
# RELATIVE EFFICACY OF FOOD AND CASH TRANSFERS IN IMPROVING FOOD SECURITY AND LIVELIHOODS OF THE ULTRA-POOR IN BANGLADESH

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## EXECUTIVE SUMMARY

This study examined the efficacy of food and cash transfers in enhancing food security and livelihoods of the ultra-poor in rural Bangladesh, with a focus on four interventions. The first two are components of the Vulnerable Group Development (VGD) program: (1) Income-Generating VGD (IGVGD) and (2) Food Security VGD (FSVGD). The last two are the (3) Food for Asset-creation (FFA) component of the Integrated Food Security (IFS) program, and the (4) Rural Maintenance Program (RMP). In 2006, these programs covered 830,840 beneficiaries with 3.72 million family members.

The IGVGD program exclusively targets poor women who receive a monthly food ration over a period of 24 months. IGVGD also has a built-in mechanism to provide credit to its participants. The FSVGD program also targets poor women and provides a combination of food and cash to program participants. The FFA component of IFS distributes a combination of food and cash as wage payments to workers in labor-intensive public works programs. Although both men and women participate in FFA, the program requires that at least 70 percent of the participants should be women. In contrast, only women can participate in the RMP, who receive cash wages for maintaining rural roads.

The evaluation assesses the operational performance of food or cash transfer delivery; beneficiary preferences for the form of transfers; targeting performance; impacts of program participation on food security, livelihood, and gender-related outcomes; and the cost-effectiveness of transfers. In doing so, the study draws on both qualitative and quantitative survey data from beneficiaries and nonbeneficiaries. Gender-disaggregated information was collected wherever it was meaningful. The quantitative assessments of impact rely heavily on the propensity score matching (PSM) method of impact evaluation—the most appropriate approach given that these programs had already been implemented when the household survey for the study was carried out.

### Transfer Delivery

***Type of food.*** There are differences across programs in the type of food households receive. Rice is the only food given through FFA and makes up about 60 percent of the food given through IGVGD. By contrast, the food provided by FSVGD is almost entirely micronutrient-fortified *atta* (whole-wheat flour).

***Transfer amount.*** IGVGD participants received fairly uniform amounts of food rations each month. For FSVGD beneficiaries, however, the amount of monthly food rations varied, mainly because of the irregularities in the *atta* milling and fortification process.

***Timeliness of payment.*** IGVGD participants received food transfers on a monthly basis while food transfers under the FSVGD were less regular. Cash payments were received irregularly in all three programs.

Virtually all FSVGD beneficiaries and 52 percent of FFA beneficiaries received one to three cash transfers in six months. In the case of RMP, 75 percent of participants received only one or two transfers in six months. Indeed, 9.7 percent of FFA and 6.8 percent of RMP beneficiaries received no payments in the six months prior to the household survey.

The main reasons for the irregularity of cash transfers to FSVGD participants are (1) delays in fund release from donor to GoB; (2) irregular flow of funds from the Bangladesh Bank (central bank) to local commercial bank branches due to administrative

difficulties; and (3) the FSVGD program was in its last phase in 2006, and the closing down process caused some disruptions in payment disbursements.

The story is quite different for the FFA program. The levels of FFA workers' payments depend on the time it takes to complete a works project and the amount of work (mostly earth-work) undertaken by individual workers. FFA participants receive half the value of wage in food and half in cash. After a project starts, workers receive periodical payments in food on a piece-rate basis. Once the project is completed, the total remaining food payment is calculated and provided. The outstanding cash segment of the wage is then paid to workers. As a result, the cash payments are generally delayed.

In the case of RMP, the primary reason for the irregularity in payment is that the program was in transition at the time of the household survey, which caused major disruptions in transfer payments in the reference period. In June 2006, the operation of the program was shifted from CARE to the Ministry of Local Government, Rural Development, and Cooperatives (LGRDC). During the phasing-out period of the program from CARE, an audit of accounts was in progress, and therefore payments to program participants were often withheld.

### What Do Participants Prefer—Food or Cash?

Most participants express a preference for the transfer type provided by the program they are participating in: 72 percent of IGVGD participants prefer only food; 57 percent of RMP participants prefer only cash; and 75 percent of FFA and 48 percent of FSVGD participants prefer a combination of food and cash.

Does a beneficiary household's level of income influence the beneficiary's preference for food or cash? To answer this question in a scientific way, we used econometric methods to isolate the effect of income levels of beneficiaries on their preference from program participation and other factors that may affect preferences. The results suggest that, as income increases, beneficiaries' preference for food declines, indicating that the poorest households prefer only food as the transfer. Conversely, relatively better-off beneficiaries tend to prefer only cash. These results are statistically significant. Beneficiary preference for a combination of food and cash transfer, however, is unrelated to household income.

### Targeting Performance

All programs are fairly well targeted to the poorest, with FFA being the best targeted. In the absence of the program, 72 percent of all FFA beneficiary households would have been among the poorest 10 percent of all households in their income distribution and 84 percent among the poorest 30 percent of all households in their income distribution. In the FFA program, both female and male beneficiaries do physical work that mainly involves earth moving. Only out of desperation would a Bangladeshi rural woman be willing to work with men in 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.

The study found no major contravention of program rules in the beneficiary selection process across the programs. Some of the selection criteria, however, are difficult to verify (for example, the criteria that members consume less than two full meals per day or have extremely low and irregular family income from daily or casual labor).

### Effectiveness of Training

In addition to food and cash transfers, the interventions provide development support to program participants consisting of training on income-generating activities (IGAs), life skills, and basic literacy and numeracy; and awareness raising on social, legal, health, and nutrition issues. The majority of program participants reported that they had started IGAs after receiving the training. This and some qualitative evidence suggest that the IGA training has been quite effective. Poultry and cow or goat rearing are the most common IGA undertakings. The values of livestock and poultry assets are substantially higher for those who adopted IGAs than for those who did not. The difference is particularly large for IGVGD participants—those who undertook IGA had livestock assets almost three times as valuable as those who did not. These results show the success of participants' adoption of IGAs after receiving the training. This success may not, however, be fully attributed to training—qualitative field research found that IGVGD's built-in provision of microcredit is instrumental in such success.

Literacy training does not seem to be effective. Although IGVGD and FSVGD provide training on basic literacy and numeracy, more than 80 percent of IGVGD and FSVGD women remained illiterate even after 18 months of program participation at the time of the study.

### Impact on Food Consumption

Transfer sizes and the type of food offered are especially important to explaining the differences in impact of transfers on food consumption. Participation in IGVGD, FSVGD, FFA, and RMP raises household per capita food consumption by 45, 66, 23, and 35 kilocalories (kcal) respectively per person per day per one taka transferred. These increases can be interpreted as the marginal propensity to consume calories (MPCc) out of income transfers in food (IGVGD), cash (RMP), and food-cash combination (FSVGD and FFA).

The amount of the FSVGD *atta* ration is vastly higher than the amount of *atta* that a recipient household would have consumed without the ration; the *atta* ration is thus extramarginal. Owing to the substitution effect of the extramarginal *atta* ration, the FSVGD households consume much more *atta* than their matched control households and increase the consumption of other products because of the income and cross-price effects of the ration. Since a large part of consumption of other products is food, the net effect on food consumption is quite large for FSVGD households. Rice rations provided to FFA and IGVGD participants are inframarginal and thus only have an income effect on food consumption.

### Intrahousehold Impacts on Caloric Intake and Nutritional Status

Participation by an adult female does not lead to increased caloric intakes by preschool-age children in *any* of the four programs. Only in the case of the RMP—the intervention providing around 70 percent higher transfers than IGVGD and FSVGD—do caloric intakes of school-age and older persons increase. The benefits in terms of increased caloric intake from the pure cash program, RMP, appear to be evenly split between men and women. The form of food transfer has an effect on who benefits within the household: the food interventions that provide rice (IGVGD and FFA) have a larger effect on men's caloric intake relative to women, whereas the converse is true for the one intervention that provides *atta* flour (FSVGD). Here, the use of a less preferred food—*atta*—increases the share of the food that goes to women relative to men.

### Impacts on Women's Empowerment

Because the food and cash transfer programs are targeted to poor women, we are also interested in the programs' impacts on indicators of women's empowerment—the ability of beneficiary women to make decisions, mobilize resources, and exercise choices over various aspects of their lives. The programs that had the biggest impacts on indicators of women's decisionmaking and mobility are FFA and RMP, which are the programs that have the largest transfers and that challenge traditional norms of gender seclusion. IGVGD, however, has the largest impact on indicators related to taking loans from NGOs, owing to the program's emphasis on obtaining access to credit.

Because transfer sizes differ markedly among programs, we compared programs with similar transfer sizes, comparing IGVGD to FSVGD, and FFA to RMP. Married women's empowerment outcomes improve more the higher the proportion of transfers received in cash. This effect probably arises because receiving cash enables married women to control resources they previously were unable to and expand their area of decisionmaking beyond their traditional roles. Both FSVGD and RMP have the largest positive impact on married women's empowerment. Compared with IGVGD, a pure food transfer, FSVGD recipients receive a combination of food and cash (a 50:50 value). Likewise, compared with FFA, RMP participants receive a higher proportion of the transfer (100 percent) in cash.

We also note that improving one's status within the household does not automatically translate to an improvement in status within the community. Although FFA and RMP appear to have had a large, positive, and significant effect on empowerment outcomes of participants at the household level, their status in the community may not have changed at all or could even have worsened owing to their participation in the program. Some participants mentioned that they were the victims of verbal attacks by other villagers because of their participation in these programs, as it is not considered appropriate for women to engage in manual labor.

### Impact on Income

Our assessment of impact on income, as measured by total per capita consumption expenditures, indicates that a monthly transfer of 100 taka increases household income by a significantly smaller amount for FFA (Tk 32 per month) and RMP households (Tk 85 per month). By contrast, the increase in income for IGVGD and FSVGD is considerably larger than the size of the transfer. A number of program-specific factors account for these findings. FFA and RMP have work requirements that may crowd out other income-generating opportunities. These requirements differ, however, between the two public works programs. Whereas FFA engages its members mostly in earth-moving for construction, RMP engages its crews in road maintenance. And whereas most FFA participants work a full day during the working season, the RMP daily work schedule is 8 a.m. to 2 p.m. The FFA work is also harder than that of RMP.

### Impact on Poverty

We estimated the impact of transfers from each of the four programs on the poverty status of *current* beneficiaries of the programs. Using the PSM method of impact assessment, we estimated poverty impacts by comparing the proportions of program households in extreme poverty with those in the matched control groups.

Program transfers reduced extreme poverty by 20 percentage points for IGVGD, 30 percentage points for FSVGD, 15 percentage points for FFA, and 16 percentage points for RMP households. Even after considerable poverty reduction, however, 60 percent of IGVGD

households, 51 percent of FSVGD households, 64 percent of FFA households, and 48 percent of RMP households remained in extreme poverty.

Why do such large percentages of program participants remain in extreme poverty? The size of transfers and their multiplier effects on income are not enough for most beneficiaries to move out of extreme poverty. Although most program participants were extreme poor before they joined the programs, the range of their income varied considerably. Therefore, those who were extreme poor but lived closer to the poverty line were able to escape extreme poverty, but those further away from the line remain in poverty.

**Impact on Assets**

The ownership or control of productive assets is an important indicator of livelihood because assets generate income. Income transfers from the four safety net programs play an important role in protecting and expanding asset bases of poor households. The impacts on various types of asset holdings are, however, mixed across the programs. Results show that participation in the IGVGD program facilitates the renting or leasing of land for cultivation. All programs significantly increase the value of consumption-asset bases for participating households. In the case of productive assets (excluding livestock and poultry), IGVGD, FSVGD, and FFA have statistically significant impacts, but RMP does not. The average value of livestock holdings increased significantly for IGVGD and RMP members. Access to NGO loans may have enabled IGVGD women to buy livestock. For RMP participants, the larger amount of cash transfers as well as the lumpiness of these transfers seems to have enabled them to expand their livestock holdings as well. The average value of poultry holdings increased for IGVGD, FSVGD, and RMP participants, but not for FFA participants.

The average amount of liquid asset holdings, in the form of savings, increased considerably for IGVGD, FSVGD, and FFA, and staggeringly for RMP households. The mandatory saving requirements of the case study programs accounted for most of the savings of program participants. The amount of savings required is much higher for RMP participants than for participants of the other three programs, which explains why the impact on saving is so high for RMP women.

**Sustainability of Livelihood**

Our analysis of the income of former program beneficiaries suggests that IGVGD and RMP seem to result in reasonably long-term sustainable improvements in the income of their beneficiaries—at least 18 months for ex-IGVGD and 25 months for ex-RMP households. IGVGD probably achieves this result through a program design that consciously incorporates graduation steps—particularly the built-in provision of microcredit. It is likely that the primary reason for RMP women's sustained livelihood improvements is their relatively large accumulation of savings, which is due to the relatively high rate of mandatory savings required by RMP. The participants receive their savings after completing the program cycle.

In contrast, although current FSVGD participants show relatively large improvements in food security and livelihood indicators, they do not seem to be able to maintain these improvements after leaving the program. FSVGD has neither a built-in mechanism for access to microcredit (only IGVGD has this among the four programs) nor a substantial savings requirement (RMP's mandatory savings requirement is 9.4 times higher than that of FSVGD).

## Cost-Effectiveness

We assessed the cost-effectiveness of transfers by comparing costs of providing measured benefits to transfer recipients. The fiscal costs consist of the direct cost of the transfer itself (food, cash, or combination) and the costs of delivering the transfer amount to the point of distribution. On average, the food-based programs transfer 1 taka worth of food at a cost of Tk 1.20, which includes the cost of the transferred food.[1] In other words, the delivery cost of transferring Tk 1 worth of food is Tk 0.20 (or 20 paisa). In contrast, the delivery cost of cash is virtually zero—it costs only 15 paisa to transfer Tk 1,000 to a cash recipient.

The complete monthly costs of increasing per capita daily calorie intakes of household members by 100 kilocalories are Tk 249 for IGVGD, Tk 156 for FSVGD, Tk 440 for FFA, and Tk 255 for RMP. The cost is the lowest for FSVGD mainly because of its distribution of extramarginal *atta* rations. In contrast, FFA requires 182 percent higher costs than FSVGD to increase the same amount of calories, primarily because it distributes an inframarginal quantity of rice.

The monthly full costs of increasing household monthly income by 100 taka per program beneficiary are Tk 53 for IGVGD, Tk 47 for FSVGD, Tk 272 for FFA, and Tk 99 for RMP. The relative costs of increasing household incomes are much lower for FSVGD and IGVGD programs than for FFA and RMP because FSVGD and IGVGD transfers have large multiplier effects in terms of generating incomes.

In aggregate terms, the annual total costs of reducing extreme poverty by 1 percent for all beneficiary households under each of the four programs are Tk 159 million (US$2.31 million) for IGVGD; Tk 17 million (US$0.25 million) for FSVGD; Tk 27 million (US$0.39 million) for FFA; and Tk 22 million (US$0.31 million) for RMP. Here, it is important to note that the calculations of costs of reducing poverty are based on short-term impacts of the programs on income poverty reduction during the programs. Those who escape extreme poverty during their program participation period could fall back into it after leaving the program. These findings therefore should be interpreted with caution and should not be picked up and quoted out of context.

## Total Costs of Transfers

Based on full entitlements, we estimated the annual total costs of transfers (that is, the value of transfer plus delivery cost) in 2006 for each program. These costs are Tk 342.4 crore (US$49.58 million) for IGVGD; Tk 48.5 crore (US$7.02 million) for FSVGD; Tk 40.2 crore (US$5.83 million) for FFA; and Tk 76.3 crore (US$11.05 million) for RMP. The total transfer cost of all four programs was Tk 507.3 crore or US$73.47 million in 2006. The annual total costs of transfers per beneficiary (based on full entitlements) in 2006 were Tk 5,343 (US$77.38) for IGVGD; Tk 4,431 (US$64.17) for FSVGD; Tk 10,266 (US$148.67) for FFA; and Tk 18,360 (US$265.89) for RMP.

## Conclusions and Recommendations

A number of conclusions and recommendations emerge from the findings of this study and from suggestions of participants in a workshop held on this study:

[1] The delivery costs of transfers of wheat and *atta* to program beneficiaries are higher than the costs of delivering rice, mainly because of handling costs and pilferage/loss incurred at the port. Our calculation suggests that 96 percent of all wheat (including the wheat used for producing fortified *atta*) provided to the three food-based programs was imported and only 4 percent was domestically procured from farmers. In contrast, 100 percent of all rice was domestically procured. Total food is composed of 6 percent wheat, 36 percent *atta*, and 58 percent rice.

- Program features and contextual factors help determine the effects of food and cash transfers. The four programs assessed here differ from each other in a number of respects, including—but not limited to—whether they provide food and/or cash. We also note that programs differ in terms of their impacts on outcomes and their relative effectiveness varies by outcome. For example: IGVGD and FSVGD are the most cost-effective programs in terms of increasing household income; FSVGD is the most cost-effective means of increasing women's caloric intake; FFA is the best-targeted program; and RMP has the largest effect on savings. It is incorrect to perceive one program as "better" than another. Rather, assessment of program effectiveness depends on the particular outcome that is of interest.
- The size of the transfer clearly matters, and so does the access to microcredit and savings offered by NGOs to program beneficiaries. Increasing the size of transfers and the length of assistance of VGD-type interventions, as well as strengthening access to microcredit and savings services, is critical to achieving sustainable improvements in the food security and livelihoods of the ultra poor.
- Although all programs are reasonably well targeted, there may be some scope for improving the targeting performance of IGVGD and FSVGD. Currently, these programs rely in part on selection criteria that are neither observable nor verifiable. Options for improvement could include the increased use of community input into beneficiary selection.
- Delays in cash payments from FSVGD, FFA, and RMP have been quite common, and there have been large fluctuations in cash payment levels.[2] Addressing this concern will be especially important if shifts from food to cash are envisaged. Our key-informant interviews suggest that these delays are mainly due to the complex and lengthy administrative processes of cash transfers, particularly in the case of FSVGD. The feasibility of introducing new technology, such as the use of electronic ATM cards for cash payments that will enable beneficiaries to easily withdraw payments and check balances, should be explored. Such technology has the potential to greatly facilitate timely payment disbursements to program participants. For example, ATM technology has made cash transfers quite effective in Malawi and Kenya.
- Among the different forms of transfer, the biggest improvement in food security of the extreme poor, and women in particular, is achieved through *atta* transfers. *Atta* is also technically better suited for micronutrient fortification than rice or wheat. The current system of milling and fortification and distribution of micronutrient-fortified *atta* in sealed bags preserves the micronutrients, ensures the weight, maintains quality standards, and prevents pilferage or leakage. There are, however, operational issues associated with shifting from rice to *atta*. Bangladesh's food policy operations are carried out through the Public Food Distribution System (PFDS). The PFDS plays three key roles: (1) providing price incentives to Bangladeshi farmers for increased production, through domestic procurement of rice and wheat; (2) maintaining a security stock of foodgrains to meet emergencies arising from disasters such as floods and cyclones; and (3) supplying foodgrains to various groups of the population. PFDS stocks of foodgrains must be rotated to accommodate new stocks and to prevent losses

[2] For RMP, however, the irregularity in cash disbursement was not endemic. During the study, RMP was undergoing a reform, and implementation responsibility was being shifted from CARE to LGED.

resulting from quality deterioration. The PFDS operates through 15 distribution channels that broadly fall into two groups: eight monetized (sale) and seven nonmonetized channels. The latter are composed of the food-based safety net programs, accounting for (in 2006) 71 percent of the total PFDS distribution, with rice accounting for 68 percent of total nonmonetized distribution. Although a switch from rice to *atta* distribution in the transfer programs is possible, it will involve a major reshuffling of PFDS operations. This factor will also need to be considered if there is a significant shift from food to cash transfers, because such a shift would reduce or eliminate existing nonmonetized channels of the PFDS.

- One intermediate option between food and cash transfers is to introduce a food stamp or food coupon program to transfer income to the needy. A part of PFDS stocks can be used for such a system. Food stamps or cash vouchers can be distributed to eligible consumers. The stamps or vouchers have a cash value when used for purchasing food and other commodities in a store, and the seller redeems the stamps or vouchers at a bank or government office. The major advantage of such programs is that they utilize the normal marketing system, thus eliminating some administrative burdens. A food stamp or a cash voucher program is a viable option for transferring income to the poor, but one that needs to be piloted and evaluated carefully before any large-scale expansion.
- Although the onerous work requirements may contribute to the especially good targeting performance of the FFA intervention, these requirements also limit its impact in terms of poverty reduction and reduce its cost-effectiveness.
- Married women benefit from controlling some amount of cash, even if they traditionally prefer to control food for fear that their husbands will take control of cash. Program designers may want to examine ways of strengthening women's control over cash in VGD programs, perhaps through savings accounts in women's own names or through group savings accounts that women can draw upon in times of need. One cannot discount, for example, the large impact of the RMP's high level of compulsory savings on women's empowerment indicators as well as on the sustainability of livelihoods.
- With respect to evaluating transfer programs, setting up a proper baseline using both quantitative and qualitative methods of data collection is essential for effectively comparing impacts at a later stage.
- The seeming lack of significant impact on empowerment indicators could mean that quantitative indicators, which are commonly collected in surveys, may underestimate the potential impact of interventions on gender relations. Quantitative or survey-based indicators need to be backed up by sound qualitative work among beneficiaries and their families, in order to ascertain the full range of impacts of the intervention. Nonetheless, one should not underestimate the difficulty of changing gender relations—social norms are well entrenched, and it is perhaps unrealistic to expect that they will change quickly. A common set of empowerment indicators may need to be monitored over time to see whether the program has resulted in changes.
- Finally, although these programs have an important role in helping ultra-poor households, they cannot be the sole mechanisms for sustainable poverty reduction. Rather, they should be seen as one component of a portfolio of activities designed to eradicate poverty.

# 1. INTRODUCTION

## 1.1 Scope and Objectives of the Study

Bangladesh possesses a wealth of institutional diversity and a wide range of experiences in providing assistance to the poor through social safety net programs. The country has both food- and cash-based interventions, and some programs provide a combination of food and cash to the poor. Section 1.5 below provides an inventory and characteristics of current safety net programs in Bangladesh.

Although the largest programs tend to be food-based, cash transfers have become increasingly important. The debate over whether cash transfers are more effective than food transfers continues, but momentum seems to be building in favor of cash transfers, especially among donors, for promoting a social protection agenda that moves beyond the traditional food-based safety nets.

Bangladesh has moved from a chronically food deficit country to the brink of foodgrain self-sufficiency through increased domestic production and market liberalization. Indeed, the challenge in achieving food security is no longer to achieve food availability, but rather to provide the poor with economic access to food and to improve the biological utilization food. In this changed context, some stakeholders are questioning whether food-based programs are more efficient than cash-based programs in addressing these challenges.

The World Food Programme (WFP) of the United Nations asked the International Food Policy Research Institute (IFPRI) to study the relative merits of food and cash transfer programs in improving food security and livelihood of the ultra-poor in Bangladesh. The information generated through this study should strengthen the empirical basis upon which the policymakers can make informed policy choices to refine the social safety net programs in Bangladesh.

The Terms of Reference (ToR) for the study identified two interrelated objectives:

1. guide formulation of effective program implementation strategies for WFP's next country program; and
2. inform and guide the ongoing social protection policy formulation exercise.

According to the ToR, the study would "establish the relevance of food and cash in enhancing food security of the ultra-poor, especially of women and children, in a sustainable fashion through overall improvements in livelihoods." The study would look at the effectiveness and relevance of cash or food or a combination of the two in promoting the goal of WFP Country Program 2007–2010: "achieving MDGs by improving ultra-poor households' food security, nutritional well-being, and livelihoods."

This report is organized in eight sections. The rest of Section 1 presents the definitions of food security and livelihood, conceptual issues and empirical evidence of the effects of food and cash transfers, the country profile, and the characteristics of social safety net programs in Bangladesh. Section 2 describes the salient features of the four programs covered under this study. Section 3 discusses the analytical methodology and the data used in the empirical work. Section 4 gives a profile of survey households. Section 5 evaluates the delivery of transfers, looks into beneficiary preferences for the form of transfers, and assesses the targeting performance of the four programs. Section 6 assesses the impact of the programs on various food security and livelihood outcomes. Section 7 discusses gender issues concerning

targeted interventions and presents the impacts of the programs on gender-related outcomes. Section 8 summarizes the main findings and provides conclusions.

## 1.2 Defining Food Security and Livelihood

### *1.2.1 Food Security*

Food security is broadly defined as physical and economic access by all people at all times to sufficient food to meet their dietary needs for a healthy and productive life. One essential element of food security is the availability of adequate food at a national level. Another essential element is the access to adequate food at household and individual levels. Yet availability of and access to adequate food are necessary, but not sufficient conditions of a healthy life. Hence, the third essential element of food security is the effective biological utilization of food, which depends on a number of other factors, such as the health and sanitation environment, and household or public capacity to care for vulnerable members of society.

Food availability at the national level is determined by domestic food production, public and private food stockholding, food imports including food aid, and food exports. With the liberalization of international trade, global availability of food is of increasing importance for national food security. Availability of food at the household level depends on the household's own capacity to produce food, household food stockholding, and availability of food in the local markets, which, in turn, is a function of market operations, infrastructure, flow of information, and seasonal variations in domestic food production.

A country's access to globally available food is a function of export earnings, world prices, and debt-service obligations, as well as the policies and capacities of food aid donors. A household's access to food depends on food prices, household income, and the asset or resource base. Increased household income can improve household food security in terms of increased access to food. In addition, an expanded asset base reduces a household's vulnerability to short-term disruptions in income flows, because part of the asset base can be sold in times of adversity (von Braun et al. 1992). Thus poverty is a major determinant of chronic household food insecurity. The poor do not have adequate purchasing power to secure their access to food, even when food is available in local markets. Moreover, the poor are vulnerable to shocks (such as natural disasters or crop failure) that cause transitory food insecurity. Sudden increases in food prices also result in transitory food insecurity, particularly for low-income households, by lowering their real income and, hence, eroding their purchasing power.

As food availability and access to food increase, hunger may decrease, but malnutrition may not. One reason for persistent malnutrition may lie in the complex interaction between food intakes and illness, affecting the food utilization by the body, which in turn is influenced by the overall health and caring environment. This is often called the "leaking bucket effect," wherein improvements in availability and access to the foods that are important for good nutritional status may be offset by poor access to nonfood inputs, such as high-quality health care facilities and services, education, sanitation, and clean water or by ineffective mechanisms for delivering these services (Haddad et al. 1995).

### *1.2.2 Livelihood*

Livelihood is about the ways and means of making a living. Academics and development practitioners have discussed the definition of "livelihood" extensively (Batterbury 2001;

Bernstein et al. 1992; Carney 1998; Chambers and Conway 1992; Ellis 1998, 2000; Francis 2002; Radoki 2002).[3] The most widely accepted definition of livelihood stems from the work of Chambers and Conway (1992): "A livelihood comprises the capabilities, assets (including both material and social resources), and activities required for a means of living" (Carney 1998). Ellis (2000) suggests a definition of livelihood as "the activities, the assets, and the access that jointly determine the living gained by an individual or household."

One feature that these definitions and interpretations share is that they underline the generally accepted idea that "livelihood" deals with people, their resources, and what they do with these.

Livelihoods are also about creating and embracing new opportunities. While gaining a livelihood, or attempting to do so, people may have to cope with risks and uncertainties, such as erratic rainfall, diminishing resources, pressure on the land, changing life cycles and kinship networks, epidemics such as HIV/AIDS, unstable markets, increasing food prices, inflation, and national and international competition in trade. These uncertainties, together with new and emerging opportunities, influence how material and social resources are managed and used and what choices people make.

## 1.3 Cash and Food Transfers: Conceptual Issues and Empirical Evidence

### *1.3.1 Conceptual Issues*

A number of conceptual issues arise in assessing the appropriateness of cash transfers and in-kind transfers. In theory, cash is preferable to in-kind transfers because it is economically more efficient (Tabor 2002). It does not distort individual consumption or production choice at the margin (Subbarao et al. 1997). Cash transfers provide recipients with freedom of choice and give them a higher level of satisfaction at any given level of income than is the case with food or another type of in-kind transfer. In other words, cash allows beneficiaries to choose to buy what they need most. Distributing cash is likely to be cheaper than distributing food or other commodities. Cash distribution can also stimulate agricultural production and other activities.

By contrast, in-kind transfers are often used as a means of controlling, modifying, or otherwise influencing the behavior of recipients (Tabor 2002). For example, a food-based program may provide a basic food to those who otherwise could not afford the food or are unlikely to purchase adequate quantity of the food even if they did have the cash to buy it.

The degree to which the food (or other in-kind) transfer influences actual household consumption behavior hinges on whether or not the food assistance is inframarginal (in other words, the ration is less than what is normally consumed without the transfer). Economic theory holds that if the food (or other in-kind) transfer is inframarginal, then the transfer will result in the same additional food purchases as would a cash transfer of the equal value. In this case, the in-kind transfer has only the income effect (as in the case of any cash transfer), and the price incentive effect at the margin is lost.

The in-kind transfer is extramarginal if the transfer (for example, food ration) received is greater than the amount the recipient household would have consumed without the ration. In this case, the transfer may have two effects—an income effect and a substitution effect. The pure price effect of the ration is captured through the substitution effect. The net effect, which also includes the income effect, may lead to an increase in the consumption of the ration

[3] This discussion on livelihood has been summarized from materials posted in the Wageningen University website: http://www.livelihood.wur.nl/index.php?id=24.

commodity,[4] as well as increased consumption of complementary products and reduced consumption of substitutes (Kennedy and Alderman 1987). The substitution effect, however, will take place only if resale of the ration is effectively prohibited or if resale entails a high transaction cost that decreases the implicit selling price for the ration recipient. If there is no transaction cost and the recipient has the option of selling the ration at market price, then the in-kind transfer is equivalent to the income effect only, even if the ration is extramarginal (Ahmed 1993). Thus, comparative effects of food and cash transfers on food consumption and nutrition will depend on, among other things (like intrahousehold control of cash and food resources), the size of the ration, the price and the ease with which the ration can be resold, and the frequency of food or cash distribution.

Which type of transfer is better—cash or in-kind? The answer depends partly on the purpose of providing the benefit and partly on administrative and financial considerations (Grosh 1994).

Generally, a household will spend only a portion of its additional income on food. This pattern is referred to as the marginal propensity to consume food (MPCf), which ranges between zero and one. If, for example, 65 percent of any income increment is spent on food, then the value of the MPCf is 0.65 and MPC nonfood is 0.35. If a program's primary goal is to improve the nutritional status of the target group, and if an income transfer in food has a higher marginal propensity to consume food than that of a cash transfer, then a food-based program could be more effective in achieving the goal. If improving nutrition is not the primary goal, however, food distribution is not necessarily preferable to cash transfers. If the MPC for household essentials (such as expenses for health care, education, clothing, and shelter) from a cash transfer is higher than that of a food transfer, then a cash transfer program may be preferable if the program's primary goal is to improve overall livelihoods.

Further, household welfare and the impact of the program on desired outcomes may depend on the preferences of the decisionmaker within the household. For example, recent conditional cash transfer programs have targeted transfers to women because of the growing evidence that resources in the hands of women are more likely to be spent on children. Traditional intrahousehold resource allocation models (Becker 1973; Samuelson 1956) assume, however, that household members pool their income, including transfers, and make consumption decisions according to a single household preference structure. As such, the models predict that regardless of which household member receives a transfer, household consumption will be affected in the same way. More recent household models, which fall under the umbrella of "collective models" developed by Chiappori (1988, 1992), suggest that household income is treated differently depending on which household member receives the income. Household bargaining models (Manser and Brown 1980; McElroy and Horney 1981) are a form of collective model in which specific assumptions about the intrahousehold resource-sharing rules are made.

For cash transfers, the real value to the beneficiaries may erode with inflation, but the government's nominal budget is fixed and predictable. If benefits and real budgets are to keep pace with inflation, the government must make explicit decisions to raise benefit levels. In contrast, for food transfers, the real value of benefits to consumers is constant[5] and the cost to the government (or food aid donors) rises and falls with the price of the commodity (Grosh 1994).

[4] If the in-kind ration is an inferior good (that is, has a negative income elasticity), then the income effect of the ration will reduce its consumption.

[5] If program beneficiaries sell a large proportion of the ration received, however, then the value of the food transfer will fluctuate with the price of the food in the market.

### *1.3.2 Empirical Evidence*

A number of studies conducted in Bangladesh and other developing countries suggest that the poor tend to have a higher marginal propensity to consume food (MPCf) out of food transfers than cash transfers or increased cash income (Ahmed 1993; Ahmed and Shams 1994; Bouis and Haddad 1990; Del Ninno and Dorosh 2003; Edirisinghe 1987; Garcia and Pinstrup-Andersen 1987). For example, a study in Bangladesh by Ahmed and Shams (1994) found that the MPCf out of cash transfers from the Rural Maintenance Program was 0.48, while the MPCf out of income transfers in wheat from the Food-for-Work program was 0.61. Del Ninno and Dorosh (2003) examined the impact of wheat transfers and cash income on wheat consumption and wheat markets in Bangladesh. Their study suggests that the marginal propensity to consume wheat out of wheat transfers to poor households is approximately 0.25, while MPC wheat out of cash income is near zero. These studies show that income transfer in food is more effective in improving household food consumption than cash transfers.

The choice between cash and food transfers may have an impact on program administration and costs. In general, cash transfer systems require a larger and more sophisticated institutional structure (such as a rural network of banks) than in-kind transfer systems. Once that administrative system is in place, however, the costs of operating a cash transfer system are likely to be lower than that of an equivalent in-kind transfer system (Grosh 1994). The primary disadvantage of distributing food is that the logistical difficulties and transfer costs are substantial. There are administrative problems of procurement, storage, transportation, and distribution of food (Rogers 1988). Experience with several food-based safety net programs in Bangladesh suggests that food transfers raise program costs by about 25 percent because of the internal transport and handling costs of bulky food commodities (WGTFI 1994).

For food-based programs, an effective tool for targeting the poor is to select an "inferior" food for distribution.[6] For example, in Tunisia, semolina (durum wheat pasta) has been subsidized because it is consumed disproportionately more by the poor than the rich (Tuck and Lindert 1996). For similar reasons, barley has been subsidized in Korea, coarse rice in the Dominican Republic (Alderman 1991), and coarse *baladi* bread in Egypt (Ahmed et al. 2001). The principal administrative disadvantage of any form of cash transfer is the fact that "cash" cannot be self-targeted. In contrast to basic food items, an inferior category of cash cannot be created to direct benefits to the needy. For targeted cash transfers, criteria for program eligibility must be established and their eligibility must be periodically reconfirmed. This requirement imposes a significant administrative burden on program implementers (Blackorby and Donaldson 1988). If self-targeting commodities cannot be found to target the neediest, then administrative targeting will need to be used for in-kind transfer programs as well. Indeed, most targeted food-based interventions rely on administrative targeting mechanisms, as effective self-targeted commodities are hard to identify.

Several recent studies are available on the efficacy of conditional and unconditional cash transfers. Conditional cash transfer (CCT) programs have become an important poverty-reduction tool primarily in Latin America and the Caribbean, where they were originally developed, but also elsewhere (such as in Turkey). Most CCT programs include a combination of education, health, and nutrition objectives. CCT evaluations provide concrete evidence of success from programs in Brazil, Colombia, Mexico, Nicaragua, and Turkey in

[6] An inferior food is one that has a negative income elasticity of demand. In other words, it is consumed by the poor but not preferred by wealthy.

increasing school enrollment rates, improving preventive health care, and raising household consumption (Ahmed et al. 2006; Behrman and Hoddinott 2000; Behrman, Sengupta, and Todd 2000; Gertler 2000; Hoddinott, Skoufias, and Washburn 2000; Maluccio and Flores 2005; Morley and Coady 2003; Morris 2005; Schultz 2000a, b, c; Skoufias 2005; Yap, Sedlacek, and Orazem 2001).

In the face of chronic poverty, food insecurity, and increasing HIV and AIDS in Eastern and Southern Africa, there is growing recognition of the importance of cash transfers for reaching vulnerable children and households. A variety of cash transfer schemes are being piloted. A recent study documents the use of unconditional cash transfers and lessons learned from initiatives in Ethiopia, Lesotho, Mozambique, and Zambia. Evidence is presented that regular and predictable cash schemes are a feasible option in low-income countries. International donors and nongovernmental organizations are supporting cash transfer schemes in response to the unmet need for social protection. Cash transfers give people the choice to buy more than just food, and they benefit children, even when transfers are pensions targeted at older people, since grandparents are increasingly caring for orphans and other vulnerable children. Pensions in Botswana, Lesotho, and Namibia, for instance, reach vulnerable children because large numbers of young people live with grandparents. The pension is simple and cost-effective because it is targeted at a group that is universally identifiable without the costly administrative problems of income testing (Devereux, Marshall, and MacAskill 2005).

A recent study in Ethiopia, however, contends that the demand created by cash transfers led to increased food prices because supplies could not keep up: traders may have profited the most. Those left out of the programs suffered the double burden of not benefiting from transfers and relying on markets with inflated prices. The study compares findings from the Ethiopian Government's new Productive Safety Net Program (PSNP) in two districts where Save the Children, UK, is a partner or has its own cash-based livelihood development program. Cash transfers seem better suited to areas with market-oriented infrastructure and institutions, such as Meket, and in-kind transfers, such as food, to remote areas like Sekota. With Ethiopia's weak market network and widespread poverty, however, both cash and food can affect the market, distorting prices. Cash transfers may be less expensive than locally purchased or imported food, but costs are likely to be higher if action is needed to address problems of market supply. The study suggests that cash-based programs need to integrate local infrastructure development (such as roads, banks, and data services), skill development, effective targeting, and compatibility with other programs (Kebede 2006).

Although research on cash and food transfers has increased considerably, comparative studies on cash and food transfers remain limited. A study in Bangladesh compared the relative impacts of food versus cash for education programs. The results of this study show that although both programs raised school enrollment rates, food rations increased families' food consumption and cash transfers did not. Therefore, if an education incentive program seeks to support nutrition in addition to raising school enrollment, a food-based incentive system appears to be more effective (S. S. Ahmed 2005).

In 2006 the WFP implemented a Cash Transfer Pilot Project (CTPP) in Sri Lanka in the aftermath of the tsunami. The key objective was to compare food and livelihood security outcomes between households that receive food assistance and households that receive an equivalent amount of cash assistance. Significant differences in expenditure patterns between cash-receiving households and food-receiving households were seen only in the poorer, remoter, and more conflict-ridden communities in eastern Sri Lanka and not in the relatively urbanized south. Transaction costs imposed by remoteness and conflict had the effect of

eroding the value of cash transfers relative to food transfers, and for this reason, households generally preferred food to cash. When the households received cash, however, not only did they spend more on better-quality cereals, but they also had larger expenditures on dairy products, meat, and packaged foods and nonfood essentials such clothing and footwear. The study concludes that a cash transfer is perhaps more cost-effective and preferred by beneficiaries in areas where markets are functioning and accessible. In those areas where markets are less functional or accessible, food assistance is likely to be a better option (Sharma 2006; Mohiddin, Sharma, and Haller 2007).

On the issue of intrahousehold resource allocation, several empirical studies show that targeted transfers can be more effective at improving specific household members' outcomes than transfers given to households as a whole (see Box 1.1 and section 7.3).

**Box 1.1 — A household's use of income transfers: Whose preferences matter?**

A household usually consists of several members. In the traditional approach to microeconomic theory, all members of the household are assumed to have the same preference—that is, the household is considered to act as one. But in reality, individual household members will likely have different preferences.

Several recent empirical studies have shown that intrahousehold allocation depends upon which member brings income into the house and whether the income is conditional or unconditional (Duflo 2003; Quisumbing and Maluccio 2003; Quisumbing 2003; Thomas 1990). Studies by sociologists and anthropologists suggest that men and women make different choices in spending income under their control. Often, men spend some of their income on goods and amenities for their personal satisfaction that may have adverse effects on household welfare (such as buying cigarettes, gambling), whereas women are more likely to purchase goods for children and for general household consumption (Haddad, Hoddinott, and Pena 1992). Thomas (1992) found that in Brazil additional income in the hands of women will raise the share of the household budget spent on health, education, and household services three to six times more than if the additional income is in the hands of men. Several studies document evidence that in both Africa and Asia income controlled by women is associated with higher household food expenditures and calorie intakes than male-controlled income (Guyer 1980; Garcia and Lotfi 1991; Haddad and Hoddinott 1992; von Braun and Kennedy 1992). These findings suggest that targeting income transfers (cash or in-kind) to households where women control income will likely improve the welfare of household members.

Recent evidence from Bangladesh shows that assets controlled by women are associated with higher expenditure shares on education (Quisumbing and Maluccio 2003) as well as lower incidence of child illness, particularly for girls (Hallman 2000). In addition, a study using Demographic and Health Survey data from 40 developing countries shows that increasing women's status within the household reduces child malnutrition, particularly in South Asia (Smith et al. 2003).

A recent synthesis paper that lays out key factors affecting the choice of cash and food transfers concludes that the appropriateness of cash- or food-based interventions cannot be predetermined. Rather, program objectives, economic analysis, market assessments, administrative capacity requirements, and beneficiary preferences play important roles in the choice (Gentilini 2007).

There is no guarantee that the success of cash or food transfers in some countries can be reproduced in other countries. Since most cash and food transfer programs are implemented in different contexts, research on the relative advantages of one or the other must take the contextual factors into account.

## 1.4 Country Profile

With a population of 144.4 million[7] living in an area of only 147,570 square kilometers (56,977 square miles), Bangladesh is the second most densely populated country in the world after Singapore. The population density was 609 people per square kilometer of land area in 1981. It increased to 755 per square km in 1991 and to 979 per square km in 2006. The annual population growth rate was 2.2 percent between the census years of 1981 and 1991 (BBS 2006). The rate declined to 1.9 percent between 2000 and 2006 (World Bank 2007). About 75 percent of the country's population lives in rural areas.

Although the agricultural sector continues to dominate the economy, the share of agriculture in gross domestic product (GDP) declined from 31.9 percent in 1986 to 19.5 percent in 2006 (World Bank 2007). The agricultural sector is the largest employer, involving about 48 percent of the total labor force in 2003 (BBS 2006).

### *1.4.1 Macroeconomic Performance*

Bangladesh has recorded impressive and steady economic growth, relatively low inflation, and fairly stable domestic debt, interest, and exchange rates since the 1990s (World Bank 2006). In the period 1986–1996, GDP grew at 4.2 percent annually on average. A higher average annual growth rate of 5.4 percent in 1996–2006, coupled with a decline in the population growth rate, has led to a near-doubling of annual per capita GDP growth from 1.8 percent in 1986–1996 to 3.4 percent in 1996–2006. In terms of per capita GDP growth, Bangladesh outperformed low-income countries in this period. In 2006 Bangladesh achieved a remarkable 6.7 percent GDP growth, up from 6.0 percent in 2005. Per capita GDP increased by 4.8 percent in 2006 (World Bank 2006, 2007).

### *1.4.2 Poverty and Undernutrition*

Bangladesh's progress in economic growth has contributed to a modest reduction in the headcount poverty rate of around 1.5 percentage points a year since the early 1990s. Changes over time in the poverty level have aroused considerable interest and passionate debate in Bangladesh. Although the Bangladesh Bureau of Statistics' household income and expenditure survey (HIES) remains the standard time-series microdata on which analysts base their poverty estimates, changes in the methodology for data collection (a switch from seven-day recall to daily diaries in 1983/84) and poverty estimation (from the direct calorie intake method to the cost of basic needs method in 1995/96) have compromised efforts to make comparable assessments over long periods of time (Ahmed 2000b).

