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Can Social Safety Nets Cure Monga in North West Bangladesh?

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Abstract

This paper examines the role of social safety net programs run by government and NGOs in mitigating seasonal deprivation in a highly vulnerable region of Bangladesh. The paper also explores whether social safety nets help only avert seasonal deprivation or also address seasonality of income and employment. Using the InM survey from the North West region, the paper finds that social safety nets have a positive impact in mitigating both seasonal and non-seasonal deprivation. The results are robust because of the recent expanded coverage of social safety net programs by NGOs active in this region. However, as *monga* is a recurrent problem in NW region because of seasonality of agriculture and the region's overwhelming dependence on agriculture for livelihood, social safety nets cannot be a permanent cure for *monga* eradication. What is also needed is to promote income and productivity of the poor through programs that help diversify income and employment.

Introduction

Poor households in every part of the world are vulnerable to external and internal shocks such as natural disasters. One such a shock is seasonal hardship that affects a large population in the northern part of Bangladesh (greater Rangpur region) is commonly known as *monga*. *Monga* is a famine like situation that occurs almost every year in varying intensity during the Bengali months of *Ashwin* and *Kartik* (September to November), which is the pre-harvesting period of the rice crop *Aman*. During this period, lack of agricultural activity leads to unemployment among a vast majority of rural population.

The poor people in greater Rangpur area live marginally on low-paying income generating activities (mostly agricultural), having very little or no savings, self-insurance and access to formal credit. So when a famine-like situation such as *monga* hits, they often go unfed or half-fed. Many of them are forced to sell their standing crops in advance, some sell their labor or assets and some borrow from the moneylenders at an exorbitant rate to maintain their minimum livelihood (Khandker 2009). Furthermore, many of them migrate to other parts of the country for income earning opportunities (Khandker et al., 2009; Chowdhury et al, 2010).

Also *monga* or seasonal hunger is a recurrent case of seasonal deprivation that forces a large number of households in the northern region namely–Greater Rangpur, suffer from occasional starvation, consumption rationing, and induces poor households to sell advance labor, crops and assets. While poor households adopt various coping mechanisms, they cannot always successfully mitigate the adverse effects of *monga*. Therefore, governments and non-government organizations employ various measures that aim to provide these poor households with cash/food support and/or income opportunities. Most of these programs are designed to provide the poor with immediate support during *monga*, while some are designed to provide long-term solutions.

Social protection is recognized globally as a strategy to safeguard the economic security of the poor. It is considered as an instrument to reduce poverty by providing support to the vulnerable and the poorest with the intention of addressing the causes of poverty, not simply its symptoms. According to Holzmann and Grosh (2008), a social protection is risk reducing instrument that consists of public policies assisting individuals, households, and communities in better managing risk and support the critically vulnerable. Therefore, social safety net ensures, through social assistance and insurance programs, a minimum living standard for the poverty stricken people.

Safety net measures can be categorized as per their objectives: cash or food transfers programs, price subsidies, human capital related social safety nets, public works programs, and microcredit and informal insurance programs (Babu 2003). Four major components of social protection are identified: social security systems (statutory employer-related benefits), universal social benefit systems (benefits for all), social assistance systems (poverty alleviation in cash and in kind for all in special need) and private benefit systems (employer related or individual benefits). All these programs help the poor households build and preserve their own resources and achieve income sustainability in the long run.

Social safety net (SSN) is a part of social protection policy and a well recognized instrument to safeguard the economic security of the poor by the governments, NGOs, microfinance institutions (MFIs) and private entities alike. It aims to reduce severity of social ills such as hunger, illiteracy, unemployment, and disability. The extent of coverage of these programs depends on the extent of hardship and welfare of the vulnerable households as well as the availability of funds. Therefore, the welfare aspects of these programs which motivate such interventions would largely depend on the effectiveness and adequate coverage of these safety net measures. Often because of the limited scale operation and small fund infusion, the likely effects are apparently limited. However, apparent small fund transfer does not necessarily mean net gains from social insurance will be small. When small gains in consumption, for example, are traced for the beneficiaries, these small gains could be due to high risk aversion of households (especially due to subsistence constraints in developing countries). Yet small transfers could go a long way to smooth household consumption (e.g. taking children out of school). Social insurance or social safety net programs under such circumstances could enhance welfare of the poor by providing a less costly consumption smoothing mechanism relative to some desperate measures by the risk-averse households (e.g., Chetty and Looney, 2006).

So a priori there are good reasons for introducing social safety net programs to mitigate monga and other proximate causes of poverty. Assessing their cost-effectiveness is essential for better targeting and resource allocation. One approach to assess the benefits of social safety net programs is to quantify their safety net (or social protection) versus income augmenting roles. Even if the safety net measures are geared toward mitigating economic stress caused by shocks either aggregate or idiosyncratic, it is possible that merely easing economic stress may have impact on assets and income leading to a long-term effect. In other words, a targeted program may reduce transitory poverty as well as chronic poverty. In fact, the effects on short-term benefits may exceed the long-term benefits of safety net programs. However, a study done by Ravallion et al. (1995) shows that the effect of social safety net program is virtually nonexistent on persistent poverty, although it has substantial benefits arresting transitory poverty. They use two years' (1987 and 1989) panel data from Hungary and attempt to distinguish between impact of protection to the poor and impact of promoting the poor while evaluating the cash benefit programs in the country. They estimate that in absence of any change in cash benefits, the poverty would go up by 7.6 percentage points, 6.6 percentage points being due to fall of non-poor in the first year below poverty line in the second, and 1 percentage point being due to those first year poor people who could potentially escape from poverty with the help of protection. Thus safety nets were found to be better at preventing transient poverty than reducing persistent poverty. Of course, the extent of benefits accrued by beneficiaries would depend on the nature and extent of support provided under the safety net program.

In contrasts, Devereux (2002) finds that a social safety net program can alleviate transitory and livelihood shocks as well as play a significant role in reducing chronic poverty. He makes distinctions between three determinants of poverty–low labor productivity, vulnerability, and dependency–and two categories of anti-poverty intervention–livelihood promotion and livelihood protection. Within this framework, social safety nets are seen as publicly funded transfer programs with consumption smoothing, rather than 'mean shifting', objectives. Yet safety nets can have both 'protection' and 'promotion' effects. By drawing lessons from three southern African case studies, Devereux (2002) confirms that even tiny income transfers are often invested in income-generating activities, education, social

networks, or the acquisition of productive assets, suggesting that these programs have both short-term and long-term effects on household welfare.

The most famous and extensive government social safety net program well known over the world is the Mexico's PROGRESA (Programa de Educación, Salud y Alimentación) that combines education, health, and nutrition interventions in one package to reach the poor. This integrated approach is found quite successful in improving the capacity of the poor to pull them out of poverty (Skoufias, Davis, and Behrman 1999). PROGRESA's largest reductions in poverty are achieved in the poorest population (Skoufias 2001). PROGRESA has also had a positive enrollment effect for both boys and girls in primary and secondary schools (Schultz 2000).

PROGRESA has had a significant impact on increasing child growth and in reducing the probability of stunting for children in the critical age range of 12 to 36 months. Estimates imply an increase of about 16 percent in mean growth per year (Behrman and Hoddinott 2000). The program's cost-benefit ratio increases by about 27 percent (Coady 2000), while the program is successful in reaching the extremely poor than in reaching the moderately poor (Skoufias, Davis, and Behrman 1999). The program appears well targeted as well as welfare-augmenting for both short-term and long-term indicators of welfare.

There are a variety of social safety net programs currently in place in Bangladesh, including Rangpur Region. Many programs are short-term in nature, while a few others are long-term or year-round. For example, the Vulnerable Group Development (VGD) Program, the world's largest development intervention of its kind is a short-term term program, exclusively targeting rural women. Starting in 1975 as a relief program for families affected by natural calamities, this program now integrates food security and nutrition with development and income generation. In 2005-06 alone, about 750,100 ultra-poor rural women in the country received support under the VGD program. It is a collaborative intervention jointly managed and implemented by GOB and WFP (Ahmed et al. 2009). Under the generic of VGD, there are a variety of projects aiming to reach different target groups for different purposes. For example, IGVGD and FSVGD, which also target women, provide assistance for a period of 24 months. Because of budget scarcity, the allocation of government funds to support safety net measures is usually not more than 1 percent of GDP. Moreover, as the extent of poverty (both extreme and moderate) is quite high, often higher in greater Rangpur than other regions (Khandker 2009), the government support may not be enough to have a sizeable impact on poverty and seasonal vulnerability. In recent years, however, the NGOs and MFIs have accelerated many initiatives, especially in NW region, to mitigate *monga* and extreme poverty.

This paper aims to assess how effective these programs are in mitigating *monga* in North West Bangladesh. More specifically, this paper examines the coverage of these safety net programs in greater Rangpur area, their impact on the welfare of the poor households during *monga*, and how successful they are in reducing the vulnerability of the poor to seasonal deprivation. The analysis shows that social safety net programs, especially those of the NGOs, are helpful in mitigating seasonal as well as year-round food deprivation. Because government support covers only 10 percent of the hard-core poor compared to more than 20 percent of NGO support during *monga*, we find that NGOs are more effective than government safety net operation in mitigating the severity of seasonal deprivation in NW region.

Social Safety Net Operation in Bangladesh

Bangladesh faces a policy challenge of how to reduce poverty and vulnerability further than it has gained in recent years. With a per capita GDP growth of 4.3 percent per annum in the past decade, Bangladesh attained a substantial decline in headcount poverty from 57 percent at the beginning of the 1990s to 49 percent by 2000 and 40 percent by 2005 with 28.4 percent in urban and 43.8 percent in rural areas. This is indeed a remarkable achievement in poverty reduction for a country with a population of 160 million. Over the last five years (2000-2005), the rate of poverty reduction was around two percent per year.

Despite this progress, Bangladesh still has an estimated 56 million people in poverty– equivalent to the population of the UK or France. Creating adequate employment opportunities to employ the unemployed is a major challenge with a 1.5 percent growth rate of population. With a large share of per capita expenditure clustering around the poverty line, vulnerabilities to poverty, hunger, and economic insecurity are high and increasingly common features of the poor. Shocks such as the 2007 cyclone or the early 2008 food/fuel price increases likely increased poverty significantly (World Bank 2010).

