)	(0.00)	(1.39)	(100.00)	(67.92)	(31.50)	(0.29)	(0.29)	(100.00)	(62.50)	(37.50)	(0.00)	(0.00)	(100.00)
Consumption rationing	21	41	24	0	86	76	165	70	3	314	4	49	3	0	56
	(24.42)	(47.67)	(27.91)	(0.00)	(100.00)	(24.20)	(52.55)	(22.29)	(0.96)	(100.00)	(7.14)	(87.50)	(5.36)	(0.00)	(100.00)
Three full meals	14	20	42	34	110	46	82	78	117	323	0	0	5	0	5
	(12.73)	(18.18)	(38.18)	(30.91)	(100.00)	(14.24)	(25.39)	(24.15)	(36.22)	(100.00)	(0.00)	(0.00)	(100.00)	(0.00)	(100.00)
Total	85	89	66	35	275	371	358	149	121	999	9	52	8	0	69
	(30.91)	(32.36)	(24.00)	(12.73)	(100.00)	(37.14)	(35.84)	(14.91)	(12.11)	(100.00)	(13.04)	(75.36)	(11.59)	(0.00)	(100.00)

Note: Figures in () indicate row percentage.

Table A-4.2
Distribution of sample households by consumption ordering: Kurigram district

Normal time consumption ordering	Monga time consumption ordering for participants					Monga time consumption ordering for non-participants of program villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total
Occasional starvation	4	2	0	0	6	7	14	0	1	22
	(66.67)	(33.33)	(0.00)	(0.00)	(100.00)	(31.82)	(63.64)	(0.00)	(4.55)	(100.00)
Only two meals	87	23	2	0	112	321	98	6	3	428
	(77.68)	(20.54)	(1.79)	(0.00)	(100.00)	(75.00)	(22.90)	(1.40)	(0.70)	(100.00)
Consumption rationing	28	57	15	1	101	63	159	36	0	258
	(27.72)	(56.44)	(14.85)	(0.99)	(100.00)	(24.42)	(61.63)	(13.95)	(0.00)	(100.00)
Three full meals	5	34	16	6	61	26	55	46	20	147
	(8.20)	(55.74)	(26.23)	(9.84)	(100.00)	(17.69)	(37.41)	(31.29)	(13.61)	(100.00)
Total	124	116	33	7	280	417	326	88	24	855
	(44.29)	(41.43)	(11.79)	(2.50)	(100.00)	(48.77)	(38.13)	(10.29)	(2.81)	(100.00)

Note: Figures in () indicate row percentage.

Table A-4.3
Distribution of sample households by consumption ordering: Lalmonirhat district

Normal time consumption ordering	<i>Monga</i> time consumption ordering for participants of program villages					<i>Monga</i> time consumption ordering non-participants of program villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total
Occasional starvation	1	1	0	0	2	6	8	3	1	18
	(50.00)	(50.00)	(0.00)	(0.00)	(100.00)	(33.33)	(44.44)	(16.67)	(5.56)	(100.00)
Only two meals	54	15	1	0	70	201	31	6	1	239
	(77.14)	(21.43)	(1.43)	(0.00)	(100.00)	(84.10)	(12.97)	(2.51)	(0.42)	(100.00)
Consumption rationing	46	65	13	1	125	88	207	27	4	326
	(36.80)	(52.00)	(10.40)	(0.80)	(100.00)	(26.99)	(63.50)	(8.28)	(1.23)	(100.00)
Three full meals	8	20	27	18	73	13	59	69	21	162
	(10.96)	(27.40)	(36.99)	(24.66)	(100.00)	(8.02)	(36.42)	(42.59)	(12.96)	(100.00)
Total	109	101	41	19	270	308	305	105	27	745
	(40.37)	(37.41)	(15.19)	(7.04)	(100.00)	(41.34)	(40.94)	(14.09)	(3.62)	(100.00)

Note: Figures in () indicate row percentage.