To simplify a debatable subject, it is most convenient to consider the period between 1995/96 and 2005, when the HIES used consistent data collection and poverty estimation methodologies. Table 1.1 shows the declining trends in poverty (that is, the share of the population below the upper poverty line) and extreme poverty (the share of the population below the lower poverty line) in the period 1995/96–2005.[8] At the national level, the poverty headcount declined by only about 2 percentage points between 1995/96 and 2000. Nevertheless, a significant decline of nearly 9 percentage points occurred in the first half of

[7] The population figure of 144 million relates to 2006.

[8] The population below the upper poverty line is poor. The upper poverty line includes the food consumption expenditure and the cost of consuming a nonfood bundle of items. The lower poverty line identifies the extreme poor households whose total household expenditures are below the food poverty line. The food poverty line represents the cost of acquiring a basic food basket that provides the minimum nutritional requirement of 2,122 kilocalories per person per day.

the 2000s—the percentage of the population living in poverty fell from 48.9 percent in 2000 to 40.0 percent in 2005 (BBS 2006). More important, there have been substantial improvements in the livelihoods of the poorest of the poor during the period 2000–2005, as the decline in the incidence of extreme poverty and the distributionally sensitive poverty measures (poverty gap and poverty severity) reveal. These improvements are likely the impact of the relatively high economic growth performance in recent years.

**Table 1.1 — Trends in income poverty**

| Indicator | Upper Poverty Line | | | Lower Poverty Line | | |
|---|---|---|---|---|---|---|
| | 1995-96 | 2000 | 2005 | 1995-96 | 2000 | 2005 |
| | (percent) | | | | | |
| Headcount Rate ($P_0$) | | | | | | |
| National | 53.1 | 48.9 | 40.0 | 35.6 | 33.7 | 25.5 |
| Urban | 35.0 | 35.2 | 28.4 | 14.3 | 19.4 | 13.7 |
| Rural | 56.7 | 52.3 | 43.8 | 39.8 | 37.4 | 29.3 |
| Poverty Gap ($P_1$) | | | | | | |
| National | 13.3 | 12.8 | 9.0 | 7.6 | 7.5 | 4.6 |
| Urban | 7.2 | 9.1 | 6.5 | 2.6 | 4.1 | 2.6 |
| Rural | 14.5 | 13.7 | 9.8 | 8.6 | 8.3 | 5.3 |
| Poverty Severity ($P_2$) | | | | | | |
| National | 4.8 | 4.6 | 2.9 | 2.5 | 2.4 | 1.3 |
| Urban | 2.5 | 3.3 | 2.1 | 0.7 | 1.2 | 0.7 |
| Rural | 5.3 | 4.9 | 3.1 | 2.8 | 2.6 | 1.5 |

Source: BBS 1998; 2006.

Bangladesh's recent progress in poverty reduction is, however, little comfort: the overall incidence of poverty persists at a high level. The most startling consequence of widespread poverty is that a quarter (25.5 percent) of the country's population—36 million people—cannot afford an adequate diet, according to the 2005 estimates of food poverty or extreme poverty (BBS 2006). Chronically underfed and highly vulnerable, they remain largely without assets (other than their own labor power) to cushion lean-season hunger or the crushing blows of illness, flooding, and other calamities. These extreme poor are a group that straddles the outer limits of human survival. The need for targeted interventions to improve food security and livelihood of the extreme poor therefore remains strong.

## 1.5 Characterization of Social Safety Net Programs in Bangladesh

Formal social safety net programs redistribute resources to poor people to reduce their economic hardship. They include any direct transfers to the poor, whether in cash or in kind, with or without a work requirement (Smith and Subbarao 2003). Bangladesh has a comprehensive portfolio of both food- and cash-based social safety net programs. Currently, there are about 27 such programs.[9] Appendix 1 provides a summary of the programs, including their objectives, administrative arrangements, targeting criteria, type and amount of benefits, coverage, and annual costs.

A recent World Bank study assesses the current system of social safety nets in Bangladesh. The study shows that the ratio of expenditures on safety net programs as a percentage of GDP and public expenditures has been declining. Expenditures on safety nets

[9] Interventions to improve the nutrition of children and women (such as the national Nutrition Program, and the Community Nutrition Initiative and the Training and Nutrition Center components of the Integrated Food Security program) are excluded from the list of safety nets, since these programs do not fall directly under the rubric of transfer programs.

are less than 1 percent of GDP and about 4.4 percent of public expenditure. Although reasonable growth rates have led to declines in percentage of the poor, the number of poor has not declined. The number of people covered under the safety net programs represents only a fraction of those in need. Taking mistargeting and leakage into account, only about 6–7 percent of the poor are actually covered. The study contends that real expenditures on safety net programs should not decline further (World Bank 2006).

Although some of the safety net programs started as early as the mid-1970s, the administrative structure and the implementation mechanisms have gone through substantive changes over the years. The notable changes include transforming "relief programs to development programs," converting "ration food price subsidies to targeted food distribution," and engaging other stakeholders—such as NGOs and microfinance organizations—in the implementation of various safety net programs (S. S. Ahmed 2005). The Government of Bangladesh (GoB) has also shown a remarkable willingness to evaluate program effectiveness, confront shortcomings, and cancel or modify programs as a result. For example, the high cost of subsidies and heavy leakage to the nonpoor motivated the GoB to abolish the *Palli* (rural) rationing program in 1992 (Ahmed 1992). The GoB replaced *Palli* rationing with the innovative Food for Education (FFE) program in 1993 (WGTFI 1994).

The safety net programs can be categorized in accordance with the specific objective that each program is designed to achieve. For example, programs may be designed to develop infrastructure, provide education incentives to the poor, mitigate disaster consequences, or provide livelihood support to disadvantaged groups such as the aged and the disabled. Using such categorizations, it is possible to group existing programs in Bangladesh into five categories.

*Infrastructure-building programs:* Food-for-work (FFW) or Rural Development (RD) programs, the Food for Asset Creation (FFA) component of the Integrated Food Security (IFS) program, and Test Relief (TR) distribute foodgrains (rice and wheat) as wage payment to workers in labor-intensive public works programs. Both men and women participate in FFW/RD and TR, whereas FFA requires that at least 70 percent of the participants should be women. Only women can participate in the Rural Maintenance Program (RMP), which offers cash wages for maintaining rural earthen roads. All these programs require the participants to do physical work that mainly involves earth moving. These programs are typically self-targeting, because only the poor would be willing to work at onerous, low-paying manual labor. In addition to willingness to work, FFA and RMP screen administratively to ensure that only the neediest are employed. Section 2 provides detailed descriptions of FFA and RMP.

*Training programs:* The Vulnerable Group Development (VGD) program exclusively targets poor women and provides a monthly food ration over a period of 24 months. Although it was introduced as a relief program in the mid-1970s, it has evolved over time to integrate food security with development objectives. The development package includes training on income-generating activities, awareness-raising on social, legal, health and nutrition issues, and basic literacy and innumeracy. Similar to VGD in design, the Food Security Vulnerable Group Development (FSVGD) program also provides a combination of food and cash to program participants. Beneficiaries of VGD and FSVGD programs are selected by administrative review. Section 2 describes these two programs in detail.

*Education programs:* The Food for Education (FFE) program distributed monthly foodgrain rations to poor households if they sent their children to primary schools. FFE was terminated in 2002 and has been replaced by the cash-based Primary Education Stipend (PES) program. The School Feeding (SF) program distributes energy-micronutrient fortified

biscuits to primary school children. These programs have the common development objectives of promoting school enrollment and attendance and reducing dropouts. In addition, the SF program aims to improve students' attention span and learning capacity by reducing short-term hunger and micronutrient deficiency. The GoB also provides cash assistance to girls in secondary schools through the four components of the Female Secondary School Assistance Program (FSSAP).

*Relief programs:* These programs are designed as a mechanism for mitigating the consequences of disasters like floods, cyclones, and other natural calamities. Currently, there are only two such programs: Vulnerable Group Feeding (VGF) and Gratuitous Relief (GR) programs. Unlike other programs, these programs have no pre-set criteria or conditionality for participation. They are relief programs that try to help the poor cope and smooth their consumption at times of natural disaster.

*Programs for other disadvantaged groups:* These programs include the Old-Age Allowance Scheme; Allowance for Widowed, Deserted, and Destitute Women; Honorarium Program for Insolvent Freedom Fighters; Fund for Housing for the Distressed; Fund for Rehabilitation of Acid Burnt Women and Physically Handicapped; and the most recently introduced Allowance for the Distressed Disabled Persons (see Appendix 1 for the features of these programs).

The key message is that the safety net system in Bangladesh has evolved from being relief oriented to incorporate various components of long-term development objectives. The government has formed strong partnerships with NGOs and multilateral and bilateral development organizations in implementing them. For example, the Vulnerable Group Feeding program, which had served as a pure relief distribution program since its inception in 1975, was renamed the Vulnerable Group Development program in the mid-1980s when development objectives were incorporated into the program. One of the key changes in program design was the addition of a requirement that program beneficiaries obtain training on income-generating activities, administered by national NGOs such as BRAC, to remain enrolled in the program. The underlying idea was that, after a two-year program cycle, beneficiaries would save and build enough assets to be eligible to participate in microfinance programs.

The efficiency of these safety net programs must improve, especially given the backdrop of declining commitments of resources by donors and the GoB to targeted assistance programs. In particular, it is necessary to reduce system leakage and improve targeting in order to realize greater benefits from the existing social safety net programs.

## 2. SALIENT FEATURES OF THE CASE STUDY PROGRAMS

This study assesses the relative merits of food and cash transfers by examining four programs: The two components of the Vulnerable Group Development (VGD) program—Income-Generating VGD (IGVGD) and Food Security VGD (FSVGD)— the Food for Asset Creation (FFA) component of the Integrated Food Security (IFS) program, and the Rural Maintenance Program (RMP). IGVGD provides food transfers, FSVGD and FFA provide a combination of food and cash transfers, and RMP provides cash transfers to program beneficiaries. Based on a review of various documents, this section provides an overview of these programs.

Each of these four programs uses a set of official targeting criteria to select program beneficiaries. These program-specific selection criteria are provided in section 5.4 of this report, which assesses the targeting performance of the programs. To avoid repetition, this section does not list program beneficiary selection criteria.

### 2.1 The Vulnerable Group Development Program

The VGD program in Bangladesh is the world's largest development intervention of its kind that exclusively targets women. About 750,000 ultra-poor rural women in the country received support under the VGD program in 2006. The program began in 1975 as a relief program for families affected by natural calamities. The current VGD program seeks to integrate food security and nutrition with development and income generation. It is a collaborative food security intervention jointly managed and implemented by GoB and WFP.

The VGD program is implemented through two components: Income-Generating VGD (IGVGD) and Food Security VGD (FSVGD). Of the 750,100 women, 640,721 women (85.4 percent) and their family members received IGVGD support and 109,379 women (14.6 percent) and their dependents received support under the FSVGD component in 2005–2006. Of the total 460 *upazilas* (subdistricts) in 61 districts, FSVGD operated in 57 *upazilas* in 7 districts in northern Bangladesh and IGVGD operated in 364 *upazilas* in 54 districts.[10]

The FSVGD project commenced in July 2001, and project activities ended on December 31, 2006. The European Commission (EC) funded the provision of cash allowances to program participants. WFP multilateral and bilateral donors, including GoB, provided food assistance to FSVGD.

The VGD Program involves multiple partners, including GoB, WFP, bilateral donors, and several NGOs. The Ministry of Women and Children Affairs (MWCA) is the main coordinating ministry for the VGD program. Under its coordination, the Department of Women Affairs (DWA) and the Directorate of Relief and Rehabilitation (DRR) of the Ministry of Disaster Management and Relief (MDMR) are responsible for implementing the VGD program. WFP provides the necessary technical backstopping services to the relevant ministries and agencies of the government. The NGO partners play an important role in implementing project activities. Of the activities carried out by NGOs, the most important is providing livelihood-development training to the ultra-poor women.

The IGVGD program exclusively targets poor women, who receive a monthly food ration. Each participant is entitled to receive either 30 kg of rice or 30 kg of wheat or a 25-kg sealed bag of micronutrient-fortified *atta* (whole-wheat flour) per month. The fortified *atta* is

[10] The administrative structure of Bangladesh consists of divisions, districts, *upazilas*, and unions, in decreasing order by size. There are 6 divisions, 64 districts, 489 *upazilas* (of which 29 are in four city corporations), and 4,463 unions (all rural).

called *pusti* (nutritious) *atta.* While otherwise similar to IGVGD in design, the FSVGD program provides a combination of food and cash to program participants. Monthly entitlements are a 15-kg sealed bag of micronutrient-fortified *atta* and Tk 150[11] per beneficiary. VGD participants receive the assistance over a period of 24 months. This support period is referred to as the "VGD cycle."

In addition to food and cash transfers, NGOs provide development support consisting of training on income-generating activities (such as poultry rearing, livestock raising, fishery, and sericulture); raising awareness on social, legal, health and nutrition issues; basic literacy and numeracy training; and access to credit. VGD participants are required to make a monthly savings deposit of Tk 32 into an interest-bearing account maintained by the VGD service-providing NGOs. Savings are deposited into a bank or post office in areas not served by the VGD partner NGOs.

Starting in 1989 BRAC provided credit support to IGVGD participants in addition to training services. In the period 1989–2005, BRAC provided a total of US$67.1 million in loans to 1.4 million IGVGD borrowers (BRAC 2006).

Although the VGD program operates nationwide, it concentrates more resources in food-insecure areas of the country. About two-thirds of the resources are directed to about one-third of the *upazilas*. Consequently, coverage is higher in more food-insecure areas. GoB and WFP have devised a resource allocation map for food-assisted development where each *upazila* of the country has been categorized by its relative food-insecurity level. The level of food insecurity is determined by factors such as foodgrain surplus or deficit, the agricultural wage rate, infrastructure status, population density, landless households, employment opportunities, and susceptibility to natural disasters. Based on this map, VGD food resources are geographically targeted to *upazilas* in proportion to their food-insecurity levels.

The VGD program beneficiaries are selected by administrative review, using *upazila*-level committees of government officials, union *parishad* (council) members—elected representatives of local government—and partner NGO representatives. The selection committee selects VGD participants on the basis of set criteria. The role of elected female union *parishad* (UP) members in this process is crucial. They currently have the right to select 50 percent of the VGD women. In the most recent VGD cycle of 2005–2006, simplified selection criteria were formulated and introduced to make targeting more accurate. These criteria are provided in section 5.

### 2.2 The Food for Asset Component of the Integrated Food Security Program

GoB and WFP signed an operational contract in March 2001 to support ultra-poor people through development activities as specified in the Country Program 2001–2005. The three activities undertaken during the Country Program are the two existing activities—the VGD and the Rural Development (RD) programs—and a new activity, the Integrated Food Security (IFS) program. The IFS program was introduced in February 2002 in 10 *upazilas* in 3 districts in the Rangpur Cluster of northern Bangladesh.

The IFS program is designed as follows. The program is to allocate resources to the most food-insecure areas in the country identified by Vulnerability Analysis and Mapping (VAM) and to target ultra-poor individuals living in these areas. Local NGOs follow a simple and results-oriented participatory planning process to identify ultra-poor households, including malnourished women and children. The program follows an area-based approach and aims at

[11] The official exchange rate for the Taka (Tk), the currency of Bangladesh, was Tk 71.36 per US$1.00 on April 25, 2007.

improving the household food security and nutrition of the rural ultra-poor. It is beneficiary-driven—it uses participatory techniques for micro-planning at the village level and allocates resources to community bodies. The program is based on the lessons learned from the well-established VGD and RD programs as well as other development activities in Bangladesh and elsewhere.

The IFS program includes three components: the Community Nutrition Initiative (CNI), Training and Nutrition Centers (TNC), and Food-for-Asset Creation (FFA) activities. The FFA component of the IFS is described here.

The FFA component has been designed to promote human and capital resource development of 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. The Local Government Engineering Department (LGED) under the Ministry of Local Government Rural Development and Cooperatives (MLGRDC) coordinates FFA activities.

Both women and men participate in FFA, but at least 70 percent of the participants should be women. User committees are formed from among the participants, and the committees are responsible for organizing village-based micro-planning to identify participants of FFA activities. Stipulated selection criteria are to be followed in selecting participants. Local service providers/NGOs facilitate this process. User committees also participate in identifying schemes and activities and are responsible for lifting and distributing wheat.

Participants in the FFA component (who are not already VGD beneficiaries) receive food and cash compensation. Food and cash for work activities are normally carried out during the months of December to May, which is the period suitable for earthwork. Training on awareness building and income generating activities are conducted from June to November. During the working season, each participant in the building of community infrastructure and assets is entitled to receive a minimum wage of 2 kg of rice or wheat and Tk 15 per working day, subject to a minimum amount of work accomplished. A participant's monthly entitlements for the training period are 20 kg of wheat or rice and Tk 100. FFA participants are required to save Tk 25 per month.

FFA follows a 1- to 2-year project cycle. Depending on the type of activities, however, the implementation period may vary. For the training on awareness-building and income-generating activities, a flexible schedule is followed to reflect the convenience of the project participants. In 2006 FFA covered 39,200 participants in 38 *upazilas*.

### 2.3 The Rural Maintenance Program

CARE initiated the Rural Maintenance Program (RMP) in 1983 as a cash-for-work road maintenance project on a pilot basis in 7 unions in 7 districts. Since then the program has gradually expanded and become a national program. In 2006 the RMP operated in 4,200 unions (out of a total of 4,443 unions in the country) in 61 districts across rural Bangladesh, employing 41,540 women. In June 2006 the operation of the program was shifted from CARE to the Ministry of Local Government, Rural Development, and Cooperatives (LGRDC).

RMP provides destitute women with four years of employment maintaining rural roads. The term "destitute" refers to female heads of households who are divorced, widowed, separated, or abandoned, with little or no other means of financial support (see section 5.3.1 for beneficiary selection criteria). RMP participants receive cash wages for work. Each RMP

woman is entitled to receive a wage of Tk 51 per day, of which she is required to save Tk 10 per day (S. S. Ahmed 2005). Therefore, the take-home wage is Tk 41 per day. RMP women are entitled to receive their daily wages for 30 days a month, which implies a monthly salary of Tk 1,530, or Tk 1,230 after the deduction of mandatory savings. RMP, therefore, provides a steady, year-round income to one of the poorest segments of society. Rural communities benefit from good roads, and the poor women benefit from the improved standards of living for themselves and their dependents.

RMP selects 10 women from each union to constitute one "crew." The program disburses cash wages to crew members through direct transfers to women's group bank accounts. Banks offer other services as well. They facilitate a savings element in the RMP program. A fraction of participants' wages (Tk 10 per day) is being deducted by the bank before salaries are paid. This share is transferred to each individual savings account. The women can withdraw their savings only after completing the four-year cycle. For a poor woman, the accumulated savings become a substantial amount that may be used to initiate and operate an income-generating activity when she leaves the program. RMP provides life skills training and counseling to participating women with a focus on developing self-reliant business skills for managing sustainable income-generation activities. Women receive counseling on understanding and establishing their rights and improving heath and nutrition.

### 2.4 Summary

Table 2.1 summarizes the characteristics of the four case study programs. In 2006 these four programs covered a total of 830,840 beneficiary households with 3.72 million family members, [12] of which IGVGD covered 640,721 participants (77 percent); FSVGD, 109,379 participants (13 percent); FFA, 39,200 participants (5 percent); and RMP, 41,540 participants (5 percent).

The IGVGD program, which exclusively targets poor women, provides a monthly food ration to participants over a period of 24 months. Each participant receives either 30 kg of rice or 30 kg of wheat or a 25-kg sealed bag of micronutrient-fortified *atta* (whole wheat flour) per month. Similar to the IGVGD in design, the FSVGD program provides a combination of food and cash to program participants. Monthly entitlements are a 15-kg sealed bag of micronutrient-fortified *atta* and Tk 150 per beneficiary. Both programs also include a savings requirement: IGVGD and FSVGD participants must make a monthly savings deposit of at least Tk 32 into an interest-bearing account maintained by the service-providing NGOs.

The FFA program distributes a combination of food and cash as wage payments to workers in labor-intensive public works programs. Although both men and women participate in FFA, the program requires that at least 70 percent of the participants be women. Participants normally engage in work activities from December to May, which is the period suitable for earthwork, and participate in training on awareness-building and income-generating activities from June to November. During the working season, each participant is entitled to receive a minimum wage of 2 kg of rice or wheat and Tk 15 per working day, subject to a minimum amount of work accomplished. A participant's monthly entitlements for the training period are 20 kg of wheat or rice and Tk 100. FFA participants are required to save Tk 25 per month.

Only women can participate in the RMP, and they receive cash wages for maintaining rural roads. Each RMP woman is entitled to receive a wage of Tk 51 per day, of which she is

[12] Each household has one participant.

required to save Tk 10 per day. Therefore, the take-home wage is Tk 41 per day. RMP women are entitled to receive their daily wages for 30 days a month, which essentially implies a monthly salary of Tk 1,530, or Tk 1,230 after the deduction of mandatory savings.

**Table 2.1 — Summary of program characteristics**

| | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| **Program characteristics** | | | | |
| *Upazila* coverage (Bangladesh has 460 rural *upazilas*) | 364 | 57 | 38 | 433 |
| Beneficiary coverage in 2006 (number of participants) | 640,721 | 109,379 | 39,200 | 41,540 |
| Annual full cost of program in 2006 (value of full entitlement of transfers + delivery costs)* | Tk 342.4 crore ($49.58 million) | Tk 48.5 crore ($7.02 million) | Tk 40.2 crore ($5.83 million) | Tk 76.3 crore ($11.05 million) |
| Annual full cost per beneficiary in 2006 (value of full entitlement of transfers + delivery costs)* | Tk 5,343 ($77.38) | Tk 4,431 ($64.17) | Tk 10,266 ($148.67) | Tk 18,360 ($265.89) |
| Program cycle for beneficiaries (months) | 24 | 24 | 24 | 48 |
| Length of time of beneficiaries' program participation at the time of the survey for the study (months) | 18 | 18 | 6 | 25 |
| Entitlements of transfers and wages per beneficiary<br><br>[Note that, IGVGD and FSVGD beneficiaries receive transfers; FFA participants receive wages for their work during the work season (December–May) and transfers during the training season (June–November); and RMP participants receive wages for their work.] | 30 kg rice or wheat or 25 kg *pusti atta* (micronutrient fortified whole wheat flour) per month | 15 kg *pusti atta* + Tk 150 per month | *Wage during work season:*<br>2 kg rice or wheat + Tk 15/work day.<br>*Transfer during training season:*<br>20 kg rice or wheat + Tk 100 per month | Wage of Tk 51 per day for 30 days a month. Entitled to receive Tk 1,530 per month. |
| Compulsory savings per beneficiary (Tk/month) | 32 | 32 | 25 | 300 |
| Work requirements | No | No | Yes<br>Full day<br>Physically demanding<br>Piece rates | Yes<br>½ day<br>Moderately demanding<br>Fortnightly salary |
| Access to credit (built-in credit service in the program) | Yes | No | No | No |
| Access to training | Yes | Yes | Yes, but not started before survey | Yes |

*Annual full costs are obtained from section 6.8 of this report.

## 3. METHODOLOGY AND DATA

The study design engaged scientific analytical methodology and data collection procedures to generate useful and valid information on the relative effects of cash and food transfers through the four programs: IGVGD, FSVGD, FFA, and RMP. This section first presents the methodology of evaluating the impact of the programs. It then describes the data collection approach and process.

### 3.1 Assessment of Program Impact

To measure program impact, it is necessary to compare outcomes for beneficiaries to what those outcomes would have been had the program not been implemented, so it is necessary to construct a counterfactual measure of what might have happened without the program. The most powerful way to construct a valid counterfactual is to randomly select beneficiaries from a pool of equally eligible candidates. If program assignment is random, then all individuals (or communities, schools, etc.) have the same chance of receiving the program. Average outcomes for those not randomly selected should provide an unbiased estimate of what beneficiaries would have experienced without the program. When a randomized design evaluation is done well, beneficiaries and nonbeneficiaries will have, on average, the same observed and, more important, unobserved characteristics (since they are more difficult to control for). In this way a credible basis for comparison is established, freed from selectivity concerns, and the direction of causality is certain. A further advantage to a randomized design is that program impact is easy to calculate and, as a consequence, easier to understand and explain.[13]

IFPRI has taken the randomized design approach in its evaluations of conditional cash transfer programs (CCTs) in a number of countries in Latin America, as well as recent evaluations on the effectiveness of food and cash transfers in emergencies in Sri Lanka and food for education programs in Uganda. In all of these studies, baseline household surveys were carried out before the program began and then after the program was implemented, based on random assignment of communities into treatment and control groups.

For the evaluation of the four case study programs in Bangladesh, however, a randomized approach was not feasible because of the fact that the programs had already been implemented before the evaluation. We therefore employed a nonrandomized approach for impact assessment in this study.

The approach we used for constructing a comparison group is propensity score matching (PSM). Through comparisons with experimental estimators, Heckman, Ichimura, and Todd (1997, 1998), and Heckman et al. (1998) show that PSM provides reliable, low-bias estimates of program impact provided that (1) the same data source is used for participants and nonparticipants, (2) participants and nonparticipants have access to the same markets, and (3) the data include meaningful explanatory variables capable of identifying program participation.

We designed the evaluation to fulfill these requirements for PSM. A comprehensive household survey was designed and questionnaires were prepared to meet these requirements. The variables included in the questionnaires capture many of the determinants of

[13] Heckman and Smith (1995), however, point out that this apparent simplicity can be deceiving, particularly in poorly designed evaluations where there is randomization bias (where the process of randomization itself leads to a different beneficiary pool than would otherwise have been treated) or substitution bias where nonbeneficiaries obtain similar treatments from different sources—a form of "contamination."

participation that are typically unobservable to the researcher, which helps to reduce a potentially significant source of bias in PSM estimators.

### *3.1.1 The Evaluation Problem and the Propensity Score Matching Methodology*

Constructing a valid estimate of program impact requires comparing outcomes for program beneficiaries to what those outcomes would have been had they not received the program. These counterfactual outcomes, however, are not observed. A central focus of the literature on evaluating social programs concerns how to identify or construct a comparison group of households that are statistically similar to the program beneficiaries but that did not receive the program for some reason. If such a comparison group could be identified, differences in the mean outcomes between program beneficiaries and the comparison group would provide a reasonable measure of program impact.

As mentioned, the most reliable methods for measuring program impact are experimental methods in which a comparison group is constructed by randomly allocating the program to a subset of eligible households. Heckman and Smith (1995) and Heckman, Ichimura, and Todd (1997) show how random program assignment among eligible households solves the evaluation problem, making it likely that observed differences in outcomes between beneficiaries and nonbeneficiaries are due to the program and not to selection effects. Selection effects arise when characteristics of the communities or households that are correlated with the outcomes of interest and that also affect the probability of receiving the program are not removed or controlled for in estimating program impact. Selection effects lead to bias in estimates of program impact. There are two main types selection bias: (1) targeting of the program based on characteristics unobservable to the researcher, and (2) self-selection into the program by a subset of eligible households. Randomly selecting which eligible households or communities participate in a program helps remove both types of bias. Randomly providing social transfers to needy households, however, raises serious ethical concerns in many settings. Such approaches are often justified only during the piloting of a program when only a fraction of eligible households can be reached initially and when the benefits of the program are not well known.

In the following section, we describe how PSM constructs a counterfactual comparison group for the evaluation problem, following Heckman, Ichimura, and Todd (1997) and Smith and Todd (2001, 2005).

### *3.1.2 Propensity Score Matching*

Let $Y_i^1$ be the outcome of the *i*th household if it is a beneficiary of the program, and let $Y_i^0$ be that household's outcome if it does not receive the program. The impact of the program is given by $\Delta = Y_i^1 - Y_i^0$. Only $Y^1$ or $Y^0$ is realized for each household, however. Let *D* indicate whether the household receives the program or "treatment": $D = 1$ if the household receives the program; $D = 0$ otherwise. The evaluation problem is to estimate the average impact of the social program on those that receive it:

$$(1)\quad E(\Delta \mid X, D=1) = E(Y^1 - Y^0 \mid X, D=1) = E(Y^1 \mid X, D=1) - E(Y^0 \mid X, D=1),$$

where *X* is a vector of control variables and subscripts have been dropped. This measure of program impact is generally referred to as the "average impact of the treatment on the treated." In expression (1), $E(Y^0 \mid X, D=1)$ is not observed. PSM provides one method for estimating this counterfactual outcome for participants (Rosenbaum and Rubin 1983). Let

$P(X) = \Pr(D = 1 \mid X)$ be the probability of participating in the CCT program. PSM constructs a statistical comparison group by matching observations on beneficiary households to observations on nonbeneficiaries with similar values of *P(X)*. This requires two assumptions:

(2) $E(Y^0 \mid X, D = 1) = E(Y^0 \mid X, D = 0)$, and

(3) $0 < P(X) < 1$.

The first assumption, known as "conditional mean independence," requires that after controlling for *X*, mean outcomes for nonparticipants are identical to outcomes of participants if they had not received the program. Expression (3) assures valid matches by assuming that *P(X)* is well defined for all values of *X*. Covariate matching methods estimate $E(Y^0 \mid X, D = 1)$ by $E(Y^0 \mid X, D = 0)$ using mean outcomes of comparison households matched with beneficiaries directly on the *X* variables. This procedure is complicated for large *X*, which is known as the "curse of dimensionality." PSM overcomes this problem. Rosenbaum and Rubin show that if outcomes are independent of program participation after conditioning on *X*, then outcomes are independent of program participation after conditioning only on *P(X)*. If (2) and (3) hold, PSM provides a valid method for estimating $E(Y^0 \mid X, D = 1)$ and obtaining unbiased estimates of (1).

Although it is not possible to test the assumptions in (2) and (3) on nonexperimental data, Heckman, Ichimura, and Todd (1997, 1998) and Heckman et al. (1998) use experimental data to identify the conditions under which PSM provides reliable, low-bias estimates of program impact, as mentioned.

We used care in selecting *X* variables whose levels had mostly been determined before the start of the program. When selecting *X* variables, it is important to choose variables that are associated both with the probability of receiving the program and with the outcome of interest (Heckman and Navarro-Lozano 2004). These variables should be determined before the program begins, however, to ensure that they are not affected by the program itself.

### *3.1.3 Estimation Methodology*

The PSM procedure involves several steps. For each outcome and each type of transfer, we estimate the propensity score for participation in the program using a probit model including both determinants of participation in the program and factors that affect the outcome. Heckman, Ichimura, and Todd (1997, 1998) emphasize that the quality of the match can be improved by ensuring that matches are formed only where the distribution of the density of the propensity scores overlap between treatment and comparison observations, or where the propensity score densities have "common support." Common support can be improved by dropping treatment observations whose estimated propensity score is greater than the maximum or less than the minimum of the comparison group propensity scores. Similarly, comparison group observations with a propensity score below the minimum or above the maximum of the treatment observations can be dropped.[14] A shortcoming of this approach identified by Heckman, Ichimura, and Todd (1997) is that treatment observations near these cut points face a potential comparison group with propensity scores that are either all lower or all higher than that of the treatment observation. To account for this problem, we

[14] The distribution of propensity scores for the comparison group often lies to the left of the distribution for the treatment group for targeted social programs. As a result, the highest propensity scores tend to come from treatment observations, whereas the lowest are dominated by comparison observations. This pattern indicates effective targeting.

modified this "min/max" approach to identifying a region of common support using the following procedure.

We first estimated the probit model for program participation and identified the lower and upper cut points of common support in the comparison or treatment groups. Typically only comparison observations were dropped in the left of the distribution and treatment observations were dropped in the right. We then added back the 5 percent of observations from each tail that had been dropped that were closest in terms of propensity score. In addition, we trimmed the treatment observations from the interior of the propensity score distribution that had the lowest density of comparison observations. We chose to drop 2 percent of treatment observations with this trimming procedure. On this common support sample, the probit model was estimated again to obtain a new set of propensity scores to be used in creating the match. We also tested the "balancing properties" of the data by testing whether treatment and comparison observations had the same distribution (mean) of propensity scores and of control variables within groupings of the ranked propensity score. All impact results presented in this study are based on specifications that passed the balancing tests.

We matched treatment and comparison observations through local linear matching with a tricube kernel using Stata's PSMATCH2 command (Leuven and Sianesi 2003). Heckman, Ichimura, and Todd (1997) and Smith and Todd (2005) argue in favor of local linear matching over other matching techniques. Local linear matching performs well in samples with low densities of the propensity score in the interior of the propensity score distribution. Frölich (2004) provides evidence in support of the finite-sample properties of local linear matching relative to most other matching estimators, with the exception of an infrequently used ridge matching approach.

Finally, standard errors of the impact estimates are estimated by bootstrap using one thousand replications for each estimate.

### 3.2 Data Collection

The information collection approach involved combining quantitative surveys and qualitative semi-structured key informant interviews and focus group discussions. This mixed method of data collection provided a rich pool of data and analytical power that would not be available with any of these methods on their own. Gender-disaggregated information was collected wherever it was meaningful.

The required quantitative data to address the research questions came mostly from a household survey. The survey included beneficiaries of the four programs and nonbeneficiary control households.

The household survey included 2,000 households—1,200 households of beneficiaries of the 4 programs (300 households per program), 400 households in control groups, and 400 former beneficiaries of the four programs.

Quantitative data were supplemented by qualitative information. Open-ended questions were asked in key informant interviews and focus group discussions to know, among other things, whether women and men prefer cash or food transfers and why; how they perceive their well-being; whether the transfers have made any difference in their livelihoods, how, and why; whether cash and food transfers affect the social or community relations between beneficiaries and nonbeneficiaries within communities. Case studies were also conducted with program beneficiaries and nonbeneficiaries. Further, key informant interviews were carried out with program administrators and service providers.

A community survey was carried out to provide information on area-specific contextual factors. Further, data on the costs of Bangladesh's food procurement from internal and external sources and detailed breakdowns of the costs of delivering cash and food to program beneficiaries were collected.

### *3.2.1 Selection of Survey Areas*

The survey sample areas were selected using a probability proportional to size (PPS) random sampling technique according to the distribution of beneficiaries of the four programs. WFP-Bangladesh provided complete lists of participants and areas for the IGVGD, FSVGD, and FFW programs. Because RMP has nationwide coverage and the number of RMP crews per union are the same, RMP survey sample areas were taken from survey sample areas of the other three programs.

### *3.2.2 Sampling Technique*

A stratified random sampling technique was adopted for the household survey. For each of the four programs, the sampling process randomly selected districts, *upazilas,* and unions using the PPS sampling method, based on the total number of program participants at the district, *upazila*, and union levels. Program participants were selected randomly from the lists of beneficiaries obtained from program administrators. Control households (who met beneficiary selection criteria but did not participate in the programs) were selected from the program areas.[15]

The sampling process and survey administration included the following steps:

1. The sampling process randomly selected 20 IGVGD *upazilas*, 10 FSVGD *upazilas*, and 10 FFA *upazilas,* respectively, from the list of 364 IGVGD *upazilas*, 57 FSVGD *upazilas*, and 38 FFA *upazilas* using the PPS random sampling method.
2. One union from each of the 40 selected *upazilas* was randomly selected with PPS using a union-level number of IGVGD, FSVGD, and FFA card holders. A total of 40 unions were selected.
3. Thirty RMP unions were randomly selected from the 40 unions of the 40 *upazilas* selected in Step 1 and Step 2 for IGVGD, FSVGD, and FFA. (RMP crews are equally distributed, 10 per union, in all unions of all *upazilas*.)
4. From each of the IGVGD unions, 15 current IGVGD participant households and 5 ex-IGVGD participant households were randomly selected from the union-level participants' list.
5. From each of the FSVGD unions, 30 current FSVGD participant households and 10 ex-FSVGD participant households were randomly selected from the union-level participants' list.

[15]Targeted safety net programs in Bangladesh cover only a fraction of the very large number of eligible candidates. In 2004 IFPRI conducted a study on targeting effectiveness of the Vulnerable Group Development Program in Bangladesh (Ahmed 2004b). The study reveals that most of the nonbeneficiary households belonging to the poorest 25 percent of all households in the program communities meet the VGD targeting criteria, whereas the program covers only 4.3 percent of all households. Therefore, finding households for the control group was not a problem.

6. From each of the FFA unions, 30 current FFA participant households and 10 ex-FFA participant households were randomly selected from the union-level participants' list.

7. From each of the RMP unions, 10 current RMP participant households and 3 to 4 ex-RMP participant households were randomly selected from the union-level participants' list.

8. From each of the 40 unions selected in Step 1 and Step 2, 10 control households were randomly selected from the union-level potential participants' list who met the selection criteria of respective programs and who never participated in any of the programs.

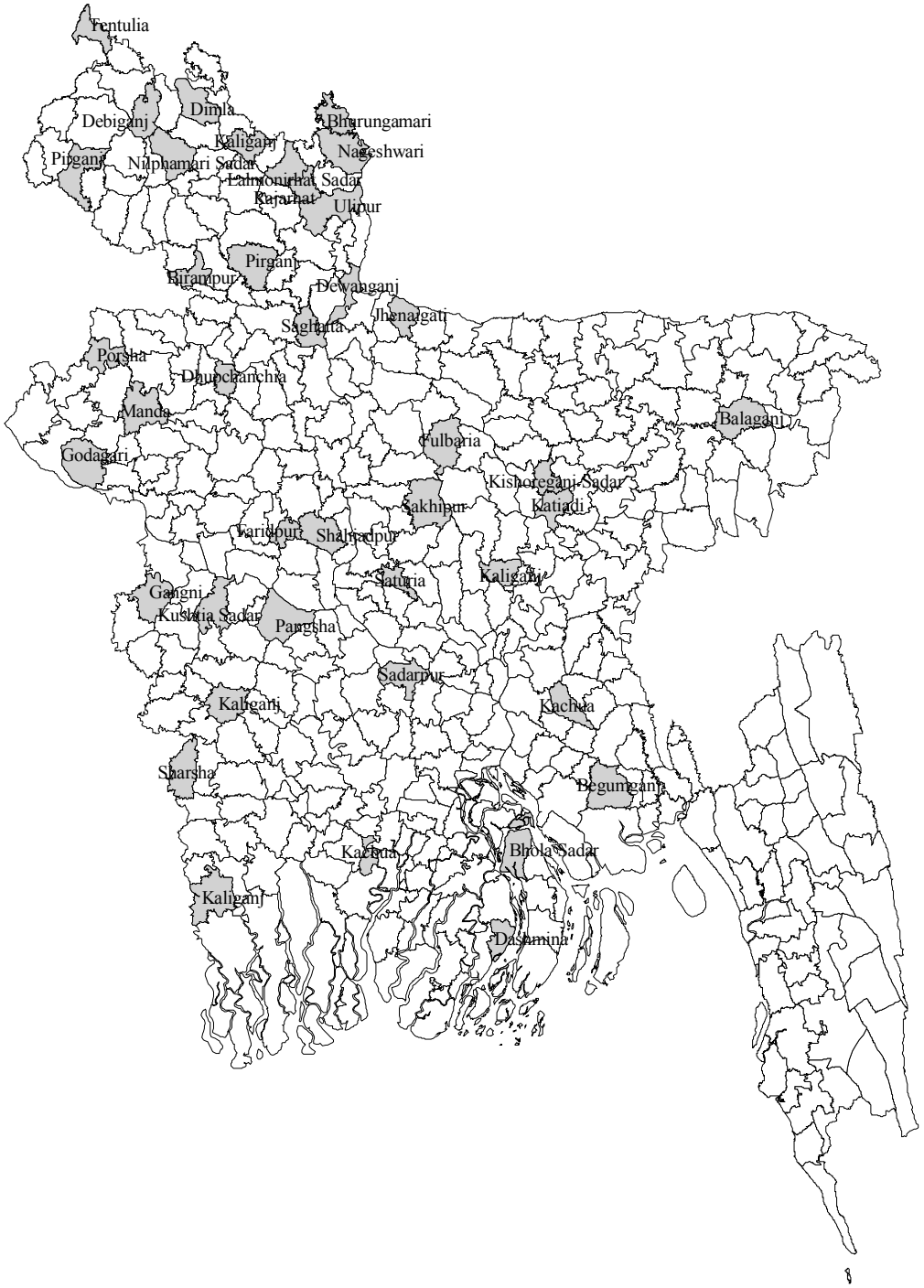
Table 3.1 provides the list of survey districts, *upazilas*, and unions and the programs covered under the survey in each of the locations. Figure 3.1 shows the survey *upazilas* in the map of Bangladesh.

**Table 3.1 — Survey locations**

| District | *Upazila* | Union | Programs covered |
|---|---|---|---|
| Bhola | Bhola Sadar | Pashchim Ilisha | IGVGD, RMP |
| Bogra | Dub Chachia | Gobindapur | IGVGD, RMP |
| Chandpur | Kachua | Koraiya | IGVGD, RMP |
| Dinajpur | Birampur | Katla | FSVGD |
| Faridpur | Sadarpur | Sadarpur | IGVGD |
| Gaibandha | Saghatta | Muktinagar | IGVGD, RMP |
| Jamalpur | Dewanganj | Char Amkhawa | IGVGD, RMP |
| Jessore | Sarsha | Dihi | IGVGD, RMP |
| Kishoreganj | Katiadi | Banagram | IGVGD, RMP |
| Kishoreganj | Kishoreganj Sadar | Maizukhapon | FFA, RMP |
| Kurigram | Bhurungamari | Pathordubi | FSVGD |
| Kurigram | Nageswari | Kedar | FSVGD |
| Kurigram | Rajarhat | Rajarhat | FFA, RMP |
| Kurigram | Ulipur | Tabokpur | FSVGD, RMP |
| Kushtia | Kushtia Sadar | Alampur | FFA, RMP |
| Kushtia | Kushtia Sadar | Manohardia | IGVGD, RMP |
| Lalmonirhat | Kaliganj | Madati | FFA, RMP |
| Lalmonirhat | Lalmonirhat | Harati | FSVGD, RMP |
| Manikganj | Saturia | Hargaze | IGVGD, RMP |
| Meherpur | Gangni | Gangni | FFA |
| Mymensingh | Fulbaria | Kaladaha | IGVGD, RMP |
| Naogaon | Manda | Paranpur | FSVGD |
| Naogaon | Porsha | Tetulia | FSVGD |
| Nilphamari | Dimla | Gayabari | FFA, RMP |
| Nilphamari | Nilphamari | Kunda Pukur | IGVGD, RMP |
| Nilphamari | Sadar | Panchapukur | FFA |
| Noakhali | Begumganj | Hajipur | IGVGD, RMP |
| Pabna | Faridpur | Hadol | IGVGD, RMP |
| Panchagarh | Debiganj | Sonahar | FFA |
| Panchagarh | Tetulia | Bhojanpur | FSVGD, RMP |
| Patuakhali | Dashmina | Dashmina | IGVGD, RMP |
| Rajbari | Pangsha | Bahadurpur | FFA |
| Rajshahi | Godagari | Rishikul | FSVGD, RMP |
| Satkhira | Kaliganj | Tarali | IGVGD, RMP |
| Serajganj | Shajadpur | Potajia | IGVGD, RMP |
| Sherpur | Jhinaigati | Hatibandha | FFA |
| Sherpur | Jhinaigati | Jhenaigati | IGVGD, RMP |
| Sylhet | Balaganj | Paschim Gouripur | IGVGD, RMP |
| Tangail | Shakhipur | Bahera Toyl | IGVGD, RMP |
| Thakurgaon | Pirganj | Hazipur | FSVGD, RMP |

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

**Figure 3.1–Map of Bangladesh showing the survey *upazilas***



### *3.2.3 Preparation of Survey Questionnaires*

IFPRI has extensive experience in Bangladesh and global experience in the design and implementation of similar impact evaluation surveys. We also consulted the Household Income and Expenditure Survey (HIES) questionnaires of the Bangladesh Bureau of Statistics (BBS) in order to collect data on a comparable set of variables.