Bangladesh's performance in poverty reduction is also not uniform across the country; although overall poverty has declined, the incidence of poverty is much higher in lagging regions than in others. For example, in 2005, the poverty rate was 40 percent nationally compared to 57.4 percent in greater Rangpur region (Table 1). With a higher growth of 6.5 percent in recent years, the overall national poverty must have declined by additional 5 percent since 2005, meaning 35 percent overall national poverty rate compared with some 52.5 percent for greater Rangpur. Even then a large share of the country's poor live in greater Rangpur. Besides regional disparity of poverty, the seasonal distribution of poverty because of pronounced seasonality of crop production is much more pronounced and skewed toward greater Rangpur compared to the rest of the country (Table 2) (Khandker 2009).

It is therefore a big challenge for Bangladesh to safeguard the economic security of the poor, especially in greater Rangpur. The severe crisis of unemployment in Bangladesh had made it more difficult for the poor households to manage income and food, and thus has intensified their vulnerability. In Bangladesh, natural disasters are quite regular phenomena that have made the life of poor households more challenging in addition to their low access to food and income. This situation is commonly evident in the northern part of Bangladesh– the poorest and most vulnerable part of the country. The regions in this northern part face seasonal deprivation or hardship that is commonly known as *monga*, generally occurs between September and November period. During this time, the poor households in this part lack employment, access to income and thus cannot manage even their three meals a day. Therefore, they are forced to sell labor or standing crops in advance to manage food and many sell their assets too to maintain minimum livelihood.

To reduce the vulnerability of the poor households government has both long term and short term social safety net measures. The short term or seasonal state of social safety net programs (e.g., FFW, CFW) provide quick and emergency cash or food support to the poor households to minimize the impact of natural disasters. And the long term measures (e.g., VGD and VGF, VGF) are some continuous programs conducted throughout the year

providing both cash and food supports to reduce the vulnerability of the poor households. The government implements these programs through its different ministries and state divisions. Every year the government allocates a percentage of its total budget for these programs. Apart from the government, a notable portion of the country's total safety net support is provided by the Non-Government Organizations (NGOs) and private institutions.

Food for Asset Creation (FFA) is one of three components of Integrated Food Security (IFS) Program which was introduced in February 2002 through joint collaboration of GOB and WFP. The other two components of IFS are Community Nutrition Initiative and Training and Nutrition Centers.

The FFA component promotes human and capital resource development for the ultra poor by providing awareness and training in legal, social, health, and nutrition issues; by enabling participants to work for community infrastructure development and productive asset creation; and by providing marketable skills training for Income Generating Activities (IGA). Although FFA targets both women and men, at least 70 percent of the participants must be women. Participants in the FFA component (who are not already VGD beneficiaries) receive food and cash compensation under different conditions at different times of the year. Food and cash for work are normally provided during the months of December to May, which is the period suitable for building of community infrastructure and assets. The entitlement for such work is a minimum wage of 2 kilograms of rice or wheat and Tk 15 per working day, subject to the accomplishment of a minimum amount of work. Training in awareness-raising and IGAs is conducted from June to November. A participant's monthly entitlements for the training period are 20 kilograms of wheat or rice and Tk 100. Similar to IGVGD and FSVGD participants, saving is compulsory for FFA participants too. They are required to save Tk 25 per month. FFA follows a 12-24 months project cycle. The implementation period of FFA and its operation schedule is flexible depending on the type of activities and convenience of participants.

Rural Maintenance Program (RMP) originally introduced in 1983 by CARE and now under Ministry of Local Government, Rural Development and Cooperatives, is a cash-for-work road maintenance project. RMP provides four years of employment for maintaining rural roads to female heads of households, who are divorced, widowed, separated, or abandoned and with little or no other means of financial support. Each RMP woman is entitled to receive a wage of Tk. 51 per day for 30 days a month. The program disburses cash wages through direct transfers to the bank accounts of the participants. Compulsory saving requirement is Tk. 10 per day, which is deducted by the banks before salaries are paid. The savings can be withdrawn by the participants only after completing the four-year cycle. Besides, providing cash for work to the participants, RMP also provides life skills training and counseling on developing self-reliant business skills, health, nutrition and the women's rights.

The major safety net programs available in Bangladesh can be divided into two broad categories–those that provide cash transfers and those that provide food/in-kind transfers. In summary, the major programs are as follows:

Box: Major Safety Net Programs in Bangladesh

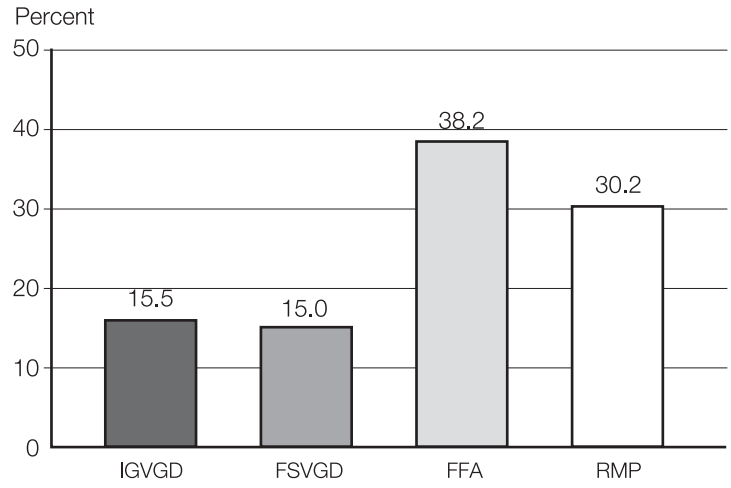
Program	Beneficiary	Requirement	Cash/ kind	Details
Rural Maintenance Program (RMP)	Women able to work	Work	Cash	Public work program. Average payment is Tk. 43/day
Primary Education Stipend Project (PESP), formerly known as Food For Education (FFE)	Households	Schooling	Cash	Primary Education Stipend Program. Promotes enrollments and attendance, reduce drop-outs and improve quality of education.
Female Secondary School Assistance Program (FSSAP)	Households	Schooling	Cash	Secondary Education Stipend Program for females. Promotes and encourage continuing education for female.
The Old Age Allowance	Households with old aged members unable to work and do not have pension income.	No work requirement	Cash	Reduces vulnerability of old aged households in non-municipal area. Average payment is Tk. 165/month.
Food for Work (FFW)	Individuals able to work.	Work mostly in infrastructure development projects.	Food grain	Food transfer program. Reduces food vulnerability of the poor. Provided food for about 75 million hours of work in 2003-04.
Test Relief	Individuals able to work.	Work mostly to support activities like cleaning ponds and bushes etc.	Food grain	Food transfer program. Reduces food vulnerability of poor individuals/households in rural areas. Much smaller program than FFW.
Vulnerable Group Development (VGD)	Households.	No work requirement.	Food grain	Food transfer program. Provides training for life-skills and skills needed to undertake income generation activities. Provided food to about 480,000 households as of June 2004.
Vulnerable Group Feeding (VGF)	Households.	No work requirement.	Food grain	Food transfer program. Provides post-disaster (for example, natural calamities) food relief to selected households. About 6 million households benefited during 1998 flood.
Gratuitous Relief (GR)	Households.	No work requirement.	Food grain	Food transfer program. Reduces food vulnerability at the event of disasters and any natural calamities. Much smaller program than VGD or VGF. An important way in which the Government provides immediate, short-term relief to disaster areas.

Source: World Bank (2006)

An IFPRI study demonstrates that out of 4 major programs (IGVGD, FSVGD, FFA, RMP), transfer as percentage of household expenditure was highest for FFA (38.2 percent) followed by RMP (30.2) percent, IGVGD (15.5 percent) and FSVGD (15.0) (Figure 1). Bangladesh's rapid economic growth and social changes have created new social protection challenges while old ones remain. New challenges are driven by rapid urbanization and breakdown of extended family system. Much of the existing safety net is

rural focused and there is an urgent need to address the needs of the urban poor and excluded groups such as the disabled and street children. The GOB has given much importance on social safety net programs. The government spends less than 1 percent of the GDP, documented at around 0.7 percent in 2001 (WB and ADB, 2003) and about 4.4 percent of public expenditure in social safety-net programs (MOFBD, 2007-08); far less than the average allocation of 5 percent of GDP in south Asia and even less that 2 percent of allocation in Sub-Saharan Africa (World Bank 2006).

Figure 1: Transfers as Percentages of Total Household Expenditures



Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

Note: FFA–Food for Asset Creation; FSVGD–Food Security Vulnerable Group Development; IGVGD–Income-Generating Vulnerable Group Development; RMP–Rural Maintenance Program.

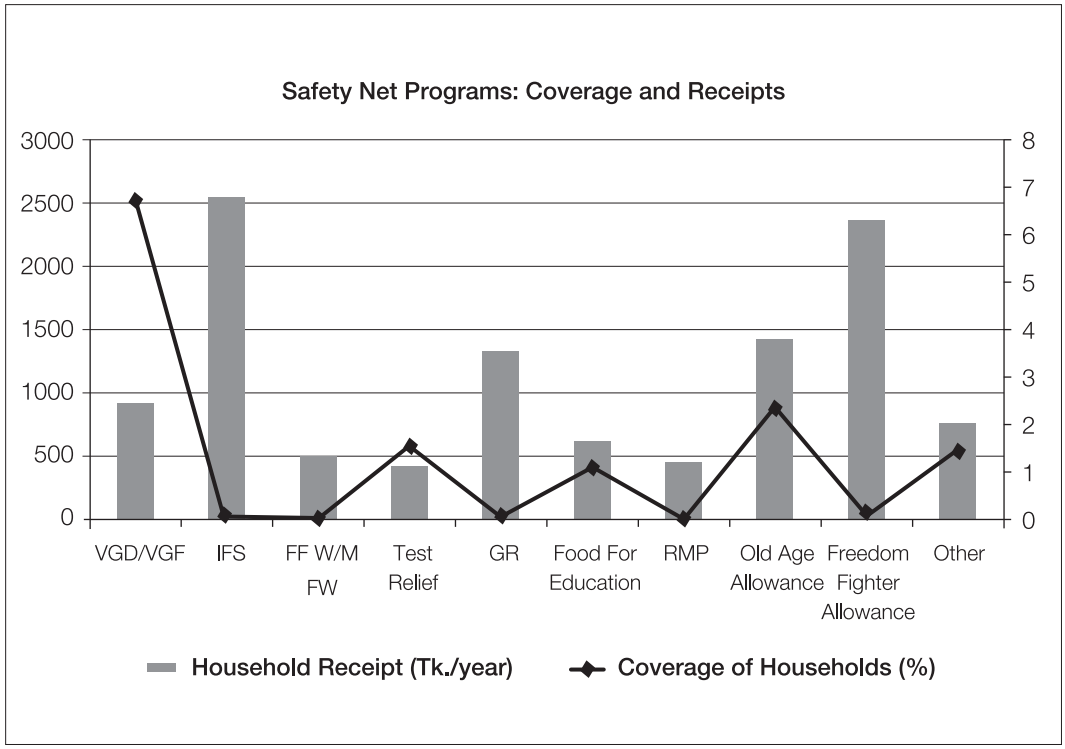
Approximately 10 percent of the poor and 5 percent of the ultra poor are covered by any social safety net program (SSNP); meanwhile 50 percent of eligible old age households are not covered by the pension scheme. There are already 27 varieties of safety-net programs being run by the government in Bangladesh (Hassan, 2007). But the amount given per households per year is not much larger and is not expected to have large anti-poverty impact. According to HIES 2005, the national coverage of SNNs was at 13.06 percent with 15.64 percent in the rural and 5.45 percent in the urban areas.