Table A-4.4
Distribution of sample households by consumption ordering: Nilphamari district

Normal time consumption ordering	<i>Monga</i> time consumption ordering for participants of program villages					<i>Monga</i> time consumption ordering non-participants of program villages					<i>Monga</i> time consumption ordering non-participants of control villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three Full meals	Total
Occasional starvation	2	0	1	0	3	7	4	0	1	12	3	1	0	0	4
	(66.67)	(0.00)	(33.33)	(0.00)	(100.0)	(58.33)	(33.33)	(0.00)	(8.33)	(100.00)	(75.00)	(25.00)	(0.00)	(0.00)	(100.00)
Only two meals	30	4	1	0	35	116	16	5	1	138	161	14	12	0	187
	(85.71)	(11.43)	(2.86)	(0.00)	(100.0)	(84.06)	(11.59)	(3.62)	(0.72)	(100.00)	(86.10)	(7.49)	(6.42)	(0.00)	(100.00)
Consumption rationing	35	32	3	0	70	63	59	5	0	127	25	51	14	0	90
	(50.00)	(45.71)	(4.29)	(0.00)	(100.0)	(49.61)	(46.46)	(3.94)	(0.00)	(100.00)	(27.78)	(56.67)	(15.56)	(0.00)	(100.00)
Three full meals	6	8	6	7	27	16	24	22	16	78	1	21	9	2	33
	(22.22)	(29.63)	(22.22)	(25.93)	(100.0)	(20.51)	(30.77)	(28.21)	(20.51)	(100.00)	(3.03)	(63.64)	(27.27)	(6.06)	(100.00)
Total	73	44	11	7	135	202	103	32	18	355	190	87	35	2	314
	(54.07)	(32.59)	(8.15)	(5.19)	(100.0)	(56.90)	(29.01)	(9.01)	(5.07)	(100.00)	(60.51)	(27.71)	(11.15)	(0.64)	(100.00)

Note: Figures in () indicate row percentage.

Table A-4.5
Distribution of sample households by consumption ordering: Rangpur district

Current time consumption ordering	Monga time consumption ordering for participants of program villages					Monga time consumption ordering for non-participants of program villages					Monga time consumption ordering non-participants of control villages				
	Occasional starvation	Only Two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three full meals	Total	Occasional starvation	Only two meals	Consumption rationing	Three Full meals	Total
Occasional starvation	3	0	0	0	3	12	1	1	1	15	2	0	0	0	2
	(100.00)	(0.00)	(0.00)	(0.00)	(100.00)	(80.00)	(6.67)	(6.67)	(6.67)	(100.00)	(100.00)	(0.00)	(0.00)	(0.00)	(100.00)
Only two meals	50	19	2	0	71	207	45	2	0	254	127	19	0	1	147
	(70.42)	(26.76)	(2.82)	(0.00)	(100.00)	(81.50)	(17.72)	(0.79)	(0.00)	(100.00)	(86.39)	(12.93)	(0.00)	(0.68)	(100.00)
Consumption rationing	10	15	1	0	26	71	82	13	1	167	25	79	18	6	128
	(38.46)	(57.69)	(3.85)	(0.00)	(100.00)	(42.51)	(49.10)	(7.78)	(0.60)	(100.00)	(19.53)	(61.72)	(14.06)	(4.69)	(100.00)
Three full meals	11	10	12	8	41	32	35	22	26	115	2	8	18	14	42
	(26.83)	(24.39)	(29.27)	(19.51)	(100.00)	(27.83)	(30.43)	(19.13)	(22.61)	(100.00)	(4.76)	(19.05)	(42.86)	(33.33)	(100.00)
Total	74	44	15	8	141	322	163	38	28	551	156	106	36	21	319
	(52.48)	(31.21)	(10.64)	(5.67)	(100.00)	(58.44)	(29.58)	(6.90)	(5.08)	(100.00)	(48.90)	(33.23)	(11.29)	(6.58)	(100.00)

Note: Figures in () indicate row percentage.