Two questionnaires were prepared—one for female respondents and the other for male respondents. The questionnaires were designed to collect information on multiple topics, including household demographic composition, level of education, school participation, occupation and employment, dwelling characteristics, assets, food and nonfood expenditures, morbidity, economic shocks, anthropometric measurements of children and women, and participation in the CCT program. The questionnaire included a dietary intake module to collect individual food intake data, using a 24-hour recall methodology. Female enumerators with expertise and long experience in administering the dietary intake module (including past IFPRI surveys in Bangladesh) collected the dietary intake data.

In May 2006 IFPRI received comments and suggestions on the survey questionnaires from a large number of reviewers including GoB officials, donor representatives, NGO officials, and academics and researchers in Bangladesh. The questionnaires were revised in line with the comments and suggestions.

### *3.2.4 Training and Survey Administration*

IFPRI contracted with the Data Analysis and Technical Assistance Limited (DATA), a Bangladeshi consulting firm with expertise in conducting surveys and data analysis, to carry out the surveys. Over the past 14 years, DATA has carried out numerous surveys for IFPRI's research work in Bangladesh.

In May 2006 the IFPRI study leader and DATA trained the survey team on the questionnaires and survey administration. The survey team pilot-tested the questionnaires in a number of villages under IFPRI supervision. The questionnaires were finalized after incorporating observations from the pilot test.

The household survey started on June 10, 2006, and was completed on August 10. Data entry was completed by mid-September. Data cleaning, including logical consistency checking and data validation, was completed by the end of December 2006.

# 4. PROFILE OF SURVEY HOUSEHOLDS

Using household survey data collected for the evaluation, this section provides profiles of IGVGD, FSVGD, FFA, and RMP participants and the comparison (control) group. At the outset, it is important to note that the findings in this section portray the state of affairs of program beneficiaries and the comparison group and do not necessarily reflect the impact of the programs. Sections 6 and 7 provide the results of the impact assessments.

## 4.1 Household Characteristics

Disaggregated by program and control, Table 4.1 shows the characteristics of the survey households. As mentioned in section 3.2.2, control households were randomly selected from the pool of households who met program selection criteria but were not in the programs.

Although household size is quite similar across the four programs and the control group (3.5 to 4.6 persons per household), the households are somewhat smaller than average rural households in Bangladesh. According to the latest Household Income and Expenditure Survey (HIES), average household size in rural areas is 4.9 persons (BBS 2006).

A common selection criterion for all four programs is that households should be headed by a female (widowed, divorced, or deserted by husband). In the sample, 69 percent of RMP households are headed by females. This rate is 36 percent for FFA, 31 percent for IGVGD, and 22 percent for FSVGD households. About 46 percent of control households are female-headed. Section 5.3.1 of this report provides the selection criteria of the programs, and section 5.3.2 presents the results of an assessment of the selection process.

The following are some highlights of other results from Table 4.1:

- The percentage of households with primary school–age children who do not send their children to school varies considerably across the programs—whereas 37 percent of FFA households do not send their children to school, this rate is 17 percent for FSVGD households. The proportion of secondary school–age children (aged 12–18) who do not go to school is high in general, and extremely high for children from RMP households (62 percent).
- The educational attainment of adult family members is extremely low—years of schooling range from only 0.5 years for RMP households to 2.5 years for FSVGD households. In the entire sample of households, 69 percent of adult males and 80 percent of adult females never attended school.
- For women under age 30 at the time of survey, their age at first marriage is around 15, on average.
- A household with less than half an acre of cultivable land is defined as a functionally landless household in rural Bangladesh. Survey results reveal that about 98 percent of all survey households are functionally landless. Landlessness ranges from 95 percent for FSVGD households to 99 percent for FFA households.
- Since the majority of households are landless, daily wage laborer is by far the most common occupation of the heads of households.

**Table 4.1 — Characteristics of survey households**

| Characteristic | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Household size (persons) | 4.6 | 4.3 | 3.9 | 3.5 | 3.6 | 3.9 |
| Primary school–age children (6–11 years) who do not go to school (percent of all households with primary school–age children) | 32.4 | 16.9 | 37.4 | 31.7 | 29.0 | 29.6 |
| Secondary school–age children (12–18 years) who do not go to school (percent of all households with secondary school–age children) | 55.5 | 50.7 | 59.1 | 62.3 | 56.7 | 56.5 |
| Years of schooling, male household head | 1.5 | 1.9 | 0.6 | 1.3 | 1.0 | 1.3 |
| Years of schooling, wife of household head | 1.2 | 1.3 | 0.6 | 0.5 | 0.7 | 0.9 |
| Years of schooling of adult male aged 15 and above | 2.2 | 2.5 | 0.9 | 2.0 | 1.1 | 1.8 |
| Years of schooling of adult female aged 15 and above | 1.4 | 1.8 | 0.9 | 0.7 | 0.9 | 1.1 |
| No schooling, adult male (percent) | 63.0 | 56.1 | 83.0 | 66.7 | 78.2 | 69.1 |
| No schooling, adult female (percent) | 75.4 | 71.3 | 86.0 | 86.3 | 82.3 | 80.3 |
| Age at first marriage of men currently aged <30 (years) | 20.7 | 20.6 | 20.0 | 19.8 | 19.9 | 20.2 |
| Age at first marriage of women currently aged <25 (years) | 15.5 | 15.2 | 14.9 | 14.9 | 14.7 | 15.0 |
| Female-headed household (percent) | 31.0 | 21.7 | 36.0 | 79.0 | 46.3 | 43.0 |
| Less than 0.5 acre of land owned (percent) | 97.0 | 95.0 | 99.3 | 98.0 | 100.0 | 98.0 |
| Per capita monthly expenditure (taka) | 824 | 823 | 725 | 862 | 624 | 762 |
| Principal occupation of household head (percent) | | | | | | |
| Salaried | 8.3 | 6.0 | 1.3 | 0.7 | 9.3 | 5.4 |
| Day laborer | 34.3 | 48.7 | 76.0 | 80.3 | 57.0 | 59.1 |
| Farmer | 13.0 | 11.3 | 3.3 | 5.0 | 3.3 | 6.9 |
| Business/trade | 14.0 | 15.0 | 4.3 | 4.7 | 7.8 | 9.1 |
| Rickshaw/tricycle van puller | 11.7 | 7.7 | 10.0 | 4.3 | 10.3 | 8.9 |
| Other self-employed work | 6.3 | 5.3 | 3.0 | 1.7 | 5.3 | 4.4 |
| Non-income-earning occupations | 8.3 | 4.0 | 0.0 | 1.7 | 4.0 | 3.6 |
| Other | 4.0 | 2.0 | 2.0 | 1.7 | 3.3 | 2.6 |

Source: IFPRI 2006 Household Survey for the study on "Relative efficacy of Food and Cash transfers in Bangladesh."

Table 4.2 shows the household composition and dependency ratios of program-participant and control households. On average, households have 2.1 adults of working age (15–60 years),[16] 0.5 children under age 5, 1.2 children between the ages of 5 and 14 years, and only 0.1 elderly persons above 60 years. Household composition differs across program households. Whereas IGVGD and FSVGD households have 2.4 adults aged 15–60, RMP households have 1.9 adults in that age group.

Three types of dependency ratios are presented in the table. The total dependency ratio is defined as the ratio of the number of members in the age groups 0–14 years and above 60 years to the number of members of working age (15–60 years). The ratio is expressed in a percentage. The total dependency ratio is largest for RMP (111 percent) and smallest for FSVGD households (88 percent). The difference between FSVGD and RMP households' total dependency ratio is mainly accounted for by the difference in the child dependency ratio rather than the dependency ratio for the aged. This indicates that adult members of working age in RMP households have more children to support than those in FSVGD households.

[16] This is the notion of working age commonly used by demographers (see, for instance, Shryock et al. 1976). The actual working age of individuals of course depends in part on their standard of living and can often be lower, especially for the poor.

**Table 4.2 — Demography and dependency ratio**

| Characteristic | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| **Number of household members in the age group** | | | | | | |
| 0–4 years | 0.54 | 0.52 | 0.46 | 0.29 | 0.56 | 0.48 |
| 5–14 years | 1.45 | 1.21 | 1.19 | 1.24 | 1.04 | 1.21 |
| 15–60 years | 2.39 | 2.43 | 2.13 | 1.86 | 1.86 | 2.12 |
| Over 60 years | 0.19 | 0.16 | 0.13 | 0.11 | 0.12 | 0.14 |
| **Demographic composition (percent)** | | | | | | |
| 0–4 years | 10.3 | 10.8 | 10.4 | 7.5 | 13.8 | 10.8 |
| 5–14 years | 29.0 | 25.5 | 27.8 | 33.6 | 25.8 | 28.2 |
| 15–60 years | 56.5 | 59.3 | 58.6 | 55.8 | 56.9 | 57.4 |
| Over 60 years | 4.2 | 4.4 | 3.2 | 3.0 | 3.6 | 3.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **Dependency ratio (percent)** | | | | | | |
| Child (0–14) dependency ratio | 96.3 | 79.8 | 86.3 | 101.9 | 95.4 | 92.2 |
| Aged (>60) dependency ratio | 9.0 | 7.9 | 7.5 | 8.6 | 9.2 | 8.5 |
| Total dependency ratio | 105.3 | 87.7 | 93.9 | 110.5 | 104.6 | 100.7 |

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

## 4.2 Budget Shares and Food Consumption

The measure of total consumption expenditures is extensive and draws upon responses to several sections of the household survey. In brief, consumption is measured as the sum of total food consumption and total expenses for nonfood (nondurable and durable) goods. Expenditures on individual consumption items were aggregated to construct total expenditures. Quantities of goods produced by the household for home consumption and foods received from the programs were valued at the average unit market prices of commodities.

Table 4.3 shows the shares of total household expenditures on major consumption items. The differences between per capita consumption expenditures of households show that FFA households are economically worse-off than households in the other three programs.

Overall, the sample households spent 65 percent of total expenditures on food. Although FSVGD households spend a relatively higher share of their budget on food, in absolute terms, RMP households spend relatively more on food than households in other programs. Expenditures on fuel represent the second-highest share of the budget—IGVGD and FSVGD households spend 11 percent of their total budget on fuel, and the share is about 1 percentage point higher for FFA and RMP households. Overall, medical expenses constitute 5 percent of the total budget, and clothing and footwear, 4 percent.

**Table 4.3 — Budget share**

| Budget item | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Monthly per capita total expenditure (taka) | 824 | 823 | 725 | 862 | 624 | 762 |
| Monthly per capita food expenditure (taka) | 499 | 528 | 455 | 532 | 396 | 477 |
| Monthly per capita nonfood expenditure (taka) | 325 | 295 | 270 | 330 | 228 | 286 |
| **Budget share of expenditures (percent)** | | | | | | |
| Food | 63.0 | 66.2 | 65.2 | 64.0 | 65.1 | 64.7 |
| Fuel | 11.3 | 10.6 | 12.2 | 11.6 | 13.7 | 12.0 |
| Clothing and footwear | 4.3 | 4.5 | 4.4 | 4.4 | 4.3 | 4.4 |
| Drugs and medicines | 6.2 | 3.9 | 5.7 | 4.8 | 4.5 | 5.0 |
| Other medical expenses (fees, lab tests, etc.) | 0.5 | 0.3 | 0.8 | 0.6 | 0.6 | 0.6 |
| Education | 1.1 | 1.1 | 0.6 | 1.0 | 0.7 | 0.9 |
| Personal care and cleaning | 2.7 | 2.5 | 2.5 | 2.9 | 2.8 | 2.7 |
| Transport | 2.6 | 1.9 | 1.7 | 2.3 | 1.7 | 2.0 |
| Communication | 0.2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 |
| Entertainment | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Furniture and appliances | 0.5 | 0.5 | 0.4 | 0.6 | 0.3 | 0.5 |
| Utilities | 0.4 | 0.2 | 0.1 | 0.2 | 0.1 | 0.2 |
| Family events (birthday, wedding, funeral, etc.) | 1.3 | 2.3 | 1.3 | 2.0 | 1.3 | 1.6 |
| Tobacco | 1.1 | 1.1 | 1.0 | 0.6 | 1.0 | 1.0 |
| Betel leaves and betel nuts | 1.5 | 1.2 | 1.3 | 1.7 | 1.6 | 1.5 |
| Pocket money given to children | 0.9 | 0.8 | 0.6 | 0.8 | 0.5 | 0.7 |
| Other | 2.2 | 2.6 | 2.1 | 2.3 | 1.5 | 2.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

Table 4.4 shows the patterns of food expenditure. On average, rice accounts for 48 percent of total expenditures on food for all survey households. Rice is the preferred staple in Bangladesh—where "Have you eaten?" translates directly as "Have you taken rice?" A comparison of the patterns of food expenditures across programs, however, shows considerable variation in expenditures on rice and *atta*, which follows the patterns of food rations received from programs: FSVGD households received only an *atta* ration; FFA, only a rice ration; and IGVGD, rice, *atta*, and wheat rations before the survey (see section 5.1).

Table 4.5 presents the quantity of daily per capita food consumption. FFA household members consume more rice than households in other programs because FFA participants receive their food ration entirely in rice. By contrast, FSVGD households consume 14 times more *atta* than FFA households and 7 times more *atta* than RMP households because FSVGD participants receive exclusively an *atta* ration from the program.

Table 4.6 presents per capita calorie consumption and calorie shares of food items. FSVGD households consume more calories than households in other programs. For the entire sample, rice accounts for 76 percent of total calorie consumption, implying very little diversity in diet. Rice accounts for about three-fourths of total calorie intakes by RMP households, 73 percent for IGVGD, 69 percent for FSVGD, and 81 percent for FFA households.

## Table 4.4 — Food budget share

| Budget item | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Monthly per capita total expenditure (taka) | 824 | 823 | 725 | 862 | 624 | 762 |
| Monthly per capita food expenditure (taka) | 499 | 528 | 455 | 532 | 396 | 477 |
| Monthly per capita nonfood expenditure (taka) | 325 | 295 | 270 | 330 | 228 | 286 |
| **Budget share of food expenditures (percent)** | | | | | | |
| Rice | 45.5 | 42.9 | 52.4 | 44.5 | 52.7 | 47.9 |
| *Atta* | 3.9 | 5.8 | 0.7 | 0.8 | 0.5 | 2.2 |
| Other cereals | 0.2 | 0.8 | 0.4 | 0.4 | 0.3 | 0.4 |
| Pulses | 2.6 | 2.3 | 1.6 | 2.5 | 1.7 | 2.1 |
| Oils | 3.3 | 3.2 | 3.0 | 3.5 | 3.4 | 3.3 |
| Potatoes | 3.2 | 3.7 | 3.3 | 3.7 | 3.6 | 3.5 |
| Leafy vegetables | 2.1 | 2.1 | 3.1 | 2.7 | 3.3 | 2.7 |
| Other vegetables | 6.5 | 6.6 | 6.9 | 7.7 | 7.5 | 7.1 |
| Meats | 2.6 | 4.6 | 2.6 | 3.0 | 1.9 | 2.9 |
| Fish | 1.0 | 1.3 | 0.9 | 1.0 | 0.7 | 1.0 |
| Eggs | 5.8 | 6.3 | 6.6 | 7.1 | 5.2 | 6.1 |
| Milk and milk products | 2.2 | 2.2 | 1.3 | 1.9 | 1.2 | 1.7 |
| Fruits | 6.9 | 6.4 | 6.2 | 7.5 | 5.2 | 6.4 |
| Spices | 5.4 | 5.0 | 5.4 | 5.5 | 5.7 | 5.4 |
| Sugar and gur | 1.0 | 1.4 | 0.6 | 1.2 | 0.7 | 1.0 |
| Beverages | 2.0 | 1.8 | 1.0 | 1.2 | 1.1 | 1.4 |
| Prepared food (eaten outside home) | 5.9 | 3.6 | 4.1 | 5.6 | 5.5 | 5.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

## Table 4.5 — Quantity of daily per capita consumption of food items

| Food item | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (grams per person per day) | | | |
| Rice | 401 | 438 | 451 | 436 | 397 | 423 |
| *Atta* | 43 | 82 | 6 | 11 | 4 | 28 |
| Other cereals | 1 | 7 | 3 | 4 | 3 | 3 |
| Oils | 9 | 10 | 7 | 10 | 7 | 9 |
| Potatoes | 34 | 44 | 32 | 41 | 30 | 36 |
| Vegetables | 143 | 184 | 181 | 200 | 162 | 173 |
| Meats | 29 | 10 | 5 | 7 | 3 | 10 |
| Fish | 17 | 21 | 17 | 23 | 13 | 18 |
| Eggs | 3 | 4 | 3 | 3 | 2 | 3 |
| Milk | 23 | 28 | 16 | 21 | 13 | 20 |
| Pulses | 10 | 10 | 6 | 10 | 5 | 8 |
| Fruits | 118 | 141 | 119 | 142 | 83 | 118 |
| Spices | 22 | 25 | 21 | 25 | 19 | 22 |
| Sugar and gur | 4 | 6 | 3 | 6 | 2 | 4 |
| Beverages | 13 | 13 | 6 | 9 | 6 | 9 |
| Prepared foods | 68 | 30 | 28 | 47 | 43 | 43 |
| Salt | 14 | 17 | 16 | 16 | 15 | 16 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: Estimated from food expenditure data.

**Table 4.6 — Calorie consumption and composition**

| Food item | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Per capita calorie intake (kcal) | 2,065 | 2,348 | 2,020 | 2,118 | 1,801 | 2,053 |
| | | | (percent of total calorie intake) | | | |
| Rice | 72.5 | 69.3 | 81.1 | 75.3 | 80.3 | 76.0 |
| *Atta* | 6.8 | 10.8 | 1.1 | 1.5 | 0.7 | 4.0 |
| Other cereals | 0.2 | 1.0 | 0.5 | 0.5 | 0.5 | 0.5 |
| Oils | 3.9 | 3.7 | 3.5 | 4.3 | 3.7 | 3.8 |
| Potatoes | 1.5 | 1.8 | 1.5 | 1.8 | 1.6 | 1.6 |
| Vegetables | 3.0 | 3.3 | 3.9 | 4.1 | 4.0 | 3.7 |
| Meats | 0.5 | 0.4 | 0.2 | 0.3 | 0.2 | 0.3 |
| Fish | 0.7 | 0.8 | 0.8 | 1.0 | 0.7 | 0.8 |
| Eggs | 0.2 | 0.3 | 0.2 | 0.2 | 0.1 | 0.2 |
| Milk | 0.7 | 0.9 | 0.5 | 0.7 | 0.5 | 0.7 |
| Pulses | 1.7 | 1.4 | 0.9 | 1.7 | 1.0 | 1.3 |
| Fruits | 1.6 | 1.7 | 1.4 | 1.9 | 1.2 | 1.6 |
| Spices | 1.0 | 0.9 | 1.0 | 1.1 | 1.0 | 1.0 |
| Sugar and gur | 0.7 | 1.0 | 0.5 | 1.0 | 0.5 | 0.7 |
| Beverages | 0.3 | 0.3 | 0.1 | 0.2 | 0.2 | 0.2 |
| Prepared foods | 4.7 | 2.4 | 2.9 | 4.4 | 4.1 | 3.7 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: Estimated from food expenditure data.

Rice's share of the food budget, however, is only 48 percent, showing that rice is a relatively inexpensive source of energy. Table 4.7 shows that *atta* is the least expensive source of calories, closely followed by rice. Meat is the most expensive source of calories, about 29 times as expensive as rice as a source of energy.

**Table 4.7 — Cost of calories by food groups**

| Food item | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (taka per 1,000 kilocalories) | | | |
| Rice | 4.6 | 4.3 | 4.5 | 4.5 | 4.5 | 4.5 |
| *Atta* | 3.9 | 3.6 | 4.2 | 5.0 | 4.8 | 4.0 |
| Other cereals | 8.4 | 7.4 | 7.2 | 5.8 | 6.3 | 6.9 |
| Oils | 6.6 | 6.4 | 6.7 | 6.5 | 6.5 | 6.5 |
| Potatoes | 17.2 | 15.9 | 16.4 | 16.8 | 16.4 | 16.5 |
| Vegetables | 19.2 | 16.4 | 16.7 | 18.5 | 17.4 | 17.6 |
| Meats | 112.1 | 115.8 | 123.7 | 111.2 | 112.5 | 115.0 |
| Fish | 71.4 | 61.8 | 65.1 | 65.7 | 63.6 | 65.4 |
| Eggs | 42.2 | 41.2 | 43.0 | 40.7 | 39.4 | 41.3 |
| Milk | 27.4 | 21.0 | 22.8 | 26.3 | 23.9 | 24.2 |
| Pulses | 13.2 | 12.5 | 14.0 | 13.7 | 12.9 | 13.2 |
| Fruits | 39.2 | 30.8 | 40.4 | 36.4 | 37.2 | 36.7 |
| Spices | 49.4 | 44.1 | 43.4 | 47.1 | 47.1 | 46.3 |
| Sugar and gur | 12.4 | 12.2 | 12.1 | 12.5 | 12.4 | 12.3 |
| Beverages | 73.3 | 55.8 | 61.9 | 80.4 | 64.5 | 66.2 |
| Prepared foods | 13.1 | 14.5 | 14.4 | 13.8 | 14.0 | 14.0 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: Estimated from food expenditure data.

### 4.3 Nutritional Status of Children and Women

Within households, some members are at greater nutritional risk than others. Various studies have documented that preschool children and women suffer from more severe undernutrition than do other household members. Indeed, an IFPRI study in Bangladesh

assessing the food consumption and nutritional effects of targeted food-based programs finds that preschoolers are at the greatest risk of undernutrition, followed by pregnant and lactating women (Ahmed 1993).

This study assesses the nutritional status of preschool children (aged 6–60 months) on the basis of anthropometric data for all preschool children in the sample households relative to standards devised by the U.S. National Center for Health Statistics (NCHS). The levels of nutritional status are expressed in Z-score values.[17]

Table 4.8 reports Z-scores for height-for-age, a measure of stunting; weight-for-age, a measure of underweight; and weight-for-height, a measure of wasting. Weight-for-height is a short-term measure (low weight-for-height indicates acute undernutrition), whereas height-for-age shows the long-term nutritional status of children (low height-for-age indicates chronic undernutrition). Low weight-for-age (indicating underweight) can be viewed as a medium-term indicator, which reflects both acute and chronic undernutrition. For the entire sample of preschool children, 49 percent are stunted, 57 percent are underweight, and 19 percent are wasted. The results also show that the nutritional status of preschoolers of RMP beneficiary households is the worst among the four programs—about 61 percent of preschool children are underweight. At the national level, about 48 percent of children aged below 5 years are underweight in Bangladesh—one of the highest rates of underweight children in the world. For example, the underweight rate in Sub-Saharan Africa is around 30 percent.

**Table 4.8 — Prevalence of malnutrition among preschool children aged 6 to 60 months**

| Type of households | Number of children | Average HAZ | Percent HAZ <-2 | Average WAZ | Percent WAZ <-2 | Average WHZ | Percent WHZ<-2 |
|---|---|---|---|---|---|---|---|
| IGVD | 132 | -1.93 | 50.0 | -1.94 | 53.8 | -0.98 | 18.2 |
| FSVGD | 131 | -1.94 | 48.9 | -2.08 | 59.5 | -1.13 | 22.1 |
| FFA | 130 | -1.83 | 46.2 | -2.01 | 55.4 | -1.17 | 16.2 |
| RMP | 71 | -2.08 | 54.9 | -2.18 | 60.6 | -1.14 | 12.7 |
| Control | 204 | -1.92 | 46.6 | -2.23 | 56.4 | -1.34 | 22.5 |
| All | 668 | -1.93 | 48.5 | -2.09 | 56.7 | -1.17 | 19.3 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: HAZ = height-for-age Z-score; WAZ = weight-for-age Z-score; WHZ = weight-for-height Z-score.

Table 4.9 shows the nutritional status of women of childbearing age (15–49 years), the other high-risk group, from the program and control households. The body mass index (BMI) is used as the nutritional status indicator for this group.[18] A BMI of 18.5 is considered normal for adults (James, Ferro-Luzzi, and Waterlow 1988). The results show that program women have somewhat better nutritional status than do those in the control group. Based on appropriate analysis, however, the results of program impacts on the nutritional status of women and children are presented in section 6.3.

[17] Z-score = (actual measurement – 50$^{th}$ percentile standard)/standard deviation of 50$^{th}$ percentile standard. Levels of nutritional status in comparison with a reference population can be conveniently expressed in terms of Z-score values. A Z-score value of zero indicates a child who is "normal," and a Z-score value less than –2 indicates a child who suffers from a nutritional problem.

[18] BMI is defined as weight (in kilograms)/height$^2$ in meters. Pregnant women are excluded from BMI calculations, because weight gain during pregnancy could bias the results.

**Table 4.9 — BMI of women of childbearing age, 15–49 years old**

| Type of households | Number of women | Average BMI | Percent below 18.5 BMI |
|---|---|---|---|
| IGVGD | 321 | 19.51 | 39.9 |
| FSVGD | 329 | 19.33 | 41.9 |
| FFA | 315 | 19.20 | 43.2 |
| RMP | 335 | 19.20 | 41.2 |
| Control | 410 | 18.94 | 45.9 |
| All | 1,710 | 19.22 | 42.6 |

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

## 4.4 Incidence of Illness and Disability

Table 4.10 shows the incidence of illness for age groups of all household members within 30 days prior to the household survey.

**Table 4.10 — Incidence of illness of household members, during 30 days preceding the survey**

| Age groups | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent) | | | |
| **0–5 years** | | | | | | |
| Any illness or injury in the last four weeks | 64.4 | 66.1 | 56.5 | 65.8 | 61.4 | 62.6 |
| Prolonged fever | 56.0 | 54.3 | 45.9 | 57.9 | 47.5 | 51.6 |
| Diarrhea | 9.9 | 12.4 | 12.4 | 14.0 | 12.7 | 12.2 |
| Persistent cough | 31.4 | 31.7 | 24.7 | 28.9 | 27.0 | 28.7 |
| Skin disease | 4.7 | 4.3 | 3.5 | 4.4 | 6.6 | 4.9 |
| Throat infection | 2.6 | 1.1 | 0.6 | 0.9 | 1.2 | 1.3 |
| **6–10 years** | | | | | | |
| Any illness or injury in the last four weeks | 41.6 | 41.5 | 38.2 | 46.6 | 43.8 | 42.4 |
| Prolonged fever | 35.4 | 31.3 | 32.1 | 42.0 | 39.3 | 36.2 |
| Diarrhea | 1.9 | 2.1 | 5.7 | 5.9 | 4.1 | 3.9 |
| Persistent cough | 15.2 | 15.4 | 10.8 | 17.4 | 18.2 | 15.5 |
| Skin disease | 1.6 | 3.1 | 1.9 | 3.7 | 3.7 | 2.8 |
| Throat infection | 2.3 | 1.0 | 0.5 | 0.9 | 0.4 | 1.1 |
| **11–17 years** | | | | | | |
| Any illness or injury in the last four weeks | 31.8 | 33.2 | 31.1 | 40.2 | 38.5 | 34.8 |
| Prolonged fever | 26.2 | 26.9 | 21.1 | 33.9 | 30.8 | 27.8 |
| Diarrhea | 1.4 | 5.8 | 3.7 | 2.9 | 1.6 | 3.1 |
| Persistent cough | 10.7 | 12.6 | 10.6 | 14.4 | 15.4 | 12.7 |
| Skin disease | 2.8 | 0.9 | 1.9 | 2.3 | 1.1 | 1.8 |
| Throat infection | 0.9 | 0.4 | 1.2 | 3.4 | 0.0 | 1.2 |
| **18–59 years** | | | | | | |
| Any illness or injury in the last four weeks | 48.2 | 42.6 | 39.2 | 45.0 | 48.6 | 44.9 |
| Prolonged fever | 35.5 | 29.3 | 25.5 | 36.3 | 35.4 | 32.4 |
| Diarrhea | 4.5 | 5.9 | 3.5 | 4.5 | 6.7 | 5.1 |
| Persistent cough | 15.1 | 13.9 | 10.6 | 14.4 | 14.3 | 13.7 |
| Skin disease | 3.5 | 1.3 | 2.4 | 1.2 | 2.2 | 2.2 |
| Throat infection | 1.6 | 1.6 | 2.3 | 1.2 | 2.2 | 1.8 |
| **60 years and over** | | | | | | |
| Any illness or injury in the last four weeks | 60.3 | 40.3 | 48.1 | 43.6 | 46.8 | 48.5 |
| Prolonged fever | 32.1 | 16.1 | 28.8 | 32.7 | 29.0 | 27.8 |
| Diarrhea | 7.7 | 1.6 | 1.9 | 3.6 | 6.5 | 4.5 |
| Persistent cough | 21.8 | 9.7 | 17.3 | 14.5 | 17.7 | 16.5 |
| Skin disease | 2.6 | 1.6 | 3.8 | 3.6 | 3.2 | 2.9 |
| Throat infection | 1.3 | 1.6 | 0.0 | 0.0 | 3.2 | 1.3 |

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

Given that diarrhea is an important cause of child morbidity, its incidence among children is an important indicator of health outcomes. The incidence of diarrhea among all children aged 5 and under in the entire sample is about 12 percent. Children from IGVGD households had the lowest incidence of diarrhea (9.9 percent), and those belonging to RMP households had the highest incidence (14 percent). A similar pattern (to much lesser extent) also holds for children aged 6–10.

The overall incidence of illness is very high among children aged 5 and under—63 percent of all children in this age group suffered from some illness or injury within 30 days of the survey. After under-5 children, the next high incidence of illness is observed among the elderly people aged 60 and over. Among the types of illness reported, the prevalence of prolonged fever is the highest, followed by persistent cough, across the age groups.

Table 4.11 shows the incidence of physical disabilities for all household members. Among the four programs, members of IGVGD and RMP households have relatively higher incidence of paralysis and missing or deformed limbs.

**Table 4.11 — Physical disabilities of household members**

| Type of disability | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent) | | | |
| Blindness in one or both eyes | 0.8 | 0.8 | 0.8 | 0.3 | 1.0 | 0.8 |
| Missing or deformed limb | 3.3 | 1.9 | 1.9 | 2.5 | 3.1 | 2.5 |
| Paralysis or body part that has lost its sense of touch | 2.5 | 1.0 | 1.4 | 2.7 | 2.2 | 1.8 |

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

## 4.5 Types of Primary School Attended by Children

Primary schools in rural Bangladesh include government schools, registered nongovernment schools, nonregistered nongovernment schools, Primary Training Institute (PTI) schools, community schools, high school–attached primary schools, *madrassas* (Islamic education schools), kindergartens, nonformal schools run by BRAC and other NGOs, and the recently introduced *Ananda* schools (Ahmed 2006).

Table 4.12 shows the percentage of all primary school students from program and control groups of households attending different types of primary school. About 63 percent of all students go to government schools. More children from FFA households (16 percent) attend NGO-run schools than those from other households. Among the four programs, a relatively higher percentage of children from RMP households attend *madrassas*.

**Table 4.12 — Types of school attended**

| Type of school | IGVGD | FSVGD | FFA | RMP | Control | Total |
|---|---|---|---|---|---|---|
| | | | (percent) | | | |
| Government school | 60.6 | 64.6 | 58.6 | 62.8 | 69.5 | 63.4 |
| Nongovernment registered school | 16.1 | 11.7 | 13.6 | 7.3 | 14.8 | 12.8 |
| NGO-run school | 12.0 | 15.2 | 16.2 | 15.1 | 9.1 | 13.4 |
| *Madrassa* | 7.6 | 8.5 | 9.6 | 11.9 | 4.1 | 8.2 |
| *Ananda* school | 3.6 | 0.0 | 2.0 | 2.8 | 2.5 | 2.2 |

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

### 4.6 Ownership of Household Assets

Table 4.13 presents the ownership status of some selected assets. There is considerable variation in asset holding across the programs. FFA households have the lowest level of assets among the four programs. Among various assets, ownership of tubewells is most prevalent, at 30 percent, followed by fishing nets, at 18 percent.

**Table 4.13 — Selected household asset ownership**

| Asset | IGVGD | FSVGD | FFA | RMP | Control | Total |
|---|---|---|---|---|---|---|
| | | | (percent of households) | | | |
| Electric fan | 7.0 | 4.0 | 1.0 | 1.3 | 0.8 | 2.7 |
| Radio | 7.3 | 8.3 | 5.3 | 5.7 | 3.3 | 5.8 |
| Cassette player | 5.7 | 4.0 | 0.7 | 4.0 | 0.8 | 2.9 |
| Television | 4.0 | 4.7 | 0.0 | 1.0 | 0.5 | 1.9 |
| Sewing machine | 3.0 | 2.3 | 0.7 | 1.0 | 0.8 | 1.5 |
| Bicycle | 10.3 | 18.0 | 5.3 | 5.7 | 3.0 | 8.1 |
| Rickshaw/van | 9.7 | 9.0 | 10.3 | 6.7 | 5.5 | 8.1 |
| Bullock cart | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.2 |
| Boat | 2.0 | 0.0 | 1.7 | 1.7 | 0.5 | 1.1 |
| Mobile phone | 1.3 | 1.3 | 0.3 | 0.3 | 0.0 | 0.6 |
| Tubewell | 24.7 | 45.0 | 36.3 | 28.0 | 20.8 | 30.3 |
| Fishing net | 26.3 | 20.7 | 18.7 | 12.3 | 13.0 | 17.9 |

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

### 4.7 Dwelling Characteristics

Table 4.14 provides information on the types of dwellings of program and control households. In the entire sample, only 8 percent of households have electricity. This rate ranges from 5 percent for FFA households to 15 percent for IGVGD households.

**Table 4.14 — Electricity and structure of dwelling**

| Characteristic | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent of households) | | | |
| Household has electricity | 15.3 | 8.7 | 5.0 | 7.0 | 5.5 | 8.1 |
| Structure of wall [a] | | | | | | |
| Permanent | 38.0 | 10.3 | 13.7 | 36.0 | 16.3 | 22.4 |
| Nonpermanent | 62.0 | 89.7 | 86.3 | 64.0 | 83.8 | 77.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Roofing material | | | | | | |
| Tin | 91.7 | 84.7 | 76.0 | 87.0 | 81.0 | 83.9 |
| Thatched (straw/grass/plastic, etc.) | 7.0 | 15.3 | 24.0 | 11.7 | 18.5 | 15.5 |
| Concrete/tiles | 1.3 | 0.0 | 0.0 | 1.3 | 0.5 | 0.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
[a] Permanent materials are fired bricks, concrete, wood, and tin sheets.

Because outer walls and the roof form the main part of the dwelling, information on these is provided in the table. Permanent walls are those made of tin, brick, and cement. Nonpermanent materials include bamboo, mud, jute sticks, and thatch. Whereas 38 percent of IGVGD and 36 percent of RMP dwellings are made of permanent materials, only 14 percent

of FFA and 10 percent of FSVGD dwellings are built of permanent materials. The vast majority of all households have tin as their roofing material.

Table 4.15 provides information on types of latrine. About one-third of all households have unsealed and 22 percent have *kutcha* (nonpermanent) latrines. Among the programs, 45 percent of FFA households have no latrine.

**Table 4.15 — Types of latrine**

| Type of latrine | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent) | | | |
| *Kutcha* (fixed place) | 20.0 | 20.0 | 22.7 | 24.3 | 21.3 | 21.6 |
| *Pucca* (unsealed) | 40.3 | 43.3 | 22.7 | 38.7 | 26.8 | 33.9 |
| Sanitary without flush (water sealed) | 21.0 | 9.0 | 9.0 | 17.0 | 12.5 | 13.6 |
| Sanitary with flush (water sealed) | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.1 |
| Other | 0.0 | 0.3 | 0.3 | 0.0 | 0.3 | 0.2 |
| No private latrine | 18.7 | 27.0 | 45.3 | 20.0 | 39.3 | 30.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

## 4.8 Labor Force Participation

Table 4.16 presents the labor force participation rates and employment status of household members aged 15 and over. By definition, the labor force consists of everyone above the age of 15 who is employed or unemployed but actively seeking employment. People not counted in the labor force include students, housewives, retired people, disabled people, and discouraged workers who are not seeking work.

For all household members aged 15 and above, the labor force participation rates ranged from 56 percent for FSVGD households to 74 percent for RMP households. There are large differences in labor force participation rates, however, between males and females for IGVGD and FSVGD households. For IGVGD households, 84 percent of men and only 36 percent of women are in the labor force. In contrast, for the public works programs (FFA and RMP), the gender gap in labor force participation is quite small owing to women's participation in these works programs. For RMP households, the rates are 82 percent for men and 71 percent for women.

Unemployment rates (calculated as those reporting they were unemployed and looking for work, divided by the labor force) are quite low in general, and lower for women in particular. For example, the unemployment rates for IGVGD households are 6 percent for men and 3 percent for women. In the RMP program, the rates are 5 percent for men and only 0.7 percent for women.

Wage labor (agricultural and nonagricultural) is the most important category of employment, followed by nonagricultural self-employment.

**Table 4.16 — Labor force participation of household members aged 15 and over**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | | Control | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | All | Male | Female | All | Male | Female | All | Male | Female | All | Male | Female | All |
| | | | | | | | | (percent) | | | | | | | |
| **In the labor force** | **84.2** | **35.5** | **56.3** | **85.3** | **41.5** | **61.1** | **87.1** | **62.1** | **72.7** | **82.3** | **71.1** | **74.1** | **82.1** | **58.7** | **67.4** |
| **Percentage distribution of labor force** | | | | | | | | | | | | | | | |
| Agricultural wage labor | 22.0 | 2.6 | 14.7 | 36.7 | 8.8 | 26.3 | 44.7 | 7.7 | 27.1 | 18.0 | 3.8 | 8.0 | 47.6 | 11.4 | 27.9 |
| Other nonagricultural wage labor | 10.8 | 18.5 | 13.7 | 7.0 | 24.7 | 13.6 | 6.1 | 50.5 | 27.3 | 14.8 | 72.1 | 55.1 | 11.9 | 34.2 | 24.0 |
| Salaried | 6.8 | 7.9 | 7.2 | 6.3 | 8.8 | 7.2 | 3.1 | 6.3 | 4.6 | 4.1 | 5.2 | 4.9 | 2.6 | 15.8 | 9.8 |
| Self-employed (agriculture) | 8.8 | 21.9 | 13.7 | 10.1 | 28.8 | 17.1 | 0.4 | 3.4 | 1.8 | 5.7 | 1.4 | 2.7 | 1.8 | 6.3 | 4.2 |
| Self-employed (nonagriculture) | 38.0 | 33.1 | 36.2 | 33.2 | 23.5 | 29.6 | 30.7 | 7.2 | 19.5 | 48.4 | 15.9 | 25.5 | 29.5 | 21.0 | 24.8 |
| Work without pay | 8.0 | 13.2 | 10.0 | 2.8 | 2.9 | 2.9 | 4.4 | 19.7 | 11.7 | 4.1 | 1.0 | 1.9 | 2.2 | 4.0 | 3.2 |
| Unemployed (looking for job) | 5.6 | 2.6 | 4.5 | 3.8 | 2.4 | 3.3 | 10.5 | 5.3 | 8.0 | 4.9 | 0.7 | 1.9 | 4.4 | 7.4 | 6.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

## 4.9 Participation in Public Intervention Programs

Besides the four case study programs, Bangladesh has several other public assistance programs, as described in section 1.5. Table 4.17 shows the incidence of participation of survey households in these public assistance programs over one year preceding the time of the survey. More than one-fifth of all households receive benefits from the Primary Education Stipend (PES) program, which provides cash assistance to poor families who send their children to primary school. About 26 percent of FFA households and around 13 percent of households from the other three programs received food assistance from the Vulnerable Group Feeding (VGF) program that is designed as a mechanism for mitigating the consequences of disasters, such as floods, cyclones, and other natural calamities.

**Table 4.17 — Households receiving public assistance**

| Form of assistance | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent of households) | | | |
| Primary Education Stipend | 24.7 | 25.0 | 21.0 | 21.0 | 20.3 | 22.3 |
| Stipend for secondary school girls | 5.3 | 6.3 | 3.0 | 2.0 | 3.5 | 4.0 |
| Gratuitous relief | 2.7 | 7.7 | 13.0 | 5.7 | 8.8 | 7.6 |
| Test relief | 4.0 | 0.7 | 4.3 | 3.7 | 8.0 | 4.4 |
| Vulnerable Group Feeding (VGF) | 13.3 | 13.0 | 26.0 | 13.7 | 24.0 | 18.4 |
| Allowance for widows and elderly people | 2.0 | 1.0 | 2.7 | 3.7 | 1.0 | 2.0 |
| *Ananda* school allowance | 1.7 | 0.0 | 0.0 | 0.3 | 0.5 | 0.5 |

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

## 4.10 Private Transfers and Remittances

Table 4.18 shows that only about 6 percent of all survey households received private assistance from within Bangladesh. About 7 percent of IGVGD and FSVGD households, 6 percent of FFA households, and only 4 percent of RMP households received private transfers in the year prior to the survey.

**Table 4.18 — Private transfers and remittances received**

| Transfer/remittance | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Average remittance (taka per household year) | 977 | 440 | 215 | 208 | 286 | 417 |
| Transfers from inside Bangladesh (percent of households) | 7.0 | 6.7 | 6.0 | 4.3 | 6.3 | 6.1 |
| Remittance from abroad (percent of households) | 0.7 | 0.0 | 0.0 | 0.0 | 0.5 | 0.3 |

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

Among the programs, only 0.7 percent of IGVGD households received remittances from abroad. FSVGD, FFA, and RMP households did not receive any remittances from abroad in the year prior to the survey.

## 4.11 Access to Credit

Table 4.19 presents information on average loan size and sources of loans. Average loan size is largest for IGVGD households followed by FSVGD households. IGVGD households' loans are about 3 times larger than those of FFA households, and 81 percent larger than those of RMP households.

**Table 4.19 — Loan size and sources of loan**

| Loan size/source | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Average loan size (taka/household) | 5,175 | 4,129 | 1,621 | 2,864 | 1,804 | 3,036 |
| Percent of households that have outstanding loan amount | 64.7 | 49.3 | 34.7 | 50.7 | 36.8 | 46.6 |
| **Source of loan** | | | (percent of all loans) | | | |
| NGO | 77.6 | 52.0 | 40.5 | 48.0 | 40.2 | 53.9 |
| Bank/other financial institution | 4.8 | 19.9 | 19.7 | 11.6 | 15.1 | 13.3 |
| Relative/friend/neighbor | 5.4 | 14.3 | 16.1 | 16.6 | 21.0 | 14.0 |
| Moneylender | 7.3 | 3.3 | 8.4 | 5.5 | 13.3 | 7.5 |
| Shop/dealer /trader | 2.8 | 5.0 | 9.5 | 13.7 | 8.1 | 7.5 |
| Credit/savings group (other than NGO) | 1.9 | 3.3 | 5.8 | 2.0 | 1.6 | 2.7 |
| Other | 0.3 | 2.3 | 0.0 | 2.6 | 0.7 | 1.2 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

NGOs are the primary source of credit for program households. For IGVGD households, microcredit from NGOs accounted for 78 percent of the total amount borrowed. The corresponding figures are 52 percent for IGVGD, 41 percent for FFA, and 48 percent for RMP households. Among the four programs, only IGVGD has a built-in provision for microcredit.

Table 4.20 shows the patterns of loan use by survey households. It is important to note that eliciting information from lenders on the purpose of loans can be misleading because financial resources are generally fungible, and it is difficult to trace the activity financed by the loan. This fungibility problem is somewhat reduced when information is elicited directly from borrowers (as opposed to lenders), as was done in the survey. Of course, some level of misreporting will nonetheless exist, and this should be borne in mind when interpreting the results.