A World Bank study shows that safety net programs roughly cover below 10 percent of poor individuals and are administered by a large number of agencies (World Bank 2006). While it is difficult to compute the number of beneficiaries of these programs in any given year, especially as the disaster relief programs are rolled out and expanded in times of natural disasters–in general these programs reach about 4 to 5 million households. Most of the programs act as risk-coping instruments implemented by ministries including the Ministry of Social Welfare, the Ministry of Food and Disaster Management, the Ministry of Women and Children's Affairs, and, in the case of conditional cash transfers programs in

education–the Ministry of Primary and Mass Education, and the Ministry of Education. The beneficiary level coverage has been shown in Table 4 and portrayed in Figure 2 as The World Bank study (2006) estimates.

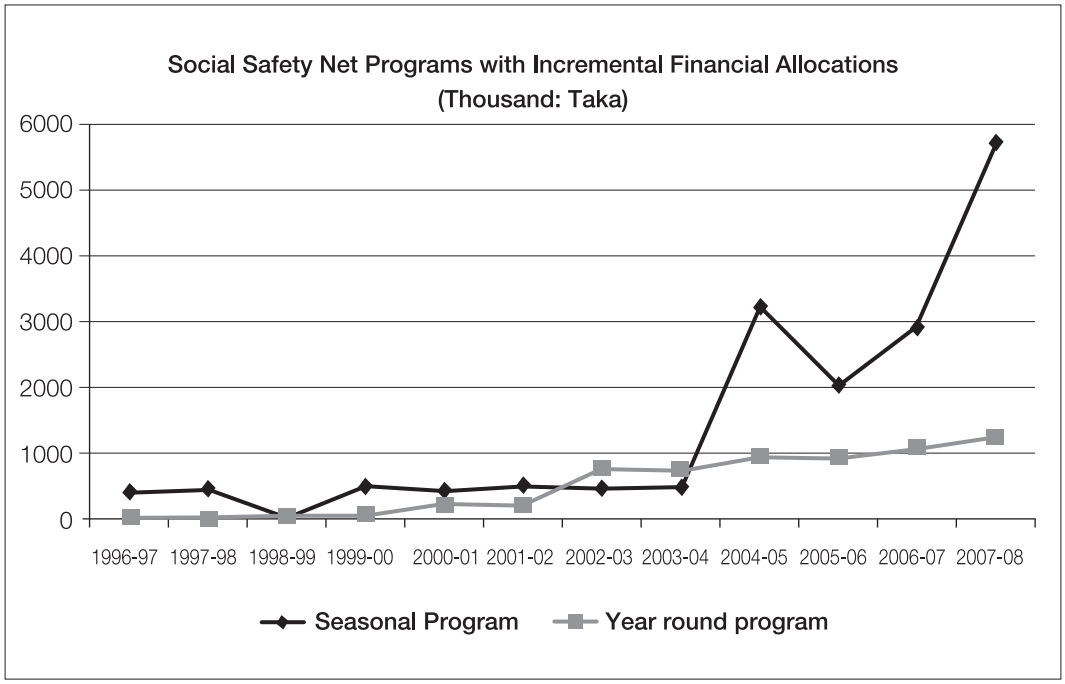
Expanding the coverage of the social safety nets in Bangladesh is not costless. In fact, it is reallocation of financial resources. During the past decade costs of the social safety nets have enormously expanded. This is quite evident from Table 3. The ratio of expenditures on safety net programs as a percentage of GDP and public expenditures has been declining. While expenditures on social sectors (this also includes spending on other social protection programs as well as on education and health) have remained fairly constant since the mid-1990s–in the range of 3.5-4 percent annually, safety net expenditures now make up less than 20 percent of all social sector expenditures, down from about 30 percent in the late 1990s–indicating crowding out of social assistance.

Figure 2: Safety Net Program Coverage



The SSNPs are both seasonal and year-round. However, the extent of support for year-round program is much smaller than the extent of support for seasonal program (Figure 3). This is, however, changing over time. In recent years, the proportion of year-round program is also rising. Figure 2 shows this trend. The relative importance of short-term versus long-term intervention of social safety net programs is a point worth exploring.

Figure 3: The Trend of Seasonal and Year Round Social Safety Net Program (Million: Taka)



Therefore, the social safety net programs include old-age allowances, distressed disabled persons allowance, widow and distressed women's allowance, cash and food for works programs and student stipend programs. Additionally the GOB allocates substantial resources each year to natural disaster relief programs. Although systematic evaluations of these programs are not much done, available research suggests that cash transfer programs have helped to alleviate food and health insecurity, have facilitated increased education enrolment among the poor and in some cases have enabled beneficiaries to invest in small-scale income generating activities.

A careful evaluation of the SSN program in Bangladesh by IFPRI shows that four major programs (FFA, RMP, IGVGD, and FSVGD) fairly well target the poorest, with FFA the best-targeted program. In the absence of the program, 72 percent of all FFA beneficiary households would have been among the poorest 10 percent and 84 percent among the poorest 30 percent of all households in the income distribution. In the FFA program, both female and male beneficiaries do physical work that mainly involves moving earth. Only out of desperation would a rural Bangladeshi woman be willing to work with men at onerous, low-paying manual labor. As a result, the program is strongly self-targeted. Among the other three programs, 67 percent of IGVGD, 64 percent of RMP, and 63 percent of FSVGD households would have belonged to the poorest 30 percent of all households in the income distribution without the programs (Ahmed et al, 2009). The study tries to assess the impact of the four programs by comparing various outcome measures of program beneficiaries (treatment group) and non beneficiaries (control group) using propensity score matching. The study examines the propensity score matching impact estimates of per capita food expenditure per month, calorie intake, per capita total expenditure per month (substitute for

income), poverty status, assets (consumption assets, productive assets, livestock assets, poultry assets), household savings and finally sustainability of livelihood by studying former program beneficiaries. The results are encouraging: although the estimated benefits vary by program, the findings suggest that SSNPs are helpful for the poor in raising income, calorie intake, and assets.

Khandker (2009) using HIES of 2000 and 2005 demonstrates the effects of social safety nets on the extent of both seasonal and chronic poverty. Social safety net programs such as the Vulnerable Group Feeding (VGF) program have a negative effect on poverty, and it is good that the coverage of the VGF in more vulnerable districts is higher than in other regions. The coverage of another major safety net program known as the Food For Work (FFW) is however low and yet he finds that the FFW has had substantive impacts on both seasonal and chronic poverty. Therefore, for sustainable benefits, the coverage, as well as scope, of these programs should be enhanced and focused more toward the most affected individuals or households and communities.

SSN Coverage in North West Region: What Does the Household Survey Tell?

The Institute of Microfinance (InM), with help of *Palli Karma-Shahayak Foundation* (PKSF), the wholesale outlet of microfinance in Bangladesh, administered a huge survey in greater Rangpur in 2006/07. This survey was carried out to identify the hardcore poor, who are most vulnerable to *monga*, and to design and implement appropriate interventions to mitigate *monga*. The hardcore poor, in the InM survey, are identified as those households that satisfy at least one of the following criteria: having less than 50 decimals (half an acre) of land, having a monthly income of Tk.1500 (equivalent to US$22) or less, or selling labor for daily wage. These households constitute roughly 70 percent of the rural population of the greater Rangpur region. That is, the InM survey is limited only to the hardcore or extreme poor of the greater Rangpur region.

The InM survey was carried out right after the *monga* season of 2006 (September-November) for 482,928 households from 23 *upazilas* (sub-districts) and some 2,300 villages, and after data cleaning, 480,918 households are retained for the analysis in this paper. The InM survey contains limited information with a focus on the extent of seasonal food deprivation and the coping mechanisms adopted by the poor to mitigate such deprivation.

Table 6 presents a summary of a set of socioeconomic characteristics of the extreme poor in greater Rangpur region, using the InM survey of 2006, and covering all five districts in the region: Kurigram, Gaibandha, Nilphamari, Lalmonirhat, and Rangpur.[1] The poor households of greater Rangpur are characterized by high dependency ratio (0.63), high wage employment (54 percent), and low self-employment (16 percent).[2] Since the poor are mostly wage employed in agriculture, they are likely to suffer most from the seasonality of agriculture in the northwest region. Table 2 also shows that 13 percent of the poor have non-agricultural assets (such as a rickshaw van) and about 49 percent have some type of agricultural asset (such as a plough). However, the poor possess only 8.2 decimals of land, making them virtually landless. These characteristics do not vary much across the five districts of greater Rangpur region.

[1] The district Rangpur is one of the five districts that together constitute the greater Rangpur region.

[2] Dependency ratio is measured by the proportion of the non-working members in a household.