Chapter Five

PRIME Interventions and Poverty

The expected outcome of the PRIME is poverty reduction of the ultra poor. It is a long run objective. Although we shall not be able to assess poverty reduction of the PRIME participants as it requires time series data. But, as this is the first phase of the sample survey, this will form the basis for assessing contribution of the PRIME in poverty reduction. In this section, we shall assess the poverty situation of the program participants in relation to the non-participants of both program and control villages. The analysis is based on the cross-section data of 2008.

Concept of Poverty and its Measures

It is very difficult to portray poverty or poor in a uniform manner. Poverty is defined as a state of deprivation of basic necessities. But these basic necessities have different values and different perspectives. Some define poverty in absolute term, i.e., a state of starvation and/or lack of shelter. It is a multi-dimensional phenomenon associated with exclusion. Such exclusion is the difference between what is desired and what is actually derived. But such desired level and actual levels are defined both quantitatively and qualitatively. However, in most cases, these are defined quantitatively in order to enable policymakers to measure changes in poverty ratio. Various measures are used. Commonly, quantitative measures are made in terms of calorie intake and expenditure.

The magnitude of poverty is measured in terms of poverty line. Households falling below the poverty line are defined as poor. Distance between the actual measure and the poverty line is the extent or poverty ratio. In this exercise, we use two measures of poverty line – calorie method and expenditure method. In developing countries, calorie based poverty line is considered as 2112 kilocalories of food intake per person per day. On the other hand, expenditure based poverty line is essentially the cost of basic needs (the basket of basic needs containing selected number of consumption items that will provide balanced calories of 2112). Considering the poverty line (regardless of the measure used), we employed head-count ratio to measure poverty ratio. Percentage of households living below or above poverty line is measured in terms of head-count ratio. Since this is first phase of the sample survey of a series of impact studies, we will assess poverty reduction in terms of poverty ratio.

Poverty Ratio Using Calorie Method

It is quite interesting to observe that over fifty-five percent of the sample poor households live above poverty line (Table-62). This means, poverty ratio based on calorie intake is 44 percent. This rate is higher than the national estimate of 40 percent in 2005. We should remember that the

poverty ratio in the present exercise is among the poor households while the national average is for all households, poor and rich, taken together. There is hardly any difference in the poverty ratio by participation status of the households in the PRIME areas. In the program villages, the poverty ratio of the participants is estimated at 43 percent and that of the non-participants at 45 percent. On the other hand, there is no difference in poverty ratio of the participants and non-participants in the control villages.

Table-62
Distribution of households by poverty and program participation status
(calorie method)

Poverty Status	Participant Status			Total
	Participants in Program Villages	Non-participants in Program Villages	Non-participants in Control Villages	
Above Poverty Line	628 (57.04)	1,933 (55.15)	401 (57.12)	2,962 (55.80)
Below Poverty Line	473 (42.96)	1,572 (44.85)	301 (42.88)	2,346 (44.20)
Total	1,101 (100.00)	3,505 (100.00)	702 (100.00)	5,308 (100.00)

Note: Figures in parentheses are percentage.

The districts of Greater Rangpur have diversified geographical and economic characteristics. Lalmonirhat and Rangpur have better infrastructure while Kurigram embraces more rivers. Based on the characteristic differences, it can be assumed that poverty ratio may vary by district in Greater Rangpur. Table-63 provides information on poverty ratio by district. Overall, district based estimates of poverty ratio shows that it varies between 37 percent to 47 percent. Two districts have relatively low poverty ratio- Nilphamari (37 percent) and Lalmonirhat (42 percent). Rangpur and Gaibandha have the highest (47 percent) poverty ratio. It may be mentioned that not all upazila of Rangpur and Gaibandha were covered. Only the vulnerable upazilas were covered under the program.