**Table 4.20 — Use of loan**

| Loan use | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Average loan size (taka/household) | 5,175 | 4,129 | 1,621 | 2,864 | 1,804 | 3,036 |
| | | | (percent of all loans) | | | |
| **Productive use** | | | | | | |
| Business enterprise | 13.8 | 6.5 | 5.1 | 7.0 | 4.0 | 7.8 |
| Agricultural enterprise | 4.4 | 11.9 | 3.8 | 5.6 | 2.0 | 5.6 |
| Purchased productive assets | 14.0 | 11.8 | 14.4 | 6.1 | 4.6 | 10.2 |
| Rented/leased-in land | 2.9 | 1.2 | 1.1 | 4.9 | 2.4 | 2.6 |
| Purchased cow/goat | 5.2 | 4.4 | 5.4 | 4.3 | 3.7 | 4.6 |
| Lent out at higher interest | 2.3 | 0.7 | 0.9 | 1.6 | 2.0 | 1.6 |
| **Consumption use** | | | | | | |
| Food consumption | 9.1 | 11.5 | 20.2 | 23.2 | 25.2 | 17.2 |
| Medical treatment | 7.6 | 14.3 | 14.6 | 9.7 | 18.3 | 12.4 |
| Improve housing | 17.3 | 9.5 | 5.7 | 12.3 | 10.0 | 11.7 |
| Marriage expenses | 3.7 | 4.1 | 1.9 | 4.7 | 3.3 | 3.6 |
| Dowry | 0.5 | 6.0 | 2.1 | 4.8 | 4.1 | 3.4 |
| **Other use** | | | | | | |
| Repay other loan | 12.4 | 9.4 | 15.9 | 8.2 | 14.3 | 11.8 |
| Other | 6.9 | 8.7 | 8.7 | 7.7 | 6.3 | 7.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

IGVGD households used a relatively greater proportion of loans to finance productive activities, whereas a larger percentage of loans taken by FSVGD, FFA, and RMP households went toward financing consumption expenditures.

Among all sources of loans, commercial banks charged the lowest rates of interest (12 percent on average), closely followed by NGOs (14 percent). In contrast, village moneylenders charged 122 percent interest (Table 4.21).

**Table 4.21 — Interest rates by loan source**

| Loan source | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent/year) | | | |
| NGO | 14.2 | 13.8 | 13.5 | 14.6 | 13.8 | 14.1 |
| Bank/other financial institution | 12.1 | 12 | 12.7 | 10.8 | 12.3 | 12.0 |
| Relative/friend/neighbor | 79.4 | 108 | 93.6 | 84.3 | 97.7 | 93.6 |
| Moneylender | 100.6 | 99.4 | 138 | 105.3 | 148.3 | 122.2 |

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

## 4.12 Patterns of Savings

Table 4.22 provides information on savings. While all program households had some savings, 71 percent of control households had no savings at all. Mandatory saving requirements by all four programs explain this difference. Among the four programs, RMP households had the largest amount of savings owing to the program's significantly higher savings requirement: monthly savings requirements are Tk 300 for RMP participants, Tk 32 for IGVGD and FSVGD participants, and Tk 25 for FFA participants.

**Table 4.22 — Incidence of savings**

| Savings indicator | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Average savings amount (taka per household) | 1,992 | 1,556 | 844 | 7,630 | 346 | 2,341 |
| Percent of households with any savings | 99.7 | 99.7 | 99.7 | 100.0 | 28.8 | 81.2 |
| | | | (percent of total savings amount) | | | |
| **Place of saving** | | | | | | |
| Program savings | 64.3 | 69.4 | 79.7 | 80.1 | n.a. | 66.8 |
| At home | 0.9 | 2.1 | 2.2 | 0.2 | 3.9 | 1.6 |
| NGO (other than program saving) | 29.9 | 19.6 | 12.8 | 10.9 | 70.4 | 23.0 |
| Saving group (other than NGO) | 1.8 | 2.7 | 0.3 | 1.6 | 12.7 | 2.6 |
| Bank and post office | 1.4 | 4.5 | 3.0 | 2.7 | 7.8 | 3.3 |
| Other | 1.7 | 1.8 | 1.9 | 4.5 | 5.1 | 2.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

Table 4.23 shows survey respondents' planned used of savings. Households across the programs reported that they would use their savings mainly to finance productive activities.

**Table 4.23 — Planned use of savings**

| Use of savings | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| Average savings amount (taka per household) | 1,992 | 1,556 | 844 | 7,630 | 346 | 2,341 |
| | | | (percent of total savings amount) | | | |
| **Planned use of savings** | | | | | | |
| To buy productive assets | 48.8 | 57.5 | 64.0 | 28.2 | 42.1 | 49.2 |
| To start/help business | 10.2 | 6.3 | 3.6 | 15.0 | 1.8 | 8.1 |
| To buy land/house | 5.0 | 3.4 | 7.7 | 22.0 | 6.0 | 9.1 |
| To build/repair house | 2.9 | 2.8 | 2.5 | 1.8 | 3.0 | 2.6 |
| For marriage/dowry expenses | 8.8 | 6.8 | 6.3 | 11.2 | 15.6 | 8.9 |
| To get loan | 3.3 | 1.0 | 0.2 | 0.5 | 2.9 | 1.4 |
| To prepare for difficult times | 6.5 | 4.9 | 4.6 | 5.6 | 10.8 | 5.9 |
| For the future of children | 6.5 | 7.6 | 5.0 | 7.4 | 11.7 | 7.1 |
| Don't know/no specific reason | 1.7 | 3.7 | 3.0 | 0.2 | 4.3 | 2.4 |
| Other | 6.3 | 6.0 | 3.1 | 8.1 | 1.9 | 5.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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

## 4.13 Shocks and Coping Mechanism

Table 4.24 shows the proportion of households affected by various types of shocks in the five years prior to the survey. Severe illness or injuries were the most common cause of crisis, affecting about one-third of all households on average. The most severe shock, death of the main earner of the family, was experienced by 13 percent of RMP households—the highest percentage among the four program households.

**Table 4.24 — Incidence of shocks in the past five years**

| Shock | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent of households) | | | |
| Death of main earner | 8.3 | 6.7 | 5.0 | 12.7 | 9.5 | 8.3 |
| Death of other member of the family | 4.7 | 2.7 | 6.0 | 3.7 | 3.3 | 4.7 |
| Serious injury or illness that kept household member from doing normal activities | 32.3 | 23.0 | 22.0 | 21.7 | 25.8 | 32.3 |
| Divorce or abandonment by husband | 2.0 | 2.0 | 2.7 | 14.7 | 9.0 | 2.0 |
| Major loss of crops | 6.3 | 2.7 | 3.0 | 2.0 | 1.3 | 6.3 |
| Loss of livestock due to death, theft, etc. | 6.7 | 7.7 | 9.0 | 5.0 | 3.8 | 6.7 |
| Loss of assets/money due to theft | 3.0 | 0.7 | 1.3 | 0.7 | 0.8 | 3.0 |
| Loss of assets due to fire | 0.7 | 1.7 | 2.3 | 2.0 | 1.8 | 0.7 |
| Loss of assets due to flood | 10.3 | 5.0 | 4.0 | 6.7 | 7.3 | 10.3 |
| Loss of assets due to natural disaster other than flood | 13.3 | 8.0 | 11.3 | 15.7 | 13.0 | 13.3 |
| Gave a big amount of dowry for daughter's marriage | 6.7 | 10.0 | 10.3 | 8.3 | 5.8 | 6.7 |

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

Table 4.25 shows the measures the affected households took to cope with relatively severe shocks: death of the main earner, serious injury or illness, and severe floods and other natural disasters. The most common coping measure was to take help from others. A sizable

proportion of RMP and IGVGD households reported that they ate less food or lower-quality of food to reduce expenses.

**Table 4.25 — Coping mechanisms (multiple response)**

| Coping mechanism | IGVGD | FSVGD | FFA | RMP | Control | All |
|---|---|---|---|---|---|---|
| | | | (percent of cases) | | | |
| Did nothing | 11.4 | 12.5 | 14.2 | 13.5 | 10.4 | 12.1 |
| Sold land | 2.1 | 4.7 | 2.4 | 0.6 | 2.7 | 2.4 |
| Mortgaged/leased out land | 1.0 | 1.6 | 0.0 | 0.0 | 1.8 | 1.0 |
| Sold productive assets | 7.8 | 17.2 | 6.3 | 4.1 | 6.8 | 8.0 |
| Sold consumption assets | 1.0 | 0.8 | 5.5 | 2.4 | 2.3 | 2.3 |
| Mortgaged assets | 0.5 | 0.8 | 0.8 | 0.0 | 0.5 | 0.5 |
| Took loan at a high interest rate | 18.1 | 21.9 | 13.4 | 10.6 | 10.8 | 14.5 |
| Took loan from NGO/other financial institutions | 19.6 | 17.2 | 17.3 | 24.7 | 21.7 | 20.5 |
| Ate less/lower-quality food to reduce expenses | 21.2 | 5.5 | 9.4 | 22.9 | 18.9 | 16.8 |
| Took children out of school | 0.5 | 3.1 | 0.0 | 2.4 | 0.9 | 1.3 |
| Forced to change occupation | 8.8 | 4.7 | 7.9 | 15.9 | 11.3 | 10.1 |
| Moved to less expensive housing | 1.0 | 0.0 | 1.6 | 1.8 | 0.9 | 1.1 |
| Sent nonworking household member to work | 5.7 | 7.0 | 2.4 | 4.1 | 4.5 | 4.8 |
| Took help from others | 37.8 | 25.0 | 40.2 | 32.4 | 47.3 | 37.6 |
| Government paid compensation | 1.6 | 0.8 | 4.7 | 0.6 | 1.8 | 1.8 |
| Total (exceeds 100 because of multiple responses) | 145.1 | 131.3 | 134.6 | 145.9 | 146.4 | 141.9 |
| Number of cases | 193 | 128 | 127 | 170 | 222 | 840 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: Coping mechanism for death of main earner, serious injury or illness, and floods and other natural disasters.

## 5. TRANSFER DELIVERY, BENEFICIARY PREFERENCES, TRAINING, AND TARGETING PERFORMANCE

In this section, we first evaluate the operational performance of transfer delivery to program participants. Second, we look at beneficiary preferences regarding the form of transfer payments. Third, we examine beneficiary participation in the training component of the programs. Finally, we assess the targeting performance of the programs. We use information from both the household survey and qualitative field research.

### 5.1 Delivery of Transfers

Section 2 provides information on food and/or cash transfer entitlements and savings requirements for the beneficiaries of each of the four case study programs: IGVGD, FSVGD, FFA, and RMP.

The household survey data show that all participants of the programs knew their entitlements. This knowledge did not, however, always ensure receipt of the full entitlement of transfer. Participants were asked how much food and/or cash they received in each month in 12 months prior to the survey.

Whereas the FFA participants were in the program for 6 months at the time of the household survey,[19] the length of program participation was 18 months for IGVGD and FSVGD and 25 months for RMP. For comparability of receipts across the four programs, therefore, we estimated the average value of transfers received (as reported by participants) over the six-month period prior to the survey.[20] Table 5.1 presents the results. FFA and RMP provided substantially larger transfers than either IGVGD or FSVGD. The average monthly FFA transfer (Tk 837) was 106 percent higher than that of IGVGD (Tk 407) and 107 percent higher than that of FSVGD (Tk 404). The average FFA transfer was also 21 percent higher than the RMP transfer per beneficiary (Tk 694). The composition of transfers for IGVGD participants was the following: rice, 61 percent; fortified *atta*, 35 percent; and wheat, 4 percent. For FSVGD participants, fortified *atta* accounted for 50 percent of the total value of the transfer; cash, 48 percent; and wheat, 3 percent. FFA participants received 68 percent of the total value of the transfer in rice and 32 percent in cash. RMP participants received all transfers in cash.

**Table 5.1 — Monthly average value of transfers received over six months prior to the survey**

| Transfer | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| Value of transfer per beneficiary (taka/month) | 407 | 404 | 837 | 694 |
| Composition of transfers per beneficiary (taka/month) | | | | |
| Wheat | 18 | 12 | 0 | 0 |
| *Pusti atta* | 141 | 200 | 0 | 0 |
| Rice | 249 | 0 | 572 | 0 |
| Cash | 0 | 192 | 265 | 694 |
| Total | 407 | 404 | 837 | 694 |
| Households received any transfers in 6 months prior to the survey (percent) | 100.0 | 100.0 | 100.0 | 93.2 |

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

[19] FFA respondents had just completed the work activities and started attending training when the household survey was carried out in June–July 2006.

[20] Food transfers are valued at market prices obtained from the household survey.

Figure 5.1 shows average monthly transfers as percentages of total monthly household expenditures of participating households. For FFA participants, transfers accounted for as much as 38 percent of their total household expenditures.

There are differences across programs in the type of food households receive. Food transfers for FFA were solely in rice, as was about 60 percent of the food transfer under IGVGD. By contrast, under FSVGD, virtually all food transfers (93 percent) were in the form of micronutrient-fortified *atta* (Table 5.2).

**Figure 5.1 —Transfers as percentages of total household expenditures**

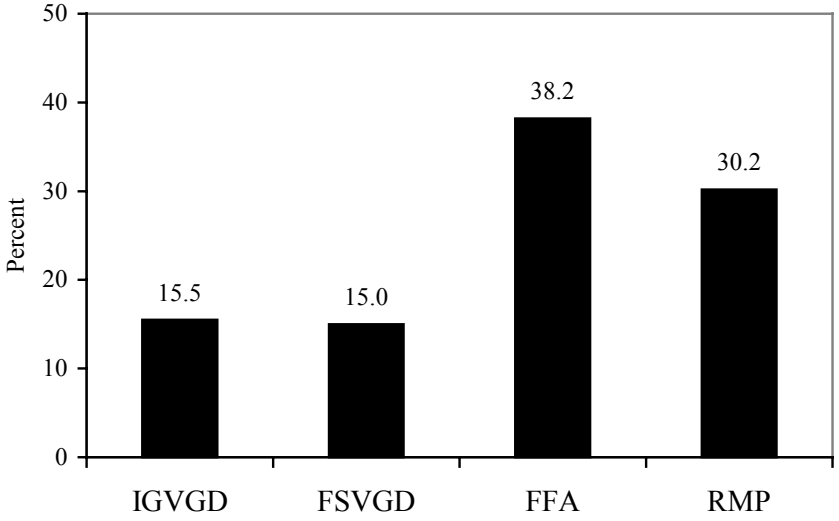



**Table 5.2 — Monthly average quantity of food rations received**

| Food item | IGVGD | FSVGD | FFA |
|---|---|---|---|
| | (kilograms/month/beneficiary) | | |
| Wheat | 1.48 | 0.99 | 0.00 |
| *Pusti atta* | 8.82 | 12.48 | 0.00 |
| Rice | 15.53 | 0.00 | 35.75 |
| Total (wheat, *pusti atta*, and rice) | 25.83 | 13.48 | 35.75 |

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

Table 5.3 reports the levels of monthly transfers each beneficiary received over the six-month period prior to the survey. Except for the month immediately preceding the survey, IGVGD participants received fairly uniform amounts of food rations each month. Survey data reveal that in the month preceding the survey, about 15 percent of the IGVGD beneficiaries did not receive their rations owing to delays in the delivery process and that they were expecting to receive the rations a few days after the day of the interview. For FSVGD beneficiaries, however, the fluctuation in the amount of food rations received was mainly because of the irregularities in the *atta* milling and fortification process, as the qualitative research indicates. For instance, many FSVGD beneficiaries did not receive any *atta* ration in some months but received two or three months' rations in the next month or two after that. The main reasons for the variation in cash transfers to FSVGD participants were (1) delays in the release of funds from donors to GoB; (2) irregular flow of funds from the Bangladesh Bank (central bank) to local commercial bank branches owing to administrative difficulties;

and (3) disruptions in payment disbursements because the FSVGD program was in its last phase in 2006.

**Table 5.3 — Amount of monthly transfers received per beneficiary over the six-month period prior to the survey**

| | IGVGD | | | | FSVGD | | | | FFA | | RMP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Rice | Wheat | *Atta* | Total Food | Wheat | *Atta* | Total Food | Cash | Rice | Cash | Cash |
| | (kg) | (kg) | (kg) | (kg) | (kg) | (kg) | (kg) | (taka) | (kg) | (taka) | (taka) |
| Month 1 | 12.20 | 3.45 | 6.75 | 22.40 | 2.90 | 13.27 | 16.17 | 352.17 | 47.49 | 328.82 | 480.70 |
| Month 2 | 14.36 | 2.97 | 8.67 | 26.00 | 3.00 | 16.32 | 19.32 | 205.50 | 70.68 | 581.66 | 483.39 |
| Month 3 | 16.10 | 1.07 | 8.75 | 25.93 | - | 9.02 | 9.02 | 136.00 | 54.71 | 429.49 | 887.51 |
| Month 4 | 16.25 | 1.02 | 11.25 | 28.52 | 0.05 | 15.00 | 15.05 | 129.00 | 33.27 | 203.86 | 1,579.01 |
| Month 5 | 16.92 | 0.36 | 8.75 | 26.04 | - | 6.68 | 6.68 | 126.00 | 7.27 | 40.92 | 286.99 |
| Month 6 | 17.35 | - | 8.75 | 26.10 | - | 14.62 | 14.62 | 206.00 | 1.05 | 4.00 | 448.95 |
| 6-month average | 15.53 | 1.48 | 8.82 | 25.83 | 0.99 | 12.48 | 13.48 | 192.44 | 35.75 | 264.79 | 694.43 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: "Month 1" represents the month immediately preceding the survey, and "month 6" refers to the 6th month before the survey.

The story is quite different for the FFA program. At the time of the survey, FFA participants had just completed the works phase of the program and started attending training sessions. In the first two months of program participation (month 6 and month 5 in Table 5.3) the levels of payment were extremely low, mainly for the following reasons. Although the FFA cycle normally lasts two years, the FFA survey sample of participants was from a special one-year cycle.[21] There are usually few project activities in the first month of a new cycle mainly owing to delays in the approval of works projects by the *upazila* Local Government and Engineering Department (LGED) office. The levels of FFA workers' payments depend on how long it takes to complete a works project and the amount of work (mostly earth-work) undertaken by individual workers. FFA participants receive half the value of their wage in food and half in cash. After a project starts, workers receive periodical payments in food on a piece-rate basis. Once the project is completed, the total payment in food is calculated. The outstanding cash part of the wage is then paid to workers. As a result, the cash payments are generally delayed.

Further, in the case of RMP, the primary reason for fluctuations in payment levels is that the program was in transition at the time of the household survey, which caused major disruptions in transfer payments in the reference period. In June 2006 the operation of the program was shifted from CARE to the Ministry of Local Government, Rural Development, and Cooperatives (LGRDC). During the phasing-out period of the program from CARE, an audit of accounts was in progress, and therefore payments to program participants were often withheld. Our recent information suggests that disbursements of outstanding payments from

[21] The last two-year cycle of FFA before the survey ended in 2005. In order to fit in the 2001–06 WFP Country Program, a special one-year FFA cycle from January to December 2006 was implemented.

the CARE era was taking place even in April 2007—10 months after the program was handed over to LGRDC.

Table 5.4 shows the timeliness of transfers. IGVGD recipients received food transfers on a monthly basis—99 percent of them received five to six transfers over the six-month period prior to the survey. Although food transfers under FSVGD were less regular than those under IGVGD, 78 percent of FSVGD participants received four to six food transfers in six months. By contrast, cash payments were received less frequently, for the reasons already explained. Virtually all FSVGD beneficiaries (99.3 percent) and 52 percent of FFA beneficiaries received one to three cash transfers in six months. In the case of RMP, 75 percent of participants received only one or two transfers in six months. Indeed, 9.7 percent of FFA and 6.8 percent of RMP beneficiaries received no payments in six months prior to the household survey.

**Table 5.4 — Frequency of transfers received over six months prior to the survey**

| Number of times received transfers | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| | | (percent of program participants) | | |
| **Food** | | | | |
| 0 | 0.0 | 0.0 | 0.0 | - |
| 1 | 0.0 | 0.0 | 0.0 | - |
| 2 | 0.0 | 2.0 | 3.0 | - |
| 3 | 0.0 | 19.7 | 43.7 | - |
| 4 | 0.7 | 37.0 | 33.3 | - |
| 5 | 15.0 | 40.0 | 16.0 | - |
| 6 | 84.3 | 1.3 | 4.0 | - |
| **Cash** | | | | |
| 0 | - | 0.0 | 9.7 | 6.8 |
| 1 | - | 23.3 | 0.3 | 42.9 |
| 2 | - | 47.3 | 3.0 | 32.1 |
| 3 | - | 29.0 | 49.0 | 7.1 |
| 4 | - | 0.3 | 28.0 | 5.0 |
| 5 | - | 0.0 | 10.0 | 6.1 |
| 6 | - | 0.0 | 0.0 | 0.0 |

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

## 5.2 Beneficiary Preferences for the Forms of Transfer Payments

Beneficiary preferences for cash or food are context specific, and hence difficult to generalize (Gentilini 2007). The household survey asked program beneficiaries whether they preferred only food, only cash, or a combination of food and cash.

Figure 5.2 shows the preference patterns of beneficiaries of the four programs. Most participants express a preference for the transfer type provided by the program they are participating in: 72 percent of IGVGD participants prefer only food; 57 percent of RMP participants prefer only cash; and 75 percent of FFA and 48 percent of FSVGD participants prefer a combination of food and cash.

Besides current participants, the household survey included former program beneficiaries from completed program cycles. We asked former beneficiaries about their preferences; the patterns of their preferences are quite similar to those of the current beneficiaries (Figure 5.3).

**Figure 5.2 — Beneficiary preferences for the forms of transfer payments**

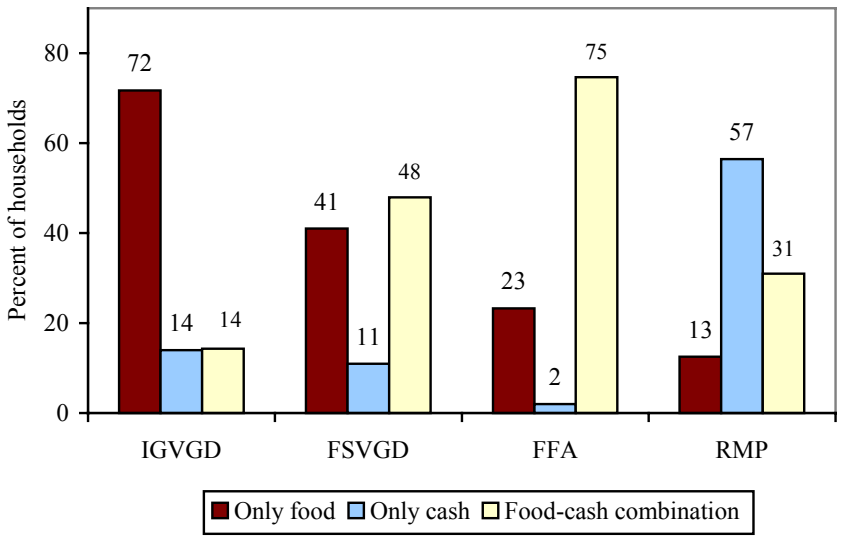
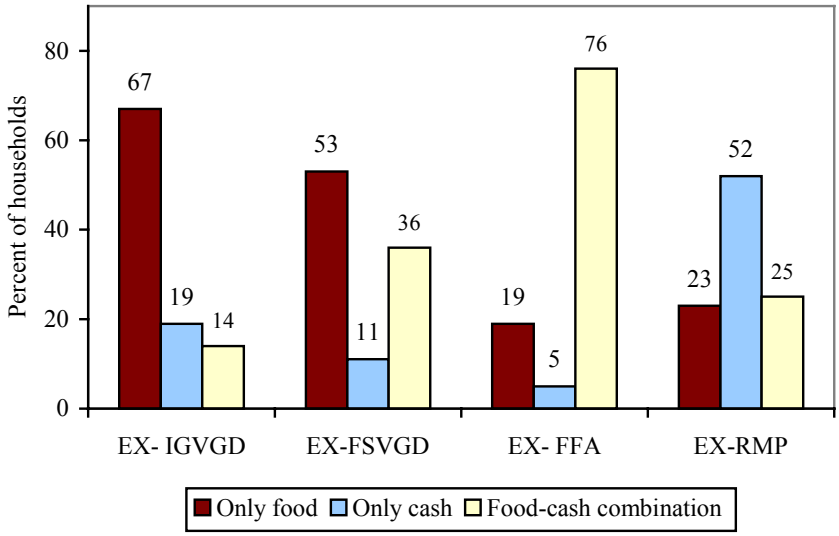



**Figure 5.3—Preferences of former beneficiaries for the forms of transfer payments**




Does the level of income of a beneficiary household influence the beneficiary's preference for food or cash? To answer this question in a scientific way, we used econometric methods to isolate the effect of income levels of beneficiaries on their preference from program participation and other factors that may affect preferences. The use of program participation variables in the models separates the effect of income from all attributes of program participation on preferences, including beneficiaries' adherence to the types of transfer received, variations in the size of transfers, and irregularities and nonreceipt of transfers in cash and food. We used per capita total household expenditure as proxy for

income. Although most program participants in the household survey sample are poor, there are variations in their incomes, as shown in section 5.3.3.

### *5.2.1 Empirical Model Specification*

The estimating equation for beneficiary preferences is

$$D_i^P = \alpha_1 Y_i + \alpha_2 P_i + \sum_{k=1}^{K} \beta_k X_{k,i} + \lambda_v + u_i \ , \qquad (1)$$

where $D_i^P$ represents the preference of a program participant, *i*. For example, $D_i^P$ equals 1 if a participant prefers "only food", 0 otherwise. $Y_i$ represents monthly per capita total expenditure of participant's household; $P_i$ depicts program participation; $\sum_{k=1}^{K} \beta_k X_{k,i}$ is a set of control variables denoted by *X*, and indexed by *k = 1, ..., K.* $\beta$ is a *K* x *1* vector of parameters; $\lambda_v$ represents village fixed effects; and $u_i$ is a participant-specific error term representing unobserved determinants of preference.

The parameters of interest are $\alpha_1$ and $\alpha_2$; $\alpha_1$ denotes the level of household income of the participant, and $\alpha_2$ represents the program participated in. The vector of additional control variables include participant's household size; dependency ratio; age of the participant; whether the participant is illiterate; whether the participant is widowed, divorced, or separated from husband; total owned land; time required to go to the nearest bank; time to go to the local market or *haat*; quantity of rice purchased last time; rice price; and program participation. Equation (1) is estimated using a probit regression.

Two sets of equations are estimated: one with program participation dummies, and the other without. Each set has three equations: participant prefers "only food," "only cash," or "a combination of food and cash."

### *5.2.2 Results*

Table 5.5 presents the results of the estimated probit regressions for beneficiary preferences. The results suggest that, as income increases, beneficiary preference for food declines, indicating that the poorest households prefer only food as the transfer. Conversely, relatively better-off beneficiaries tend to prefer only cash. These results are statistically significant. Beneficiary preference for a combination of food and cash transfer, however, is unrelated to household income.

The food recipients appreciate being assured of food provided by the programs, as the following findings from the qualitative field research suggest:

> *"We do not need to think about bhat* (rice) *at least for half of the month. My husband also depends on me,"* said Joinob, an IGVGD participant from Faridpur.
>
> *"Money will be spent easily. Rice can be eaten even with salt. Money will be taken away by my husband,"* said Amena, an IGVGD participant from Faridpur.
>
> "Before the project, we used to buy only small amounts of rice every two or three days—we could not afford to buy more. Now we do not have to worry about food for at least 20 days in a month," said Halima, an FFA participant from Rangpur.

## Table 5.5 — Program beneficiaries' preferences: Probit regression results

| | With program dummies | | | | | | Without program dummies | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Prefers only food | | Prefers only cash | | Prefers a combination of food and cash | | Prefers only food | | Prefers only cash | | Prefers a combination of food and cash | |
| Indicator | *dF/dX* | z-statistic | *dF/dX* | z-statistic | *dF/dX* | z-statistic | *dF/dX* | z-statistic | *dF/dX* | z-statistic | *dF/dX* | z-statistic |
| Monthly per capita expenditure in 100 taka | -0.0081 | -2.14** | 0.0074 | 2.95*** | -0.0013 | -0.32 | -0.0077 | -2.09** | 0.0066 | 2.56** | -0.001 | -0.25 |
| Household size | 0.0084 | 0.78 | 0.0046 | 0.62 | -0.0157 | -1.41 | 0.0193 | 1.90* | -0.0024 | -0.32 | -0.019 | -1.73* |
| Dependency ratio | 0.0059 | 0.27 | -0.0141 | -0.95 | 0.0146 | 0.64 | 0.0057 | 0.27 | -0.0109 | -0.73 | 0.0097 | 0.43 |
| Age of respondent | -0.003 | -0.35 | 0.0045 | 0.74 | -0.0008 | -0.09 | -0.0017 | -0.21 | 0.0046 | 0.73 | -0.0021 | -0.25 |
| Age of respondent squared | 0.0001 | 0.48 | -0.0001 | -0.93 | 0 | 0.17 | 0.0001 | 0.76 | -0.0001 | -1.39 | 0 | 0.31 |
| Respondent is illiterate = 1 | 0.0601 | 1.56 | -0.0038 | -0.13 | -0.0462 | -1.18 | 0.1006 | 2.67*** | -0.0366 | -1.3 | -0.0528 | -1.37 |
| Respondent is widowed, divorced or separated = 1 | -0.0152 | -0.42 | 0.0452 | 1.75* | -0.0434 | -1.16 | -0.1305 | -3.99*** | 0.1599 | 6.24*** | -0.0486 | -1.4 |
| Total land holding size (decimals) | 0.0002 | 0.22 | 0.0004 | 0.72 | -0.0005 | -0.69 | 0.0002 | 0.21 | 0.0003 | 0.62 | -0.0004 | -0.55 |
| Time to go to bank (hours) | 0.0515 | 1.29 | 0.018 | 0.63 | -0.0777 | -1.87* | 0.0911 | 2.35** | -0.0126 | -0.43 | -0.0881 | -2.15 |
| Time to go to local market/*haat* (minutes) | -0.0002 | -0.68 | 0.0001 | 0.98 | 0 | -0.07 | -0.0002 | -0.61 | 0.0001 | 0.78 | 0 | -0.01 |
| Quantity of rice purchased last time (kg) | -0.0037 | -2.09** | 0.0004 | 0.37 | 0.0033 | 1.98** | -0.0043 | -2.61*** | 0.0016 | 1.41 | 0.0026 | 1.61 |
| Rice price (taka/kg) | 0.0125 | 1.21 | 0.0099 | 1.51 | -0.0331 | -1.87* | 0.0161 | 1.61 | 0.0042 | 0.65 | -0.0303 | -1.75* |
| IGVGD beneficiary = 1 | 0.2988 | 5.92*** | -0.1187 | -4.36*** | -0.1346 | -2.57** | | | | | | |
| FSVGD beneficiary = 1 | -0.1556 | -2.97*** | -0.0465 | -1.29 | 0.2156 | 3.77*** | | | | | | |
| FFA beneficiary = 1 | -0.0639 | -0.79 | -0.1635 | -3.46*** | 0.1951 | 2.49** | | | | | | |
| RMP beneficiary = 1 | -0.3365 | -7.54*** | 0.2448 | 6.3*** | 0.0331 | 0.64 | | | | | | |
| Location dummy | Yes | | Yes | | Yes | | Yes | | Yes | | Yes | |
| Pseudo R-squared | 0.27 | | 0.25 | | 0.26 | | 0.19 | | 0.16 | | 0.24 | |

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

Notes: Significance levels: * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

Dependent variables are beneficiary preferences. For example, if a beneficiary prefers "only food" then the dependent variable for "only food" equals 1, 0 otherwise.

*dF/dX* represents the change in probability for an infinitesimal change in each independent, continuous variable and, by default, the discrete change in the probability for the dummy variables.

Standard errors of the coefficients are conventional. The equation has been estimated using the *'dprobit'* command of the Stata statistical software.

The results in Table 5.5 also show that participants tend to prefer what that program provides: IGVGD participants prefer transfers in food only, FSVGD participants do not prefer their transfer only in food but their preference is for a combination of food and cash; FFA participants do not prefer only cash, they prefer a combination instead; and RMP participants prefer only cash—they do not prefer "only food" and are indifferent about a combination of food and cash transfers.

> *"Both are good because food can be eaten when hungry and cash can be used to buy clothes*," said Roshna, an FSVGD participant from Panchagarh district.

> *"We like both rice and cash. Rice gives us the energy to work. We use the cash to pay for our children's education and to repay our loans. We can use the cash to buy medicine when someone in the family becomes ill,"* said a participant in a focus group discussion with FFA participants in Nilphamari district.

> *"We use the cash to buy food and other necessities. We also deposit cash in the savings group,"* said a participant in a focus group discussion with RMP participants in Panchagarh district.

### 5.3 Training of Program Participants

As mentioned in section 2, in addition to food and cash transfers, IGVGD and FSVGD provide development support to program participants consisting of training on income-generating activities (such as poultry rearing, livestock raising, fishery, and sericulture); awareness raising on social, legal, health, and nutrition issues; and basic literacy and numeracy training. FFA provides awareness building and training on income-generating activities. RMP provides life skills training to participating women with a focus on developing business skills for managing sustainable income-generating activities as a way of promoting self-reliance. The RMP also provides counseling to women on understanding and establishing their rights and improving heath and nutrition.

The household survey for this study collected information on beneficiary participation in the training component of IGVGD, FSVGD, and RMP. In the case of FFA, training had not fully started when the survey was fielded. Food- and cash-for-work activities in the FFA program are carried out from December to May, which is the period suitable for earthwork. Awareness building and training on income-generating activities are normally conducted from June to November. The FFA participants had been in the program for six months and had just completed the work activities at the time of the household survey. The training module of the household survey asked questions on income-generating activities (IGAs). The qualitative part of the research covered the awareness-building aspects of training.

Although IGVGD and FSVGD provide training on basic literacy and numeracy, the household survey results show that 83 percent of IGVGD and 84 percent of FSVGD women remained illiterate even after 18 months of program participation at the time of the survey (see Table 5.8 in section 5.4.2 below).

Table 5.6 provides information on IGVGD, FSVGD, and RMP participants' IGA training. Most of the program participants received training on IGAs—only 4 percent of FSVGD and RMP beneficiaries and 7 percent of IGVGD beneficiaries reported that they did

not receive the training. For IGVGD and RMP participants, poultry rearing was the most prevalent type of training received. Training on cow or goat rearing was most common for IGVGD and FSVGD participants. Business skill development training was most widespread among RMP participants.

**Table 5.6 — Participants' training on income-generating activities**

| Training indicator | IGVGD | FSVGD | RMP |
|---|---|---|---|
| | | (percent) | |
| Received training on income-generating activities (IGAs) | 92.7 | 95.7 | 96.0 |
| | | | |
| **Type of IGA training received** | | | |
| Poultry rearing | 65.1 | 45.6 | 63.5 |
| Cow/goat rearing | 70.1 | 62.7 | 44.8 |
| Vaccination of poultry and livestock | 1.4 | 0.7 | 1.0 |
| Vegetable gardening | 4.0 | 8.4 | 15.6 |
| Pisciculture/fishpond | 0.7 | 2.1 | 0.0 |
| Weaving/sewing/embroidery | 1.1 | 5.9 | 1.0 |
| Handicrafts | 3.2 | 16.7 | 6.3 |
| Food processing | 0.0 | 1.7 | 2.1 |
| Business skill development | 10.8 | 24.7 | 56.3 |
| Total (exceeds 100 because of multiple responses) | 156.5 | 168.6 | 190.6 |
| | | | |
| Started IGA after training | 68.7 | 65.5 | 85.4 |
| | | | |
| **Type of IGAs started** | | | |
| Poultry rearing | 58.1 | 50.5 | 53.7 |
| Cow/goat rearing | 36.7 | 53.7 | 39.0 |
| Vaccination of poultry and livestock | 0.0 | 0.5 | 0.0 |
| Vegetable gardening | 0.0 | 2.7 | 6.1 |
| Weaving/sewing/embroidery | 1.1 | 3.7 | 1.2 |
| Handicrafts | 2.6 | 4.3 | 2.4 |
| Food processing | 0.0 | 0.0 | 1.2 |
| Small business enterprise | 1.6 | 2.6 | 36.5 |
| Total (exceeds 100 because of multiple responses) | 100.0 | 118.1 | 140.2 |
| **Reasons for not undertaking IGA** | | | |
| Training was not useful | 2.3 | 1.9 | 0.0 |
| Insufficient training | 3.4 | 1.9 | 14.3 |
| Lack of confidence | 27.6 | 11.7 | 28.6 |
| Husband/other family members were against it | 3.4 | 1.9 | 0.0 |
| Amount of loan was not enough to start IGA | 10.3 | 12.6 | 7.1 |
| Did not know how to do it | 4.6 | 4.9 | 7.1 |
| Perceived IGA to be risky | 9.2 | 1.9 | 0.0 |
| Did not want to run a business | 63.2 | 75.7 | 50.0 |
| Total (exceeds 100 because of multiple responses) | 124.1 | 112.6 | 107.1 |

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

The majority of program participants—85 percent of RMP, 69 percent of IGVGD, and 66 percent of FSVGD women—reported that they had started IGAs after receiving the training. The high rates of adopting IGA after the training show that the training was quite effective. Overall, poultry and cow or goat rearing were most common IGA undertakings. About 37 percent of RMP participants also started small business enterprises.

Among those who did not pursue IGA after receiving the training, the most common reason for not doing so was that they did not want to run a business. Lack of confidence in undertaking IGA was the second most important reason for RMP and IGVGD participants.

Given that livestock and poultry rearing were the two most important enterprises for those who adopted IGAs after the training, we computed the values of these two types of assets for program beneficiary households and compared the values between those who started IGAs after the training and those who did not. Table 5.7 shows that the values of both types of assets are higher for those who adopted IGAs than for those who did not across the three programs. The difference is particularly large for IGVGD participants—those who undertook IGAs had livestock assets almost three times as valuable as those who did not. These results show the success of participants' adoption of IGAs after receiving the training. This success may not, however, be fully attributed to training—qualitative field research found that IGVGD's built-in provision of microcredit is instrumental in such success.

**Table 5.7 — Value of livestock and poultry assets for those who started IGAs after receiving training and for those who did not**

| Value of assets | IGVGD | FSVGD | RMP |
|---|---|---|---|
| | | (taka per household) | |
| **Value of livestock assets** | | | |
| Started IGA | 5,569 | 4,818 | 4,255 |
| Did not start | 1,947 | 2,319 | 3,362 |
| **Value of poultry assets** | | | |
| Started IGA | 555 | 701 | 525 |
| Did not start | 293 | 396 | 339 |

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

The following statements of program participants recorded during qualitative field research illustrate some aspects of training the programs provide:

> *"Training helped me speak in front of strangers, which I could not do before,"* said Anu, an IGVGD participant from Shaghata *upazila* of Gaibandha district, who received awareness building information and training on IGAs. She mentioned, however, *"Training on livestock rearing alone cannot help the poor earn a living. It would have been useful if I could get a calf or a cow from the program."* Abeda, another IGVGD woman from the same *upazila*, reported that she did not receive any training from the program.
>
> Rasheda, an FSVGD beneficiary from Bhajanpur village in Tetulia *upazila,* received training from Manob Kollyan Songstha (a service-provider NGO) on livestock rearing, making hand fans, and running a tea stall. *"I now make hand fans, sell them, and earn money*," said Rasheda.
>
> Shefali, an IGVGD participant from Sadarpur *upazila* of Faridpur district, received training from BRAC on how to develop a nursery (to raise vegetable seedlings). After six months of training, she received a loan of 3,000 taka from BRAC and started a nursery. *"Many people come to see my nursery. The current value of the nursery is 10,000 to 15,000 taka,"* said Shefali proudly, and then maintained, *"Mujibor, my husband, is a very nice man. I learnt from the training*

*the bad effects wife-battering and asked my husband to tell this to other men in the village. He convinced many men that mistreating wives is bad for their family."*

Nurjahan, an RMP participant from Tetulia *upazila*, received training on earth digging, raising dykes, and road maintenance–related activities before starting RMP work. She also received awareness raising information and training on business skills, preventing violence both at work and home, and first aid for fellow workers. Nurjahan thought that the training was very useful for developing her awareness.

*"All of the training I received I apply them in my real life. I raise poultry which gives my children nutritious food,"* said Mansura, an RMP woman from Tetulia *upazila.*

### 5.4 Targeting Performance

According to the latest poverty estimates, 29.3 percent of people in rural Bangladesh were in extreme poverty in 2005 (BBS 2006). The safety net programs cover only a fraction of these extreme poor. Taking mistargeting and leakage into account, a recent study estimates that the safety net system covers only about 6–7 percent of the poor (World Bank 2006).

To address the irreconcilable chasm between the resources available for targeted transfer programs and the large needy population, safety net programs must improve their targeting effectiveness to reach the poorest of the poor. Targeting effectiveness indicates the extent to which program benefits are received by the most needy versus the less needy or nonneedy population.

The four case study programs are targeted interventions that aim to provide income transfers to the extreme poor. Three of these programs—IGVGD, FSVGD, and FFA—use both geographic and individual targeting methods. In contrast, RMP is not geographically targeted in the sense that its selection of beneficiaries is uniform across rural Bangladesh. RMP is a nationwide program that covers 4,200 unions out of the total of 4,463 unions in rural Bangladesh, and it selects 10 women from each union. RMP uses a set of selection criteria to ensure that only the neediest women are employed.

IGVGD follows a two-step targeting mechanism. First, although the IGVGD program operates nationwide, it concentrates more resources in food-insecure areas of the country through a geographic targeting mechanism. About two-thirds of the resources are directed to about one-third of the *upazilas*. Consequently, coverage is higher in more food-insecure areas. GoB and WFP have devised a resource allocation map for food-assisted development where each *upazila* of the country has been categorized by its relative food insecurity level. Based on this map, VGD food resources are geographically targeted to *upazilas* in proportion to their food insecurity levels.

Second, within each *upazila,* an IGVGD selection committee selects the beneficiaries according to a set of officially prescribed targeting criteria.

In 2005–06 the VGD program, which included IGVGD and FSVGD, operated in 421 *upazilas* out of the total 640 rural *upazilas* in the country. IGVGD covered 364 *upazilas,* and FSVGD covered 57 *upazilas*. The FSVGD and IGVGD selection process is the same at the *upazila* level.

FFA covers 38 *upazilas*. Both FFA and FSVGD operate in relatively food-insecure areas in northern Bangladesh. In addition to self-targeting based on willingness and physical ability to work, FFA uses a set of selection criteria to target the poorest.

### *5.4.1 Beneficiary Selection Criteria*

VGD Selection Criteria

The union *parishad* (UP) Committee, together with partner NGOs, selects VGD (IGVGD and FSVGD) participants on the basis of set criteria. In the 2005–2006 VGD cycle, a new set of selection criteria was introduced. According to the inclusion criteria, to be selected a household should meet at least four of the following criteria, and those meeting all five will be given priority:

1. Consumes less than two full meals per day;
2. Owns no land or less than 0.15 acre of land;
3. Very poor housing conditions (construction material and sanitation facilities);
4. Extremely low and irregular family income from daily or casual labor; and
5. Household headed by a woman with no adult male income earner and no other source of income.

The new criteria also included exclusion criteria stating that no VGD card will be provided to women in any of the following categories:

1. Not within the 18–49 age group;
2. Already member of other food and/or cash assistance programs; and
3. Were VGD cardholders at any time during 2001–2004.

One household can only have one VGD card. The selected VGD cardholder woman should be physically and mentally sound and must be from among the most vulnerable and poor households in the union.

FFA Selection Criteria

The FFA component of the IFS program uses the following selection criteria:

1. Individuals who predominantly depend on manual/casual labor with extremely low or irregular income and who do not operate or are employed at business;
2. Individuals from households that do not own or operate more than 0.15 acre of land;
3. Individuals who are physically fit to carry out the scheduled works;
4. Individuals from households having malnourished pregnant/nursing mothers and/or children of school-going age who are often engaged in paid work;
5. Female-headed households (women who are widowed, separated, divorced, or deserted or who have disabled husbands);
6. Individuals from households with virtually no productive assets;
7. Not more than one participant per household; and
8. Individual should not be underaged or overaged (recommended age group is18–50 years).