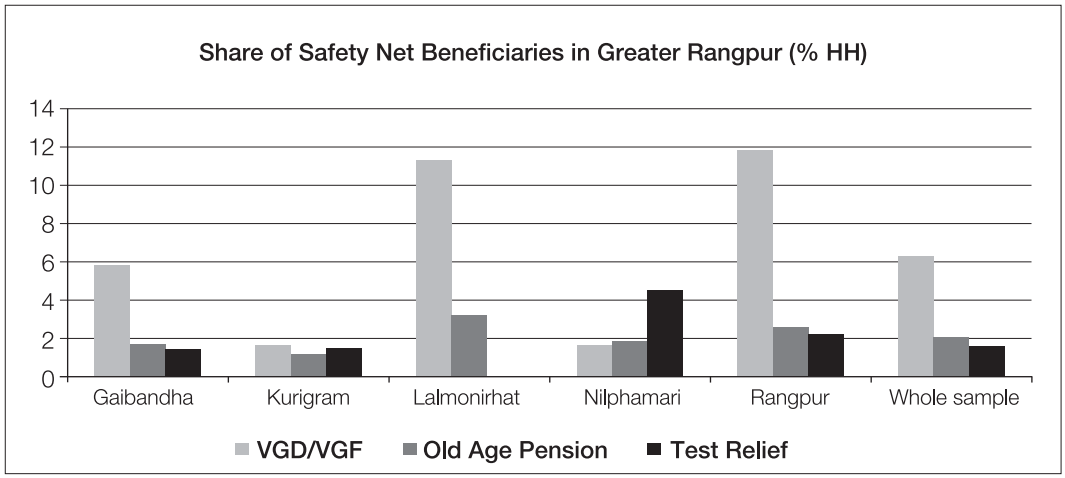
Compared to other parts of Bangladesh, the Greater Rangpur region faces an extreme situation of poverty and deprivation during *monga* period. Households have to sell their assets, labor and/or standing crops in advance, to ensure their survival and the scope for income generating activities during *monga* is quite negligible. Consequently, the poor households have to largely depend on government supports for their minimum livelihood. Government support has been extremely inadequate to guarantee them a minimum livelihood. The results for main three government social safety net programs–Vulnerable Group Development (VGD), Vulnerable Group Feeding (VGF) and Old Age Pension, prove this fact beyond doubt.

In the Greater Rangpur only about 10 percent of the households are covered under the VGD, VGF, Test Relief, and old age pension program (Table 7). Although meager, the programs suffer from equitable distribution. Despite being relatively less vulnerable Lalmonirhat has 11.32 percent and Rangpur 11.84 percent of households received VGD and VGF cards while in Kurigram which is the worst affected part during *monga* in the Greater Rangpur region, only 1.69 percent households received the benefit. Nilphamari also has very insignificant coverage of 1.67 percent while Gaibandha also has thriving with a quite meager 5.84 percent coverage of the households the region. This does not imply that Rangpur and Lalmonirhat districts are over emphasized in supporting total households under poverty and high vulnerability. The equity question arises on the ground of priority. Old age pension scheme as a safety net also fails to provide due coverage to the poverty stricken households in Greater Rangpur during *monga*.

Table 7 also shows only 1.22 percent of the households in Kurigram and 1.88 percent of the households in Nilphamar received old age pension. Gaibandha and Rangpur have less than 3 percent with another substantial coverage of 3.2 percent in Lalmonirhat. The total status is also not very healthy with only 6.30 percent of the households receiving VGD and VGF and 2.05 percent of the households receiving old aged pension. A very negligible proportion of households (1.6 percent) receive Test Relief benefits.

Figure 4 shows the distribution of all major 3 programs in greater Rangpur. It shows the skewed distribution of program coverage by district: Kurigram, being the highest hit area with *monga*, received the lowest public support from the SSNP.

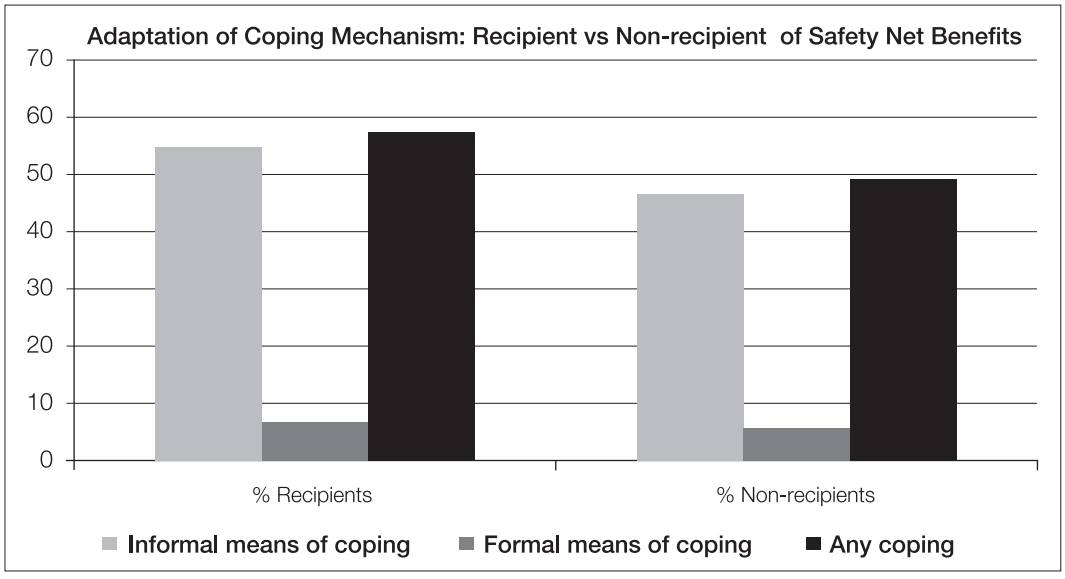
Figure 4: Distribution of Beneficiaries by Programs in Greater Rangpur



A SSN membership does not necessarily mean a receipt of financial support during the lean or *monga* season. In fact, besides government-run SSN programs, there are a large number of NGOs who provide support (cash or in-kind) during *monga* to the most vulnerable households in greater Rangpur. Table 8 shows the distribution of households who received any support from anywhere during the *monga* period of 2006 (i.e., September-November). It shows that although only 9.6 percent of the extreme poor are members of government-run SSN programs, only 6 percent of them received support during *monga* period, and the remaining 3.6 percent did not get any help during *monga*. However, most of the SSN members received support from long-term SSN programs. More interestingly, some 25.5 percent of the ultra-poor who are not members of government-run SSN programs did in fact received financial support from NGOs during the *monga* period. Thus, a total of 31.6 percent received any help during *monga*. A sizeable percentage of the ultra-poor actually depend on NGOs for support to mitigate the severity of *monga*.

Because of small support of GOB-run SSN programs, the vulnerable households adopt a variety of coping mechanisms to mitigate *monga*. Table 9 suggests that some 57 percent of the SSN program members adopted some type of coping compared to 49 percent among those who are not SSN members. Among the SSN members, some 64.6 percent adopted informal types of coping sucha s advance sale of labor or crop and some 6.5 percent adopted formal means such as borrowing from formal sources. Seasonal migration stands as a major informal coping for the poor in Rangpur region: 38.6 percent of SSN members and 34.8 percent of non-SSN members adopted out-migration as a means to mitigate *monga*. This suggests that the SSNP households are equally vulnerable as others who did not get any SSNP support. The distribution by type of coping adopted by both types of households (who received and who did not receive any SSNP support) is shown in Figure 5. Both types of households rely overwhelming on informal methods such as advance sale of labor or crop than a formal method such as borrowing from a bank to cope with *monga* distress.

Figure 5: Distribution of SSNP Beneficiary and Non-Beneficiary Households by Type of Coping Adopted



Despite the limited coverage, it is possible that the programs are having beneficial effects on the poor. To derive a sense of impact, we will try to find out a relationship between access to social safety net programs and consumption ordering. The InM data does not have actual food intake; rather it report the status of meal intake for the sample households as follows: starvation (households go without meals for a day or more), meal rationing (households consume less than they would normally would in a day), and full meals (households consume desired quantity of meals, which is usually three meals a day). This information was recorded for both *monga* and non-*monga* periods for all households.

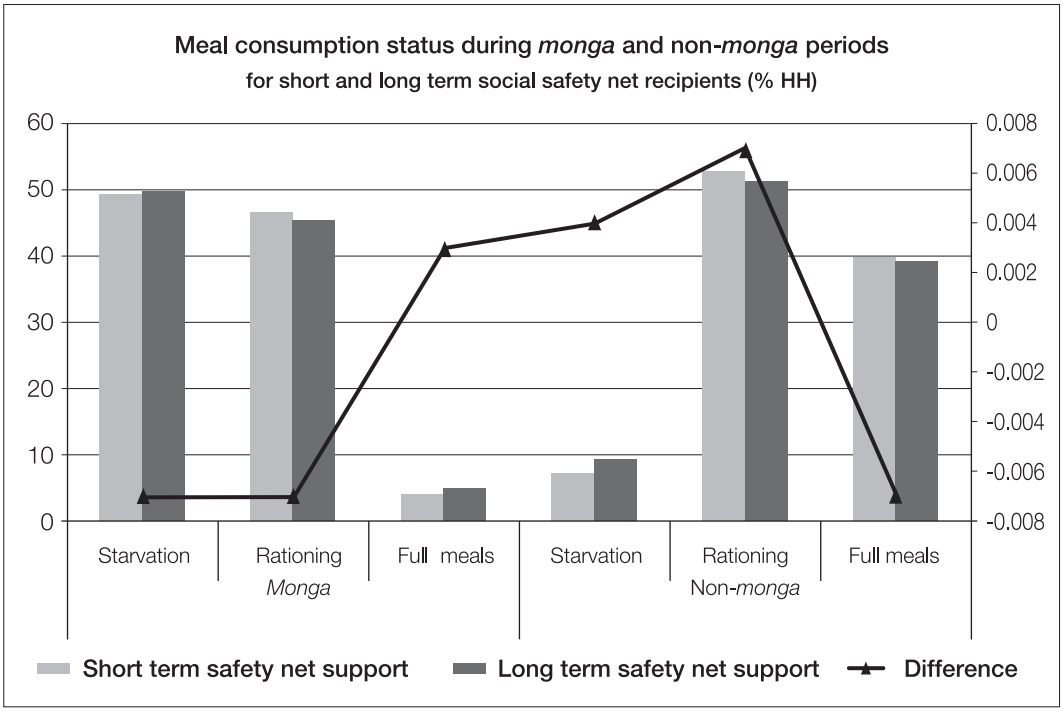
Table 10 shows that except for the district of Nilphamari, a high percentage of the rural extreme poor in greater Rangpur region experienced a high rate of seasonal starvation during the *monga* season of 2006. Some 47 percent of the poor households managed to have full meals during *monga* season, while only 4.4 percent had full meals during the same period. Also, about half the population had to ration meals in both seasons, indicating a persistent form of food insecurity among the hardcore poor in greater Rangpur. More strikingly, 8.5 percent households experienced starvation even during the non-*monga* season–an indication of the dire situation among the very poor in greater Rangpur region. The starvation during the non-*monga* period varies from 2 percent to 17 percent across districts in the greater Rangpur region. Combining starvation with meal rationing, we find that more than 95 percent of the extreme poor in the greater Rangpur region suffered from some form of seasonal food deprivation during the lean period of 2006. The InM survey data thus clearly show that households included in the InM survey are well selected for program intervention initiated by PKSF to mitigate *monga* in the greater Rangpur region.