Table - 63
Distribution of households by district and poverty status
(calorie method)

Poverty Status	District					Total
	Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Rangpur	
Above Poverty Line	715 (53.24)	636 (56.04)	582 (57.34)	500 (62.19)	529 (52.32)	2,962 (55.80)
Below Poverty Line	628 (46.76)	499 (43.96)	433 (42.66)	304 (37.81)	482 (47.68)	2,346 (44.20)
Total	1,343 (100.00)	1,135 (100.00)	1,015 (100.00)	804 (100.00)	1,011 (100.00)	5,308 (100.00)

Note: Figures in parentheses are percent.

Household size has strong bearing upon calorie in-take and as such poverty ratio. Irrespective of program participation and non-participation, poverty ratio sharply increases with household size. However, for the households of smaller size groups, participants have lower poverty ratio than the non-participants. Poverty ratio is 11.63 percent for the participant households, 17.56 percent for the non-participant households in program villages and 13.43 percent for the households in control villages. Access to finance and other *monga*-mitigating interventions including the PRIME may have influenced poverty outcome for this group of households. (Table-64)

Table-64
Distribution of below poverty line households by size and program participation status
(calorie method)

Household Size	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
1-2	15 (11.63)	102 (17.56)	18 (13.43)	135 (16.00)
2-4	211 (38.09)	684 (41.56)	142 (42.77)	1,037 (40.96)
4-6	192 (55.98)	602 (58.45)	114 (59.07)	908 (57.98)
Above 6	55 (73.33)	183 (74.09)	27 (62.79)	265 (72.60)

Note: Figures in parentheses are percentage.

Significant differences in poverty ratio exist among the participating and non-participating households by landholding (Table-65). There is an inverse relationship between poverty ratio and landholding. In most cases, the higher the landholding the lower is the poverty ratio. However, household land size was one of the indicators of identifying targeted households under PRIME project. This is also the case with occupational pattern.

Table-65
Distribution of below poverty line households by land size and participation status
(calorie method)

Land Size (indecimal)	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
0	110 (44.53)	447 (48.06)	123 (50.41)	680 (47.85)
0-10	261 (45.63)	789 (46.19)	146 (42.94)	1,196 (45.65)
10-20	42 (38.89)	147 (42.98)	13 (26.53)	202 (40.48)
20-30	15 (34.09)	41 (31.30)	4 (20.00)	60 (30.77)
30-50	18 (31.58)	60 (26.08)	6 (31.58)	84 (35.00)
>50	27 (36.99)	88 (38.26)	9 (30.00)	124 (37.24)

Note: Figures in parentheses are percentage.

Poverty ratio differs marginally between the households with non-agriculture and wage labor as the principal occupation. This is true for all three groups of households— participants and non-participants in the program villages and non-participants in the control villages, the ratio varying from as low as about 43 percent among the labor selling households in the control villages to as high as 47 percent among the non-agricultural households in the same villages (Table-66). In all three groups of villages, poverty ratio is much lower among the households with agriculture as the principal occupation, and it is the lowest (19 percent) among the control households.

Poverty of the non-participants in both program and control villages is estimated to be higher in the *char* areas compared with the mainland areas. However, slightly higher poverty ratio is found for the participating households in the mainland areas compared with those in the *char* areas (Table-67). But, overall, poverty is higher in the *char* areas than in the mainland areas. This may be because of less economic opportunity and poor infrastructure in the *char* land compared to the mainland. Therefore, PRIME has given more emphasis in the *char* areas.

Table-66
Distribution of below poverty line households by occupation and program participation status (calorie method)

Occupation Status	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Agriculture	29 (30.21)	101 (34.59)	5 (19.23)	135 (32.61)
Non-Agriculture	203 (43.75)	637 (46.06)	93 (46.73)	933 (45.60)
Wage Labor	241 (44.55)	834 (45.57)	203 (42.56)	1,278 (44.87)

Note: Figures in parentheses are percentage.

Table-67
Distribution of below poverty line households of the mainland and *char* areas by program participation status (calorie method)

Mainland/ <i>Char</i>	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Mainland areas	368 (43.55)	1,107 (42.37)	214 (41.55)	1,689 (42.51)
<i>Char</i> areas	105 (41.02)	465 (52.13)	87 (46.52)	657 (49.21)

Note: Figures in parentheses are percentage.