Among the individuals listed based on the above criteria, priority will be given to

1. Women who are heads of households (for example, women who are widowed, separated, divorced, or deserted or who have disabled husbands);
2. Women/individuals from households with virtually no productive assets and no confirmed source of income (such as women from absolutely landless households who are economically most vulnerable and socially most disadvantaged and live on others' land and have no agricultural land); and
3. Ex-VGD women who meet the above criteria and are not regular members of any service-providing agency (such as NGOs, RMP, BRDB) and also not engaged in significant income-generating activities (still suffering from hunger and malnutrition).

RMP Selection Criteria

RMP women are selected for roadwork maintenance using pre-established selection criteria. Selected women should meet the following criteria indicating their disadvantaged status:

1. Women are divorced, widowed, or abandoned;
2. Women are predominantly single heads of households;
3. Women are young, 18–35 years, with children;
4. Women are physically and mentally fit to do road maintenance work and receive life management training packages;
5. Women are illiterate, having had little or no schooling;
6. Women and their families are well below the "extreme poverty line";
7. Women are unable to provide their families with three balanced meals daily;
8. Women have few assets and may be landless and without their own shelter; and
9. Women are forced to seek irregular, short-term work at low wages.

### *5.4.2 Assessing the Beneficiary Selection Process*

The household survey was designed to permit an assessment of the beneficiary selection process for each of the four programs on the basis of the established targeting criteria. Since the status of land and other asset ownership, as well as occupation of beneficiary households could be different after program participation, the household survey collected preprogram status of these variables. A few criteria (such as number of meals consumed) could not be included in the analysis, however, because baseline information was not available. Although there are some differences in selection criteria across the programs, we assessed the fulfillment of each and every criterion by all program beneficiaries to facilitate comparisons.

Table 5.8 presents the results of the assessment. "Female-headed household" is a common criterion across all programs. Although only 21 percent of RMP women did not meet this criterion, 78 percent of FSVGD, 70 percent of IGVGD, and 64 percent of FFA beneficiaries failed to meet this criterion but were selected in the programs.

The programs require beneficiaries to be within certain age ranges. Eighty-nine percent of both IGVGD and FSVGD beneficiaries and 94 percent of FFA beneficiaries were within the prescribed age range before joining the programs. Two-thirds of RMP women were aged 18–35 and had children—a criterion that applies only to RMP selection—and virtually all RMP women (97 percent) were aged between 18 and 49 at the time of selection.

**Table 5.8 — Households meeting selection criteria**

| Criterion | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| | (percent) | | | |
| Female-headed household | 31.1 | 21.7 | 36.0 | 79.3 |
| Beneficiary women are divorced, widowed, abandoned | 29.3 | 20.3 | 26.0 | 77.7 |
| Divorced | 4.0 | 2.0 | 4.0 | 21.7 |
| Widowed | 21.0 | 15.3 | 16.7 | 34.3 |
| Abandoned | 4.3 | 3.0 | 5.3 | 21.7 |
| Beneficiary women aged 18–35 with children aged 0–12 years | 53.2 | 51.6 | 53.6 | 66.3 |
| Beneficiary women aged 18–49 | 89.3 | 88.7 | 93.7 | 97.0 |
| Illiterate beneficiary women | 82.7 | 84.3 | 92.7 | 91.3 |
| Beneficiary women never went to school | 75.0 | 73.0 | 87.7 | 84.7 |
| Beneficiary women's years of schooling | 1.0 | 1.0 | 0.5 | 0.5 |
| *Before joining the program:* | | | | |
| Owned less than 15 decimal land | 82.0 | 78.7 | 91.7 | 88.7 |
| Operated less than 15 decimal land (including rented/leased in land) | 75.3 | 60.7 | 88.0 | 84.3 |
| Owned no cultivable land | 86.3 | 79.7 | 93.3 | 91.7 |
| Owned no land | 20.3 | 17.0 | 36.7 | 41.7 |
| Household head was a daily wage laborer | 38.0 | 51.0 | 56.7 | 48.3 |
| Had no productive asset (including livestock) | 26.0 | 16.7 | 20.3 | 32.3 |
| Had no productive asset (excluding livestock) | 34.3 | 26.3 | 28.3 | 41.7 |

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

Among the four programs, only RMP uses illiteracy or lack of education, which is a good indicator of poverty, as a selection criterion. We looked at the literacy and educational attainment rates for RMP women and compared these rates with beneficiaries of the other three programs. Only 9 percent of RMP women were literate (that is, they could read and write), whereas the rates were 17 percent for IGVGD and 16 percent for FSVGD women. Among the four programs, the literacy rate was the lowest for FFA women. Educational attainment is extremely low for all beneficiary women—73 to 88 percent of women from the four programs never attended school. The rates of illiteracy were higher than the rates of never attending school, showing that some of those who attended school did not learn how to read and write.

The preprogram status of beneficiaries suggests that most beneficiaries met the land-based selection criteria. The results also indicate that, among all program participants, FFA participants were the land-poorest.

One of the FFA selection criteria—lack of productive assets—is difficult to assess because it is not well defined. An asset that a household uses to generate income (such as agricultural implements) is usually termed a productive asset. Households can use some assets for consumption or income generation or both, however (for example, a sewing machine). In this analysis, we incorporated a list of productive assets in the household survey questionnaire and asked respondents if they owned any such assets. Table 5.6 shows that FFA beneficiaries owned some productive assets before program participation.

A program's effectiveness in reaching the poorest depends largely on the appropriateness of indicators used for beneficiary selection. Good indicators are those that are highly correlated with poverty yet are easy to observe, record, and verify. A number of indicators used by the programs are difficult, if not impossible, to observe and verify. For example, "members consume less than two full meals per day" (a VGD criterion) or "unable to provide their families with three *balanced* meals daily" (an RMP criterion) are difficult to verify.

Also, "no productive asset" (an FFA criterion) and "extremely low and irregular family income from daily or casual labor" are too ambiguous to have any operational relevance. Such imprecise selection criteria provide the scope for exercising perverse discretion in the beneficiary selection process. Therefore, the official targeting criteria need to be improved for better identification of the poorest households.

The qualitative research offers evidence of malpractice in the selection process:

> Female UP members, who have the official privilege of selecting 50 percent of the VGD women, are supposed to play a key role in selecting program participants. A female UP member from Faridpur district reported, however, *"No woman member distributes* (IGVGD) *cards. The influential people make the list of beneficiaries and enjoy benefit out of it. I am only a signatory on the list."* She continued, "*Once the UP chairman called a meeting of UP members and I was given ten cards for distribution. But later the chairman snatched away the cards from me and gave them to one of his men for distribution."*
>
> Another female UP member said, *"It is difficult to change chairman's list. He becomes annoyed whenever I find ineligible women's names on the list and ask him to drop the names."*
>
> An official of a service-provider NGO for FSVGD reported, *"The UP chairman and some of the members took bribes ranging from 500 to 1,000 taka from each woman in exchange of FSVGD cards. I know seven such cases, but disclosing this will be risky. The chairman also used the cards to get votes in the UP election."*

Table 5.9 shows beneficiaries' prior knowledge of the programs and their assessment of the selection process. The sources of their knowledge were quite different across the programs. Whereas the majority of IGVGD and FSVGD participants learned of the programs from UP members, about half of the FFA participants came to know about the program from service-provider NGOs. About 41 percent of RMP participants reported that they were aware of the program from loudspeaker announcement in their communities.

**Table 5.9 — Selection into the program**

| Source of knowledge/selection process | IGVGD | FSVGD | FFA | RMP | All |
|---|---|---|---|---|---|
| | | | (percent) | | |
| **How did you know about the program?** | | | | | |
| From UP chairman | 9.3 | 14.3 | 9.0 | 6.3 | 9.8 |
| From UP member | 66.7 | 58.0 | 21.3 | 24.7 | 42.7 |
| From NGO worker | 4.3 | 3.7 | 49.0 | 1.3 | 14.6 |
| From friends/neighbors | 15.7 | 15.0 | 17.7 | 11.7 | 15.0 |
| Loudspeaker announcement in the community | 0.0 | 0.0 | 0.0 | 40.7 | 10.2 |
| Ex-beneficiaries | 2.7 | 6.7 | 1.0 | 14.0 | 6.1 |
| Other | 1.3 | 2.3 | 2.0 | 1.3 | 1.8 |
| **How did you get selected in the program?** | | | | | |
| Applied and got selected | 22.3 | 23.3 | 25.3 | 1.0 | 18.0 |
| UP selected me | 58.7 | 42.0 | 16.7 | 1.0 | 29.6 |
| NGO selected me | 3.3 | 2.0 | 35.7 | 0.7 | 10.4 |
| Selected by lottery | 0.7 | 0.3 | 7.0 | 95.7 | 25.9 |
| I pursued | 7.7 | 17.3 | 8.7 | 0.3 | 8.5 |
| Other member of the program pursued for me | 5.7 | 12.0 | 6.0 | 0.3 | 6.0 |
| Do not know | 1.0 | 0.0 | 0.0 | 0.3 | 0.3 |
| Other | 0.7 | 3.0 | 0.7 | 0.7 | 1.3 |

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

Participants' descriptions of the basis of their selection also varied significantly. About 59 percent of IGVGD and 42 percent of FSVGD participants reported that the UP selected them, whereas 36 percent of FFA participants stated that they were selected by NGOs. In contrast, 96 percent of RMP participants affirmed that they were selected through lottery. Among the VGD and FFA participants, 22 to 25 percent indicated that they were included in the programs through application. About 29 percent of FSVGD and 13 percent of IGVGD participants reported that persistent expression of demand by themselves or by other members of the programs made their inclusion into the programs possible.

### *5.4.3 Assessing Targeting Effectiveness*

We assessed the targeting effectiveness of each of the four programs by looking at the patterns of income distribution of program participants. Although the IFPRI household survey collected household consumption expenditure data for the sample households, these data are insufficient to show the pattern of distribution of program beneficiaries across income groups in the society since the sampling frame did not include all households at the community levels. Therefore, we adopted a method of comparing expenditure patterns of the program participant households in the IFPRI household survey with those of households from a nationally representative household survey in Bangladesh to assess targeting performance. For this, we used the data set of the Household Income and Expenditure Survey (HIES) conducted by the Bangladesh Bureau of Statistics (BBS) in 2005. The latest poverty estimates are based on the 2005 HIES.

Our assessment of targeting effectiveness involved the following steps: (1) From the 2005 HIES, we selected the districts where IFPRI carried out the household survey for this study. We then selected all HIES households that lived in rural areas of these districts. (2) From IFPRI survey data, we subtracted transfer values from total household expenditures of program participants to reflect the preprogram economic status of program participants. (3) To make our survey data comparable to HIES data, we deflated total per capita consumption expenditures (food plus nonfood) derived from the 2006 IFPRI household survey data[22] to 2005 prices using the rural consumer price index (CPI). (4) We calculated per capita monthly expenditure deciles of the HIES households selected in step 1. We then determined the cutoff point expenditures of the deciles. (5) Finally, we assigned program participant households from the IFPRI survey to the HIES decile groups by matching their inflation-adjusted per capita expenditures with the HIES decile cutoff point expenditures.

The distribution of participant households across the monthly per capita expenditure groups is presented in Table 5.10. Figure 5.4 illustrates the patterns of distribution. The patterns show that all programs are fairly well targeted to the poorest, with FFA being 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 earth moving. Only out of desperation would a Bangladeshi rural woman be willing to work with men at onerous, low-paying manual labor. As a result, the program is strongly self-targeted.

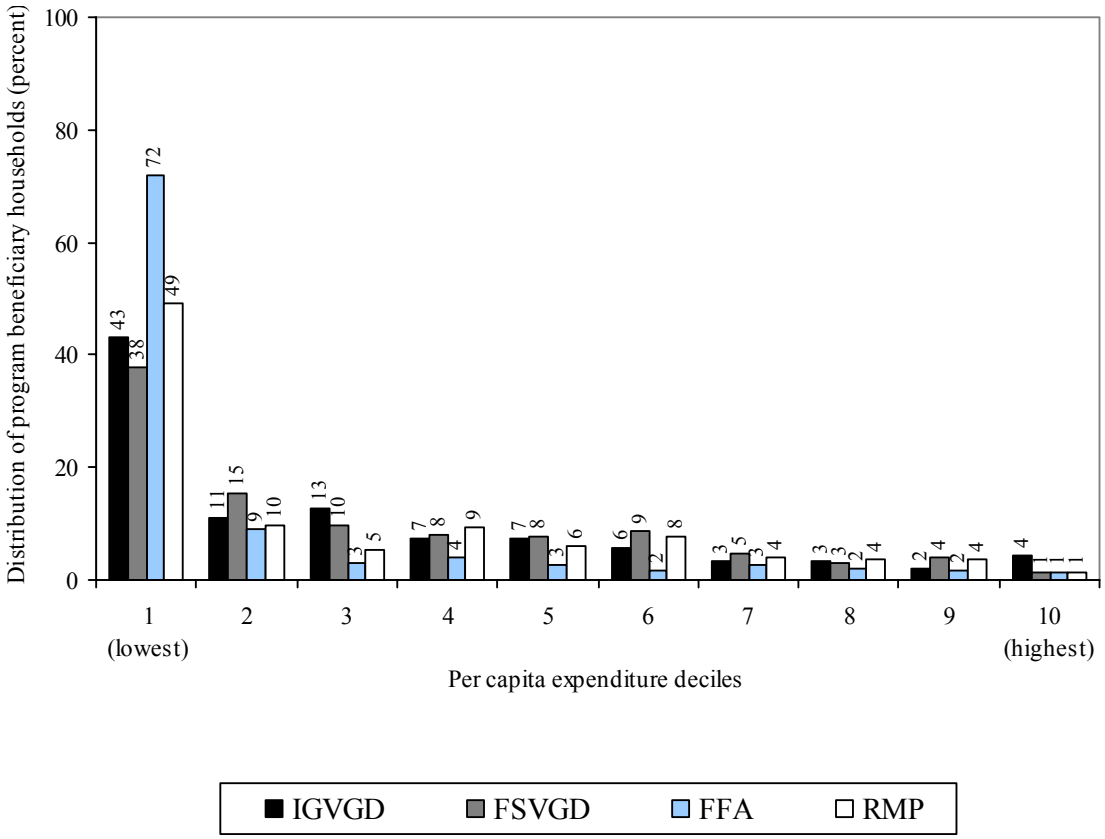
[22] The food and nonfood consumption items included in the IFPRI evaluation household survey and in the HIES are almost identical.

**Table 5.10— Distribution of program beneficiary households by 2005 HIES per capita expenditure deciles**

| Per capita expenditure decile | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| | | (percent of households) | | |
| 1 (lowest) | 43.0 | 37.7 | 71.9 | 49.3 |
| 2 | 11.0 | 15.3 | 9.0 | 9.7 |
| 3 | 12.7 | 9.7 | 3.0 | 5.3 |
| 4 | 7.3 | 8.0 | 4.0 | 9.3 |
| 5 | 7.3 | 7.7 | 2.7 | 6.0 |
| 6 | 5.7 | 8.7 | 1.7 | 7.7 |
| 7 | 3.3 | 4.7 | 2.7 | 4.0 |
| 8 | 3.3 | 3.0 | 2.0 | 3.7 |
| 9 | 2.0 | 4.0 | 1.7 | 3.7 |
| 10 (highest) | 4.3 | 1.3 | 1.3 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Estimates by authors using data from the 2005 HIES data and the IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

**Figure 5.4 — Distribution of program beneficiary households by 2005 HIES per capita expenditure deciles**




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.

# 6. IMPACTS OF THE PROGRAMS ON LIVELIHOOD AND FOOD SECURITY, AND COST-EFFECTIVENESS OF TRANSFERS

The first part of this section presents estimates of the impact of the four case study programs on livelihood outcomes and food and nutrition security—specifically, food consumption at the household level; calorie consumption and nutritional status of individuals within the household; total household income/consumption; poverty; and assets. The second part provides the results of cost-effectiveness analysis. The results show the costs of transferring income in food and cash to program participants, as well as the costs of improving selected livelihood and food security outcomes.

In presenting these results, it is important to remember that these four programs differ in a number of ways: the size of transfers; the form of transfers; the requirements that beneficiaries must fulfill in order to obtain these transfers; and the presence or extent of complementary forms of assistance such as savings and credit. All factors play a role when we assess impact and compare impacts across programs.

## 6.1 Assessing Impact: General Issues

In this report, we are undertaking two broad sets of comparisons: what is the impact of participation in IGVGD, FSVGD, FFA, or RMP on measures of individual and household welfare, and, comparatively speaking, are there differences in the effectiveness of these programs?

Credible assessments of program impact on welfare require that program beneficiaries (the individuals or households who receive the "treatment") are as comparable as possible to those not receiving benefits from a program (the individuals or households who are the "control group"). As explained in section 3, the most appropriate approach here is propensity score matching (PSM). In our application of PSM, we first estimate a probit regression where the dependent variable equals one if the household participates in a given program, zero otherwise. Because we consider four programs, we estimate four separate probit regressions—for reasons explained in section 3.1, each has a different control group. The control variables (regressors) include both the determinants of participation in the program and factors that affect the outcomes. These variables are either preprogram levels (such as the value of assets) or contemporaneous measures of variables that are unlikely to change as a result of participation in the program (such as education of adult household members). Specifically, we include the following variables in these probit regressions: household size and demographic composition; indicators for the level of household head's and spouse's literacy and educational attainment; whether or not the household is headed by female; whether or not the household head's occupation was daily laborer prior to the commencement of the program; preprogram-level of ownership of land and other assets; whether or not the household had electricity before joining the program; and types of cooking fuel used. Also included are a set of union dummy variables that capture all time-invariant union-level characteristics such as spatial differences in markets, prices, wages, infrastructure, flood-proneness, and administrative structures.

Having estimated these probit regressions, we calculate the propensity score for participation in the program, and we match treatment and control households on the basis of

these scores.[23] Table 6.1 describes the treatment and control groups used and their sample sizes. Table 6.2 presents the results of probit regression models that are used for calculating the propensity scores for estimating impacts on income for the four programs. Appendix 2 explains the implications of using PSM on sample size and shows the distributions of estimated propensity scores for treatment and control groups.

**Table 6.1— Sample size of treatment and control groups used for PSM**

| Program | Unions | | Sample size | |
|---|---|---|---|---|
| | Treatment | Control | Treatment | Control |
| | (number) | | | |
| Current participants: | | | | |
| IGVGD | 20 | 10 | 300 | 200 |
| FSVGD | 10 | 10 | 300 | 100 |
| FFA | 10 | 40 | 300 | 400 |
| RMP | 30 | 30 | 300 | 300 |

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: For IGVGD, FSVGD, and RMP, 10 control households per union from corresponding program unions were used for matching. For FFA, however, all control households were used for matching because the number of control households was not sufficient for PSM estimates.

Comparative assessment of these programs requires clarity about program similarities and differences. Table 6.3 summarizes the characteristics of these four interventions.[24] Whereas IGVGD only provided food payments, RMP only provided cash payments, and FSVGD and FFA provided a mix of food and cash, these are not the only differences across these programs. In addition to the differences in the form of payment, there are five salient differences:

(1) *Transfer size.* FFA and RMP provide substantially larger transfers than either IGVGD or FSVGD. In addition, all four programs have a compulsory savings component, but only RMP forces participants to save a significant amount of money.

(2) *Type of food.* There are differences across programs in the type of food households receive. Food transfers for FFA are solely in rice, as is about 60 percent of the food transfer under IGVGD. By contrast, under FSVGD, virtually all food transfers are in the form of micronutrient-fortified *atta* (whole-wheat flour).

[23] The technical details of our approach are as follows. As described in the text, we first estimate these probits. We then check the balancing properties of the propensity scores. The balancing procedure tests whether or not treatment and comparison observations have the same distribution of propensity scores. (A balancing test fails when a *t*-test rejects equality of the means of these variables across ranked groupings of the propensity score.) Where this occurred, we tried alternative specifications of the probit model; the specifications used in this report are the most complete and robust specifications that satisfied the balancing tests. The quality of the match can be improved by ensuring that matches are formed only where the distribution of the density of the propensity scores overlap between treatment and comparison observations—that is, where the propensity score densities have "common support." For this reason, we used the common support approach for all PSM estimates. On the common support sample, the probit model was estimated again to obtain a new set of propensity scores to be used in creating the match. We also re-tested the balancing properties of the data. All results presented below are based on specifications that passed the balancing tests. We matched treatment and comparison observations by local linear regression with a tricube kernel. We used Stata's PSMATCH2 command with common support imposed. Standard errors of the impact estimates are calculated by bootstrap using one thousand replications for each estimate.

[24] Although program characteristics are provided in section 2 and the patterns of transfer receipts are reported in section 5, this summary is presented here for easy reference.

(3) *Work requirements.* There is no meaningful work requirement for IGVGD or FSVGD. In contrast, the work requirement for FFA is substantial; participants are expected to undertake physically demanding work all day and are paid on a piece-rate basis. The work requirement for RMP is less onerous; participants work for only ½ day and are paid on a salaried basis. Awareness of these work requirements is important because the work requirement has an opportunity cost: the work (and income) forgone by participating in these programs;

**Table 6.2—Probit regression results for estimating propensity scores (outcome variable is monthly per capita total expenditure)**

| Variable | IGVGD | | FSVGD | | FFA | | RMP | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient | z-statistic | Coefficient | z-statistic | Coefficient | z-statistic | Coefficient | z-statistic |
| Household size | 0.303 | 3.83*** | 0.283 | 3.17*** | 0.103 | 1.64* | 0.245 | 3.23*** |
| Proportion of household members: | | | | | | | | |
| Boys 0–4 years | -0.471 | -0.42 | -0.245 | -0.27 | -1.399 | -1.73* | 0.253 | 0.25 |
| Girls 0–4 years | -0.211 | -0.18 | - | - | -1.355 | -1.54 | -0.061 | -0.05 |
| Boys 5–14 years | 1.051 | 1.09 | 0.536 | 0.65 | -0.64 | -0.94 | 1.748 | 1.93* |
| Girls 5–14 years | 0.495 | 0.46 | -0.253 | -0.32 | -0.453 | -0.56 | 3.052 | 2.89*** |
| Males 15–34 years | 1.148 | 1.24 | 0.226 | 0.21 | -0.214 | -0.31 | 1.383 | 1.52 |
| Females 15–34 years | 0.613 | 0.46 | 1.559 | 1.49 | 0.135 | 0.15 | 4.515 | 3.80*** |
| Males 35–54 years | 0.181 | 0.2 | 0.451 | 0.6 | 0.664 | 0.97 | 1.155 | 1.22 |
| Females 35–54 | 1.359 | 0.92 | 3.155 | 2.59** | 0.399 | 0.39 | 4.207 | 3.24*** |
| Females 55 years and above | 1.593 | 1.18 | 0.791 | 0.68 | -0.365 | -0.31 | 2.404 | 1.81* |
| Highest years of education: male | 0.056 | 1.08 | 0.033 | 0.5 | -0.139 | -3.07*** | 0.056 | 1.06 |
| Highest years of education: female | 0.018 | 0.35 | -0.024 | -0.38 | -0.006 | -0.13 | 0.031 | 0.52 |
| Number of males with primary education | 0.025 | 0.1 | 0.145 | 0.4 | 0.697 | 2.68** | -0.034 | -0.11 |
| Number of females with primary education | 0.095 | 0.39 | 0.289 | 0.96 | 0.136 | 0.53 | -0.6 | -1.82* |
| Household head is illiterate = 1 | -0.309 | -1.81* | -0.38 | -1.74* | -0.1 | -0.79 | -0.822 | -4.97*** |
| Female-headed household = 1 | -0.739 | -3.19*** | - | - | -0.04 | -0.23 | 0.429 | 2.01** |
| Household head was an agricultural day laborer before joining program = 1 | -0.436 | -2.33** | -0.131 | -0.66 | -0.076 | -0.56 | -0.81 | -4.00*** |
| Amount of own cultivable land before joining program | 0.032 | 2.10** | 0.075 | 2.24** | 0.023 | 1.87* | - | - |
| Household had a van before joining program = 1 | -0.174 | -0.45 | -0.773 | -1.64** | 0.157 | 0.47 | - | - |
| Household had a *dheki* before joining program = 1 | 0.906 | 1.82** | -0.431 | -0.6 | 0.37 | 0.77 | 0.649 | 1.32 |
| Household had a fishing net before joining program = 1 | 0.549 | 2.02** | 0.001 | 0 | 0.168 | 0.69 | -0.106 | -0.33 |
| Household had a plough before joining program = 1 | -0.087 | -0.1 | 0.38 | 0.55 | -0.656 | -0.8 | 0.4 | 0.52 |
| Number of goats before joining program | 0.106 | 1.03 | 0.257 | 1.65 | 0.025 | 0.2 | 0.002 | 0.02 |
| Number of cows before joining program | 0.173 | 0.85 | 0.29 | 1.26 | -0.347 | -1.52 | 0.236 | 1.41 |
| Number of chickens before joining program | 0.054 | 1.65* | 0.068 | 2.25** | 0.046 | 1.76* | 0.053 | 1.73* |
| Household had electricity before joining program = 1 | 0.238 | 0.89 | 0.266 | 0.69 | 0.092 | 0.38 | -0.181 | -0.66 |
| Cooking fuel is firewood = 1 | 0.033 | 0.19 | 1.058 | 4.31*** | - | - | 0.226 | 1.43 |
| Cooking fuel is dried dung = 1 | 0.384 | 1.53 | 0.642 | 1.99* | 0.17 | 0.81 | -0.316 | -1.02 |
| Drinking water from own tubewell = 1 | -0.072 | -0.36 | 0.369 | 1.74* | - | - | 0.377 | 2.16** |
| Location dummy | Yes | | Yes | | Yes | | Yes | |
| Constant | -1.901 | -1.88* | -1.837 | -3.24*** | -0.401 | -0.57 | -3.68 | -3.77*** |
| Pseudo R-squared | 0.24 | | 0.28 | | 0.13 | | 0.28 | |

Note: Dependent variable is program participation dummy (participant = 1, control = 0).
'-' denotes a dropped variable to satisfy the balancing property of PSM.

(4) *Access to complementary services.* All four programs provide training, but no participant in FFA had received this training at the time of the survey. In addition to training, IGVGD facilitates access to credit.

(5) *Timeliness of payment.* IGVGD recipients received food transfers on a monthly basis and beneficiaries under the FSVGD also received fairly regular food transfers. By contrast, cash payments were received less frequently, and 9.7 percent of FFA and 6.8 per cent of RMP beneficiaries received no cash payments in six months prior to the household survey. Here it is important to note that the RMP program was in transition at the time of the household survey, which caused major disruptions in transfer payments in the reference period.

**Table 6.3 — Summary of program characteristics and transfer payments**

| | IGVGD | FSVGD | FFA | RMP |
|---|---|---|---|---|
| **Program characteristics** | | | | |
| Program cycle for beneficiaries (months) | 24 | 24 | 24 | 48 |
| Length of time of beneficiaries' program participation at the time of the survey for the study (months) | 18 | 18 | 6 | 25 |
| Compulsory savings per beneficiary (Tk/month) | 32 | 32 | 25 | 300 |
| Work requirements | No | No | Yes<br>Full day<br>Physically demanding<br>Piece rates | Yes<br>½ day<br>Moderately demanding<br>Fortnightly salary |
| Access to credit (built-in credit service in the program) | Yes | No | No | No |
| Access to training | Yes | Yes | Yes, but not started before survey | Yes |
| **Actual transfers received by beneficiaries** | | | | |
| Value of transfer per beneficiary (Tk/month) | 407 | 404 | 837 | 694 |
| Value of transfer per capita (i.e., per member of beneficiary household) (Tk/month) | 112 | 114 | 254 | 235 |
| *Composition of actual value of transfers received (percent)* | | | | |
| Wheat | 4 | 3 | 0 | 0 |
| *Pusti atta* | 35 | 50 | 0 | 0 |
| Rice | 61 | 0 | 68 | 0 |
| Cash | 0 | 48 | 32 | 100 |
| *Frequency of food transfers in previous six months (percent of all beneficiaries)* | | | | |
| Monthly | 84.3 | 1.3 | 4.0 | - |
| 4 or 5 transfers | 15.7 | 77.0 | 49.3 | - |
| 1, 2 or 3 transfers | 0 | 21.7 | 46.7 | - |
| No food transfer received | 0 | 0 | 0 | - |
| *Frequency of cash transfers in previous six months (percent of all beneficiaries)* | | | | |
| Monthly | - | 0 | 0 | 0 |
| 4 or 5 transfers | - | 0.3 | 38.0 | 11.1 |
| 1, 2 or 3 transfers | - | 99.7 | 52.3 | 82.1 |
| No cash transfer received | - | 0 | 9.7 | 6.8 |

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

Differences (1) and (2) are especially important when we assess the impact of different programs on food consumption. As we explain in more detail in Appendix 3, economic theory suggests that the size of the transfer matters in determining its effect on consumption. If the transferred food ration is less than the amount of the food the recipient household would normally consume without the transfer, the ration is termed as "inframarginal." An inframarginal food transfer is equivalent to what would have been bought by a cash transfer of equal value. Put another way, an inframarginal food transfer has the same income effect as a cash transfer.

By contrast, the food transfer is "extramarginal" if the size of the transfer is greater than the amount of the food that recipient household would have consumed without the ration. Here, the transfer may have two effects—an income effect and a substitution effect.[25] The pure price effect of the ration is captured through the substitution effect.[26] The net effect, which also includes the income effect, may lead to an increase in the consumption of the ration commodity[27]as well as increased consumption of complementary products and reduced consumption of substitutes. The substitution effect, however, will take place only if the resale of ration is effectively prohibited or if resale entails a high transaction cost that decreases the implicit selling price for the ration recipient. Although none of the food transfer programs imposed restrictions on resale of the ration, our survey data show that FSVGD participants sold only 8 percent of the total quantity of *atta* rations received.

### 6.2 Impact on Food Consumption

We begin our reporting of impacts by considering the effect of these programs on food consumption. Recall that our household survey collected data on quantities of food acquisition and prices for a comprehensive list of food items. Food acquisition consists of the quantities of food purchased and obtained by home production and other sources including food transfers from various programs and private sources. The quantities of food produced by the household and food transfers received were valued at the average unit market prices of foods and converted to monthly per capita figures.[28]

Table 6.4 presents the PSM impact estimates for per capita food expenditures. Participation in all four programs leads to statistically significant increases in food expenditures. In absolute terms, participants in FSVGD have the largest increase in food expenditure and FFA participants the smallest.

**Table 6.4 — PSM impact estimates for per capita food expenditure per month (in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 468 | 380 | 89 | 2.78 | 0.006 |
| FSVGD | 515 | 388 | 127 | 3.46 | 0.001 |
| FFA | 443 | 387 | 56 | 2.94 | 0.004 |
| RMP | 520 | 407 | 113 | 4.12 | 0.000 |

Next we investigate the impact of transfers on food consumption in terms of total energy or calorie intakes. For this analysis, we used individual-level food intake data, collected through the dietary module of the household survey, to estimate actual nutrient intakes of

[25] Income and substitution effects are the two analytically different effects that come into play when an individual is faced with a changed price for a commodity. Income effects arise because a change in the price of a commodity will affect an individual's purchasing power. Even if purchasing power is held constant, however, substitution effects will cause individuals to reallocate their expenditures.

[26] Microeconomic theory holds that the substitution effect of a price change is always negative. This implies that the substitution effect of a free or subsidized food ration will always increase the consumption of that food.

[27] If the transferred food is an inferior good (that is, if it has a negative income elasticity), the income effect of the ration will reduce its consumption.

[28] The valuation of home produced food should ideally be at farmgate prices, especially for those households with difficult access to market. If the difference between farmgate and average market prices is substantial then it could substantially influence decision-taking. This potential problem, however, is negligible for the sample of households included in the survey because of the following reasons: (1) Most sample households are landless, therefore, the share of food consumed from own production is quite small. (2) Bangladesh has a very high density of rural roads. As a result, the lack of access to markets is not a serious problem in rural areas. Except for the Chittagong Hill tracts district (which is not included in the survey), food markets in rural Bangladesh are well-integrated and marketing margins for foods—particularly rice—are quite small.

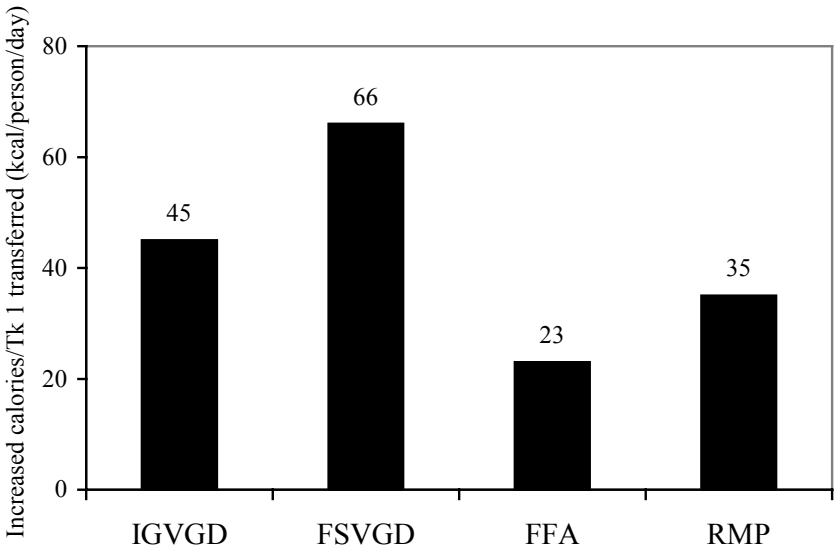
individual household members (see section 3.2 for details). Table 6.5 provides the PSM impact estimates for calorie intakes. All estimated differences in daily per capita calorie intakes between program participants and matched control groups of households are statistically significant. Participation in IGVGD, FSVGD, FFA, and RMP raises household per capita consumption by 164, 247, 194, and 271 kilocalories (kcal) per person per day respectively.

**Table 6.5 — PSM impact estimates for calorie intake (kcal per person per day)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 1,785 | 1,620 | 164 | 2.18 | 0.030 |
| FSVGD | 2,042 | 1,795 | 247 | 1.82 | 0.070 |
| FFA | 1,838 | 1,644 | 194 | 1.98 | 0.048 |
| RMP | 1,928 | 1,657 | 271 | 3.81 | 0.000 |

Because the size of transfer varied considerably among the four programs (see Table 6.3), interpreting these results is easier if we adjust them to take this into account. Figure 6.1 does so, showing the increase in calories consumed (per capita per day) per one taka transferred (per capita per day) for each program.

**Figure 6.1 — Increased calories per Tk 1 transferred**




These increases can be interpreted as the marginal propensity to consume calories (MPCc) out of income transfers in food (IGVGD), cash (RMP), and food-cash combination (FSVGD and FFA). Three of these, for IGVGD, FFA, and RMP are consistent with the findings of Hoddinott, Skoufias, and Washburn (2000). They show that for very poor households the marginal propensity to consume calories given an increase in income lies in the range of 0.3 to 0.45. The MPCc for FSVGD lies above this range, however, and is considerably higher than those reported for the other programs. This finding is particularly striking given that FSVGD participants were better off before joining the program (see section 5.4.3, Table 5.10) relative to participants in the other programs, and MPCc typically

declines as household income levels rise. As noted in section 6.1, differences in size and the type of food rations may be playing a role here.

FSVGD participants received an average per capita monthly ration of 3.58 kg of *atta*. To examine whether or not the FSVGD *atta* ration was extramarginal, we used PSM to match FSVGD households' *atta* consumption with that of the matched control households'. Average monthly per capita *atta* consumption of the matched control households is only 0.11 kg.[29] The FSVGD *atta* ration per month is vastly higher (33 times) than the monthly *atta* consumption of the control households; the *atta* ration is clearly extramarginal.

We did the same analysis for the FFA rice ration. The amount of the rice ration was 10.84 kg per capita per month on average. Average monthly per capita rice consumption of the matched control households (matched with FFA households) is 13.14 kg.[30] This indicates that the FFA rice ration is inframarginal—the amount of ration is 18 percent less than the amount of rice the FFA participants would have consumed without the program.

Owing to the substitution effect of the extramarginal *atta* ration (shown in Appendix 3), the FSVGD households consumed much more *atta* than their matched control households and increased their consumption of other products because of the income and cross-price effects of the ration. Since a large part of consumption of other products is food, the net effect on food consumption was quite large for FSVGD households. By contrast, for example, FFA's inframarginal rice transfer had only an income effect. This explains why participation in FFA had a smaller effect on food consumption. Since 56 percent of the IGVGD ration was rice, which had only the income effect, the food consumption effect of the IGVGD ration was less that of the FSVGD ration.

### 6.3 Impact on the Caloric Intake and Nutritional Status of Women and Children

The preceding analysis describes the impact of the program at the household level, but it does not provide information on how the consumption of food by specific household members is affected; there can be no presumption that all members will benefit or benefit equally. Because our survey collected individual level dietary intake, we can assess the impact of these programs on calorie intakes of individuals.

Table 6.6 shows the results of program participation on caloric intake of children aged 1–5, adult women aged 16–49, adult men aged 16–49, and all other household members. There are several striking findings. First, participation by an adult female in *any* of these programs does not lead to increased caloric intakes by preschool children. Second, only in the case of the RMP—which provides transfers about 70 percent higher than IGVGD and FSVGD—do caloric intakes of school-age and older persons increase. Third, the benefits in terms of increased caloric intake from the pure cash program, RMP, appear to be evenly split between men and women; there is, however, an important caveat to this finding, to be discussed. Fourth, the food interventions that provide rice (IGVGD and FFA) have a larger effect on men's caloric intake relative to women whereas the converse is true for the one intervention that provides *atta* flour (FSVGD). Although this finding needs to be treated cautiously because the levels of statistical significance are a little low in some cases, it suggests that the form of food transfer has an effect on who within the household benefits. Here, the use of *atta*—a less-preferred food—increases the share of food that goes to women relative to men.

[29] The PSM result shows that FSVGD households consumed 2.50 kg of *atta* per capita per month, and the difference between FSVGD and control is statistically significant at the 1 percent level.

[30] The PSM result shows that FFA households consumed 13.5 kg of rice per capita per month, but the difference between FFA and control is not statistically significant.

**Table 6.6 — PSM impact estimates on calorie intakes by individual household members (kcal per person per day)**

| | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| **Children aged 1–5** | | | | | |
| IGVGD | 863 | 816 | 47 | 0.23 | 0.810 |
| FSVGD | 1,075 | 943 | 132 | 0.66 | 0.513 |
| FFA | 936 | 730 | 206 | 1.09 | 0.279 |
| RMP | 1,036 | 943 | 93 | 0.50 | 0.619 |
| **Women aged 16-49** | | | | | |
| IGVGD | 1,969 | 1,917 | 52 | 0.58 | 0.564 |
| FSVGD | 2,236 | 2,016 | 220 | 1.69 | 0.093 |
| FFA | 2,005 | 1,866 | 139 | 1.34 | 0.180 |
| RMP | 2,217 | 1,772 | 445 | 5.23 | 0.000 |
| **Men aged 16-49** | | | | | |
| IGVGD | 2,463 | 2,182 | 281 | 1.40 | 0.164 |
| FSVGD | 2,684 | 2,563 | 121 | 0.44 | 0.663 |
| FFA | 2,404 | 2,102 | 302 | 1.51 | 0.131 |
| RMP | 2,428 | 1,966 | 462 | 2.12 | 0.036 |
| **Other family members: Children aged 6-15 and elderly aged 50 and over** | | | | | |
| IGVGD | 1,661 | 1,712 | -51 | -0.55 | 0.582 |
| FSVGD | 1,973 | 1,718 | 255 | 1.03 | 0.306 |
| FFA | 1,706 | 1,605 | 101 | 1.01 | 0.312 |
| RMP | 1,800 | 1,520 | 280 | 3.86 | 0.000 |

Another way of considering the intrahousehold impacts on individuals is to assess the impact on nutritional status. For women, we use body mass index (BMI)—weight (in kg) divided by height (in meters) squared. Table 6.7 shows that although the average absolute values of women's BMI are somewhat higher for program beneficiary households than for their matched control households, the difference is statistically significant only for FSVGD households. Women aged 16–49 in FSVGD households had 6 percent higher BMI than those from the matched control households. This finding might seem puzzling given that other programs such as RMP significantly increase calorie consumption. Remember, however, that women participating in the two public works programs are required to do manual labor for the projects, and such work burns up additional calories.

**Table 6.7 — PSM impact estimates for nutritional status (BMI) of women aged 16–49 (excluding pregnant women)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 19.58 | 19.19 | 0.39 | 0.87 | 0.385 |
| FSVGD | 19.40 | 18.28 | 1.12 | 1.75 | 0.081 |
| FFA | 19.22 | 18.88 | 0.34 | 0.66 | 0.509 |
| RMP | 19.45 | 19.10 | 0.35 | 1.01 | 0.313 |

Table 6.8 provides PSM impact estimates for three indicators of nutritional status of children aged 6 to 60 months: height-for-age, a measure of stunting; weight-for-height, a measure of wasting; and weight-for-age, a measure of underweight. The mean differences in Z-score values between program and matched control groups suggest better nutritional status of children belonging to the IGVGD, FSVGD, and RMP households than those from matched control households. These differences, however, are not statistically significant.

**Table 6.8 — PSM impact estimates for nutritional status of children 6–60 months**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| **Weight-for-height Z-score** | | | | | |
| IGVGD | -1.13 | -1.34 | 0.22 | 0.50 | 0.615 |
| FSVGD | -1.39 | -1.44 | 0.04 | 0.09 | 0.926 |
| FFA | -1.14 | -0.97 | -0.18 | -0.48 | 0.632 |
| RMP | -1.11 | -1.52 | 0.40 | 1.00 | 0.319 |
| **Weight-for-age Z-score of children 6–60 months** | | | | | |
| IGVGD | -1.90 | -2.18 | 0.28 | 0.57 | 0.571 |
| FSVGD | -2.24 | -2.31 | 0.07 | 0.16 | 0.874 |
| FFA | -2.00 | -1.76 | -0.24 | -0.73 | 0.466 |
| RMP | -2.26 | -2.47 | 0.21 | 0.54 | 0.594 |
| **Height-for-age Z-score of children 6–60 months** | | | | | |
| IGVGD | -1.67 | -1.88 | 0.21 | 0.30 | 0.763 |
| FSVGD | -1.90 | -1.94 | 0.05 | 0.08 | 0.934 |
| FFA | -1.87 | -1.54 | -0.33 | -0.82 | 0.411 |
| RMP | -2.23 | -2.15 | -0.07 | -0.13 | 0.900 |

## 6.4 Impact on Livelihood Outcome: Income

We now consider a more general measure of household well-being: total expenditures on consumption of all food and nonfood items. Consistent with the broader economic literature, we note that total consumption expenditure can also be thought of as a proxy for household income. First, expenditures are likely to reflect permanent income and hence are a better indicator of consumption behavior (Friedman 1957). Second, data on expenditures are generally more reliable and stable than income data. Because expenditures are intended to serve as a proxy for income, the terms "expenditure" and "income" are used interchangeably in this report.