Does the starvation status vary by membership of SSNP or receipt of support during *monga*? Table 11 shows the distribution of households by starvation status during *monga* and Table 12 presents the same for the non-*monga* period. A possible impact will depend on the program and size deepening. Tables indicate the relative importance of the SSNP programs in reducing vulnerability and deprivation. As Table 11 shows, at the aggregate level, around 49.9 percent of the beneficiary households compared to 46.1 percent of the non-beneficiary households were on occasional starvation during the *monga* of 2006. This means the extent of seasonal deprivation is higher among the SSN beneficiaries compared to non-beneficiaries. That is, it does not obviously mean the SSNP has a negative effect but merely shows that the SSNP beneficiaries are more vulnerable than their counterpart non-beneficiaries. However, a clear positive difference emerges when looked at from the perspective of meal rationing. Some 46.1 percent among the beneficiaries had to ration meal compared to 49.3 percent among non-beneficiaries. As Table 12 shows, a similar positive contribution to reducing vulnerability is traced during the non-*monga* period, implying that less number of beneficiaries of social net programs (both government and NGOs) had to starve occasionally than their counterparts. Perhaps it can be argued that social safety net programs benefit the participants.

Both Tables 11 and 12 show the differences in outcomes of seasonal vulnerability among those who were treated only seasonally versus those who were treated year round. The

distribution of starvation status among beneficiaries is shown in Figure 6; it is not obvious that there are any significant differences in terms of the observed outcomes of seasonal distress by the extent of seasonal or long-term support.

Figure 6: Distribution of SSNP Beneficiaries by Short-term Versus Long-term Benefit Support



The safety net statistics, therefore, shows that targeting has been fairly successful in reaching the most vulnerable in the society but it is not necessarily targeted to the most vulnerable areas such as Kurigram. By simple statistics on coverage of SSNP programs, a large number of extremely vulnerable households are left out of the social safety net system. Even then, the question comes: What determines household access to financial support provided under government and NGO programs?

Social Safety Net Support: What Determines Access by Hard-core Poor in North West Bangladesh

The InM survey collects information on the hardcore poor in the greater Rangpur region. One important criterion that is used to identify the hardcore poor in Bangladesh is the landholding criteria which states that those households are hardcore poor who have less than 50 decimals (half an acre) of land. When this criterion was applied to the InM survey we find that over 98 percent of the sample households satisfy this criterion. However, when it comes to receiving the benefits of the safety net programs during the *monga* period, we find that less than one-third of the sample households actually received one of the SSNP programs. This has perhaps very little to do with targeting efficiency, but more to do with

the fact that safety net resources are meager–there is simply not enough to provide to all who deserve it. A relevant question then arises, what determines household access to any SSNP program. In this section, we examine various factors that might determine whether a household would receive safety net benefits or not. Given the limited coverage, it is important to find out if household or village attributes above and beyond landholding criterion makes any influence on deciding who to access such support.

Because of the binomial nature of the issue of receiving safety net benefits or not a probit model is used to estimate it, which is given by,

$$prob(s = 1) = \int_{-\infty}^{\beta x} \phi(t)dt = \Phi(\beta x) \qquad (1)$$

where ϕ and Φ are normal density distribution function and cumulative normal distribution function respectively, x is a vector of household and community characteristics, and β_1 is the vector of parameters that needs to be determined. Both household and village characteristic are likely to affect the receipt of safety net benefits during the monga season. Among the household factors, we consider household assets of different types, dependency ratio, age of the household head and education and so on. The community-level variables include the village access to micro-credit and the village level unemployment rate.[3] Moreover, we use of three more location and agroclimate factors which can affect households' vulnerability to the *monga* and dissemination of safety net resources to them: the average yearly rainfall at the *upazila*, proportion of high land in the *upazila*, and if the village is in a *char* area.[4] Finally, we control for union level unobserved area characteristics that may influence the probability of receiving safety net benefits during the *monga* season.

The probit results of equation (1) are reported in Table 13. The table also presents the descriptive statistics of the major explanatory variables used in the regression. Household-level variables such as head's age, employment status, non-agricultural assets, and savings matter in terms of accessing social safety net support. For example, a household with self-employed head is less likely to receive safety net benefits–self-employment of the head reduces the probability of receiving safety net benefits during the *monga* by 10.3 percent. As for the ownership of assets, we see that nonagricultural asset lowers the likelihood of receiving safety net benefits by 3.0 percent. On the other hand, having past savings has a counterintuitive positive influence in accessing safety net support. Finally, households from a village that has high unemployment rate are likely to receive more benefits than those from a village with low unemployment rate. Households in an area with high rainfall (indicating better agricultural opportunities) are likely to receive more benefits during the *monga*. Similarly, within the same rainfall area, those upazilas with higher share of high lands receive more benefits. However, villages with *char* land, an indicator of higher vulnerability due to poor agroclimate conditions, do not seem to influence the decision of who to receive support during *monga*. Findings, therefore, confirm that safety net programs are not targeted to vulnerable areas, even though the poor households are likely to benefit more once the villages do have access to such programs. The support is not enough, as only 30 percent of the extreme poor in NW region received any support during the *monga* period.

[3] Village level unemployment rate has been defined by the proportion of households in the village whose heads are unemployed.

[4] A high land area, according to the definition of Bangladesh Agricultural Research Council (BARC), is where flood water level remains below 3 feet. *Char* areas are the lands formed by river sediments, which are then inhabited by destitute people who do not have any place to live in.

Evaluating Social Safety Net Programs

Given the coverage, size, and access of social safety net support schemes of both government and NGOs, we address an important policy question: Does SSN help alleviate starvation? Evaluating such a policy question involves constructing a counterfactual: What would have happened to the starvation status of the beneficiaries of SSN had they not access such support? Constructing a counterfactual is the key to evaluating a policy question of whether SSN benefits the poor. Randomized design of an *ex ante* intervention where the beneficiaries are treated randomly with a program intervention can help create a counterfactual that helps evaluate this key policy question. In collaboration with the Mexican government, the IFPRI adopted such a randomized evaluation technique to rigorously evaluate PROGRESA's impact on education, nutrition, health and rural poverty. This evaluation was also based on repeated surveys of individuals from 24,000 households in 506 localities in randomly assigned PROGRESA and non-PROGRESA areas. Formal surveys, structured and semi-structured interviews, focus groups, and workshops were held in seven states where the program was first implemented on a pilot basis. Such an extensive and innovative evaluation design is beyond the scope of this study.

When we do not have randomized design, we can rely on non-randomized evaluation techniques. For example, Ahmed et al. (2009) utilized a propensity score technique to a cross-sectional survey of SSN beneficiaries and non-beneficiaries to determine SSN effects by comparing the outcomes of matched samples of treated and non-treated households based on observed characteristics. This method has a weakness of omitting the bias due to unobserved characteristics influencing participation in SSN as well as outcomes of interest such as poverty. A more defensible non-randomized method that takes care of the unobserved variable bias is panel data where the key assumption for identification is that unobserved heterogeneity is time invariant, i.,e., it does not vary over time. Ravallion et al. (1995) used this method. Unfortunately, we do not have panel household survey data to deal with this endogeneity.

What we have is a cross-sectional *ex post* data on recipients and non-recipients of safety net programs in greater Rangpur for both *monga* and non-*monga* periods. Thus, we can make a comparison of outcomes such as starvation status of recipients versus non-recipients which provides some general idea about the extent of induced benefits from program participation. However, it does not establish the causality between the safety net receipts and food deprivation. In other words, this does not help us determine whether the safety net programs are effective in lowering seasonal food deprivation, and if they are then to what extent they are able to so. Since a household's seasonal food deprivation depend on a host of factors of which safety net programs is just one, it is important to control for all such factors (both observed and unobserved) in order to determine the impacts of safety net programs on seasonal hardship. This is the challenge of an *ex post* evaluation of a program using cross-sectional survey data.

In our *ex post* evaluation scenario, we have one piece of information: That is, only less than one-third of the hardcore poor in greater Rangpur region received safety net program benefits during the *monga* season of 2006. It is so because safety net resources are limited by supply side constraints. We have also information on the demand side that household and community level observed factors determine which households are to receive them and which are not. That is, household receipt of safety net program benefits is not exogenously given. To control for the endogeneity of safety net program benefits we could use an instrumental variable regression technique, which requires one or more suitable instruments.

Such instruments would directly affect household receipt of safety net benefits, but not the seasonal food deprivation. Seasonal food deprivation would benefit indirectly by such instruments only through the safety net program benefits. However, finding the rights instruments is not easy and we do not have valid instruments that we can use the instrumental variable method to control for such joint dependence of seasonal deprivation and access to safety net.

Alternately, we propose a two-step procedure that uses the endogenous switching regression as proposed by Maddala (1983) to control for endogeneity of the safety net program benefits with induced outcomes of our interest such as extent of seasonal deprivation. This model is described below.

Let us assume that s_i denotes whether household i receive safety net benefits or not during the *monga* season (s_i =1 when the household receives them, 0 when it does not), which is determined by the following selection model:

$$\text{if } \gamma Z_i + u_i > 0, \text{ then } s_i = 1 \quad (2)$$

and

$$\text{if } \gamma Z_i + u_i \leq 0, \text{ then } s_i = 0 \quad (3)$$

where Z_i is a vector of household and village characteristics that determines household receive safety net program benefits or not during the *monga* season, γ is the parameter to be estimated and u_i is the error term. Let us further assume that the seasonal food deprivation of the recipients and non-recipients are given by,

$$C_{1i} = \beta_1 X_{1i} + \varepsilon_{1i}, \text{ when a household benefits from safety net } (s_i = 1) \quad (4)$$

$$C_{0i} = \beta_0 X_{0i} + \varepsilon_{0i}, \text{ when a household does not benefit } (s_i = 0) \quad (5)$$

where X_{1i} and X_{0i} are vectors of household and community characteristics that determines household's food consumption when the household receives safety net benefits and when it does not respectively, β_1 and β_0 are parameters to be estimated, and ε_1 and ε_0 are the error terms. The outcome equations include all the X variables that were used in the probit equation for receiving safety net benefits, including the dummy variables for union to control for any local level heterogeneity. The error terms, u_i, ε_1 and ε_0 are assumed to have a tri-variate normal distribution with mean vector zero and covariance matrix,

$$\Omega = \begin{bmatrix} \sigma_1^2 & \sigma_{01} & \sigma_{1u} \\ & \sigma_0^2 & \sigma_{0u} \\ & & \sigma_u^2 \end{bmatrix}$$

where, σ_u^2, σ_1^2, and σ_0^2 are the variances of u_i, ε_1, and ε_0 respectively, and σ_{1u}, σ_{0u}, and σ_{01} are covariances of ε_1 and u_i, ε_0 and u_i, and ε_0 and ε_1 respectively. In a switching regression model, outcome equations are run after controlling for a household's selection bias.