Poverty ratio Using Expenditure (CBN) Method

The finding that poverty ratio based on calorie intake is lower for the participants is not conclusive. This is because most of the target households resort to the cheaper source of calorie—cereals. Consumption of cereals generates higher level of calorie intake than some other food items. Households, on an average, generate around seventy percent of total calorie from cereals alone. The finding that, in terms of calorie requirement of 2112, more than 55 percent of the target households have moved above poverty line does not reflect balanced consumption based on basic needs. The resounding conclusion based on the expenditure method is that participants in the program villages are better off than the non-participants in both the program and control villages. Based on the expenditure method, we have estimated that, overall, around 20 percent of the target households are above poverty line (Table-68). This means, poverty ratio is around 80 percent. The rate is lower for the participants (77 percent) compared with the non-participants in program villages (80 percent) and among the non-participants in the control villages (87 percent), *ceteris paribus*. Lower poverty ratio for the participants suggests that they have relatively higher ability to consume balanced basic needs than the non-participants.

Table-68
Distribution of households by poverty and program participant status (CBN method)

Poverty Status	Participant Status			
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	Overall
Above Poverty Line	254 (23.07)	701 (20.00)	87 (12.39)	1,042 (19.63)
Below Poverty Line	847 (76.93)	2,804 (80.00)	615 (87.61)	4,266 (80.37)
Total	1,101 (100.00)	3,505 (100.00)	702 (100.00)	5,308 (100.00)

Note: Figures in parentheses are percentage.

Poverty ratio measured by expenditure method also varies, but not sharply, by district. The ratio is found to be the lowest (78 percent) in Gaibandha and highest in Kurigram (82 percent). Lalmonirhat and Rangpur have the ratio to be around 80 percent (Table-69).

Table-69
Distribution of households by poverty status and district (CBN method)

Poverty Status	District					Total
	Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Rangpur	
Above Poverty Line	290 (21.59)	203 (17.89)	201 (19.80)	146 (18.16)	202 (19.98)	1,042 (19.63)
Below Poverty Line	1,053 (78.41)	932 (82.11)	814 (80.20)	658 (81.84)	809 (80.02)	4,266 (80.37)
Total	1,343 (100.00)	1,135 (100.00)	1,015 (100.00)	804 (100.00)	1,011 (100.00)	5,308 (100.00)

Note: Figures in parentheses are percentage.

Divergence in poverty ratio by participation status is associated with some characteristics of the households. Regardless of program participation status, poverty ratio consistently increases with household size (Table-70). This is quite logical as larger family size implies greater consumption burden and thus results in poverty.

Table-70
Distribution of below poverty line households by size and program participant status
(CBN method)

Household Size	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
0-2	65 (50.39)	344 (59.21)	95 (70.90)	504 (59.72)
2-4	425 (76.71)	1,346 (81.77)	297 (89.46)	2,068 (81.67)
4-6	291 (84.84)	898 (87.18)	183 (94.82)	1,372 (87.61)
Above 6	66 (88.00)	215 (87.04)	40 (93.02)	321 (87.95)

Note: Figures in parentheses are percentage.

For the overall sample, poverty ratio decreases with household land size (Table-71). Thus, as it is expected, land determines the economic well-being of a household in terms of consumption.

Table-71
Distribution of Below Poverty Line Households by Land Size and Program Participant Status
(CBN method)

Land Size (decimal)	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
0	199 (80.57)	774 (83.23)	218 (89.34)	1,191 (83.81)
0-10	448 (78.32)	1,389 (81.32)	301 (88.53)	2,138 (81.60)
10-20	84 (77.78)	262 (76.61)	36 (73.47)	382 (76.55)
20-30	32 (72.73)	93 (70.99)	19 (95.00)	144 (73.85)
30-50	37 (64.91)	124 (75.61)	18 (94.74)	179 (74.58)
>50	47 (64.38)	162 (70.43)	23 (76.67)	232 (69.67)

Note: Figures in parentheses are percentage.