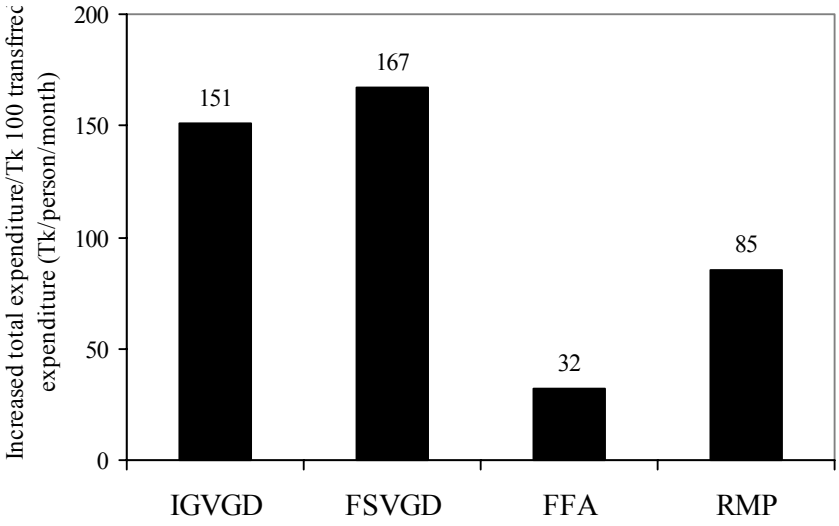
Table 6.9 presents PSM estimates of average impacts on household incomes (measured in terms of monthly per capita total household expenditures in taka) of program participants from IGVGD transfers in food, FSVGD and FFA transfers in a combination of food and cash, and RMP transfers in cash. All estimated differences in income between treatment (program participants) and matched comparison (control) groups of households are statistically significant at the 1 percent level. The results suggest the combination of food and cash transfers from the FSVGD program has the highest impact in increasing household income (by 32.3 percent) compared with the matched control group, closely followed by cash transfers from the RMP program (31.4 percent). Food transfers from the IGVGD program increases income by 27.8 percent, and the combination of food and cash transfers from the FFA program increases income by 13.3 percent.

**Table 6.9 — PSM impact estimates for per capita total expenditure per month (in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 776 | 607 | 169 | 3.44 | 0.001 |
| FSVGD | 782 | 591 | 191 | 3.21 | 0.002 |
| FFA | 689 | 608 | 81 | 2.78 | 0.006 |
| RMP | 833 | 634 | 199 | 4.16 | 0.000 |

Recall, however, that the size of transfer varied substantially among the four programs. So, as in section 6.2, expressing the absolute values of increased income per unit of transfer is a more meaningful way of comparing impacts across programs, as seen in Figure 6.2.

**Figure 6.2 — Increased income per Tk 100 of transfer**




Two striking results appear in Figure 6.2. For FFA and RMP, a 100 taka transfer increases consumption by significantly less than 100 taka. By contrast, the increase in consumption for IGVGD and FSVGD is considerably larger than the size of the transfer. A number of program-specific factors, supported by qualitative fieldwork, would seem to account for these findings.

- IGVGD and FSVGD programs do not require their participants to do physical work. Although participants of these two programs should attend training sessions, these sessions are normally held once a week and do not affect participants' income-earning activities.[31] There is some qualitative evidence suggesting that this training has been effective. *"I received training from Manob Kollyan Songstha* (a service-provider NGO) *on livestock-rearing, making hand-fans, running tea stall, etc. I now make hand-fans, sell them, and earn money,"* said Rasheda, an FSVGD beneficiary from Bhajanpur village in Tetulia *upazila*.
- By contrast, FFA and RMP have work requirements that may crowd out other income-generating opportunities. Note, however, that these differ across the two programs. Whereas FFA engages its members mostly in earth-moving for

[31] FFA and RMP also provide training to participants, but in the case of FFA, training had not started when the survey was fielded.

construction, RMP engages its crews in road maintenance. Whereas most FFA participants work a full day during the working season, the RMP daily work schedule is 8 a.m. to 2 p.m..[32] The FFA work is also relatively harder than that of RMP. For these reasons, wage earners of public works programs, particularly FFA workers, hardly find the time and energy to engage in additional income-earning activities.

> *"We get up at 5 o'clock and say our prayers. From 7 in the morning to 5 in the afternoon we work in earth-digging project."* From a focus group discussion with FFA participants, Panchapukur, Nilphamari.

> *"From 8 to 5 I have to dig earth and carry it to another place. Often I work standing in waist-high water, digging mud*," said Momena in the FGD.

> *"The amount of money depends on the amount of earth I dig. I work hard and dig up to 50 cft (cubic feet) a day,"* said Hafiza, an FFA participant in Debiganj *upazila* of Panchagarh district.

> *"My face and eyes were always covered with mud when I worked,"* said Tomiza, an ex-FFA participant, Debiganj, Panchagarh.

- Among participants in the four programs, 78 percent of RMP women do not have husbands (that is, they are widowed, divorced, or abandoned by husbands), compared with 29 percent of IGVGD women, 20 percent of FSVGD women, and 26 percent of FFA women. Thus, for the majority of the RMP households, RMP transfers are their only source of income.

> *"The work is laborious and we often suffer from sickness due to the hard work. Since we don't have any men to supplement our income, we have to work even when sick."* From a focus group discussion of RMP participants, Tetulia *upazila*, Panchagarh district.

- In addition to training services, the IGVGD program has a built-in mechanism to provide credit support to program participants (see section 2.1).

> *"I became a BRAC member right after I had received the [IGVGD] card. I got training from BRAC on how to develop a nursery (to raise vegetable seedlings). After six months of training, I borrowed 3,000 taka from BRAC and started a nursery. Many people come to see my nursery. The current value of the nursery is 10,000 to 15,000 taka,"* proudly said Shefali, an IGVGD member from Sadarpur *upazila* of Faridpur district.

### 6.5 Impact on Livelihood Outcome: Poverty Status

A limitation of our analysis of program impact on consumption is that it is not sensitive to the distribution of changes. To remedy this problem, we estimated the impact of transfers from each of the four programs on the poverty status of program participants. In Bangladesh, poverty rates are estimated by the BBS in collaboration with the World Bank. The BBS

[32] Note that in the FFA program, food and cash for work activities are normally carried out during December to May, which is the period suitable for earthwork. Training on awareness-building and income-generating activities is conducted from June to November. The FFA participants were in the program for six months at the time of the household survey. They had just completed the work activities and started attending training when the household survey was carried out in June–July 2006.

periodically conducts Household Income and Expenditure Surveys, and the poverty estimates are based on data from these surveys. The latest poverty estimates are based on the 2005 HIES (BBS 2006).

Although the BBS uses two methods for estimating poverty—the Cost of Basic Needs (CBN) and Direct Calorie Intake (DCI) methods—CBN is the preferred and standard method used in Bangladesh and elsewhere. Two poverty lines are constructed using the CBN method: an upper poverty line and a lower poverty line.[33] People below the upper poverty line are considered poor, and those below the lower poverty line are considered extreme poor. The headcount poverty incidences based on the CBN method suggest that 43.8 percent of the rural population were below the upper poverty line and 29.3 percent were below the lower poverty line in 2005 (BBS 2006).

Our assessment of poverty impact involves the following steps:

(1) From the list of the 2005 CBN regional lower poverty lines (expressed in per capita total household expenditure), we selected the regional rural poverty lines that correspond to IFPRI evaluation household survey areas. We used the lower poverty lines because our study focuses on the ultra-poor.

(2) In order to make our survey data comparable to the 2005 CBN poverty lines, we deflated total per capita consumption expenditures (food plus nonfood) derived from the 2006 IFPRI household survey data[34] to 2005 prices by using the rural consumer price index (CPI).

(3) Using the inflation-adjusted per capita total expenditure series, we estimated the proportions of IFPRI survey households below the region-specific lower poverty lines selected in step 1.

(4) Finally, using the PSM method, we estimated poverty impacts by comparing the proportions of households in extreme poverty in each of the four programs with those in the corresponding matched control groups.

Table 6.10 presents the PSM estimates of poverty impacts. Program transfers reduced extreme poverty by 20 percentage points for IGVGD, 30 percentage points for FSVGD, 15 percentage points for FFA, and 16 percentage points for RMP households. Even after considerable poverty reduction, however, 60 percent of IGVGD households, 51 percent of FSVGD households, 64 percent of FFA households, and 48 percent of RMP households remained in extreme poverty.

Why do such large percentages of program participants remain in extreme poverty? The size of transfers and their multiplier effects on income are not enough for most beneficiaries to move out of extreme poverty. Although most program participants were extreme poor before they joined the programs, the range of their income varied considerably. Therefore, those who were extreme poor but lived closer to the poverty line were able to escape extreme poverty, but those further away from the line remain in poverty. Nevertheless, program participation has likely lessened the severity of poverty for these poorest of the poor.

[33] The upper poverty line includes the food consumption expenditure and the cost of consuming a nonfood bundle of items. The lower poverty line identifies extreme poor households whose total household expenditures are below the food poverty line. The food poverty line represents the cost of acquiring a basic food basket that provides the minimum nutritional requirement of 2,122 kilocalories per person per day.

[34] The food and nonfood consumption items included in the IFPRI evaluation household survey and in the HIES are almost identical.

**Table 6.10 — PSM impact estimates for extreme poverty reduction**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 59.8 | 79.5 | -19.7 | -2.01 | 0.046 |
| FSVGD | 50.6 | 80.4 | -29.8 | -2.98 | 0.003 |
| FFA | 64.0 | 78.8 | -14.9 | -2.96 | 0.003 |
| RMP | 47.7 | 63.5 | -15.9 | -1.74 | 0.082 |

### 6.6 Impact on Livelihood Outcome: Assets

The ownership or control of productive assets is an important indicator of livelihood because assets generate income. Physical asset bases (productive and consumption assets) also reduce the risks of vulnerability of households to disruptions in income flows, because part of the asset base can be sold in times of hardship. When income shocks occur, however, family coping strategies often lead to the sale of productive assets (for example, to meet food consumption needs or to cope with health-related emergencies), thereby aggravating these risks. Lack of assets is therefore both a cause and a consequence of poverty. Income transfers from safety net programs can play an important role in protecting and expanding the asset bases of poor households.

Our household survey collected information on land, livestock, and other productive and consumption assets of households. Respondents were asked whether a particular asset was used for generating income (that is, productive assets such as agricultural implements) or consumption (such as cooking utensils, furniture, radio) or both (for example, when a cow's milk was partly consumed and partly sold). The household survey also collected information on saving—a liquid asset that can be used for future consumption and investment.

Access to land is the most important asset in rural Bangladesh, but 87 percent of IGVGD, 80 percent of FSVGD, 94 percent of FFA, and 92 percent of RMP households own no cultivable land. The study did not look at program impact on land ownership, given the smallness of transfers in relation to land price. Indeed, the household survey data suggest that none of the program participants bought any land after joining the programs. Instead, we investigated the impact on rented/leased-in land for cultivation. Table 6.11 provides the PSM results. The difference in the amount of rented/leased-in land between program and control households is statistically significant only for IGVGD participants. The amount of rented/leased-in land is 186 percent higher for IGVGD members than that for their matched control group, which suggests a substantial impact. Among the four programs, only IGVGD has a built-in system for providing microcredit to its members. Perhaps this feature of the program enabled the participants to rent/lease additional land for crop cultivation. As Julekha, an IGVGD beneficiary reported, *"After I had joined VGD, I received 4,000 taka loan from BRAC. With that money I rented a small piece of land for 2 years. My husband and I grow potatoes, chilies, and vegetables on that land. We sell most of what we produce"* (presurvey field visit, Taraganj *upazila* of Rangpur district).

**Table 6.11 — PSM impact estimates for rented, leased-in, share cropped land (in decimals)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 10.91 | 3.81 | 7.10 | 1.86 | 0.064 |
| FSVGD | 10.72 | 8.18 | 2.54 | 0.56 | 0.574 |
| FFA | 4.69 | 3.25 | 1.44 | 0.99 | 0.321 |
| RMP | 10.84 | 8.97 | 1.87 | 0.36 | 0.715 |

Table 6.12 presents the PSM impact results for consumption assets. All programs had statistically significant impacts in increasing the value of consumption asset bases for participating households compared with their matched control groups. Whereas FSVGD had the highest impact (81 percent increase) followed by IGVGD (70 percent increase), the two public works programs had relatively lower impacts on generating consumption assets of their members—41 percent increase for FFA and 42 percent increase for RMP.

**Table 6.12 — PSM impact estimates for consumption assets (value in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 2,404 | 1,418 | 987 | 2.56 | 0.011 |
| FSVGD | 2,051 | 1,133 | 918 | 3.05 | 0.002 |
| FFA | 1,313 | 932 | 381 | 2.20 | 0.028 |
| RMP | 2,210 | 1,553 | 657 | 2.17 | 0.031 |

In the case of productive assets, IGVGD, FSVGD, and FFA programs had statistically significant impacts, but not RMP (Table 6.13). Compared with matched control groups, participation in the FFA program resulted in a 63 percent increase in the value of productive assets. The increase was 41 percent for IGVGD and 52 percent for FSVGD households.

**Table 6.13 — PSM impact estimates for productive assets (value in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 2,710 | 1,920 | 790 | 1.66 | 0.098 |
| FSVGD | 2,360 | 1,553 | 807 | 2.13 | 0.034 |
| FFA | 1,701 | 1,042 | 659 | 3.16 | 0.002 |
| RMP | 2,612 | 2,007 | 605 | 1.23 | 0.219 |

In the impact analysis we excluded livestock and poultry holdings from consumption and productive assets because these assets are often used for both purposes. Livestock and poultry are important assets for the rural poor in Bangladesh. The training component of each of the four case study programs put emphasis on developing the livestock- and poultry-raising skills of program participants. Because of their importance and programmatic relevance, we carried out separate analyses for each of these two categories of assets.

Table 6.14 presents the PSM impact assessment results for livestock assets (cattle, goats, and sheep). The average value of livestock holdings increased by 96 percent for IGVGD and by 108 percent for RMP members compared with their matched control groups, and these differences are statistically significant. There was, however, no statistically significant impact on livestock asset build-up for FSVGD and FFA members. Buying cows and bullocks requires a relatively large amount of cash, and these domestic animals are among the most expensive assets the poor can own. Access to NGO loans may have enabled IGVGD women to buy livestock, as the following examples from the qualitative research illustrate:

> Rokeya, an IGVGD woman from Sadarpur *upazila* of Faridpur district, bought two milk cows through a loan from BRAC. Another IGVGD woman named Saleha from the same *upazila* bought a milk cow with a BRAC loan, repaid the loan by selling milk, and took a second loan from BRAC. She now runs her family from her own income.

**Table 6.14 — PSM impact estimates for livestock assets (value in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 3,687 | 1,881 | 1,806 | 1.66 | 0.098 |
| FSVGD | 2,764 | 2,298 | 466 | 0.40 | 0.692 |
| FFA | 1,534 | 1,220 | 314 | 0.44 | 0.659 |
| RMP | 3,399 | 1,636 | 1,763 | 3.04 | 0.003 |

For RMP participants, the relatively larger amount of cash transfers as well as the lumpiness of these transfers may have enabled them to expand their livestock holdings. As already shown, RMP cash transfers per capita were 110 percent higher than IGVGD food transfers and 106 percent higher than and FSVGD food and cash transfers. Further, most RMP members received their entitlements in lump-sum amounts—43 percent of RMP women received their transfers for the six-month period prior to the survey in one single payment, and 32 percent of them received it in two installments (see section 5.1).

The PSM impact estimates suggest that, compared with the matched control groups, the average value of poultry holdings increased by 83 percent for IGVGD, 98 percent for FSVGD, and 36 percent for RMP participants (Table 6.15). FFA participants did not have any statistically significant increase in poultry holdings.

**Table 6.15 — PSM impact estimates for poultry assets (value in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 407 | 223 | 184 | 2.85 | 0.005 |
| FSVGD | 503 | 253 | 249 | 2.20 | 0.029 |
| FFA | 248 | 179 | 69 | 1.40 | 0.161 |
| RMP | 401 | 294 | 107 | 1.67 | 0.095 |

In addition to assessing the impact of program participation on physical asset building, we estimated the impact on liquid asset holding in the form of saving. The PSM impact estimates presented in Table 6.16 suggest that, compared with the matched control groups, the average amount of savings increased by 512 percent for IGVGD, 269 percent for FSVGD, 415 percent for FFA, and a staggering 1,341 percent for RMP households. All differences in the average amounts of savings between treatment and control groups are statistically significant at the 1 percent level. As reported in section 5, the mandatory saving requirement of the case study programs accounted for 64 to 80 percent of total savings of program participants. The amount of savings required is much higher for RMP participants than for participants of the other three programs (see section 2), which explains why the impact on saving is so high for RMP women.

**Table 6.16 — PSM impact estimates for household savings (in taka)**

| Program | Treatment | Control | Difference | t-statistic | p-value |
|---|---|---|---|---|---|
| IGVGD | 2,038 | 333 | 1,705 | 2.93 | 0.004 |
| FSVGD | 1,304 | 353 | 950 | 4.64 | 0.000 |
| FFA | 842 | 164 | 679 | 5.16 | 0.000 |
| RMP | 7,483 | 519 | 6,964 | 15.28 | 0.000 |

## 6.7 Sustainability of Livelihood

Is the impact of transfers on livelihood improvements of program participants sustainable? We attempt to answer this question by analyzing the household survey data using PSM. We used household income as the livelihood indicator.

Besides current participants, the IFPRI household survey included former program beneficiaries from completed program cycles. Program participation had ended 25 months prior to the household survey for ex-RMP households, 18 months for ex-IGVGD and ex-FSVGD households, and 6 months for ex-FFA households.

Table 6.17 presents the PSM impact estimates for income (measured in terms of per capita total expenditures). The results show that, among the four programs, ex-IGVGD, ex-FFA, and ex-RMP households sustained their increased income even beyond the transfer period. Income was 28 percent higher for ex-IGVGD, 36 percent higher for ex-FFA, and 49 percent higher for ex-RMP households than for their matched comparison groups, and these differences are statistically significant. The level of income between ex-FSVGD households and their matched comparison group, however, is not statistically significantly different from zero.

**Table 6.17 — PSM impact estimates for former program beneficiaries' per capita monthly household expenditure (in taka)**

| Program | Treatment | Control | difference | t-statistic | p-value |
|---|---|---|---|---|---|
| Ex-IGVGD | 798 | 624 | 174 | 2.37 | 0.019 |
| Ex-FSVGD | 738 | 596 | 142 | 1.24 | 0.218 |
| Ex-FFA | 877 | 647 | 231 | 3.66 | 0.000 |
| Ex-RMP | 934 | 628 | 306 | 3.78 | 0.000 |

As shown, current FSVGD participants had the highest increase in income among participants of the four programs. Assuming ex-FSVGD participants had achieved similar improvements during their participation in the program, one can conclude that ex-FSVGD households had not been able to maintain their improved livelihoods after leaving the program.

Ex-FFA households had been without the program for just six months prior to the survey, so this short-term evidence of their livelihood sustainability cannot be validated for a longer-term from the available survey data.

IGVGD and RMP showed reasonably long-term sustainable improvements in income of their beneficiaries—at least 18 months for ex-IGVGD and 25 months for ex-RMP households. IGVGD probably achieves this result through program design that consciously incorporates graduation steps—particularly the built-in provision of microcredit (Matin and Hulme 2003), as the following example from the qualitative research shows:

> Komola, an ex-IGVGD woman from Sadarpur *upazila* of Faridpur district, received 5,000 taka loan from BRAC when she was in the program. She bought a hybrid milk cow for 8,000 taka. She reared the cow, and in a year she was selling about seven liters of milk everyday. She used the saving to buy a second cow. Her family now lives well, and her four daughters attend school.

The main likely reason for RMP women's sustained livelihood improvements is their relatively large accumulation of saving, which is due to the relatively high rate of mandatory savings required by RMP. The participants receive their savings after completing the program cycle.

### 6.8 The Cost-Effectiveness of Transfers

The preceding analysis assesses the impact or effectiveness of these programs but does not assess cost-effectiveness. At what cost does the government transfer income to program participants? How much does it cost to increase the monthly income of program participants by 100 taka? How much does it cost to increase daily energy intakes by 100 kilocalories? What is the annual cost of reducing extreme poverty by 1 percent through program transfers? How much would it cost to move all participant households out of extreme poverty in the short term? This section addresses these questions.

An assessment of the cost-effectiveness of transfers involves a comparison of costs for providing measured benefits to transfer recipients.[35] The fiscal costs consist of the direct cost of the transfer itself (cash transfers and/or the value of food transfers) and costs of delivering the transfer amount to the point of distribution (that is, union *parishad* [UP] premises for food transfer and local bank branches for cash transfer).[36] The benefit consists of the monetary value of the transfer received by a program participant.[37] Benefits are the supply-side values of transfers, where food commodities (wheat and rice) are valued at procurement prices (domestic and c.i.f import prices are used as appropriate). Any pilferage or leakage in the process of transfer to the distribution point represents a system loss and, therefore, is counted in the cost calculation. Appendix 4 describes the method of calculating transfer delivery costs, provides cost components, and shows the calculations in detail.

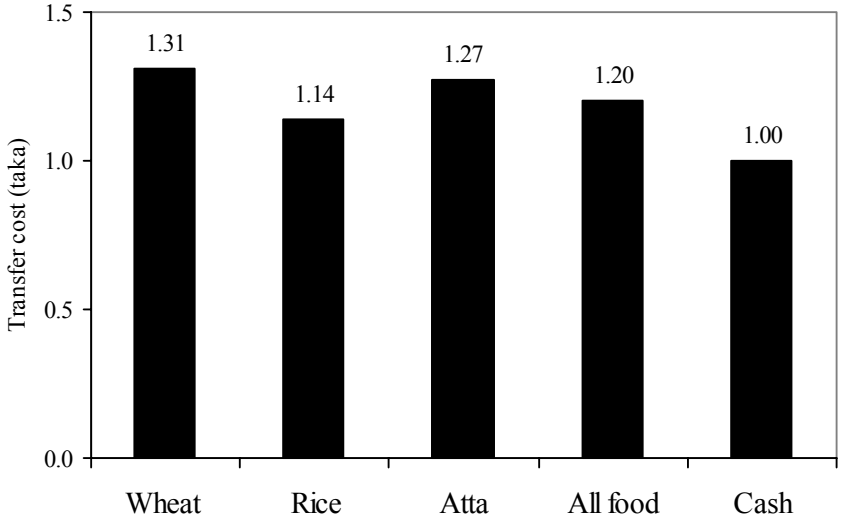
Figure 6.3 presents the costs of transferring one taka of income to a program participant through food and cash. On average, the food-based programs (IGVGD, FSVGD, and FFA) transfer 1 taka worth of food at a cost of Tk 1.20, which includes the cost of the transferred food. In other words, the delivery cost of transferring Tk 1 worth of food is Tk 0.20 (or 20 paisa). In contrast, the delivery cost of cash is virtually zero—it costs only 15 paisa to transfer Tk 1,000 to a cash recipient.

[35] Note that in calculating the value of transfers to program beneficiaries, the actual quantities of food transfers received by program beneficiaries are valued at local market prices.

[36] For fortified *atta*, milling, fortification, bagging, storage, and transportation costs are included in the cost calculation (see Appendix 4).

[37] The two public works programs—FFA and RMP—create benefits at the community level (value of the road being maintained by RMP, community assets created by FFA) where these programs are implemented. As community members, the participants of these programs also share the benefits. These benefits, however, are not considered in the cost-effectiveness analysis because the Terms of Reference for this study stipulate the study to assess the impacts of income transfers (in terms of food and/or cash) received by beneficiaries on their food security and livelihoods. This essentially implies household and individual levels of analysis.

**Figure 6.3 — Cost of transferring 1 taka to a program participant, by commodity**




The delivery costs of transfers in wheat and *atta* to program beneficiaries are higher than delivering rice mainly owing to handling costs and pilferage/loss incurred for wheat at the ports. Our calculation suggests that 96 percent of all wheat (including the wheat used for producing fortified *atta*) provided to the three food-based programs was imported, and only 4 percent was domestically procured from farmers. In contrast, 100 percent of all rice was domestically procured. "All food" is composed of 6 percent wheat, 36 percent *atta*, and 58 percent rice.

Figure 6.4 shows the cost of transferring 1 taka by each program to its participants. The type and composition of transfer commodities influence the differences in transfer costs per taka. Average shares of transfer values[38] were: IGVGD, 66 percent in rice, 30 percent in *atta*, and 4 percent in wheat; FSVGD, 42 percent in *atta*, 3 percent in wheat, and 55 percent in cash; FFA, 66 percent in rice and 34 percent in cash; and RMP, 100 percent cash.

Based on full entitlements, we estimated the annual total costs of transfers in 2006 for each program. These costs are Tk 342.4 crore (US$49.58 million) for IGVGD; Tk 48.5 crore (US$7.02 million) for FSVGD; Tk 40.2 crore (US$5.83 million) for FFA; and Tk 76.3 crore (US$11.05 million) for RMP. The total transfer cost of all four programs was Tk 507.3 crore or US$73.47 million in 2006. The annual total costs of transfers per beneficiary (based on full entitlements) in 2006 were Tk 5,343 (US$77.38) for IGVGD; Tk 4,431 (US$64.17) for FSVGD; Tk 10,266 (US$148.67) for FFA; and Tk 18,360 (US$265.89) for RMP.

Figure 6.5 shows the monthly full costs (that is, transfer cost plus delivery cost) of increasing per capita daily energy intakes of household members by 100 kilocalories per program participant. The cost of increasing energy intakes by 100 kcal per capita per day is lowest for FSVGD, mainly owing to its distribution of the extramarginal *atta* ration, as already explained. In contrast, FFA requires 182 percent higher costs than FSVGD to increase the same amount of calories, primarily because it distributes an inframarginal quantity of rice.

[38] Food transfers are valued at procurement prices (domestic and c.i.f. import prices are used as appropriate—see Appendix 4).

**Figure 6.4 — Cost of transferring 1 taka to a program participant, by program**

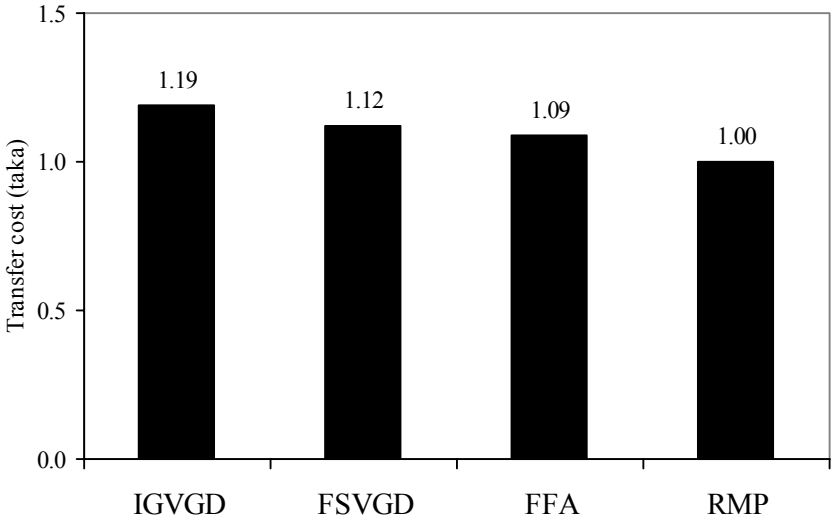



**Figure 6.5 — Cost of increasing per capita daily calorie intake by 100 kcal**

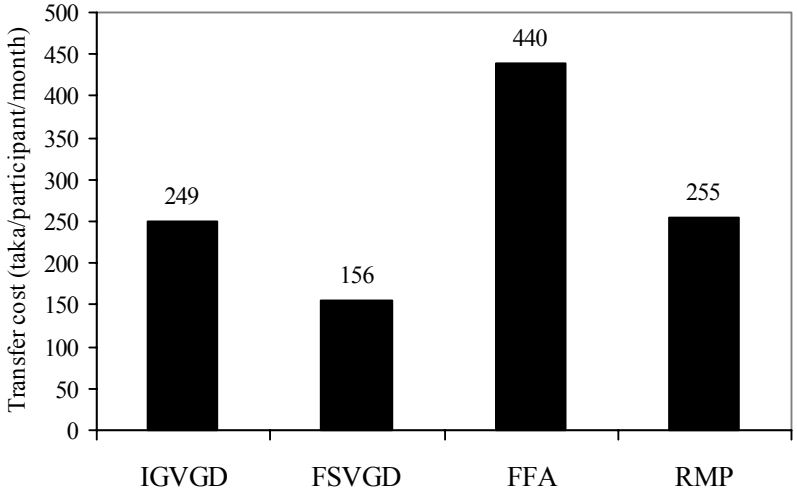



Figure 6.6 shows the monthly full costs of increasing household monthly income by 100 taka per program beneficiary. FSVGD and IGVGD increase household incomes at much lower costs than FFA and RMP because FSVGD and IGVGD transfers have multiplier effects in terms of generating incomes (see section 6.4). It is worth noting, however, that whereas FSVGD increases income at the lowest cost for its current participants, their increased level of earned income may not be sustainable after they leave the program, as the results in section 6.7 indicate.

**Figure 6.6 — Cost of increasing household monthly income by 100 taka**

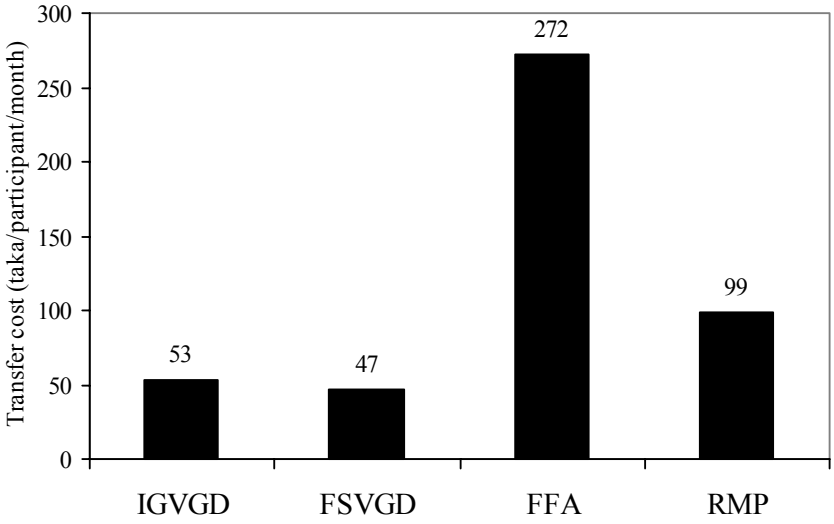
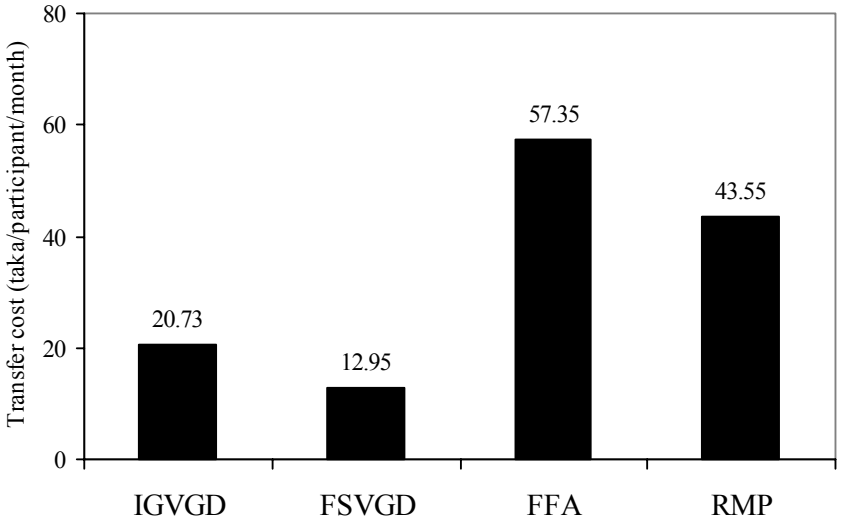



Figure 6.7 shows the monthly full costs of reducing extreme poverty by 1 percent *during the ongoing program*, in taka per program beneficiary. In 2006 the four case study programs covered a total of 830,840 beneficiary households,[39] of which IGVGD covered 640,721 households (77 percent); FSVGD, 109,379 households (13 percent); FFA, 39,200 households (5 percent); and RMP, 41,540 households (5 percent). In aggregate terms, the annual total costs of reducing extreme poverty by 1 percent for all beneficiary households under each of the four programs are Tk 15.9 crore (US$2.31 million) for IGVGD; Tk 1.7 crore (US$0.25 million) for FSVGD; Tk 2.7 crore (US$0.39 million) for FFA; and Tk 2.2 crore (US$0.31 million) for RMP.

**Figure 6.7 — Cost of reducing extreme poverty by 1 percent**




[39] Each household has one participant.

How much would it cost to move all participant households out of extreme poverty *in the short term*? The impact estimates suggest that 59.8 percent of IGVGD households, 50.6 percent of FSVGD households, 64.0 percent of FFA households, and 47.7 percent of RMP households were extreme poor in 2006 (see section 6.1.4). Annual costs for complete elimination of extreme poverty *during the program* for all households in each of the four programs could cost Tk 953 crore (US$138.03 million) for IGVGD; Tk 86 crore (US$12.46 million) for FSVGD; Tk 173 crore (US$25.00 million) for FFA; and Tk 104 crore (US$15.00 million) for RMP. The total cost of eliminating extreme poverty for the 830,840 beneficiary households would have been Tk 1,315 crore (US$190.49 million) in 2006 (the total transfer cost was Tk 507 crore or US$73.47 million in 2006). For the same 830,840 households,[40] the IGVGD program, which has national coverage, could completely eliminate extreme poverty at an annual cost of Tk 1,203 crore (US$174.14 million)—9 percent less than the cost of doing so through the four programs.

It is important to note that the calculations of costs of reducing poverty are based on *short-term* impacts of the programs on income poverty reduction during the program. Those who escape extreme poverty during their program participation period could fall back into poverty after leaving the program. These findings therefore should be interpreted with caution and should not be picked up and quoted out of context.

Although these transfer programs have an important role in helping ultra-poor households, they should be seen as one component of a portfolio of activities designed to eradicate poverty. In the long run, sustainable poverty reduction will require accelerated, broad-based economic growth centered around employment and income generation.

### *6.8.1 Transfer Costs with Leakage at the Beneficiary Level*

In the preceding analysis of cost-effectiveness, the transfer costs consist of the costs of delivering the transfer amount to the point of distribution and the costs of any pilferage or leakage in the process of delivering the transfer to the distribution point. Here, we present the calculations of transfer costs that take into account leakages or misappropriation of transfers at the beneficiary level.

Leakage at the beneficiary level is defined as the unintended diversion of allocated food or cash from officially listed program beneficiaries that takes place at the distribution point. In other words, the difference between the transfer entitlement and the amount of transfer actually received by an officially listed program beneficiary represents leakage at the beneficiary level.

An IFPRI study on food aid leakage in Bangladesh provides estimates of leakage of food transfers at the beneficiary level for the IGVGD and FFA programs (Ahmed et al. 2003). For IGVGD, the study estimates leakage of 8.0 percent of the total amount of food entitlement of a program participant. The estimate of leakage increases to 13.6 percent when the calculation includes cases when a food distributor (that is, a UP member) makes a VGD cardholder "share" her VGD card with a non-cardholder woman, with the result that the cardholder receives only half of her ration entitlement. For the FFA program, leakage is estimated at 5.9 percent of the food wage entitlement. A recent World Bank study reports 2.0 percent leakage for the RMP's cash transfer (S. Ahmed 2005).

To estimate transfer costs accounting for leakage at the beneficiary level, we use leakage rates of 13.6 percent for the IGVGD food transfer and 2.0 percent for the RMP cash transfer.

[40] Of all program households, 58.2 percent were in extreme poverty.

For FSVGD, using the composition of the actual amount of food and cash transfers received and applying leakage rates of 13.6 percent for food transfers and 2.0 percent for cash transfers, we estimate leakage of 8.1 percent of the total value of transfer entitlement. Similarly, for FFA, applying leakage rates of 5.9 percent for food transfers and 2.0 percent for cash transfers to the actual composition of food and cash received, our estimate of leakage comes to 4.7 percent.

Our estimates show that, accounting for leakage at the beneficiary level, IGVGD transfers 1 taka of income to its participants at a cost of Tk 1.32; FSVGD, at a cost of Tk 1.19; FFA, at a cost of Tk 1.14; and RMP, at a cost of Tk 1.02.

# 7. GENDER-RELATED IMPACTS

## 7.1 Introduction

This section examines the gender-related impacts of food and cash transfers targeted to women. Interest in the gender-related impact of transfers targeted to women has been motivated by several decades of research on intrahousehold allocation. This research has revealed that men and women have different preferences, responsibilities, access to and control over resources, and decisionmaking authority (Agarwal 1997; Haddad, Hoddinott, and Alderman 1997). It also shows that women are often at a disadvantage in terms of the distribution of resources and lack decisionmaking authority (Quisumbing 2003). Thus, development interventions that do not take gender disparities into consideration can skew the distribution of benefits within the household in ways that reinforce women's subordination.

Although many studies (reviewed in detail in Appendix 5) have shown that channeling resources to women has concrete benefits, few address the empowerment effects of such efforts.[41] This is because women's empowerment, although it is often viewed as essential for achieving gender equity and promoting lasting social change, is an elusive and complex concept. Despite the challenges of measuring empowerment, it is worthwhile to investigate whether development programs targeted toward women have the potential to encourage women to challenge their subordinate status and create opportunities for women at the household, community, and societal levels. Understanding which approaches are most effective at promoting women's empowerment can have important implications for the design of future development interventions.

In this section, we examine the impact of the four targeted interventions on measures of women's well-being, autonomy, participation in decisionmaking, mobility, and access to and control over resources. Similar to the methodology used in section 6, we use propensity score matching (PSM) to create a counterfactual for program participants from a subsample of women who were eligible for but did not participate in the programs. Matching is done based on individual and household characteristics and balancing on these characteristics at different levels of propensity scores is used to confirm the validity of the comparison group. We also draw on findings from the related qualitative assessment involving focus group discussions with participants and interviews with key informants to supplement and interpret the results and the quantitative analysis.

It is important to keep in mind that this analysis of gender-related issues is limited in several ways. First, the empowerment process is complex and nuanced, making it difficult to measure and explain through statistical analysis. Second, the indicators used in this study do not capture all aspects of women's empowerment. This study focused on measuring the extent of women's bargaining power and status within the household, using indicators of women's independence, control over their lives, participation in decisionmaking, control over household resources, mobility, and freedom from physical and verbal abuse. It did not capture, however, psychological changes that may have occurred as a result of the program, affecting their self-esteem, confidence, and attitudes. In particular, the social awareness and skills training offered by the VGD programs may have influenced women's perceptions of themselves and their role within the family and community. The qualitative information

[41] Appendix 5 discusses various definitions of empowerment and frameworks for understanding this concept in order to provide the basis for the analysis and aid in interpreting the results. It also includes a discussion of intrahousehold dynamics, which are fundamental for understanding women's empowerment.

gathered through focus group discussions and informal interviews suggests this may have been the case.

This section is organized as follows. Section 7.2 presents descriptive statistics on empowerment and gender-specific outcomes, and section 7.3 gives results from the propensity score matching exercise. Section 7.4 concludes with a discussion of the limitations of the study and lessons for other development interventions seeking to promote women's empowerment.

### 7.2 Descriptive on Empowerment and Gender-Related Outcomes

Empowerment is difficult to measure, because of its context-specificity and lack of precision. Scholars and practitioners from all disciplines, however, are beginning to recognize empowerment as essential to the development process. Empowerment is now often viewed as being important for both its intrinsic value (as an end in itself) and for its instrumental value (as a means of achieving other development objectives) (Stern, Dehier, and Rogers 2005; Narayan 2002; Kabeer 2001). It is often argued that empowerment increases development effectiveness by promoting good governance and pro-poor economic growth, reducing socioeconomic inequalities, and improving development outcomes at the project level (Stern, Dehier, and Rogers 2005; Narayan 2005). Therefore, more efforts are being made to clarify its definition, explain how it fits into the development process, and overcome the difficulties involved in measuring it empirically.

Because empowerment is multidimensional and complex, we use a number of indicators as proxy measures. This dataset contains a rich set of variables, which facilitate a robust assessment of the impact of the programs on women's well-being and empowerment. In addition to soliciting a wealth of information on individual and household characteristics and program participation, the survey gathered data on women's status within the household and community. It included questions on women's autonomy and participation in decisionmaking in order to capture their ability to influence household decisions, a direct reflection of their power and agency. Both everyday decisions (such as decisions regarding basic household expenditures) and more major life decisions (such as the decision to work, to take loans from an NGO, or use birth control) are measured. Women's autonomy is determined by whether the woman made decisions independently from her husband; joint decisionmaking by the woman and her spouse was considered an indication of participation in decisionmaking. A third measure of decisionmaking considers whether the women make decisions independently *or* jointly with their spouse.

Another direct measure of women's empowerment is their control over household resources. Therefore, the survey included a number of questions regarding women's ability to use household resources to make purchases for themselves and their families. In order to capture women's freedom of movement and their ability to act independently, variables on their mobility within the community are also included. These variables are important because empowerment does not occur in isolation but rather depends on the social context or opportunity structure in which women are embedded. For instance, even if a woman's status and power within the household increases, that does not mean that her ability to act more freely in her surroundings will also increase. Also recorded were measures of women's well-being, including their nutritional status and signs of physical, emotional, or psychological abuse.

Tables 7.1 to 7.6 present descriptive statistics for the outcome variables used in this study. The data related to women's work activities shown in Table 7.1 show that a large percentage of women in program and control households are working. Among these women, many made

the decision to work themselves, with fewer women claiming to have decided jointly with their spouse. A small percentage of working women claim to have been initially prevented from working by their husbands. In terms of who controls the income earned from their work, the responses vary among participants across the various program and control groups. Although many women claim to control the income they earn, a significant number also report turning over all or portions of their income to their husbands.

**Table 7.1 — Decisions to work and spend income from work, program participants versus controls**

| Decision | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Women working to earn additional income | 70.00 | 79.33 | 97.33 | 97.00 | 77.92 |
| If working, location of work | | | | | |
| Inside the home | 62.86 | 49.16 | 13.36 | 7.22 | 27.04 |
| Outside the home | 22.38 | 21.85 | 54.79 | 66.32 | 45.60 |
| Both | 14.76 | 28.99 | 31.85 | 26.46 | 27.36 |
| If working, decision regarding whether to work | | | | | |
| Decides alone | 63.81 | 64.29 | 58.90 | 87.63 | 74.59 |
| Decides with husband | 31.90 | 29.83 | 33.90 | 8.25 | 20.20 |
| If working, whether husband initially prevented from working | 1.43 | 5.46 | 3.08 | 3.09 | 3.26 |
| Disposal of income | | | | | |
| Give it all to husband/other | 29.05 | 20.59 | 17.12 | 9.28 | 19.22 |
| Give some to husband/other | 23.33 | 26.47 | 24.66 | 19.24 | 18.89 |
| Keep all | 47.62 | 52.94 | 58.22 | 71.48 | 61.89 |
| If working, decision to spend work income | | | | | |
| Decide alone | 48.10 | 34.45 | 43.84 | 81.44 | 57.00 |
| Decide with husband | 38.57 | 44.54 | 44.18 | 12.03 | 26.38 |

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

The data show that women taking loans from an NGO often share the decision to borrow and spend the loan proceeds with their husbands (see Table 7.2). More women also report sharing in the decision to use birth control with their husband, with only a small number of women making this decision on their own (see Table 7.3). Table 7.4 shows women's autonomy and participation in spending decisions varies widely across programs and by type of expenditure. A majority of women do report having control over money to buy items for themselves, such as clothes, medicines, and toiletries, and food for their families.