From the food consumption pattern of the households, we derive two outcomes measuring seasonal food deprivation. First one is starvation, which is an extreme form of hardship. The second outcome, general food deprivation, is constructed by combining starvation and meal rationing, that is, a household undergoes general food deprivation if it starves or rations meals.

Table 14 presents the estimation of starvation and general food deprivation of the recipients

and non-recipient households of any support (either from government or NGO) during the *monga* period. A household's assets (land and various non-land types), reduce its probability of seasonal food deprivation regardless of whether it receipts any safety net supports from anywhere. For example, a 10 percent increase in the land asset lowers seasonal starvation by 3.6 percentage points and general food deprivation by 0.9 percentage points for the recipients of safety net benefits. Similar reduction due to land asset is also observed for non-recipients of the safety net benefits, however to a smaller extent. Having a self-employed head lowers the starvation probability during *monga* period for a recipient of safety net benefits by 4.9 percentage points, without affecting any other outcomes. Having a wage-employed head, on the other hand, increases the general food deprivation during the *monga* period for both recipient and non-recipient households. Among the location characteristics, being in a high land area or in an area with adequate rainfall lowers a household's seasonal deprivation regardless of its safety net benefit status.

Besides regression coefficients, Table 14 reports, σ_1 , σ_0 , ρ_1, and ρ_0, where the last two terms are the correlation coefficients between ε_1 and u_i, and ε_0 and u_i respectively. The same sign of ρ_1 and ρ_0 indicates that the unobserved factors which influence a household's probability of receiving safety net benefits also affect its seasonal food deprivation the same way, while opposite signs of ρ_1 and ρ_0 indicate that unobserved factors have opposite effects in the probability of receiving safety net benefits and food deprivation status of the household. Table 14 also reports the inverse Mill's ratio (λ) which is the estimate of the normal density function over the cumulative density function of the variable *Z* or $\frac{\varphi(\gamma Z)}{\Phi(\gamma Z)}$, calculated from the first stage equation. The inclusion of λ in the outcome equation controls for the unobserved factors (endogeneity bias) that influence a household's probability of getting safety net benefits in the first place. Since λ is highly statistically significant, the dependent variable (a household's starvation and general food deprivation) is indeed affected by the endogeneity of safety net support.

While we have shown in Table 14 the determinants of the seasonal food deprivation of recipients and non-recipients of safety net support, we have not yet shown the potential impacts of SSN support on the seasonal food deprivation. We do that in the next step. Following the derivation of Lokshin and Sajaia (2004), we construct the following terms:

$$yc_{1\_1i} = E(y_{1i} \mid s = 1, x_{1i}) = x_{1i}\beta_1 + \sigma_1\rho_1\phi(\gamma Z_i)/\Phi(\gamma Z_i)$$

= Conditional expected value of seasonal food deprivation of a recipient household that *received* the safety net benefits,

$$yc_{0\_1i} = E(y_{0i} \mid s = 1, x_{1i}) = x_{1i}\beta_0 + \sigma_0\rho_0\phi(\gamma Z_i)/\Phi(\gamma Z_i)$$

= Conditional expected value of seasonal food deprivation of a recipient household *had it not received* the safety net benefits, (counterfactual),

$$yc_{0\_0i} = E(y_{0i} \mid s = 0, x_{0i}) = x_{0i}\beta_0 - \sigma_0\rho_0\phi(\gamma Z_i)/[1 - \Phi(\gamma Z_i)]$$

= Conditional expected value of seasonal food deprivation of a non-recipient household that *did not receive* the safety net benefits,

$$yc_{1\_0i} = E(y_{1i} \mid s = 0, x_{0i}) = x_{0i}\beta_1 - \sigma_1\rho_1\phi(\gamma Z_i)/[1 - \Phi(\gamma Z_i)]$$

= Conditional expected value of seasonal food deprivation of a non-recipient household *had it received* the safety net benefits, (counterfactual),

Here ϕ and Φ are normal density distribution function and cumulative normal distribution function respectively.

Based on the above calculations we construct the impacts of safety net program benefits on household outcomes the following way:

$yc\_1i = yc1\_1i - yc0\_1i$ = [Expected outcome of a recipient household - Expected outcome of a recipient household had it not received the benefits (counterfactual)]

=Change in outcome of a migrant household due to safety net program benefits

$yc\_0i = yc1\_0i - yc0\_0i$ = [Expected outcome of a non-recipient household had it received the safety net benefits (counterfactual) - Expected outcome of a non-recipient household]

=Change in outcome of a non-recipient household due to safety net program benefits had it received such benefits

We can also compare the expected outcome gains between the recipient and non-recipient households by taking a second-order difference as, $yc\_i = yc\_1i - yc\_0i$

Table 15 reports the estimates of the potential benefits of safety net program. It is obvious from the counterfactual comparison that safety net support lowers the seasonal hardship for both recipient and non-recipient households. The expected reduction in *monga*-time starvation for recipient households is 4.4 percentage points (which are actually accrued to them) and that for non-recipient households is 2.5 percentage points (which would have accrued to them had they received safety net benefits). Similarly, a household's general food deprivation during the *monga* period goes down by 3.9 percentage points for the recipient households and 5.2 percentage points for non-recipient households as a result of receiving safety net benefits.

An important finding of this analysis is that the accrued benefit to recipient households is higher than that for non-recipient households for starvation, while for general food deprivation non-recipients seem to have benefited more. This clearly points to the underlying differences between the recipient and non-recipient households. However, regardless of the household types, benefits of safety net programs on seasonal food deprivation have been unequivocally established in this exercise. Extending the analysis to estimating potential impacts on non-*monga* outcomes, we find from the similar results presented in Table 15 that safety net access reduces starvation by 1.2 percentage points and general deprivation by .4 percentage points.

So far we have not differentiated by GOB SSN versus NGO *monga*-time intervention of cash or in-kind support to the extreme poor in NW region. We, therefore, would like to see if there are differences between these two sources of support the poor receive to mitigate *monga*. Recall that government SSN accounts of only 10 percent of coverage of the extreme poor, while the NGO coverage is as high as 21 percent. Therefore, we wonder if the measured benefits as evident are indeed because of NGO support. In order to address this question, we repeat the same exercise by limiting the samples to households who were beneficiaries of government support program and those who were not (thus, excluding those who received NGO support). The potential benefits of SSN membership versus non-membership are shown in Table 16.

The results suggest that membership of government SSN program does not help much reduce the starvation during *monga* period, but certainly helps reduce hunger during non-*monga* period. This perhaps for the reason that SSN support during *monga* was not adequate enough to make a dent on seasonal hardship during the lean season, but even the inadequate support during the non-*monga* period helps alleviate non-*monga* hardship.

Nonetheless, both sets of results show clearly that safety net programs have not only impacts on transitory poverty but also chronic poverty, a finding consistent with those of Devreaux (2002) found for the poor African countries and unlike those of Ravallion et al (1995).[5]

Conclusions

The basic objective of this paper was to assess the role of social safety net programs in mitigating seasonal deprivation or *monga* using the recent survey data of hard-core poor households from Greater Rangpur region. We also explored the possibility of whether safety net programs which are overwhelmingly seasonal in nature can meet the objective of averting the consequences of seasonal shocks or seasonality of income and employment. Although the extent of coverage of SSNPs is limited by the availability of funds, we find that programs are well-targeted where they are placed. However, the placement of program inputs is not distributed as per the perceived notion of area-specific poverty incidence. We also find that some of the SSNPs are year-round meeting the objective of reaching the most vulnerable such as older people with old-age pension. Interestingly, the distribution of benefits of SSNPs is not random but is determined by a host of factors including household physical and human assets plus availability of alternative program such as microfinance in the neighborhoods of the potential beneficiaries of the SSNPs.

Our impact assessments of SSNP show very interesting results. We find SSNPs have positive impact on mitigating *monga*. More importantly, the SSNPs have also positive impact in mitigating both seasonal and non-seasonal starvation. Our results are consistent with those of IFPRI findings in Mexico and Devereus in African countries. As these programs are effective, it will be probably to correct to argue that the program coverage should be expanded. That is, program deepening has to be increased. We also find that higher program coverage in recent years in Rangpur region has been made possible because of NGO participation. Nonetheless, there is a need to deepen the program both in terms of coverage and size. This is apparent in view of the fact that individuals are found to adopt other coping methods besides social safety nets to cope with seasonal deprivation. Moreover, the expansion of government social safety net programs will effectively contribute to mitigating *monga* provided they are well-coordinated with NGOs.

However, as *monga* is a recurrent problem in NW region because of seasonality of agriculture, the SSN approach may not be a permanent cure to *monga* in NW region. What is needed also is to enhance income and productivity of the poor through diversification of income that includes rural non-farm income as well as remittances from seasonal out-migration. At the same time, investments in physical infrastructure and human capital must be increased to facilitate transition of a diversified economy. Social safety nets can be

[5] We also tried to differentiate the potential effects of short-term versus long-term safety net measures. However, the sample size for long-term measures is too small to run separate regressions and hence separate estimates.

treated as quick fix to reduce the severity of seasonal deprivation but the long term solution rests on promoting income and productivity of the poor in the NW region.