The CBN method estimate shows that poverty ratio is lower (69 percent) among the households with agriculture as the principal occupation followed by (78 percent) those having non-agriculture as the main occupation and then by (84 percent) those selling labor (Table-72). In all occupational groups, poverty ratio is lower in the program villages than in the control villages.

Table-72
Distribution of below poverty line households by occupation and program participation status (CBN method)

Occupation Status	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Non-Agriculture	344 (74.14)	1,083 (78.31)	173 (86.93)	1,600 (78.20)
Agriculture	59 (61.46)	206 (70.55)	21 (80.77)	286 (69.08)
Wage Labor	444 (82.07)	1,515 (82.79)	421 (88.26)	2,380 (83.57)

Note: Figures in parentheses are percentage.

Like in the calorie method of estimation, the CBN method estimation also shows that poverty ratio among the participants of the *char* areas is lower than that among the non-participants in the same areas. Since the *char* areas have limited economic opportunity than the mainland areas, poverty ratio is expected to be higher than in the mainland areas. But there is little difference in poverty ration among the non-participants between the *char* and mainland areas. All the above findings suggest that enhanced program intervention has contributed to reducing poverty in the *char* areas.

Table-73
Distribution of below poverty line households of the *char* and mainland areas by program participant status (CBN method)

Mainland/ <i>Char</i>	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Mainland areas	666 (78.82)	2,090 (79.98)	453 (87.96)	3,209 (80.77)
<i>Char</i> areas	181 (70.70)	714 (80.04)	162 (86.63)	1,057 (79.18)

Note: Figures in parentheses are percentage.

Comparative Analysis of Poverty Ratio Measured by Two Different Methods

One common finding that poverty ratio is lower among the participants than among the non-participants. By calorie method, we have estimated poverty ratio to be around 44 percent. On the other hand, by using CBN method, we have estimated the ratio at 80 percent. This implies that poor households resort to cheaper source of food for calorie. The product baskets they consume are not balanced. Cereals are the major sources of food. It constitutes around 70 percent of total calorie of the poor households. Poverty ratio is lower for the participants under either of the methods, and varies by district. It more clearly emerges when analyzed in terms of certain parameters like landholding, occupation, family size and location of households. Participants with lower family size are better-off than the non-participants in terms of poverty. Similarly, poverty ratio is inversely related to landholding except for the participants. There is no difference in poverty ratio of the participants and non-participants engaged in wage employment. The participating households engaged in self-employment in non-agriculture fare better in terms of poverty than the non-participants in both program and control villages. Poor households living in *char* areas are more vulnerable than others. Placement of the PRIME program has contributed to lower poverty ratio among the participants. Participants have poverty ratio of around 70 percent compared to around 80 percent for the non-participants in program villages and 86 percent for the non-participants in control villages. The impact of PRIME on poverty reduction is vivid and clear when poverty ratio is measured following expenditure or cost of basic needs (CBN) method. This implies that participating households have higher capability to have balanced diet. Econometric analysis also demonstrates the similar conclusion.

Determinants of Poverty and Impact of PRIME on Poverty Reduction

We have discussed in the previous section that poverty ratio is lower among the participants than among the non-participants in program and control villages. In the descriptive part of analysis we have established that PRIME has positive impact on poverty at the household level. But such a finding will not be conclusive unless we not control for other factors which may also influence poverty. As such, we shall analyze the impact of PRIME on poverty by using Propensity Score Matching technique. Poverty is assigned the value 1 for the households being below poverty line, and 0 for the households above poverty line. The estimated parameters are reported in Table-74.

The estimated parameters have expected sign. Participation in PRIME increases probability of households of being above poverty line. The probability was estimated at 0.17. This suggests that a poor has 17 percent higher probability of staying above poverty line than the non-participants. Age of the household head has expected sign. Probability of a poor being below poverty line is higher in younger age. Higher family size adds to higher consumption burden and therefore is more likely to be in below poverty line.