**Table 7.2 — Decision to take loans from NGOs and to spend loan proceeds, program participants versus controls**

| Decision | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Women taking loan from NGO | 66.33 | 50.33 | 35.33 | 52.67 | 33.25 |
| Decision to take loan from NGO | | | | | |
| Decide alone | 25.63 | 11.26 | 24.53 | 63.29 | 28.24 |
| Decide with husband | 51.76 | 51.66 | 52.83 | 21.52 | 42.75 |
| Decision to spend loan proceeds | | | | | |
| Decide alone | 21.61 | 7.95 | 22.64 | 63.29 | 24.43 |
| Decide with husband | 51.26 | 47.68 | 55.66 | 22.15 | 47.33 |

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

**Table 7.3 — Reproductive decisions, program participants versus controls**

| Decision | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Woman has used birth control | 65.17 | 74.66 | 70.27 | 49.33 | 61.93 |
| If yes, who decided to use birth control | | | | | |
| Decide alone | 10.00 | 16.10 | 17.23 | 8.05 | 14.21 |
| Decide with husband | 48.62 | 47.60 | 45.27 | 37.25 | 39.85 |
| If not, reason | | | | | |
| Husband didn't allow | 23.76 | 12.16 | 7.95 | 17.22 | 19.33 |
| Makes woman feel sick | 7.92 | 10.81 | 9.09 | 3.31 | 6.67 |
| Didn't feel the need to | 59.41 | 59.46 | 72.73 | 72.19 | 64.00 |
| Other | 8.91 | 17.57 | 10.23 | 7.28 | 10.00 |
| Husband has used birth control | 5.00 | 6.69 | 6.00 | 1.34 | 5.08 |

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

**Table 7.4 — Spending decisions, program participants versus controls**

| Decision | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Food | | | | | |
| Decide alone | 35.33 | 23.67 | 43.00 | 77.33 | 45.43 |
| Decide with husband | 36.67 | 42.67 | 40.67 | 10.33 | 29.95 |
| Housing | | | | | |
| Decide alone | 30.33 | 20.67 | 35.33 | 74.67 | 41.62 |
| Decide with husband | 35.67 | 40.00 | 44.67 | 12.67 | 27.66 |
| Health care | | | | | |
| Decide alone | 32.33 | 21.67 | 37.67 | 77.00 | 42.89 |
| Decide with husband | 40.33 | 44.67 | 46.00 | 13.00 | 31.98 |
| Education | | | | | |
| Decide alone | 34.33 | 25.00 | 39.33 | 79.00 | 46.70 |
| Decide with husband | 39.00 | 43.33 | 46.67 | 13.00 | 31.22 |
| Clothing | | | | | |
| Decide alone | 35.00 | 24.33 | 37.67 | 80.00 | 44.42 |
| Decide with husband | 39.67 | 45.33 | 46.67 | 11.33 | 29.95 |
| Whether woman controls money to buy | | | | | |
| Food from the market | 60.00 | 58.33 | 78.67 | 93.67 | 68.78 |
| Clothes for self | 60.67 | 60.00 | 78.67 | 95.00 | 65.99 |
| Medicine for self | 64.00 | 59.67 | 81.33 | 95.67 | 70.30 |
| Toiletries/cosmetics for self | 68.67 | 65.67 | 84.00 | 96.00 | 73.35 |

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

Table 7.5 shows a variety of responses regarding freedom of movement outside the household by program and destination. It appears that women can more easily visit relatives, go to the bazaar or clinic, and attend training than they can engage in leisure activities, such as going to the cinema, fair, or theater. A number of women across program and control groups also report suffering from physical and verbal abuse (see Table 7.6). The data show that a majority of these women decided to remain in or return to their marriage.

**Table 7.5 — Indicators of women's mobility, program participants versus controls**

| Indicator | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Percent of women who decide by themselves to go to the following places | | | | | |
| Visit friends of relatives | 41.00 | 36.00 | 49.00 | 81.00 | 49.49 |
| Haat/bazaar | 30.00 | 22.00 | 42.33 | 74.33 | 42.39 |
| Hospital/clinic/doctor | 38.33 | 29.67 | 50.67 | 80.67 | 47.46 |
| Cinema/fair/theater | 20.33 | 7.00 | 16.00 | 43.67 | 23.60 |
| Training for NGO programs | 48.33 | 52.33 | 58.33 | 85.33 | 44.16 |

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

**Table 7.6 — Indicators of domestic abuse, program participants versus controls**

| Indicator | IGVGD | FSVGD | FFA | RMP | Control |
|---|---|---|---|---|---|
| | | | (percent) | | |
| Husband threatened with divorce | 9.60 | 6.28 | 5.38 | 13.51 | 12.50 |
| Husband threatened to take another wife | 7.58 | 7.08 | 6.28 | 13.51 | 11.74 |
| Suffers from verbal abuse | 48.37 | 53.62 | 41.90 | 40.19 | 54.52 |
| Suffers from physical abuse | 24.08 | 17.03 | 19.37 | 15.38 | 27.02 |
| If threatened/abused, whether woman wanted to leave | 84.42 | 89.95 | 93.30 | 88.36 | 83.62 |
| If threatened/abused, whether women left | | | | | |
| Permanently | 4.17 | 4.76 | 8.33 | 35.29 | 28.95 |
| Left but returned | 45.83 | 38.10 | 33.33 | 17.65 | 31.58 |
| If did not leave permanently, reason | | | | | |
| Husband didn't mean it | 56.52 | 30.00 | 54.44 | 18.18 | 14.81 |
| Came to an agreement with husband | 4.35 | 15.00 | 9.09 | 0.00 | 3.70 |
| Didn't have a place to go | 13.04 | 30.00 | 9.09 | 63.64 | 33.33 |
| Could not support herself | 0.00 | 0.00 | 0.00 | 0.00 | 3.70 |
| Parents could not support her | 0.00 | 5.00 | 9.09 | 0.00 | 7.41 |
| Society would not accept it | 0.00 | 5.00 | 9.09 | 0.00 | 11.11 |
| For the children | 21.74 | 10.00 | 9.09 | 18.18 | 22.22 |
| Social pressure | 4.35 | 5.00 | 0.00 | 0.00 | 3.70 |

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

One strong pattern that emerges from these data is the independence of the women participants in RMP. A vast majority of women in this program report making decisions on their own, having control over resources, and having greater mobility than women in the other groups. These results must be interpreted in light of the high percentage of female-headed households in RMP. We later control for the difference in the number of female-headed households across programs by examining the differential impact of the programs on widowed/divorced/separated and married women.

## 7.3 Results

### *7.3.1 Determinants of Participation*

The estimation of the propensity scores revealed some interesting results regarding the determinants of participation in each of the four programs. For each program, the individual and household characteristics discussed above are included as conditioning variables in the

model of participation. As noted previously, only variables determined to be exogenous (not likely to be affected by the program) were selected as regressors. Table A4 in Appendix 6 presents the probit estimates for individual participation in each of the four programs. These participation probits are slightly different from those used in the other sections of the study, because of the inclusion of assets at marriage as an indicator of bargaining power within the household. A growing literature (such as Quisumbing and Maluccio 2003) has demonstrated that women who bring more assets to marriage exercise greater influence over household allocation decisions. Results reported here are based on the specification that satisfied the balancing test across program and control observations at various quantiles of the propensity score. Also included in the model were the union fixed effects for the unions in which there was an overlap of treatment and control households. These results are not shown in the table.

Women with more assets at marriage are more likely to participate in IGVGD, suggesting that women who already had greater bargaining power within the household before joining IGVGD were more likely to participate in the program. These women also come from households with more children and female young adults, larger landholdings, better housing conditions, and more assets in 2004—an indication that they may have been slightly better off than women in the control group prior to joining the program.

Similarly, FSVGD women with more assets and better living conditions are more likely to participate in the program. A few of the variables such as chickens, total landholdings, and sanitary latrine appear positive and significant. In the case of FFA, however, women with fewer assets appear to be more likely to participate. FFA households had more land, vans, and bikes in 2004 but fewer cows and sanitary latrines.

Households with more young adult females are more likely to participate in IGVGD, FSVGD, and FFA. Perhaps the presence of young females in the household to help with everyday tasks facilitates the beneficiary women's participation in program activities, such as training or standing in line to receive transfers in the case of IGVGD and FSVGD, and work in the case of FFA. Women with fewer small children are more likely to participate in RMP, perhaps because women with small children are less able to work outside the home. Households with greater landholdings, bikes, *dhekis*, and chickens are more likely to participate in RMP.

### *7. 3.2 Average Impact of Participation*

Tables 7.7 to 7.13 present the estimates of the average impact of participation in each of the four programs. In terms of the decision regarding whether to work (Table 7.7), it appears that IGVGD increased women's participation in decisionmaking. IGVGD beneficiaries were 19.6 percentage points more likely to participate in the decision to work. This result is statistically significant at the 10 percent level. The indicator for whether the woman decides to work independently or jointly with her spouse shows an increase of 13.3 percentage points (significant at the 10 percent level), but the indicator for women deciding alone is not statistically significant. This result suggests that although more IGVGD beneficiaries have input into the decision regarding whether to work, the program had no effect on their autonomy in decisionmaking or their ability to control resources earned from working.

The results also show that IGVGD women are taking advantage of the access to credit provided by the program (Table 7.8). The probability of ever taking a loan from an NGO increased by 27.9 percentage points as a result of the program. This result is likely due to the fact that program administrators strongly encouraged participants to borrow from NGOs as one of the program activities (in contrast to FSVGD, where borrowing from an NGO was not similarly emphasized). The program did not, however, increase women's autonomy or

**Table 7.7 — Average impact of participation on the decision to work**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT |
| Whether working now | 0.718 | 0.749 | 0.032 | 0.781 | 0.781 | 0.000 | 0.976 | 0.811 | 0.165 | 0.972 | 0.824 | 0.148 |
| t-statistic | | | -0.372 | | | -0.004 | | | **2.047** | | | **3.338** |
| Decision to work | | | | | | | | | | | | |
| Woman alone | 0.658 | 0.721 | -0.063 | 0.691 | 0.755 | -0.065 | 0.580 | 0.634 | -0.053 | 0.871 | 0.751 | 0.120 |
| t-statistic | | | -0.519 | | | -0.457 | | | -0.388 | | | **2.078** |
| Woman and husband | 0.322 | 0.126 | 0.196 | 0.273 | 0.237 | 0.036 | 0.354 | 0.342 | 0.012 | 0.086 | 0.196 | -0.110 |
| t-statistic | | | **1.770** | | | 0.258 | | | 0.092 | | | **-1.944** |
| Woman alone or woman and husband | 0.980 | 0.847 | 0.133 | 0.964 | 0.993 | -0.029 | 0.934 | 0.975 | -0.041 | 0.957 | 0.948 | 0.009 |
| t-statistic | | | **1.669** | | | -0.809 | | | -0.818 | | | 0.364 |
| Decision to spend money earned | | | | | | | | | | | | |
| Woman alone | 0.503 | 0.535 | -0.031 | 0.360 | 0.532 | -0.173 | 0.432 | 0.486 | -0.053 | 0.817 | 0.637 | 0.181 |
| t-statistic | | | -0.235 | | | -0.966 | | | -0.389 | | | **2.744** |
| Woman and husband | 0.389 | 0.281 | 0.108 | 0.496 | 0.216 | 0.281 | 0.444 | 0.288 | 0.156 | 0.122 | 0.246 | -0.124 |
| t-statistic | | | 0.833 | | | **1.945** | | | 1.157 | | | **-2.070** |
| Woman alone or woman and husband | 0.893 | 0.816 | 0.077 | 0.856 | 0.748 | 0.108 | 0.877 | 0.774 | 0.103 | 0.939 | 0.882 | 0.057 |
| t-statistic | | | 0.764 | | | 0.652 | | | 0.839 | | | 1.408 |

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

**Table 7.8 — Average impact of participation on decisions to take loans from an NGO and spend loan proceeds**

| | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** |
| Ever taken loan from NGO | 0.665 | 0.386 | 0.279 | 0.497 | 0.454 | 0.043 | 0.355 | 0.209 | 0.146 | 0.523 | 0.388 | 0.134 |
| t-statistic | | | **3.438** | | | 0.346 | | | 1.537 | | | **2.349** |
| Decision to take loan | | | | | | | | | | | | |
| Woman alone | 0.239 | 0.225 | 0.014 | | | | | | | 0.631 | 0.339 | 0.292 |
| t-statistic | | | 0.052 | | | | | | | | | **2.254** |
| Woman and husband | 0.551 | 0.725 | -0.174 | | | | | | | 0.221 | 0.502 | -0.280 |
| t-statistic | | | -0.597 | | | | | | | | | **-1.959** |
| Woman alone or woman and husband | 0.790 | 0.949 | -0.159 | | | | | | | 0.852 | 0.841 | 0.011 |
| t-statistic | | | -0.735 | | | | | | | | | 0.112 |
| Decision to spend loan proceeds | | | | | | | | | | | | |
| Woman alone | 0.196 | 0.196 | 0.000 | | | | | | | 0.631 | 0.315 | 0.316 |
| t-statistic | | | 0.000 | | | | | | | | | **2.431** |
| Woman and husband | 0.536 | 0.739 | -0.203 | | | | | | | 0.2281 87919 | 0.52850 9631 | -0.300 |
| t-statistic | | | -0.700 | | | | | | | | | **-2.079** |
| Woman alone or woman and husband | 0.732 | 0.935 | -0.203 | | | | | | | 0.859 | 0.844 | 0.016 |
| t-statistic | | | -0.961 | | | | | | | | | 0.150 |

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

**Table 7.9 — Average impact of participation on household expenditure decisions**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT |
| Food | | | | | | | | | | | | |
| Woman alone | 0.364 | 0.478 | -0.115 | 0.278 | 0.304 | -0.026 | 0.431 | 0.361 | 0.071 | 0.780 | 0.495 | 0.285 |
| t-statistic | | | -1.346 | | | -0.213 | | | 0.628 | | | **5.304** |
| Woman and husband | 0.411 | 0.324 | 0.088 | 0.449 | 0.465 | -0.016 | 0.423 | 0.341 | 0.083 | 0.105 | 0.276 | -0.172 |
| t-statistic | | | 1.059 | | | -0.125 | | | 0.768 | | | **-3.474** |
| Woman alone or woman and husband | 0.775 | 0.802 | -0.027 | 0.727 | 0.769 | -0.042 | 0.855 | 0.702 | 0.153 | 0.885 | 0.771 | 0.114 |
| t-statistic | | | -0.398 | | | -0.359 | | | 1.618 | | | **2.370** |
| Housing | | | | | | | | | | | | |
| Woman alone | 0.316 | 0.460 | -0.144 | 0.257 | 0.308 | -0.052 | 0.351 | 0.293 | 0.058 | 0.753 | 0.480 | 0.272 |
| t-statistic | | | **-1.676** | | | -0.404 | | | 0.564 | | | **5.071** |
| Woman and husband | 0.392 | 0.265 | 0.127 | 0.422 | 0.412 | 0.011 | 0.460 | 0.305 | 0.154 | 0.129 | 0.226 | -0.097 |
| t-statistic | | | 1.620 | | | 0.091 | | | 1.553 | | | **-2.121** |
| Woman alone or woman and husband | 0.708 | 0.725 | -0.017 | 0.679 | 0.720 | -0.041 | 0.810 | 0.598 | 0.212 | 0.882 | 0.706 | 0.176 |
| t-statistic | | | -0.234 | | | -0.336 | | | **1.972** | | | **3.464** |
| Health care | | | | | | | | | | | | |
| Woman alone | 0.354 | 0.481 | -0.127 | 0.273 | 0.294 | -0.022 | 0.375 | 0.296 | 0.079 | 0.777 | 0.498 | 0.279 |
| t-statistic | | | -1.493 | | | -0.173 | | | 0.732 | | | **5.024** |
| Woman and husband | 0.421 | 0.329 | 0.092 | 0.465 | 0.502 | -0.037 | 0.472 | 0.347 | 0.125 | 0.132 | 0.254 | -0.122 |
| t-statistic | | | 1.105 | | | -0.289 | | | 1.179 | | | **-2.572** |
| Woman alone or woman and husband | 0.775 | 0.810 | -0.035 | 0.738 | 0.797 | -0.059 | 0.847 | 0.643 | 0.204 | 0.909 | 0.753 | 0.157 |
| t-statistic | | | -0.523 | | | -0.548 | | | **1.996** | | | **3.077** |
| Education | | | | | | | | | | | | |
| Woman alone | 0.364 | 0.497 | -0.134 | 0.278 | 0.310 | -0.032 | 0.391 | 0.378 | 0.013 | 0.798 | 0.517 | 0.281 |
| t-statistic | | | -1.585 | | | -0.265 | | | 0.116 | | | **5.080** |
| Woman and husband | 0.421 | 0.298 | 0.123 | 0.476 | 0.452 | 0.024 | 0.480 | 0.326 | 0.154 | 0.132 | 0.263 | -0.130 |
| t-statistic | | | 1.515 | | | 0.188 | | | 1.454 | | | **-2.639** |
| Woman alone or woman and husband | 0.785 | 0.795 | -0.011 | 0.754 | 0.763 | -0.009 | 0.871 | 0.704 | 0.167 | 0.930 | 0.780 | 0.150 |
| t-statistic | | | -0.161 | | | -0.074 | | | **1.712** | | | **3.213** |
| Clothing | | | | | | | | | | | | |
| Woman alone | 0.378 | 0.470 | -0.092 | 0.294 | 0.347 | -0.052 | 0.371 | 0.355 | 0.016 | 0.808 | 0.475 | 0.333 |
| t-statistic | | | -1.061 | | | -0.419 | | | 0.147 | | | **6.025** |
| Woman and husband | 0.426 | 0.314 | 0.112 | 0.465 | 0.425 | 0.040 | 0.480 | 0.334 | 0.146 | 0.115 | 0.241 | -0.126 |
| t-statistic | | | 1.332 | | | 0.331 | | | 1.379 | | | **-2.613** |
| Woman alone or woman and husband | 0.804 | 0.784 | 0.020 | 0.759 | 0.772 | -0.012 | 0.851 | 0.688 | 0.163 | 0.923 | 0.716 | 0.208 |
| t-statistic | | | 0.279 | | | -0.102 | | | 1.647 | | | **4.085** |

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

**Table 7.10 — Average impact of participation on women's control over money needed for selected expenditures**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT |
| Food from the market | 0.603 | 0.667 | -0.064 | 0.594 | 0.612 | -0.018 | 0.782 | 0.785 | -0.003 | 0.944 | 0.710 | 0.234 |
| t-statistic | | | -0.803 | | | -0.137 | | | -0.033 | | | **4.685** |
| Clothing for self | 0.622 | 0.652 | -0.030 | 0.604 | 0.621 | -0.017 | 0.790 | 0.712 | 0.078 | 0.955 | 0.667 | 0.287 |
| t-statistic | | | -0.364 | | | -0.127 | | | 0.785 | | | **5.461** |
| Medicine for self | 0.660 | 0.700 | -0.040 | 0.599 | 0.712 | -0.113 | 0.815 | 0.747 | 0.067 | 0.962 | 0.730 | 0.232 |
| t-statistic | | | -0.508 | | | -0.948 | | | 0.735 | | | **4.641** |
| Toiletries/ cosmetics for self | 0.713 | 0.715 | -0.002 | 0.668 | 0.769 | -0.101 | 0.847 | 0.729 | 0.118 | 0.965 | 0.726 | 0.239 |
| t-statistic | | | -0.030 | | | -0.844 | | | 1.212 | | | **4.784** |

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

participation in decisionmaking about whether to take the loan or how to spend the loan proceeds. Table 7.9 shows that the program also had no significant effect on women's control over or participation in decisions regarding household expenditures, and, in the case of housing decisions, participation in IGVGD had a negative impact. Fewer IGVGD women (by 14.4 percentage points, significant at the 10 percent level) had decisionmaking power over housing purchases. Table 7.10 shows that the program did not affect women's control over household funds to buy personal items or food for the family.

With regard to women's mobility (Table 7.11), the results show a negative program impact. Relative to controls, IGVGD participants are less able to travel freely to the bazaar or engage in leisure activities (visiting the cinema, fair, or theater). This finding could be an indication that women's new access to resources through the program may have provoked other family members' insecurities, causing them to try to regain control over the beneficiary women. Table 7.12 shows the program had no impact on women's ability to influence decisions regarding their use of birth control. It did, however, influence men's use of birth control by 3.8 percent (significant at the 10 percent level). No significant differences were found between IGVGD beneficiaries and the controls with regard to the incidence of domestic violence (Table 7.13).

These results are confirmed by the focus group discussions with IGVGD women and their spouses (or other male family members) reported in the qualitative section of this study. Several of these women reported having little say in decisionmaking and limited mobility within the community. Both men and women reported incidents of physical abuse. One husband of an IGVGD participant reported, *"…there is no change in the gender relations. We used to beat our wives and still do."* The focus group discussions and case studies also provided evidence of adherence to strict gender roles and norms and little appreciation for the work that women do in the household, suggesting that women still remain at a severe disadvantage within the home. When asked whether coordinating domestic work and project activities was difficult for women, one man responded, "Women do not have much work." For instance, in two separate focus group discussions, both men and women noted that women always eat after men if there is any food remaining. Not all comments were negative, however. Some women did mention being consulted more often by their husbands and having increased involvement in household decisionmaking as a result of the program. In one locality, it was reported that the social awareness training was responsible for preventing three early marriages.

Similar to IGVGD, the quantitative analysis revealed that women's empowerment was not affected by participation in FSVGD. Although there were no negative impacts, as in the case of IGVGD, almost none of the outcome indicators were positively affected by the program. Table 7.7 shows that the decision to spend money earned through work appears to be the only variable to have been affected by the program. FSVGD women were 28.1 percentage points more likely than control women to participate in decisionmaking about how to spend the income they earned. This result did not translate, however, into their having more influence over household expenditure decisions (see Table 7.9) or control over money to buy personal items or food for the family (Table 7.10). Similarly, the program had no effect on women's mobility, reproductive decisionmaking, or the incidence of domestic abuse (Tables 7.11–7.13). Although providing access to credit was a component of the program, participants in FSVGD did not borrow from NGOs more than the controls, because program administrators did not promote this aspect of the program as strongly as they did in IGVGD.

The interviews and focus group discussions confirmed that there was little change in gender roles as a result of the program. It appears that men continue to be the dominant

**Table 7.11 — Average impact of participation on women's mobility**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** | **Treat** | **Control** | **ATT** |
| Whether woman decides by herself to go to: | | | | | | | | | | | | |
| Outside the community to visit friends or relatives | 0.411 | 0.532 | -0.120 | 0.406 | 0.439 | -0.033 | 0.480 | 0.357 | 0.123 | 0.815 | 0.545 | 0.270 |
| t-statistic | | | -1.393 | | | -0.254 | | | 1.186 | | | **4.852** |
| Bazaar | 0.278 | 0.466 | -0.189 | 0.251 | 0.335 | -0.083 | 0.407 | 0.350 | 0.057 | 0.746 | 0.478 | 0.267 |
| t-statistic | | | **-2.213** | | | -0.698 | | | 0.556 | | | **4.784** |
| Clinic | 0.388 | 0.473 | -0.086 | 0.310 | 0.380 | -0.070 | 0.480 | 0.455 | 0.025 | 0.815 | 0.504 | 0.311 |
| t-statistic | | | -0.996 | | | -0.523 | | | 0.230 | | | **5.585** |
| Cinema | 0.201 | 0.346 | -0.145 | 0.086 | 0.066 | 0.020 | 0.161 | 0.129 | 0.033 | 0.449 | 0.328 | 0.122 |
| t-statistic | | | **-1.759** | | | 0.318 | | | 0.436 | | | **2.240** |
| Training | 0.502 | 0.469 | 0.033 | 0.529 | 0.358 | 0.171 | 0.556 | 0.417 | 0.139 | 0.854 | 0.502 | 0.351 |
| t-statistic | | | 0.374 | | | 1.376 | | | 1.259 | | | **6.183** |

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

**Table 7.12 — Average impact of participation on reproductive decisions**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT |
| Whether woman ever used birth control | 0.683 | 0.612 | 0.071 | 0.770 | 0.742 | 0.029 | 0.747 | 0.690 | 0.057 | 0.502 | 0.628 | -0.126 |
| t-statistic | | | 0.783 | | | 0.245 | | | 0.545 | | | **-2.117** |
| Whether husband ever used birth control | 0.043 | 0.005 | 0.038 | 0.059 | 0.078 | -0.018 | 0.073 | 0.113 | -0.040 | 0.014 | 0.026 | -0.012 |
| t-statistic | | | **1.848** | | | -0.293 | | | -0.719 | | | -0.801 |
| Who made the decision to use birth control | | | | | | | | | | | | |
| Woman alone | 0.114 | 0.115 | -0.001 | 0.180 | 0.133 | 0.047 | 0.192 | 0.179 | 0.013 | 0.081 | 0.076 | 0.005 |
| t-statistic | | | -0.011 | | | 0.521 | | | 0.161 | | | 0.144 |
| Woman and husband | 0.495 | 0.463 | 0.032 | 0.508 | 0.409 | 0.099 | 0.482 | 0.374 | 0.108 | 0.382 | 0.440 | -0.058 |
| t-statistic | | | 0.334 | | | 0.755 | | | 0.970 | | | -0.965 |
| Woman alone or woman and husband | 0.609 | 0.577 | 0.031 | 0.689 | 0.542 | 0.147 | 0.673 | 0.553 | 0.121 | 0.463 | 0.516 | -0.053 |
| t-statistic | | | 0.338 | | | 1.110 | | | 1.086 | | | -0.870 |

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

**Table 7.13 — Average impact of participation on the incidence of domestic violence, abuse, and threats of divorce**

| Indicator | IGVGD | | | FSVGD | | | FFA | | | RMP | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT | Treat | Control | ATT |
| Husband ever threatened divorce | 0.080 | 0.120 | -0.040 | 0.061 | 0.088 | -0.027 | 0.058 | 0.044 | 0.014 | 0.127 | 0.096 | 0.030 |
| t-statistic | | | -0.326 | | | -0.190 | | | 0.191 | | | 0.476 |
| Husband ever threatened to take another wife | 0.072 | 0.080 | -0.008 | 0.075 | 0.061 | 0.014 | 0.063 | 0.046 | 0.017 | 0.141 | 0.100 | 0.041 |
| t-statistic | | | -0.065 | | | 0.093 | | | 0.228 | | | 0.608 |
| Woman ever verbally abused | 0.451 | 0.453 | -0.002 | 0.601 | 0.582 | 0.020 | 0.439 | 0.415 | 0.024 | 0.410 | 0.594 | -0.184 |
| t-statistic | | | -0.014 | | | 0.133 | | | 0.172 | | | **-2.263** |
| Woman ever physically abused | 0.224 | 0.165 | 0.059 | 0.179 | 0.163 | 0.016 | 0.201 | 0.220 | -0.019 | 0.156 | 0.187 | -0.031 |
| t-statistic | | | 0.528 | | | 0.116 | | | -0.164 | | | -0.485 |
| Woman left permanently | 0.000 | 0.012 | -0.012 | 0.005 | 0.024 | -0.018 | 0.004 | 0.032 | -0.028 | 0.021 | 0.029 | -0.008 |
| t-statistic | | | -0.681 | | | -0.278 | | | -1.094 | | | -0.415 |
| Woman left temporarily or permanently | 0.024 | 0.035 | -0.011 | 0.032 | 0.044 | -0.012 | 0.020 | 0.084 | -0.063 | 0.031 | 0.048 | -0.017 |
| t-statistic | | | -0.301 | | | -0.163 | | | -0.946 | | | -0.665 |

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

figures in the household while women have little influence. There were also reports of physical and verbal abuse. One participant noted that "wife beating is common."

In contrast to the VGD programs, the public works programs appear to have had a larger impact on women's empowerment. Because work is an integral part of a public works program and a requirement in order to receive benefits, it is no surprise that FFA increased the number of women working by 16.5 percentage points. It did not, however, have an affect on women's ability to make or influence the decision whether to work. Nor did it have an impact on women's control over the money they earned. When interpreting these results, however, it is important to keep in mind that a large majority of women in both treatment and control groups decide independently or jointly with their spouse whether to work and how to spend the money they earned.

Table 7.9 shows that FFA did affect women's control and influence over decisions regarding household expenditures. This table shows that although increases in women's autonomy and participation are not statistically significant with respect to these three household expenditures when considered separately, the increase is significant when both autonomy and participation are aggregated. That is, the percentage of women who decide alone *or* jointly with their husband on housing expenditures increased by 21.1 percentage points. When it comes to decisions related to health care or education, participation in FFA increased the number of women deciding alone or jointly with their spouse by 20.4 percentage points and 16.7 percentage points, respectively.

FFA had no impact on women's decisionmaking regarding other household expenditures such as food or clothing, nor did it influence women's control over money needed to buy personal items or food from the market (Table 7.10). Tables 7.11–7.13 show that the program also had no significant affect on women's mobility within the community, reproductive decisions, and the incidence of domestic violence and abuse.

The focus group discussions and personal interviews with FFA beneficiary women and their spouses revealed that more women were consulted by their husbands with regard to family decisions and were able to make decisions on their own. One husband mentioned valuing his wife more since she became an income earner. Both men and women revealed that although women's participation in household decisionmaking has increased, their participation in the community has not. Rather than attributing this to gender discrimination, the women suggested that their lack of involvement in the community is due to their low class and discrimination by the rich. One woman noted, *"Cooking can be done by the poor but taking food from or with [the rich] is impossible."* It was also noted that the gender division of labor within the household had not changed despite women's having taken on a greater workload outside the household. There were also reports of domestic violence and abuse among FFA households.

Out of the four programs, the results show that RMP had by far the largest impact on women's empowerment and well-being. In the right columns of Tables 7.7–7.13, practically every outcome indicator appears as significantly different from the controls. As a result of the program, 14.8 percentage points more women are working (see Table 7.7). As with FFA, the increase in the number of women working is not surprising given the design of the program. What is interesting is that RMP appears to have increased women's autonomy (defined as whether the woman decides on her own), while decreasing their participation in decisionmaking (defined as whether the woman decides jointly with her spouse). Women's autonomy in deciding to work and spend their earnings increased by 12 percentage points and 18.1 percentage points, respectively. Women's participation in the decision to go to work and in deciding how to spend their income earned, however, declined by 11 percentage points and

12.4 percentage points, respectively, as a result of the program. Moreover, there are no statistically significant differences between RMP beneficiaries and the controls when women's autonomy and participation in decisionmaking are examined together. These results show that owing to the program, women who previously made decisions jointly with their husbands are becoming more independent.

The rest of the decisionmaking impact estimates follow a similar pattern. Table 7.8 shows that participation in RMP increased the number of women taking loans from an NGO by 13.4 percentage points. Moreover, as a result of the program, more women are making the decision to borrow on their own (by 29.2 percentage points) and deciding how to spend loan proceeds themselves (by 31.6 percentage points). Again, the number of women making these decisions jointly with their spouse declined, although there was no difference between RMP women and control women when autonomy and participation in decisionmaking are examined jointly. As with work decision indicators, these results suggest there was a shift from participation in decisionmaking to greater independence for RMP women.

Impact estimates show that women were also making decisions on their own with regard to household expenditures on food, housing, health care, education, and clothing, whereas the number of women making such decisions jointly with their spouse declined (see Table 7.9). The fact that the estimates on the third decisionmaking indicator (whether a women decides alone or with their spouse) remained significant despite the decline in participation suggests that the reduction in participation does not fully account for the dramatic increase in women's independence. In other words, women that previously were not involved in household decisionmaking now have a greater role.

Table 7.10 shows that RMP women also have greater control over money needed to buy personal items and food for the household—between 23 and 29 percentage points more than control women. As a result of the program, RMP beneficiaries also have greater mobility within the community and are more able to travel freely to visit relatives, attend training sessions, shop at the bazaar, go to the clinic, and engage in leisure activities (going to the cinema, fair, or theater) (see Table 7.11). Fewer RMP women use birth control, however, and there is no difference between the RMP and control groups with regard to the decision to use birth control. There are also no differences between RMP and control women with regard to the incidence of physical abuse. Fewer RMP participants (18.4 percentage points), however, were verbally abused by their spouse.

The qualitative findings are supportive of these results. Focus group discussions and interviews with RMP women revealed their strong sense of independence. RMP women reported having more freedom of movement and decisionmaking power. Their spouses noted having greater appreciation for their wives as they contribute more to the family. Many women noted, however, that the work is difficult and that it is hard to manage both domestic tasks and work outside the home. One woman said, *"The work was laborious and we often suffered from sickness. As we didn't have any man or woman to supplement our work, we had to do it even when sick. They often took us to doctors but we had to pay for doctors' fees and medicine."* They also noted feeling constrained by having few resources.

Overall, these results highlight the success of the two public works programs, particularly RMP, whereas the direct transfer programs appear to have had little effect on women's empowerment. This difference is likely linked to the dramatic difference in transfer amounts. FFA women received transfers of approximately 850 Tk worth of food and cash, and RMP women received approximately 700 Tk per month in cash; monthly transfers to participants in IGVGD and FSVGD were worth only around 400 Tk. Another explanation for these results may be that women feel a greater sense of ownership for and control over money they

earn themselves. Providing for their families may enhance women's perception of their role in the family, causing them to become more involved in family decisionmaking. Focus group discussions with male relatives of the participants certainly revealed that men respected their wives more when they became income earners, whereas there was little appreciation for and acknowledgement of women's domestic work.

### *7.3.3 Impact by Marital Status: Widowed/Divorced/Separated versus Married*

It is also possible that the main results described may be driven by the particularly large number of female-headed households in RMP. In households where there is no male head present, it is natural that women would be more independent and able to make decisions on their own. To explore this possibility, we adjust the matching procedure to look at the differential impact by marital status for each of the four programs. For this analysis, only the variables that are relevant for widowed, divorced, or separated women are examined. Therefore, for each of the decisionmaking variables we look only at women's autonomy (whether they decide by themselves) as opposed to participation in decisionmaking. We include the variables related to reproductive decisions since the survey questions were phrased in a way that would apply to both widowed/divorced/separated and married women. These questions asked if the women or their husbands *ever* used birth control. We do not, however, look at variables related to physical, verbal, or psychological abuse, as these would not apply to widowed, divorced, or separated women. The results are presented in Table 7.14.

For both the IGVGD and FSVGD programs, there appears to be no pattern when the results are disaggregated by marital status, suggesting that the effects of the program (which were few) were evenly distributed across both sets of women (widowed/divorced/separated and married). These results are, therefore, not presented. For FFA, on the other hand, there is some indication that the program had a greater impact on married women (see columns 1 and 2). Significantly more married women are working compared with the control group as a result of the program (see panel 1). In panel 5, the results show that although the program had no statistically significant impact on all women's mobility within the community, it did have an impact on married women. More married women were able to visit friends and relatives and go to the cinema, fair, or theater.

**Table 7.14 — Impact of participation in FFA and RMP by marital status**

| Indicator | FFA | | RMP | |
|---|---|---|---|---|
| | Widowed, divorced, or separated | Married | Widowed, divorced, or separated | Married |
| Panel 1: Decision to work and spend money earned | | | | |
| Whether working now | 0.000 | 0.241 | 0.005 | 0.200 |
| t-statistic | 0.718 | **2.146** | 0.067 | **1.835** |
| Whether woman alone decides to work | 0.044 | -0.010 | -0.026 | 0.122 |
| t-statistic | 0.450 | -0.053 | -0.813 | 0.794 |
| Whether woman alone decides to spend money earned | 0.187 | -0.065 | 0.082 | 0.189 |
| t-statistic | 0.936 | -0.374 | 0.995 | 1.314 |
| Panel 2: Decision to take loans from an NGO and send loan proceeds | | | | |
| Ever taken loan from NGO | 0.195 | 0.157 | 0.296 | 0.060 |
| t-statistic | 1.119 | 1.198 | **3.057** | 0.442 |
| Panel 3: Household expenditure decisions | | | | |
| Whether woman alone decides to buy food | 0.108 | 0.080 | -0.018 | 0.228 |
| t-statistic | 0.676 | 0.629 | -0.184 | **1.905** |
| Whether women alone decides on housing expenditures | 0.187 | 0.032 | 0.017 | 0.233 |
| t-statistic | 0.930 | 0.303 | 0.170 | **2.524** |
| Whether woman alone decides on health care expenditures | 0.187 | 0.046 | -0.020 | 0.198 |
| t-statistic | 0.943 | 0.399 | -0.209 | **1.924** |
| Whether woman alone decides on education expenditures | 0.108 | 0.009 | 0.034 | 0.157 |
| t-statistic | 0.674 | 0.073 | 0.348 | 1.246 |
| Woman alone decides on clothing expenditures | 0.108 | 0.018 | 0.031 | 0.331 |
| t-statistic | 0.644 | 0.149 | 0.333 | **3.553** |
| Panel 4: Control over money to buy selected expenditures | | | | |
| Food from the market | 0.141 | -0.073 | 0.025 | 0.287 |
| t-statistic | 0.968 | -0.587 | 0.332 | **2.117** |
| Clothing for self | 0.141 | 0.072 | 0.022 | 0.330 |
| t-statistic | 0.950 | 0.528 | 0.340 | **2.391** |
| Medicine for self | 0.141 | 0.040 | 0.018 | 0.314 |
| t-statistic | 0.940 | 0.301 | 0.307 | **2.441** |
| Toiletries/ cosmetics for self | 0.141 | 0.129 | 0.035 | 0.212 |
| t-statistic | 0.962 | 1.001 | 0.553 | 1.563 |
| Panel 5: Women's mobility | | | | |
| Whether woman alone decides to visit friends or relatives | 0.118 | 0.192 | -0.011 | 0.286 |
| t-statistic | 0.939 | **1.880** | -0.145 | **2.674** |
| Whether woman alone decides to go to the Bazaar | 0.239 | 0.048 | 0.054 | 0.178 |
| t-statistic | 1.445 | 0.418 | 0.577 | 1.548 |
| Whether woman alone decides to visit the clinic | 0.092 | 0.029 | 0.044 | 0.292 |
| t-statistic | 0.892 | 0.215 | 0.432 | **2.689** |
| Whether woman alone decides to got to the cinema | 0.015 | 0.073 | -0.078 | 0.119 |
| t-statistic | 0.069 | **1.672** | -0.654 | 1.468 |
| Whether woman alone decides to go to NGO training | 0.091 | 0.180 | 0.118 | 0.363 |
| t-statistic | 0.567 | 1.350 | 1.122 | **2.936** |
| Panel 6: Reproductive decisions | | | | |
| Whether woman ever used birth control | -0.056 | 0.103 | 0.015 | -0.056 |
| t-statistic | -0.251 | 0.896 | 0.125 | -0.527 |
| Whether husband ever used birth control | -0.062 | -0.043 | -0.041 | -0.004 |
| t-statistic | -0.705 | -0.573 | -1.149 | -0.098 |
| Whether woman alone made the decision to use birth control | -0.036 | -0.022 | 0.009 | -0.025 |

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

The positive outcomes due to RMP also seem to be mostly driven by married women. Relative to matched controls, more married women are working, although the variables reflecting women's autonomy in decisionmaking regarding work (the decision to work and to spend the money earned) are not significant for married or widowed/divorced/separated women (see panel 1). With regard to decisions on household expenditures, RMP seems to have an affect on married women's autonomy in decisionmaking. More married women

within RMP relative to the control group decide independently about expenditures on food, housing, health care, and clothing (see panel 3). Married women also have greater control over money needed to buy personal items and food for the family as a result of the program (see panel 4). In addition, RMP caused married women to have more freedom of mobility. Married participants in RMP were better able to travel freely to visit friends or relatives, go to the clinic, or attend an NGO training course (panel 5). RMP had no significant impact on married women in terms of their control over reproductive decisions (panel 6). In contrast to the generally larger impacts on married women, more women who were widowed, divorced, or separated took out loans as a result of the program (panel 2). Although this could reflect a lack of resources by women who are likely to be the only income earners within the household, and therefore have a greater tendency to borrow, it could also indicate increased access to financial services by women who are widowed, divorced, or separated. Without the program, these women could have faced difficulties in accessing financial services. Other studies on Bangladesh (Skoufias and Quisumbing 2005) have shown, for example, that the very poor do not have access to credit markets for consumption smoothing. They find that net debt is higher for households whose heads have secondary or more schooling, as well as those with more nonland assets, possibly because the latter can be used as collateral.

### *7.3.4 Impacts by Terciles of 2004 Assets, Landholdings, and Schooling*

The estimates of the average impact of each of the programs may conceal the impact of the program on certain groups of households. Particularly in cases where the program had no significant aggregate effect (IGVGD and FSVGD), it is important to know whether the program affected particular groups of women. Therefore, we estimate the impact of each program on the same indicators disaggregated by terciles of pre-intervention asset holdings, land holdings, and level of schooling (no schooling, one to four years of education, and five or more years of education). This analysis enabled us to determine whether the program affected the poorest, most vulnerable women, or if women who were slightly better off were more able to benefit from the program. Only impact estimates that were statistically significant at the 10 percent level or better are reported.

The results (reported in Appendix 6, Tables A5 to A7) show that among IGVGD participants, women with some amount of schooling were most affected by the program in both positive and negative ways (see Appendix 6, Table A5). Women with one to four years of schooling were more likely to participate in the decision to go to work and spend money earned, and women with five or more years of schooling also were more likely to participate in the decision to work. Women with five or more years of schooling were also more likely to decide how to spend loan proceeds, although the opposite was true for women with one to four years of education. Women with no schooling and women with the most schooling were both more likely to borrow as a result of the program. With respect to household expenditure decisions, IGVGD women with some schooling were less likely to make decisions regarding food and housing expenditures on their own but more likely to participate in decisionmaking regarding food and education. Women with some schooling also had less freedom of mobility. No pattern was evident across terciles of landholdings and assets. Thus, these results are not presented.

Although some of the indicators are significant, there is no discernable pattern in the disaggregated results for FSVGD. Therefore, these results are also not reported. In the case of FFA, it appears the program had the greatest impact on those most in need of assistance (Appendix 6, Table A6). More women with no schooling were working as a result of the program, although these women had less influence over the decision to go to work (columns

1–3). Columns 7–9 show that women in the lowest asset tercile were more likely to make decisions independently regarding household expenditures. Women in the lowest landholding class were also more likely to participate in decisionmaking over such purchases (columns 4–5). Women in the highest landholding tercile appear to have been negatively affected by the program in terms of their control over money needed to buy food from the market and medicine for themselves (panel 4). With regard to mobility within the community (panel 5) and reproductive decisions (panel 6), there are no clear patterns for the impact on the various subsets of women. In contrast to the general pattern noted, the incidence of verbal and physical abuse appears to be significantly less among FFA women with the highest level of schooling, whereas women in the middle asset tercile appear to suffer the most emotional abuse (panel 7).

The analysis of the heterogeneity of impact of RMP revealed more mixed results (Appendix 6, Table A7). In general, it seems that the program had the largest impact on women with little or no schooling and women in the second and third asset and landholding terciles. In terms of decisionmaking, these subgroups of women appear to have gained greater autonomy while making fewer decisions jointly with their spouse (panels 1–3). These women also have greater control over money needed to buy personal items and food (panel 4) and greater mobility within the community (panel 5). The program seems to have had a negative effect on women's use of birth control and influence over the decision to use birth control for women with the most landholdings (panel 6, column 6). Women in the highest asset subgroup also appear to suffer from more emotional abuse in the home, whereas the incidence of physical abuse was reduced among women with the fewest assets (panel 7).

### *7.3.5 Program Comparisons: IGVGD versus FSVGD and FFA versus RMP*

Given that the transfer amounts of the two VGD programs were similar, as were the transfer amounts of the two public works programs, FFA and RMP, it is appropriate to explore the relative efficacy of each pair of programs. We test this by examining the marginal effect of the combination program (FSVGD and FFA) over the average impact of the "pure" transfer program (food in the case of IGVGD and cash in the case of RMP) relative to the controls. The results are disaggregated by marital status. This analysis also provides an indication of the relative effectiveness of certain kinds of transfers—food, cash, or combination—in affecting outcomes related to gender relations.

Table 7.15 presents the significant results of the comparison between IGVGD and FSVGD. Columns 1–3 show the average effect of participating in either program over the controls. Very few outcome indicators are significant, suggesting that these programs had very little effect on women's empowerment. The marginal effect of FSVGD over the average effect of IGVGD (shown in column 5) is mixed. Although FSVGD appears to have a positive effect over IGVGD in terms of the number of women working, the use of birth control, and the decision to use birth control, it has a negative effect on women's autonomy in decisionmaking (panels 1–3) and mobility (panel 4) compared with IGVGD. The results disaggregated by marital status show practically no marginal effect of FSVGD over IGVGD for widowed, divorced, or separated women. For married women, however, FSVGD appears to have a larger positive effect on a few variables, including the decision to work and the incidence of physical abuse.