Table 1: Poverty and Extreme Poverty Incidence Nationally and in the Northwest Region

Area	Poverty Headcount (%)		Extreme Poverty Headcount (%)	
	2000	2005	2000	2005
Country	48.9	40	34.3	25.1
Rural	52.3	43.8	37.9	28.6
Urban	35.1	28.4	19.9	14.6
Northwest (greater Rangpur) region	67.7	57.4	55.9	43.0

Source: HIES survey, 2000, and 2005

Table 2: Distribution of Rural Food Poverty (FP) and Extreme Poverty (EP) by Season (%)

Period	Greater Rangpur		Rest of the country		Whole country	
	2000	2005	2000	2005	2000	2005
Monga season	FP=93.0 EP=66.0	FP=88.3 EP=48.3	FP=86.4 EP=43.9	FP=83.4 EP=31.6	FP=86.9 EP=45.6	FP=83.8 EP=33.0
Non-*monga* season	FP=79.5 EP=52.3	FP=76.8 EP=43.0	FP=79.6 EP=38.4	FP=76.3 EP=28.6	FP=79.6 EP=39.7	FP=76.4 EP=29.9
All seasons	FP=82.6 EP=55.5	FP=79.5 EP=44.2	FP=81.5 EP=39.9	FP=78.2 EP=29.4	FP=81.6 EP=41.8	FP=78.5 EP=31.1
Observations	440	520	4,600	5,520	5,040	6,040

Sources: Khandker (2009)

Table 3: Social Safety Net Programs with Incremental Financial Allocations ('000 taka)

Program	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Seasonal Program	41541	46138.9	4200	50262	43198	50660	47895.9	50167.3	322150	203548	291467	572435
Fund for Rehabilitation of Acid Burnt Women & Physically Handicapped	0	0	0	4,350	2,500	6,600	1,500	2,500	2,500	2,000	500	1,000
Allowance for Insolvent/Retarded Disabled Persons	0	0	0	0	0	0	0	0	0	2,500	4,000	5,280
Capitation Grant for Non-Government Orphanages	0	975	1,000	1,050	1,110	1,150	1,210	1,400	1,600	1,700	1,900	3,024
Subsistence Allowances for Government Orphanages	0	1,111	1,111	1,111	1,245	1,242	1,185	1,255	1,235	1,635	1,590	1,725
Educational Stipend for the Disabled Students	0	0	0	0	0	0	0	0	0	0	0	500
Vulnerable Group Development (VGD)	0	2,250.90	2,089	2,280	2,360	2,430	2,406.90	2,195.30	31,095	32,325	36,544	40,910
Maternity Allowance for the Poor Mother	0	0	0	0	0	0	0	0	0	0	0	1,700
Reach out Education Children Project	0	0	0	0	0	0	0	0	0	2,788	10,489	11,200
Test Relief (TR)	10,500	13,930	0	12,753	11,194	14,523	15,396	15,016	23,562	24,878	25,831	30,282
Gratuitous Relief (GR)	11,050	6,515	0	6,733	2,914	2,905	3,079	5,256	10,053	10,614	11,021	12,920
Vulnerable Group Feeding (VGF)	19,966	21,332	0	21,960	21,850	21,785	23,094	22,520	157,080	24,878	43,050	80,753
Cash for Work (Kabita)	0	0	0	0	0	0	0	0	0	0	0	73,200
Food for Work (FFW) (Khabikha)	0	0	0	0	0	0	0	0	0	29,023	37,367	37,346
Fund for Mitigation of Risk of Natural Disaster (pre & post)	25	25	0	25	25	25	25	25	25	75	30	35

Table 3: Social Safety Net Programs with Incremental Financial Allocations ('000 taka) (contd.)

Program	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Agricultural Subsidy and Fuel Price Support for Marginal Farmers	0	0	0	0	0	0	0	0	80,000	60,000	104,105	225,000
Maternal Health Voucher Scheme	0	0	0	0	0	0	0	0	0	0	1,510	1,760
Area-Based Community Nutrition	0	0	0	0	0	0	0	0	0	0	8,530	15,800
Special Fund for Employment Generation for the Extreme Poor	0	0	0	0	0	0	0	0	10,000	6,882	5,000	10,000
Fund for Reduction of Temporary Unemployment	0	0	0	0	0	0	0	0	0	500	0	5000
Housing Program for Homeless	0	0	0	0	0	0	0	0	5,000	3,750	0	5,000
Fund for Disaster Affected Marginal Farmer and Poultry Farm Owner	0	0	0	0	0	0	0	0	0	0	0	10,000
Year round program	0	1250	5000	6451	21825	22005	76125	75020	95161	95050	108619	123390
Old Age Allowance	0	1,250	5,000	5,000	5,000	5,000	7,500	18,000	26,037	31,500	38,400	44,880
Allowance for Widow & Distressed Women	0	0	0	0	2,500	2,500	4,000	9,000	11,880	13,500	15,600	21,780
Primary Education Stipend Project (PESP)	0	0	0	0	11,200	10,000	60,000	43,395	52,000	44,331	46,800	46,800
Honorarium for Insolvent Freedom Fighters	0	0	0	0	1,500	2,880	3,000	3,000	3,600	4,200	6,000	7,200
Allowance for Injured Freedom Fighters	0	0	0	1,451	1,625	1,625	1,625	1,625	1,644	1,519	1,819	2,730
Total	41541	47388.9	9200	56713	65023	72665	124020.9	125187.3	417311	298598	400086	695825
Percentage to GDP	0.23	0.24	0.04	0.24	0.26	0.27	0.41	0.38	1.13	0.72	0.85	1.27

Source: Ministry of Finance

Table 4: Distribution of Seasonal and Year-round Safety Net Allocation

Program	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Seasonal Program	415.41	461.389	42	502.62	431.98	506.60	478.959	501.673	3221.50	2035.48	2914.67	5724.35
Year round program	0	12.50	50	64.51	218.25	220.05	761.25	750.20	951.61	950.50	1086.19	1233.90
Total	415.41	473.889	92	567.13	650.23	726.65	1240.209	1251.873	4173.11	2985.98	4000.86	6958.25

Table 5: Coverage of Households and Average Receipt by Safety Net Programs in Rural Bangladesh

Program name	Coverage of households (%)	Household receipt (Tk./year)
VGD and VGF	2.30	916
IFS	0.04	2549
FF W/M FW	0.03	502
Test relief	1.55	423
VGF	4.42	439
GR	0.08	1333
Food for Education	1.10	628
RMP	0.02	450
Old age allowance	2.34	1429
Freedom fighter	0.10	2364
Other	1.47	765
Total	13.5	781

Source: HIES, 2005

Table 6: Summary Statistics of Selected Characteristics by District in NW Region

HH characteristics	Kurigram district	Gaibandha district	Nilphamari district	Lalmonirhat district	Rangpur district	Greater Rangpur region
Dependency ratio[1]	0.65	0.64	0.63	0.63	0.57	0.63
HH land (decimals)	8.80	8.21	9.71	6.65	6.25	8.20
HH has agricultural asset	0.30	0.59	0.55	0.49	0.56	0.49
HH has nonagricultural asset	0.16	0.11	0.13	0.11	0.13	0.13
HH has savings	0.43	0.34	0.28	0.26	0.32	0.34
HH has cow	0.29	0.27	0.30	0.19	0.21	0.26
HH head is self-employed	0.21	0.15	0	0.30	0.20	0.16
HH head is wage employed	0.44	0.65	0.73	0.57	0.23	0.54
Observations	120,426	128,987	102,866	56,772	71,867	480,918

[1] Dependency ration is the proportion of dependants in household. Excluded category of the self- and wage–employed includes beggars and unemployed.

Source: InM survey, 2006.

Table 7: Safety Net Program Membership among Sample HHs in Greater Rangpur

Safety net programs	Gaibandha	Kurigram	Lalmonirhat	Nilphamari	Rangpur	Whole sample
VGD/VGF	5.84	1.69	11.32	1.67	11.84	6.30
Old age pension	1.71	1.22	3.20	1.88	2.62	2.05
Test relief/FFW	1.45	1.49	0	4.52	2.23	1.63
Observations	120,426	128,987	102,866	56,772	71,867	480,918

Source: InM 2006/2007

Table 8: Distribution of HHs in Greater Rangpur: Membership of Safety Net Program vs. Actual Receipt of Support during *Monga* (%)

Whether received support during *monga*	Members of long-term programs only	Members of short-term programs only	Members of both long-short-term programs	Members of no program	All	Observations
Received support during *monga*	5.3 (622.4)	0.7 (445.0)	0.1 (613.3)	25.5 (614.9)	31.6 (612.4)	328,601
Did not receive support during *monga*	2.7	0.8	0	67.9	71.4	152,317
Total	8.0	1.5	0.1	90.4	100.0	480,918
Observations	38,476	7,143	695	434,604	480,918	

Note: Long-term programs are VGD, VGF and Old age pension, whereas Test relief and FFW are short-term safety net programs. Figures in parentheses are amount received (Tk.) during *monga*.

Source: InM survey data 2006/2007.

Table 9: Coping Mechanisms Adopted during the *Monga* by Recipients and Non-recipients of Safety Net Benefits

Type of coping	Among the recipients of support during *monga* (%)	Among the non-recipients of support during *monga* (%)
Informal means of coping	54.6	46.4
Advance sale of labor	6.0	3.6
Advance sale of crop	0.5	0.5
Sale of asset	14.5	9.9
Out-migration	38.6	34.8
Borrowing from informal sources	15.9	10.7
Formal means of coping	6.5	5.5
Borrowing from formal sources	6.5	5.5
Any coping	57.2	49.1
Observations	152,317	328,601

Source: InM 2006/2007

Table 10: Distribution of HHs and their Meal Consumption Status (%) in Greater Rangpur

Consumption status	Kurigram district	Gaibandha district	Nilphamari district	Lalmonirhat district	Rangpur district	Greater Rangpur region
Non-*monga* period						
Starvation	2.08	12.18	2.32	14.36	17.10	8.53
Meal rationing	49.36	63.44	32.89	54.78	53.33	50.85
Full meals	48.56	24.38	64.79	30.86	29.57	40.62
***Monga* period**						
Starvation	48.47	57.62	26.16	47.95	56.34	47.27
Meal rationing	50.14	40.79	60.37	49.54	40.35	48.29
Full meals	1.39	1.59	13.47	2.51	3.31	4.44
Overall						
Starvation	49.68	62.69	27.13	52.07	60.35	50.22
Meal rationing	49.03	36.22	60.11	46.73	37.50	45.97
Consumption of full meals	1.29	1.09	12.76	1.20	2.15	3.81
Observations	120,426	128,987	102,866	56,772	71,867	480,918

Source: InM survey, 2006.