Table-74
Determinants of poverty
(expenditure method)

Poverty: 1=Below poverty line, and 0=otherwise	
Determinants	Coefficients
Participant of PRIME programs	-0.178***
Household head's age: years	-0.025***
Square of age of household head	0.000**
Household size (number of members)	0.261***
Household has electricity: 0=N, 1=Y	-0.238***
Household has access to tube well/tap water: 0=N, 1=Y	-0.214
Household landed asset (decimal)	-0.001**
Household head's main occupation, self non-farm: 0=N, 1=Y	0.283***
Household head's main occupation, wage employment: 0=N, 1=Y	0.387***
Household having agricultural equipment	-0.093*
Households having any transport equipment	-0.186***
Household having small business	-0.250**
Household's total living room: number	-0.097***
Household's ownership of cattle: number	-0.050**
Household's ownership of goat: number	-0.021***
Household's ownership of poultry birds: number	-0.011**
Household owning VGD: Y=1, N=0	0.036
Household having Old Age program: Y=1, N=0	-0.002
Household's location in <i>char</i> areas: Yes=1; no=0	-0.217***
Value of total support during <i>monga</i> : Taka	-0.000
Dummy: BRAC	-0.178**
Dummy: ASA	-0.113
Dummy: Grameen Bank	-0.052
Constant	1.101***
note: *** p<0.01, ** p<0.05, * p<0.1	

Ownership of income generating assets like transport and agricultural equipment, small business, and cattle and poultry increases probability of being above poverty line as these assets have negative and significant coefficients. Similar results were obtained in our descriptive part. Household landholding is also negative and significant, implying that households with higher landholding have higher probability of being above poverty line. Households with wage labor as principal occupation are less likely to be above poverty line. The probability is 0.387. Indeed, households with access to electricity have also higher probability of being above poverty line as access to electricity is a reflection of opportunities and/or indication of higher income level.

PRIME started its journey from Lalmonirhat in 2006 with the intervention of earth cutting. It was introduced with a very limited operation. Essentially it started off organizationally from 2007. From this perspective it is essentially a two-year old program. Based on the parameters generated by applying Probit technique, we have estimated the probability of being above or below poverty line under both expenditure and calorie method. As reported in Table-75, average treatment

effect of the treated (ATT) has negative sign applying the nearest neighbor matching and radius matching method. ATT values of poverty under both the methods have negative sign, but only ATT value under Cost of Basic Needs (CBN) method, is statistically significant.

Table-75
Impact of PRIME on poverty

Impact on:	Nearest neighbor matching		Radius matching	
	ATT	T-Stat	ATT	T-Stat
Poverty (CBN method)	-0.039	-1.96	-0.043	-2.91
Poverty (Calorie method)	-0.046	-1.91	-0.026	-1.48

The ATT value of -0.039 under nearest neighbor matching implies that Prime has contributed to poverty reduction by 3.90 percent over the period 2007-2008. This means, annual reduction rate is around 1.95 percent. We need to be careful in using this figure. This is not what the PRIME will be gaining every year; it rather indicates that the PRIME will contribute to poverty reduction if environment that prevailed in 2007 and 2008 hold.

Extreme Poverty: Requires Extra Care

In calorie intake method, 2,112 kilocalories per person per day are considered as the standard poverty line. On the other hand, the extreme poverty line is defined by 1800 kilocalories per person per day. The household below this extreme poverty line is known as the extreme or ultra poor. The objective of this section is to identify the extreme poor households so that necessary policy can be derived to shift them into a sustainable position.

Distribution of Population by Poverty Status and Participant Status

Poverty status is classified into two categories, namely, above standard poverty line (above 2,112 kilocalories of intake), and below extreme poverty line (below 1,800 kilocalories of intake). The ‘above’ defined groups are vertically distributed as participant households in the program villages, non-participant households in the program villages and non-participant households in the control villages. The distribution reveals that 44 percent of the sample households are living below poverty line (based on 2112 kilocalories), whereas around 24 percent of the households live below the extreme poverty line (based on 1800 kilocalories). There is not much difference in poverty ratio (based on 1800 kilocalories) between participants and non-participants (Table-76). But differences exist by district.