Table 11: HH Meal Consumption Status during *Monga* by Membership of Safety Net Program and Receipt of Support during *Monga* (%)

Whether received support during *monga*	Members of long-term program only	Members of short-term program only	Members of both long-short-term programs	Members of no program	All
Received support during *monga*	Starvation=49.4 Meal rationing=45.1 Full meals=5.5	Starvation=69.3 Meal rationing=28.7 Full meals=2.0	Starvation=51.3 Meal rationing=45.1 Full meals=3.6	Starvation=49.4 Meal rationing=46.8 Full meals=3.8	Starvation=49.9 Meal rationing=46.1 Full meals=4.0
Did not receive support during *monga*	Starvation=42.1 Meal rationing=51.3 Full meals=6.6	Starvation=57.4 Meal rationing=40.4 Full meals=2.2	Starvation=57.8 Meal rationing=41.0 Full meals=1.2	Starvation=46.1 Meal rationing=49.3 Full meals=4.6	Starvation=46.1 Meal rationing=49.3 Full meals=4.6
Total	Starvation=46.9 Meal rationing=47.2 Full meals=5.9	Starvation=63.2 Meal rationing=34.8 Full meals=2.0	Starvation=54.3 Meal rationing=43.2 Full meals=2.5	Starvation=47.0 Meal rationing=48.6 Full meals=4.4	Starvation=47.3 Meal rationing=48.3 Full meals=4.4
Observations	38,476	7,143	695	434,604	

Source: InM survey data 2006/2007.

Table 12: HH Meal Consumption Status during Non-*monga* by Membership of Safety Net Program and Receipt of Support during Non-*monga* (%)

Whether received support during *monga*	Members of long-term program only	Members of short-term program only	Members of both long-short-term programs	Members of no program	All
Received support during *monga*	Starvation=6.1 Meal rationing=56.0 Full meals=37.9	Starvation=15.5 Meal rationing=57.5 Full meals=27.0	Starvation=10.0 Meal rationing=67.0 Full meals=23.0	Starvation=7.3 Meal rationing=53.0 Full meals=39.8	Starvation=7.3 Meal rationing=53.6 Full meals=39.1
Did not receive support during *monga*	Starvation=7.0 Meal rationing=46.6 Full meals=46.4	Starvation=17.1 Meal rationing=45.5 Full meals=37.4	Starvation=11.1 Meal rationing=50.3 Full meals=38.6	Starvation=9.1 Meal rationing=49.7 Full meals=41.2	Starvation=9.1 Meal rationing=49.6 Full meals=41.3
Total	Starvation=6.4 Meal rationing=52.8 Full meals=40.8	Starvation=16.4 Meal rationing=51.3 Full meals=32.4	Starvation=10.5 Meal rationing=59.0 Full meals=30.5	Starvation=8.5 Meal rationing=50.7 Full meals=40.8	Starvation=8.5 Meal rationing=50.9 Full meals=40.6
Observations	38,476	7,143	695	434,604	

Source: InM survey data 2006/2007.

Table 13: Probit Estimates of Seasonal Migration during *Monga*

Explanatory variables	Marginal effects	Mean of explanatory variables
Head's age (years)	0.021**	40.0
	(0.001)	(12.7)
Head's age squared	-0.0002**	40.0
	(0.00001)	(12.7)
Dependency ratio	0.031	0.63
	(0.024)	(0.21)
Log of HH land asset (decimal)	0.296	8.20
	(0.182)	(12.59)
HH head is self-employed	-0.103**	0.16
	(0.007)	(0.37)
HH head is wage–employed	0.012**	0.54
	(0.005)	(0.50)
HH has agricultural asset	-0.017	0.49
	(0.013)	(0.50)
HH has nonagricultural asset	-0.030**	0.13
	(0.013)	(0.34)
HH has cash savings	0.049**	0.34
	(0.010)	(0.47)
HH has livestock asset	0.015	0.26
	(0.010)	(0.44)
Village has micro-credit programs	-0.003	0.97
	(0.030)	(0.18)
Village level unemployment rate	0.115**	0.30
	(0.033)	(0.24)
Proportion of highlands in upazila	0.465**	0.81
	(0.137)	(0.08)
Average annual rainfall (mm) in upazila	0.018**	198.55
	(0.002)	(6.62)
Village located in char area	-0.005	0.19
	(0.024)	(0.39)
Pseudo R^2	0.050	
Log likelihood	-285,258.5	
Observations	480,918	

Note: Figures in parentheses are standard deviations for mean column and standard errors for marginal impact column. ** and * indicates a significance level of 5 percent and 10 percent or better. Regression additionally includes union dummies to control for unobserved effects of union.

Source: InM data 2006/2007.

Table 14: Switching Regression Estimates of HH Food Deprivation during *Monga* for Recipients and Non-recipients of Supports during *Monga*

Household characteristic	Starvation		General food deprivation	
	Recipients of supports	Non-recipients of supports	Recipients of safety net benefits	Non-recipients of safety net benefits
Age of head (years)	0.003**	0.001	0.0002	0.0003
	(0.001)	(0.0008)	(0.0007)	(0.0003)
Age of head squared	-0.00002**	-0.00001	-0.00001	-0.00001
	(0.000001)	(0.00001)	(0.00001)	(0.00003)
Dependency ratio	-0.043**	-0.044	0.015	0.016**
	(0.020)	(0.027)	(0.007)	(0.007)
Log land asset (decimals)	-0.363**	-0.244**	0.092**	-0.001
	(0.134)	(0.108)	(0.037)	(0.031)
Has agricultural asset	-0.122**	-0.108**	-0.019**	-0.015**
	(0.015)	(0.017)	(0.004)	(0.005)
Has nonagricultural asset	-0.068**	-0.049**	-0.017**	-0.025**
	(0.013)	(0.013)	(0.007)	(0.004)
Has cash savings	-0.013	-0.034**	-0.017**	-0.013**
	(0.010)	(0.009)	(0.006)	(0.004)
Has livestock asset (cattle)	-0.044**	-0.033**	-0.005	-0.008**
	(0.007)	(0.006)	(0.003)	(0.002)
Has self-employed head	-0.049**	-0.006	0.007	0.012
	(0.013)	(0.015)	(0.005)	(0.014)
Has wage-employed head	-0.003	0.004	0.010**	0.009**
	(0.007)	(0.008)	(0.003)	(0.002)
Villagers have access to microcredit programs	0.015	-0.061	0.0001	-0.015
	(0.048)	(0.043)	(0.012)	(0.011)

Table 14: Switching Regression Estimates of HH Food Deprivation during *Monga* for Recipients and Non-recipients of Supports during *Monga* (contd.)

Household characteristic	Starvation		General food deprivation	
	Recipients of supports	Non-recipients of supports	Recipients of safety net benefits	Non-recipients of safety net benefits
Village unemployment rate	0.006 (0.048)	-0.019 (0.048)	0.022 (0.014)	-0.005 (0.015)
Village located in *char* area	0.069** (0.033)	0.035 (0.038)	0.009 (0.013)	0.011 (0.012)
Proportion of highlands in *upazila*	-0.124** (0.018)	-0.865** (0.068)	-0.568** (0.077)	-0.750** (0.077)
Average annual rainfall in *upazila* (mm)	-0.040** (0.004)	-0.031** (0.004)	-0.008** (0.001)	-0.010** (0.001)
Village located in *char* area	-0.004 (0.007)	0.010 (0.009)	0.004* (0.002)	0.010** (0.003)
Proportion of highlands in *upazila*	0.129** (0.034)	0.151** (0.036)	-0.087** (0.019)	-0.076** (0.016)
Average annual rainfall in *upazila* (mm)	0.001 (0.0006)	0.0004 (0.0005)	-0.0001 (0.0002)	0.0003* (0.0001)
Inverse Mill's ratio (λ)	0.771** (0.001)	0.357** (0.0006)	0.771** (0.001)	0.357** (0.0006)
Wald $\chi^2(33)$	1,656.15		484.01	
Log pseudo-likelihood	-521,208.51		-109,841.56	
σ_1	0.455** (0.007)		0.189** (0.044)	
σ_0	0.466** (0.006)		0.201** (0.033)	
ϱ_1	0.021 (0.034)		-0.158 (0.248)	
ϱ_0	-0.013** (0.044)		-0.086* (0.050)	
No. of observations	480,918			

Note: Figures in parentheses are robust standard errors. * and ** indicate a significance level of 10 percent and 5 percent or better, respectively. Regression also controls for unobserved fixed effects at the union level.

Source: InM 2006/2007 survey data.

Table 15: Impact of Receipt of Supports during *Monga* on Household Food Deprivation (N=480,918)

Household type	Starvation		General food deprivation	
During *monga* period				
Recipients of supports during *monga*	-0.044** (0.0002)	Difference = -0.019** (0.0002)	-0.039** (0.0001)	Difference = 0.014** (0.00006)
Non-recipients of supports during *monga*	-0.025** (0.0001)		-0.052** (0.00003)	
During non-*monga* period				
Recipients of supports during *monga*	-0.044** (0.0002)	Difference = -0.012** (0.0002)	-0.015** (0.0002)	Difference = -0.004** (0.0003)
Non-recipients of supports during *monga*	-0.032** (0.0001)		-0.011** (0.0002)	

Note: Results are based on the switching regression reported in Table 14. Figures in parentheses are robust standard errors. ** indicate a significance level of 5 per cent or better

Source: InM 2006/2007 survey data.

Table 16: Impact of Safety Net Program Membership on Household Food Deprivation (N=357,863)

Household type	Starvation		General food deprivation	
During *monga* period				
Members of the safety net programs	0.045** (0.001)	Difference = 0.011** (0.0005)	0.019** (0.0001)	Difference = -0.008** (0.0001)
Non-members of the safety net programs	0.034** (0.0002)		0.027** (0.00005)	
During non-*monga* period				
Members of the safety net programs	-0.042** (0.0004)	Difference = -0.005** (0.0004)	-0.063** (0.0006)	Difference = -0.024** (0.0007)
Non-members of the safety net programs	-0.037** (0.0001)		-0.039** (0.00003)	

Note: Results are based on a switching regression similar to the one reported in Table 14. Figures in parentheses are robust standard errors. ** indicate a significance level of 5 per cent or better. Sample excludes HHs who received supports during *monga* but are not the members of three major safety net programs.

Source: InM survey data 2006/2007.

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