Extreme poverty varies by district both among the participants and non-participants in program and control villages. The extreme poverty ratio among the participant households is the highest in Lamonirhat (around 25 percent).

Table 76
Distribution of population by poverty status and participant status

Poverty Status	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Above Poverty Line (Above 2112 KC)	628 [57.04]	1,933 [55.15]	401 [57.12]	2,962 [55.80]
Below Extreme Poverty Line (Below 1800 KC)	244 [22.16]	902 [25.73]	146 [20.80]	1,292 [24.34]
Total	1,101 [100.00]	3,505 [100.00]	702 [100.00]	5,308 [100.00]

Note: Figures in parentheses are percentage of column total

In that district, the ratio is even higher than among the non-participants (around 19 percent). This may not be surprising as the PRIME has brought all ultra poor households under its net. In a year or so, it will perhaps be extremely difficult to pull the extreme poor out of 1800 kilocalories from a very low level of consumption. In Nilphamari and Rangpur, the extreme poverty ratio is very high being 37 percent and 52 percent respectively in these two districts (Table-77).

Table 77
Distribution of households living below 1800 kilocalories (per person per day) poverty line by district and participant status

District	Participant Status			Total
	Participant in Program Villages	Non-participant in Program Villages	Non-participant in Control Villages	
Gaibandha	21.72	27.16	10.96	24.30
Kurigram	23.36	25.39	-	22.14
Lalmohirhat	24.59	18.51	-	17.57
Nilphamari	14.34	8.65	36.99	12.93
Rangpur	15.98	20.29	52.05	23.07
Total	100.00	100.00	100.00	100.00

Since PRIME interventions were present, this study could not produce data of non-participants in the control villages of Kurigram and Lalmonirhat districts. Among the participants, the ratio of extreme poverty is lower in Nilphamari than in any other districts.

Extreme Poor Households: Characteristics to Look For

It is very important to understand the characteristics of the extreme poor households so that PRIME can be implemented more with dynamism and be more focused on the extreme poor. Although these households are under the net, they will be brought under different interventions. But the most important is the prioritization of the placement of the program at household level.

In this context, we intend to evaluate characteristics of the extreme poor households in greater Rangpur region. The extreme poor households are those that have the features as reported in Table-78.

Table 78
Distribution of households living below 1800 kilocalories by household characteristics

HH Characteristics	Number of HHs	Percentage
Landless or Having 0-10 Decimal	1,067	82.58
Family Size 4 and Above	997	77.17
Total Own Room : Zero or One	983	76.08
Wage Labor	689	53.33
Living on <i>Char</i>	402	31.11
Number of Cow or Goat : No or 1	962	74.46
Total Livestock Below 2	883	68.34
No Major Agricultural Equipment	1,286	99.54

PKSF should target the extreme poor households that have 10 decimals or less of landholding, one or no room for living, do not possess any agricultural equipment, and do not own any livestock. Any household with these features will have certainly very low income level. These households require extra interventions.

Policies Required

Microcredit, whether seasonal or flexible, will not push poor households, particularly the extreme poor households, far as they have limited capability. Combination of short run and long run interventions will be required. Short run interventions should include conditional cash transfer scheme or conventional cash for work program and even direct transfer of income generating assets like livestock. Such transfer of cash or income will enable these households to minimize vulnerability in short run. Furthermore, microcredit program along with other interventions will fasten the process of alleviating poverty. Other interventions will be focused on risk assessment at household level. Risks include health risk, accidental risk, and death risk. Any insurance mechanism covering or minimizing the risks will stabilize gains from microcredit or other programs. Finally, in order to encourage savings, an appropriate savings scheme has to be developed. The scheme should strongly encourage them to save. A household saving some Tk. 25,000 in three years will not perhaps require any credit for sustainability.

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