Table 7.16 shows that FFA and RMP had a stronger impact on gender-related outcomes than did the VGD programs. Comparing both programs combined to the controls (columns 1–3) showed a strong impact of participation on the number of women working and taking loans from an NGO, control over money needed to buy personal items and food, and mobility

**Table 7.15 — Marginal impact of receiving food/cash from FSVGD relative to IGVGD**

| | Mean Impact of Participating in IGVGD or FSVGD | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| Indicator | (1) Treat (IGVGD or FSVGD) | (2) Control | (3) ATT | (4) Average Effect of IGVGD | (5) Marginal Effect of FSVGD | (6) Average Effect of IGVGD | (7) Marginal Effect of FSVGD | (8) Average Effect of IGVGD | (9) Marginal Effect of FSVGD |
| **Panel 1: Work** | | | | | | | | | |
| Whether working now | 0.753 | 0.752 | 0.001 | -0.060 | 0.076 | -0.022 | 0.060 | -0.051 | 0.097 |
| t-statistic | | | 0.018 | -0.768 | **1.932** | -0.133 | 0.856 | -0.567 | **1.831** |
| Decision to work | | | | | | | | | |
| Woman alone | 0.647 | 0.617 | 0.030 | 0.078 | 0.009 | 0.017 | 0.019 | -0.073 | 0.131 |
| t-statistic | | | 0.319 | 0.724 | 0.179 | 0.209 | 0.771 | -0.519 | **1.812** |
| Woman and husband | 0.307 | 0.323 | -0.017 | -0.066 | -0.028 | | | 0.083 | -0.148 |
| t-statistic | | | -0.182 | -0.640 | -0.552 | | | 0.603 | **-2.121** |
| Decision to spend money earned | | | | | | | | | |
| Woman alone | 0.423 | 0.364 | 0.059 | 0.147 | -0.131 | 0.143 | 0.044 | 0.004 | -0.030 |
| t-statistic | | | 0.686 | 1.417 | **-2.421** | 1.051 | 0.793 | 0.033 | -0.468 |
| Woman alone or woman and husband | 0.845 | 0.673 | 0.172 | 0.193 | -0.076 | | | 0.125 | -0.052 |
| t-statistic | | | **1.835** | **1.929** | **-1.966** | | | 1.055 | -1.004 |
| **Panel 2: Loans** | | | | | | | | | |
| Ever taken loan from NGO | 0.589 | 0.534 | 0.056 | 0.085 | -0.159 | 0.073 | -0.141 | 0.240 | -0.187 |
| t-statistic | | | 0.844 | 0.952 | **-3.616** | 0.420 | -1.272 | **2.534** | **-3.333** |
| Decision to take loan | | | | | | | | | |
| Woman alone | 0.197 | 0.255 | -0.058 | 0.031 | -0.161 | | | -0.148 | -0.050 |
| t-statistic | | | -0.478 | 0.220 | **-3.542** | | | -0.996 | -1.177 |
| Woman alone or woman and husband | 0.720 | 0.818 | -0.097 | -0.044 | -0.152 | | | -0.133 | -0.087 |
| t-statistic | | | -0.790 | -0.325 | **-2.512** | | | -0.919 | -1.135 |
| Decision to spend loan proceeds | | | | | | | | | |
| Woman alone | 0.168 | 0.178 | -0.010 | 0.063 | -0.131 | | | -0.035 | -0.003 |
| t-statistic | | | -0.115 | 0.560 | **-2.971** | | | -0.337 | -0.092 |
| Woman alone or woman and husband | 0.670 | 0.826 | -0.155 | -0.086 | -0.164 | | | -0.164 | -0.090 |
| t-statistic | | | -1.557 | -0.711 | **-2.656** | | | -1.152 | -1.088 |

(continued)

| Indicator | Mean Impact of Participating in IGVGD or FSVGD | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) Treat (IGVGD or FSVGD) | (2) Control | (3) ATT | (4) Average Effect of IGVGD | (5) Marginal Effect of FSVGD | (6) Average Effect of IGVGD | (7) Marginal Effect of FSVGD | (8) Average Effect of IGVGD | (9) Marginal Effect of FSVGD |
| **Panel 3: Household expenditures** | | | | | | | | | |
| Who makes the decision on the following household expenditures | | | | | | | | | |
| FOOD | | | | | | | | | |
| Woman alone | 0.309 | 0.353 | -0.044 | 0.033 | -0.119 | 0.027 | 0.047 | -0.099 | -0.037 |
| t-statistic | | | -0.662 | 0.372 | **-2.977** | 0.179 | 0.582 | -1.221 | -0.917 |
| HOUSING | | | | | | | | | |
| Woman alone | 0.272 | 0.321 | -0.048 | -0.026 | -0.102 | 0.010 | -0.027 | -0.068 | 0.009 |
| t-statistic | | | -0.763 | -0.315 | **-2.504** | 0.066 | -0.273 | -0.959 | 0.260 |
| Woman and husband | 0.387 | 0.270 | 0.117 | 0.105 | 0.048 | | | 0.126 | -0.043 |
| t-statistic | | | **1.919** | 1.182 | 1.117 | | | 1.321 | -0.749 |
| HEALTH CARE | | | | | | | | | |
| Woman alone | 0.294 | 0.352 | -0.058 | 0.000 | -0.112 | 0.050 | 0.043 | -0.113 | -0.017 |
| t-statistic | | | -0.876 | 0.003 | **-2.745** | 0.362 | 0.653 | -1.448 | -0.440 |
| EDUCATION | | | | | | | | | |
| Woman alone | 0.311 | 0.418 | -0.107 | -0.054 | -0.092 | 0.094 | 0.043 | -0.152 | 0.000 |
| t-statistic | | | -1.492 | -0.613 | **-2.254** | 0.637 | 0.649 | **-1.830** | 0.007 |
| CLOTHING | | | | | | | | | |
| Woman alone | 0.321 | 0.381 | -0.060 | -0.010 | -0.103 | 0.090 | 0.026 | -0.051 | -0.019 |
| t-statistic | | | -0.839 | -0.117 | **-2.472** | 0.613 | 0.390 | -0.644 | -0.480 |
| **Panel 4: Mobility** | | | | | | | | | |
| Whether woman decides by herself to go to | | | | | | | | | |
| Bazaar | 0.255 | 0.288 | -0.034 | 0.015 | -0.076 | 0.062 | -0.139 | -0.151 | 0.046 |
| t-statistic | | | -0.547 | 0.192 | **-1.997** | 0.352 | -1.221 | **-2.137** | 1.339 |
| Clinic | 0.340 | 0.327 | 0.013 | 0.038 | -0.079 | 0.061 | -0.048 | -0.072 | 0.016 |
| t-statistic | | | 0.200 | 0.453 | **-1.791** | 0.402 | -0.570 | -0.981 | 0.351 |
| Cinema | 0.142 | 0.190 | -0.048 | 0.012 | -0.129 | 0.128 | -0.262 | -0.037 | -0.028 |
| t-statistic | | | -0.849 | 0.166 | **-4.160** | 0.607 | **-2.329** | -0.748 | -1.182 |
| Training | 0.498 | 0.346 | 0.152 | 0.103 | 0.019 | 0.164 | 0.034 | 0.057 | 0.059 |
| t-statistic | | | **2.223** | 1.159 | 0.427 | 0.920 | 0.392 | 0.623 | 1.058 |

(continued)

| Indicator | Mean Impact of Participating in IGVGD or FSVGD | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) Treat (IGVGD or FSVGD) | (2) Control | (3) ATT | (4) Average Effect of IGVGD | (5) Marginal Effect of FSVGD | (6) Average Effect of IGVGD | (7) Marginal Effect of FSVGD | (8) Average Effect of IGVGD | (9) Marginal Effect of FSVGD |
| **Panel 5: Reproductive decisions** | | | | | | | | | |
| Whether woman ever used birth control | 0.725 | 0.711 | 0.014 | -0.024 | 0.103 | -0.006 | 0.172 | -0.031 | 0.023 |
| t-statistic | | | 0.224 | -0.306 | **2.596** | -0.035 | 1.467 | -0.426 | 0.520 |
| Whether husband ever used birth control | 0.058 | 0.022 | 0.037 | 0.041 | 0.019 | 0.019 | -0.052 | -0.013 | 0.026 |
| t-statistic | | | **2.177** | **1.935** | 0.895 | 0.273 | -1.609 | -0.346 | 0.944 |
| Who made the decision to use birth control | | | | | | | | | |
| Woman alone | 0.135 | 0.104 | 0.031 | 0.019 | 0.051 | -0.015 | 0.073 | -0.081 | 0.064 |
| t-statistic | | | 0.845 | 0.369 | **1.664** | -0.233 | 0.996 | -1.017 | 1.533 |
| **Panel 6: Domestic abuse** | | | | | | | | | |
| Woman ever verbally abused | 0.519 | 0.625 | -0.106 | -0.154 | 0.100 | | | -0.116 | 0.091 |
| t-statistic | | | -1.334 | -1.486 | **2.024** | | | -1.167 | 1.567 |
| Woman ever physically abused | 0.209 | 0.205 | 0.004 | 0.037 | -0.050 | | | 0.061 | -0.104 |
| t-statistic | | | 0.061 | 0.458 | -1.273 | | | 0.708 | **-2.169** |

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

**Table 7.16 — Marginal impact of receiving food/cash from FFA relative to RMP**

| | Mean Impact of Participating in FFA or RMP | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Treat (FFA or RMP) | Control | ATT | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA |
| **Panel 1: Work** | | | | | | | | | |
| Whether working now | 0.997 | 0.833 | 0.164 | 0.126 | 0.006 | 0.102 | 0.000 | 0.232 | 0.030 |
| t-statistic | | | **3.113** | **1.868** | 1.178 | 0.976 | **-2.017** | 1.477 | 0.855 |
| Decision to work | | | | | | | | | |
| Woman alone | 0.721 | 0.724 | -0.002 | 0.151 | -0.348 | -0.006 | 0.043 | -0.084 | -0.130 |
| t-statistic | | | -0.029 | 1.407 | **-5.974** | -0.093 | 1.567 | -0.346 | -1.063 |
| Woman and husband | 0.206 | 0.228 | -0.022 | -0.147 | 0.271 | | | 0.163 | 0.034 |
| t-statistic | | | -0.313 | **-1.713** | **5.345** | | | 0.719 | 0.275 |
| Woman alone or woman and husband | 0.927 | 0.952 | -0.025 | 0.004 | -0.077 | | | 0.079 | -0.096 |
| t-statistic | | | -0.489 | 0.094 | **-2.057** | | | 0.511 | -1.635 |
| Decision to spend money earned | | | | | | | | | |
| Woman alone | 0.578 | 0.520 | 0.059 | 0.320 | -0.537 | 0.010 | -0.008 | 0.193 | -0.333 |
| t-statistic | | | 0.818 | **3.021** | **-11.351** | 0.071 | -0.047 | 0.880 | **-2.939** |
| Woman and husband | 0.310 | 0.268 | 0.042 | -0.158 | 0.417 | | | | |
| t-statistic | | | 0.615 | **-1.687** | **7.273** | | | | |
| Woman alone or woman and husband | 0.889 | 0.788 | 0.101 | 0.162 | -0.120 | | | 0.258 | -0.189 |
| t-statistic | | | 1.294 | **1.693** | **-3.146** | | | 1.229 | **-2.933** |
| **Panel 2: Loans** | | | | | | | | | |
| Ever taken loan from NGO | 0.455 | 0.296 | 0.159 | 0.254 | -0.234 | 0.254 | -0.341 | 0.358 | -0.379 |
| t-statistic | | | **2.084** | **2.352** | **-3.728** | **1.665** | **-1.833** | **2.045** | **-3.652** |
| Decision to take loan | | | | | | | | | |
| Woman alone | 0.470 | 0.216 | 0.253 | 0.405 | -0.544 | | | | |
| t-statistic | | | 1.086 | 1.399 | **-7.267** | | | | |
| Woman and husband | 0.364 | 0.603 | -0.239 | -0.323 | 0.392 | | | | |
| t-statistic | | | -0.966 | -1.103 | **2.386** | | | | |

(continued)

| | Mean Impact of Participating in FFA or RMP | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) Treat (FFA or RMP) | (2) Control | (3) ATT | (4) Average Effect of RMP | (5) Marginal Effect of FFA | (6) Average Effect of RMP | (7) Marginal Effect of FFA | (8) Average Effect of RMP | (9) Marginal Effect of FFA |
| Decision to spend loan proceeds | | | | | | | | | |
| Woman alone | 0.462 | 0.187 | 0.275 | 0.420 | -0.566 | | | | |
| t-statistic | | | 1.196 | 1.393 | **-6.538** | | | | |
| Woman and husband | 0.379 | 0.616 | -0.237 | -0.327 | 0.403 | | | | |
| t-statistic | | | -0.951 | -1.121 | **3.283** | | | | |
| **Panel 3: Household expenditures** | | | | | | | | | |
| Who makes the decision on the following household expenditures | | | | | | | | | |
| FOOD | | | | | | | | | |
| Woman alone | 0.559 | 0.449 | 0.110 | 0.308 | -0.479 | 0.071 | 0.028 | 0.380 | -0.327 |
| t-statistic | | | 1.582 | **3.113** | **-8.703** | 0.553 | 0.244 | **2.352** | **-2.976** |
| Woman and husband | 0.260 | 0.322 | -0.061 | -0.259 | 0.385 | | | -0.153 | 0.201 |
| t-statistic | | | -0.903 | **-2.914** | **7.340** | | | -0.822 | **1.743** |
| Woman alone or woman and husband | 0.819 | 0.771 | 0.049 | 0.049 | -0.094 | | | 0.226 | -0.126 |
| t-statistic | | | 0.758 | 0.606 | **-1.956** | | | 1.278 | -1.467 |
| HOUSING | | | | | | | | | |
| Woman alone | 0.507 | 0.425 | 0.081 | 0.281 | -0.511 | 0.089 | 0.028 | 0.240 | -0.216 |
| t-statistic | | | 1.213 | **2.477** | **-9.173** | 0.572 | 0.255 | 1.548 | **-2.104** |
| Woman and husband | 0.292 | 0.227 | 0.065 | -0.131 | 0.384 | | | 0.070 | 0.103 |
| t-statistic | | | 1.107 | -1.609 | **7.097** | | | 0.365 | 0.896 |
| Woman alone or woman and husband | 0.799 | 0.653 | 0.146 | 0.150 | -0.127 | | | 0.310 | -0.112 |
| t-statistic | | | **2.073** | 1.539 | **-3.055** | | | **1.666** | -1.153 |
| HEALTH CARE | | | | | | | | | |
| Woman alone | 0.521 | 0.450 | 0.071 | 0.285 | -0.536 | 0.061 | 0.028 | 0.284 | -0.288 |
| t-statistic | | | 0.993 | **3.012** | **-11.146** | 0.437 | 0.232 | **1.850** | **-2.670** |
| Woman and husband | 0.313 | 0.325 | -0.012 | -0.225 | 0.417 | | | -0.002 | 0.132 |
| t-statistic | | | -0.187 | **-2.370** | **7.025** | | | -0.009 | 1.109 |

(continued)

| | Mean Impact of Participating in FFA or RMP | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Treat (FFA or RMP) | Control | ATT | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA |
| Woman alone or woman and husband | 0.833 | 0.775 | 0.059 | 0.060 | -0.119 | | | 0.282 | -0.156 |
| t-statistic | | | 0.872 | 0.784 | **-2.151** | | | 1.616 | **-1.965** |
| EDUCATION | | | | | | | | | |
| Woman alone | 0.556 | 0.456 | 0.100 | 0.292 | -0.529 | 0.101 | 0.007 | 0.250 | -0.253 |
| t-statistic | | | 1.373 | **2.952** | **-9.672** | 0.677 | 0.060 | 1.427 | **-2.311** |
| Woman and husband | 0.323 | 0.326 | -0.004 | -0.215 | 0.426 | | | -0.002 | 0.155 |
| t-statistic | | | -0.053 | **-2.044** | **7.147** | | | -0.009 | 1.313 |
| Woman alone or woman and husband | 0.878 | 0.782 | 0.096 | 0.077 | -0.103 | | | 0.248 | -0.097 |
| t-statistic | | | 1.509 | 0.886 | **-2.445** | | | 1.445 | -1.306 |
| CLOTHING | | | | | | | | | |
| Woman alone | 0.556 | 0.442 | 0.113 | 0.343 | -0.557 | 0.056 | -0.003 | 0.331 | -0.283 |
| t-statistic | | | 1.589 | **3.260** | **-9.080** | 0.400 | -0.024 | **1.948** | **-2.678** |
| Woman and husband | 0.302 | 0.332 | -0.030 | -0.244 | 0.436 | | | -0.079 | 0.181 |
| t-statistic | | | -0.450 | **-2.596** | **7.877** | | | -0.412 | 1.501 |
| Woman alone or woman and husband | 0.858 | 0.774 | 0.084 | 0.099 | -0.121 | | | 0.252 | -0.102 |
| t-statistic | | | 1.255 | 1.216 | **-3.131** | | | 1.450 | -1.277 |
| **Panel 4: Control over household resources** | | | | | | | | | |
| Whether women controls money needed to buy: | | | | | | | | | |
| Food from the market | 0.882 | 0.727 | 0.155 | 0.127 | -0.137 | 0.126 | 0.032 | 0.235 | -0.114 |
| t-statistic | | | **2.459** | 1.511 | **-3.561** | 1.020 | 1.517 | 1.296 | -1.381 |
| Clothing for self | 0.899 | 0.754 | 0.146 | 0.153 | -0.172 | 0.081 | 0.021 | 0.307 | -0.156 |
| t-statistic | | | **2.313** | **2.122** | **-4.508** | 0.859 | 1.209 | **1.712** | **-2.003** |
| Medicine for self | 0.885 | 0.725 | 0.161 | 0.114 | -0.155 | 0.062 | 0.021 | 0.321 | -0.163 |
| t-statistic | | | **2.343** | 1.514 | **-4.655** | 1.169 | 1.191 | **1.890** | **-2.447** |

(continued)

| | Mean Impact of Participating in FFA or RMP | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Treat (FFA or RMP) | Control | ATT | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA | Average Effect of RMP | Marginal Effect of FFA |
| Toiletries/ cosmetics for self | 0.896 | 0.752 | 0.144 | 0.125 | -0.162 | 0.091 | 0.011 | 0.209 | -0.114 |
| t-statistic | | | **2.293** | **1.666** | **-4.360** | 1.055 | 0.805 | 1.188 | -1.350 |
| **Panel 5: Mobility** | | | | | | | | | |
| Whether woman decides by herself to go to Outside the community to visit friends or relatives | 0.597 | 0.443 | 0.154 | 0.316 | -0.450 | 0.043 | 0.105 | 0.298 | -0.250 |
| t-statistic | | | **2.259** | **3.020** | **-8.001** | 0.308 | **2.671** | **1.679** | **-2.239** |
| Bazaar | 0.538 | 0.380 | 0.158 | 0.304 | -0.399 | 0.161 | 0.200 | 0.203 | -0.152 |
| t-statistic | | | **2.190** | **3.367** | **-6.487** | 0.844 | **3.901** | 1.203 | -1.407 |
| Clinic | 0.590 | 0.449 | 0.141 | 0.294 | -0.423 | 0.051 | 0.116 | 0.207 | -0.147 |
| t-statistic | | | **2.140** | **2.922** | **-8.137** | 0.493 | **2.742** | 1.172 | -1.359 |
| Cinema | 0.247 | 0.265 | -0.019 | 0.183 | -0.447 | 0.088 | -0.579 | 0.040 | -0.079 |
| t-statistic | | | -0.298 | **2.135** | **-10.852** | 0.407 | **-7.045** | 0.336 | -1.330 |
| Training | 0.691 | 0.433 | 0.258 | 0.376 | -0.367 | 0.343 | -0.003 | 0.312 | -0.139 |
| t-statistic | | | **3.318** | **3.596** | **-6.778** | **1.826** | -0.029 | **1.765** | -1.201 |
| **Panel 6: Reproductive decisions** | | | | | | | | | |
| Whether woman ever used birth control | 0.647 | 0.640 | 0.007 | -0.075 | 0.286 | 0.078 | -0.028 | -0.025 | 0.154 |
| t-statistic | | | 0.102 | -0.720 | **5.005** | 0.322 | -0.104 | -0.146 | **1.698** |
| Whether husband ever used birth control | 0.049 | 0.044 | 0.004 | -0.036 | 0.080 | -0.007 | -0.021 | -0.042 | 0.118 |
| t-statistic | | | 0.121 | -0.819 | **3.013** | -0.115 | -1.271 | -0.797 | **3.063** |

(continued)

| | Mean Impact of Participating in FFA or RMP | | | All Women | | Women Who are Widowed, Divorced, or Separated | | Married Women | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) Treat (FFA or RMP) | (2) Control | (3) ATT | (4) Average Effect of RMP | (5) Marginal Effect of FFA | (6) Average Effect of RMP | (7) Marginal Effect of FFA | (8) Average Effect of RMP | (9) Marginal Effect of FFA |
| Who made the decision to use birth control | | | | | | | | | |
| Woman alone | 0.175 | 0.132 | 0.043 | -0.069 | 0.179 | 0.042 | 0.191 | -0.141 | 0.255 |
| t-statistic | | | 0.725 | -0.832 | **3.392** | 0.434 | 0.765 | -1.004 | **4.020** |
| Woman and husband | 0.395 | 0.411 | -0.016 | 0.054 | 0.020 | 0.123 | -0.242 | 0.167 | -0.221 |
| t-statistic | | | -0.239 | 0.441 | 0.300 | 0.544 | -3.335 | 0.852 | **-2.041** |
| Woman alone or woman and husband | 0.570 | 0.542 | 0.028 | -0.015 | 0.199 | 0.165 | -0.052 | 0.026 | 0.035 |
| t-statistic | | | 0.357 | -0.137 | **3.303** | 0.706 | -0.205 | 0.146 | 0.342 |
| **Panel 7: Domestic abuse** | | | | | | | | | |
| Husband ever threatened divorce | 0.066 | 0.050 | 0.016 | 0.122 | -0.148 | | | 0.112 | -0.114 |
| t-statistic | | | 0.171 | 1.349 | **-2.497** | | | 1.458 | -1.587 |
| Husband ever threatened to take another wife | 0.079 | 0.039 | 0.040 | 0.135 | -0.130 | | | 0.120 | -0.091 |
| t-statistic | | | 0.436 | 1.433 | **-1.961** | | | 1.525 | -1.117 |
| Woman left permanently | 0.014 | 0.022 | -0.008 | -0.037 | -0.025 | | | n.c. | n.c. |
| t-statistic | | | -0.201 | -1.187 | **-2.035** | | | | |

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

within the community. The marginal effect of FFA over RMP tends to be negative in most instances (column 5). FFA has a smaller impact on women's autonomy in decisionmaking, their control over money needed to buy personal items and food, their mobility within the community, and the incidence of emotional abuse within the household. FFA, however, had a positive effect over RMP with regard to the use of birth control by both men and women and women's control over the decision to use birth control. The results disaggregated by marital status show that the marginal effect of FFA over RMP is negative for most variables but positive for a few. For widowed, divorced, or separated women (columns 6–7), FFA is less effective than RMP at encouraging them to work and borrow money but more effective at promoting greater freedom of mobility in the community (except for leisure activities). For married women (columns 8–9), FFA has a negative marginal impact relative to RMP with respect to women' autonomy in decisionmaking, their control over resources, and their ability to visit friends or relatives, but a positive marginal impact on the use of birth control and women's control over the decision to use birth control.

The relative effectiveness of combination versus pure transfer programs cannot be evaluated without paying explicit attention to marital status. The results disaggregated by marital status suggest that married women benefit more from receiving cash: both FSVGD and RMP have the largest positive impact on this group of women. This result is likely because receiving cash enables married women to expand their area of control beyond their traditional roles. Decisionmaking and empowerment outcomes of widowed, divorced, or separated women, who are the decisionmakers within their households anyway, appear to have been affected least by participating in the programs. Transfers of food in combination with cash, as in FFA, however, may have a stronger impact on this group of women. Perhaps because they are poorer and are their households' only income earners, they appreciate being assured of food in addition to the cash transfer

### *7.3.6 Cost-effectiveness of realizing women's empowerment objectives*

Because program resources are limited, the cost-effectiveness of realizing program objectives is an important consideration. If increasing women's control of food expenditures is an important food security and empowerment objectives, how well do the programs fare? We compare the two programs that had significant impacts on women's decisionmaking on food expenditures—FFA and RMP (Figure 7.1). The cost of increasing women's participation in food decisionmaking by 1 percent amounts to 38.04 taka for FFA and 11.98 taka for RMP, suggesting that RMP is more cost-effective in increasing women's participation in decisionmaking on food. Although FFA is a combination food and cash transfer program, it costs three times more for FFA to increase women's decisionmaking on food relative to RMP. We also compare the cost of increasing the percentage of women taking NGO loans by 1 percent (Figure 7.2). IGVGD is the most cost-effective in terms of the taka cost of increasing the percentage of women taking NGO loans by 1 percent: only 6 taka for IGVGD, compared with 12 taka for FFA, 20 taka for RMP, and 45 taka for FSVGD. This result probably reflects differences in program priorities as well as effectiveness in implementation—as mentioned earlier, taking NGO loans is a high priority for IGVGD but less so for FSVGD.

## 7.4 Conclusion

The analysis of the impact of IGVGD, FSVGD, FFA, and RMP revealed several key findings. First, it appears that the size of the transfer matters. Both FFA and RMP had a much greater positive impact on the indicators of women's empowerment and well-being than the

two direct transfer programs, IGVGD and FSVGD. This result could be a direct reflection of the fact that both public works programs provided transfers almost twice as large as the two direct transfer programs.

Second, these findings could also be attributed to differences in program design. The two public works programs required the women to work to earn the transfers they received. It is possible that this caused them to feel a greater sense of pride in their contribution to their families and a greater sense of ownership over the income they earned, causing them to seek a greater role in family decisionmaking and to become more independent. Moreover, providing income for the family may have caused other family members to have a greater appreciation for the women's contribution. In particular, husbands may be more willing to consult their wives regarding household decisions and less opposed to their wives' independence.

Third, we found that the positive impact of FFA and RMP on women's empowerment should not be attributed to the presence of a larger proportion of widowed, divorced, or separated women in these programs. Rather the analysis of the heterogeneity of impact by marital status revealed that these programs promoted the greatest positive change among married women.

Fourth, comparing the programs with similar transfer amounts revealed that, for married women, there is some advantage to having transfers of cash over transfers of food, whereas for widowed, divorced, and separated women, there are some advantages to receiving both food and cash. It could be that receiving cash allows married women to expand their area of decisionmaking beyond their traditional roles as food providers and caregivers. Qualitative accounts suggest, however, that women still feel they have greater control over transfers of food and are concerned that cash transfers would be spent by their husbands. One ex-beneficiary in IGVGD mentioned that her *"husband will take cash and buy whatever he likes."* In households of widowed, divorced, and separated women, who make most of the decisions within their households anyway, having a food transfer (together with a cash transfer) assures the household of food while providing cash for other expenditures, given that these women are often the only source of support for their families. Program designers may want to examine ways of strengthening women's control over cash in VGD programs, perhaps through savings accounts in women's own names or through group savings accounts that women can draw upon in times of need. One cannot discount, for example, the possible impact of the RMP's compulsory savings requirement on the extremely high impact on women's empowerment indicators.

One must also consider that changes within the household do not automatically translate into changes at the community and societal levels. Although the program appears to have had a large, positive, and significant effect on the status of women participants in FFA and RMP at the household level, their status in the community may not have changed at all or could have even worsened owing to their participation in the program. Some participants mentioned that they were the victims of verbal attacks by other villagers because of their participation in these programs, because it is not considered appropriate for women to engage in manual labor. Although public works programs and interventions that challenge societal norms regarding women's seclusion seem to have significant impact on intrahousehold relations, community norms are slower to change. Program implementers should not underestimate the difficulty of changing gender relations—social norms are well entrenched, and it is perhaps unrealistic to expect that they will change quickly. Implementers should therefore not be surprised to encounter resistance from segments of the community, even as individuals and households appear more open to change. As indicated by the discussion of regional differences in gender-related outcomes in Appendix 7, however, there are also significant

regional differences in societal norms regarding women's roles. In communities with more conservative gender norms, prior consultation with husbands and community leaders and a more active program of social change should be undertaken. Experience from other programs, such as Mexico's PROGRESA, shows that consulting the community and keeping husbands informed of the program's activities and objectives helped overcome resistance to the intervention (Adato et al. 2003).

With respect to monitoring and evaluating transfer programs, the apparent lack of significant impact on empowerment indicators could also indicate that quantitative indicators, which are commonly collected in surveys, may underestimate the potential impact of such programs on gender relations. Quantitative or survey-based indicators need to be backed up by sound qualitative work among beneficiaries and their families, in order to ascertain that the full range of impacts of the intervention is considered. A common set of empowerment indicators may need to be monitored over time to see whether changes have taken place as a result of the program.

The differences in performance of the programs across different types of gender-related indicators also suggests that program performance will differ across objectives, with some programs better at achieving a subset of objectives than others. This result suggests that it is very difficult to come up with a blanket recommendation regarding what kind of program is the most effective in reducing the gender gap and empowering women in Bangladesh. The effectiveness of a particular program will depend heavily on the economic, social, and political context as well as the specific circumstances of beneficiaries. In an ideal world, a whole range of programs would be available to a woman in her own locality, and she would be able to choose which program best suited her needs. For example, a woman with young children would probably not have time to participate in a public works program with work norms and would prefer to participate in a VGD-type program.

# 8. CONCLUSIONS

As discussed at several points in this report, the four programs assessed here differ from each other in a number of respects, including—but not limited to—whether they provide food and/or cash. The programs also differ in terms of their impacts on outcomes, and their relative effectiveness varies by outcome. For example, IGVGD and FSVGD are the most cost-effective programs in terms of increasing household income; FSVGD is the most cost-effective means of increasing women's caloric intake; FFA is the best-targeted program; and RMP has the largest effect on savings. It is incorrect to perceive one program as "better" than another. Rather, assessing program effectiveness depends on the particular outcome that is of interest.

All programs are reasonably well targeted, but there may be some scope for improving the targeting performance of IGVGD and FSVGD programs. Currently, these rely in part on selection criteria that are neither observable nor verifiable. Options for improvement could include the increased use of community input into beneficiary selection.

FSVGD, FFA, and RMP have experienced delays in cash payments and fluctuations in payment levels.[42] Addressing this concern will be especially important if shifts from food to cash are envisaged. Our key-informant interviews suggest that these delays are mainly due to the complex and lengthy administrative process of cash transfers, particularly in the case of FSVGD.

Among the different forms of transfer, the biggest improvement in the food security of the extreme poor, and women in particular, is achieved through *atta* transfers. *Atta* is also technically better suited for micronutrient fortification than rice or wheat. The current system of milling, fortification, and distribution of micronutrient-fortified *atta* in sealed bags preserves the micronutrients, ensures the weight, maintains quality standards, and prevents pilferage or leakage. There are, however, operational issues associated with shifting from rice to *atta*. Bangladesh's food policy operations are carried out through the Public Food Distribution System (PFDS); PFDS stocks of foodgrains must be rotated to accommodate new stocks and to prevent losses resulting from quality deterioration. The PFDS operates through 15 distribution channels that broadly fall into two groups: eight monetized (sale) and seven nonmonetized channels. The latter are composed of the food-based safety net programs, accounting for (in 2006) 71 percent of the total PFDS distribution, with rice accounting for 68 percent of total nonmonetized distribution. Although a switch from rice to *atta* distribution in the transfer programs is possible, it will involve a major reshuffling of PFDS operations. This factor will also need to be considered if there is a significant shift from food to cash transfers as such a move would reduce or eliminate existing nonmonetized channels of the PFDS.

Access to credit and savings offered by NGOs to program beneficiaries plays a helpful role in sustaining food security and livelihood improvements of program participants.

Although the onerous work requirements may contribute to the especially good targeting performance of the FFA intervention, these requirements also limit its impact in terms of poverty reduction and reduce its cost-effectiveness.

These programs have an important role in helping ultra-poor households, but they cannot be the sole mechanisms for sustainable poverty reduction. Rather, they should be seen as one component of a portfolio of activities designed to eradicate poverty.

[42] For RMP, however, the irregularity in cash disbursement was not endemic. During the study, RMP was undergoing a reform, and implementation responsibility was being shifted from CARE to LGED.

Differences in the programs' impact on women's empowerment can be traced to a number of factors: (1) the size of the transfer; (2) differences in program design; and (3) differences in the proportion of cash or food received. While one expects that programs with larger transfers will have larger absolute impacts, the findings regarding program design and the composition of transfers are important for the design of programs that empower women. Married women who participate in public works programs have better empowerment outcomes when they earn and control cash incomes, possibly because receiving cash allows women to expand their area of decisionmaking beyond their traditional roles as food providers and caregivers. Qualitative accounts, however, suggest that women still feel they have greater control over transfers of food and are concerned that cash transfers would be spent by their husbands. In the households of widowed, divorced, and separated women, however, having a food transfer (together with a cash transfer) assures the household of food while providing cash for other expenditures, given that these women are often the only source of support for their families.

Programs that require women to work may have contributed to their greater sense of ownership over the income they earned, causing them to seek a greater role in family decision-making and become more independent. Moreover, providing income for the family may have increased other family members' appreciation for the women's contribution. In particular, husbands may be more willing to consult their wives regarding household decisions and less opposed to their wives' independence. Nevertheless, changes in intrahousehold relations do not necessarily translate to changes at the community and societal levels. Traditional communities may not welcome programs involving work requirements that challenge societal norms of women's seclusion. Program planners will need to take into account communities' receptiveness to such programs when deciding where workfare programs will be placed.

# APPENDICES

## APPENDIX 1

## SUMMARY OF KEY SAFETY NET PROGRAMS

| Name of Program | Major Objective of the Program | Administration/ Financiers | Targeting Criteria | Value of Benefit | Annual Costs and Number of Beneficiaries |
|---|---|---|---|---|---|
| ***Infrastructure-building programs*** | | | | | |
| Food-for-works (Rural Infrastructure Dev. Program) (Components: FFW and CFW) | 1. Employment generation for the poor, mainly in the dry season through infrastructure creation and maintenance.<br>2. Developing and maintaining rural infrastructure | Department of Local Government Eng. Dept.; Department of Social Services; other dept.<br><br>Financed by GoB, ADB, WFP | 1.Functionally landless<br>2. Lack of productive assets<br>3. Generally women headed household where women is widowed, deserted, and destitute<br>4. Day labor or temporary worker<br>5. Income less than Tk. 300 per month | a. No specific entitlement<br><br>Food transfer by the public food distribution system. | US$40 million; about 1 million participants annually |
| Rural Maintenance Program (RMP) | 1.Empowerment of women<br>2. Maintaining rural infrastructure | Department of Local Government and Engineering, CARE-Bangladesh<br><br>Financed by GoB, EC, CIDA, union *parishads* | 1. Less than 30 decimals of land<br>2. Destitute Family circumstances<br>3. Female heads of households of 18–35 years of age<br>4. Widowed or separated at least one year, with priority to those with more dependents<br>5. No other income and not be participating in other targeted programs. | a. 51 Tk. per day<br><br>This is a public works program where cash is being transferred by the public sector banks | US$16 million; about 42,000 participants annually. Admin. costs about 20% of program costs. |
| Test Relief (Rural Infrastructure Maintenance Program, RIMP) | 1.Employment for the poor in the rainy season<br>2. Developing and maintaining rural infrastructure<br>3. Compared to FFW, lighter labor requirement | Ministry of Food and Disaster Management<br><br>Financed by GoB and Development Partners | Generally a location is targeted | 5–6 kg. of wheat/day of work | US$1 million; about 100,000 beneficiaries annually |

(continued)

| Name of Program | Major Objective of the Program | Administration/ Financiers | Targeting Criteria | Value of Benefit | Annual Costs and Number of Beneficiaries |
|---|---|---|---|---|---|
| | | | ***Training programs*** | | |
| Vulnerable Group Development (VGD) (Components: FSVGD, IGVGD, UPVGD) | 1. Increasing the marketable efficiency of women through training, motivating savings for initial capital accumulation and providing scope for availing credit<br>2. Building social awareness on disaster management and nutrition through training in groups | Ministry of Women and Children Affairs, Directorate of Relief and Rehabilitations<br><br>Financed by GoB, WFP, EC, Canada, Australia | 1. Households with not more than 15 acres of land<br>2.Monthly Household income less than Tk. 300; dependent upon seasonal wage employment<br>3. Women of reproductive (18-49) age<br>4. Day labor or temporary worker<br>5. Lack of productive assets | a. 30 Kilograms of wheat per month<br>b. Training (totaling about 150 hours)<br>c. Per cycle of 24 months On graduation, beneficiaries can access BRAC's microcredit program<br><br>Food transfer by the public food distribution system | US$40 million; close to 500,000 beneficiaries annually. |
| | | | ***Education programs*** | | |
| Primary Education Stipend Project (PESP) | 1.Increasing the number of children into primary school from poor family<br>2. Increasing attendance to and reducing dropout from the primary school<br>3. Increasing the rate of completion of the primary education cycle<br>4. Controlling child labor and reducing poverty<br>5. Increasing the quality of primary education | Department of primary Education, Ministry of Education<br><br>Financed by GoB | 1. Destitute woman headed family (destitute means widowed, separated from husband and divorced).<br>2. Principal occupation of the household head is day-labor.<br>3. Family of low income professionals (such as: fishing, pottery, blacksmithing, weaving, and cobbling).<br>4. Landless or households that own 0.50 acres of land (marginal or share-cropper). | a. Tk. 100 (one student family)<br>b. Tk. 125 (more than one student family) Benefit conditional on meeting attendance and examination criteria.<br><br>Cash is being transferred to beneficiaries guardians bank accounts through banks | US$100 million; over 5.3 million beneficiaries per annum Administrative costs about 5% of program costs but do not include administrative costs of lower levels of government. |

(continued)

| Name of Program | Major Objective of the Program | Administration/ Financiers | Targeting Criteria | Value of Benefit | Annual Costs and Number of Beneficiaries |
|---|---|---|---|---|---|
| Female Secondary School Assistance Program (FSSAP) (Components: FSSAP, FSSP, SEDP, FESP) | 1. Increasing the number of students in the secondary school<br>2. Increasing their prospect as employees and of self-employment<br>3. Controlling under age marriage | Ministry of Education Directorate of Secondary and Higher education<br><br>Financed by GoB. USAID, Asia Foundation, NORAD, World Bank, ADB | All unmarried girl students studying in recognized institutions at secondary level | a. Stipend: Tk 300 (G6), 360 (G7), 420 (G8), 720 (G9&G10)<br>b. Free tuition<br>c. Book allowance<br>d. Examination fees<br><br>Benefit conditional on meeting attendance, examination and marriage criteria.<br><br>Cash is being transferred to beneficiaries bank accounts through banks | US$40 million; over 4 million beneficiaries annually. Administrative costs about 18% of program cost. |
| ***Relief programs*** | | | | | |
| Vulnerable Group Feeding (VGF) | 1. Provides calamity related emergency needs<br>2. Short term relief to disaster victims – in terms of food and basic necessities. | Ministry of Food and Disaster Management<br><br>Financed by GoB and some Development Partners | Generally a location is targeted based on the occurrence of natural disaster | No specific entitlement<br><br>Generally food is being transferred by the public food distribution system | US$30 million. About 240,000 beneficiaries annually |
| Gratuitous Relief (GR) | 1. Provides calamity related emergency needs<br>2. Short term relief to disaster victims – in terms of food and basic necessities. | Ministry of Food and Disaster Management<br><br>Financed by GoB and some Development Partners | Generally a location is targeted based on the occurrence of natural disaster | No specific entitlement<br><br>No precise method | NA |
| Fund for Mitigation of Risk of Natural Disaster | Mitigate sufferings of people affected by natural disasters. Provision of loans to set up small businesses. | Ministry of Food and Disaster Management<br><br>Financed by GoB | Generally a location is targeted based on the occurrence of natural disaster | a. Loan between Tk. 5,000 to Tk. 25,000 for 1 to 3 years with nominal 5% service charge.<br><br>Cash is being transferred by the public sector banks | US$15 million. About 100,000 beneficiaries annually. |

(continued)

| Name of Program | Major Objective of the Program | Administration/ Financiers | Targeting Criteria | Value of Benefit | Annual Costs and Number of Beneficiaries |
|---|---|---|---|---|---|
| ***Programs for other disadvantaged groups*** | | | | | |
| Old Age Allowances | Providing old age cash allowance to the poor | Department of Social Services<br><br>Financed by GoB | 1. At least 65 years of age<br>2.Income not more than Tk. 2000 per year<br>3. Must not have worked in the formal sector<br>4. Based upon the category of the union, number of beneficiary is identified<br>5. 50% men and 50% women | a. Tk. 165 per month<br><br>Cash is being transferred by the public sector banks | US$30 million. About 1.2 million beneficiaries annually. |
| Allowances to the Widowed, Deserted, and Destitute Women | Minimizing the problems of the women at distress through cash transfers. | Ministry of Women and Children's Affairs<br><br>Financed by GoB | 1. Women who are either widowed, deserted, or destitute<br>2. Based upon the category of the union, number of beneficiary identified | a. Tk. 165 per month<br><br>Cash is being transferred by the public sector banks | US$3 million. About 100,000 beneficiaries annually. |
| Honorarium Program for Insolvent Freedom Fighters | Assisting poor freedoms fighters through cash transfers. | Ministry of Freedom Fighters Affairs<br><br>Financed by GoB | 1. Verifiable in cross section of references<br>2. Income less than Tk. 6000 per year<br>3. Disabled or partially disabled or landless or unemployed or none in the family to depend upon | a. Tk. 300 per month<br><br>Cash is being transferred by the public sector banks | US$8 million. About 200,000 beneficiaries. |
| Fund for Housing for the Distressed (Grihayan Tahabil) | Solve the housing problem of the homeless, poor and low income people | Housing Fund Authority in association with NGO, institutions and local government<br><br>Financed by GoB | 1. Rural poor, low income and homeless family<br>2. Household affected by natural disaster and fire<br>3. Capable of paying 5% flat interest rate | a. Loan up to Tk. 20,000<br><br>Cash is being transferred by the public sector banks. | NA |
| Fund for Rehabilitation of Acid Burnt Women and the Physically Handicapped | 1. Assisting acid burnt women and disabled through provis-ion of credit & skills training.<br>2. Creating opportunities for IGA<br>3. Raising social awareness | Ministry of Women and Children's Affairs<br><br>Financed by GoB | Installation of facility<br>Generally based upon case | a. Training<br>b. Credit<br><br>Not known | US$4 million |

Source: World Bank (2006).

## APPENDIX 2

## IMPLICATIONS OF USING PSM FOR SAMPLE SIZE, AND THE DISTRIBUTIONS OF ESTIMATED PROPENSITY SCORES

Our use of the propensity score matching (PSM) method of impact estimation involves several steps. We first estimate a probit regression where the dependent variable equals one if the household participates in a given program, zero otherwise. Because we consider four programs, we estimate four separate probit regressions for each outcome (e.g., calorie intake), each has a different control group. We then check the balancing properties of the propensity scores. The balancing procedure tests whether or not treatment and comparison observations have the same distribution of propensity scores. A balancing test fails when a t-test rejects equality of the means of these variables across ranked groupings of the propensity score. Where this occurred, we tried alternative specifications of the probit model that satisfied the balancing tests.

The quality of the match can be improved by ensuring that matches are formed only where the distribution of the density of the propensity scores overlap between treatment and comparison observations—that is, where the propensity score densities have "common support." For this reason, we used the common support approach for all PSM estimates. Common support can be improved by dropping treatment observations whose estimated propensity score is greater than the maximum or less than the minimum of the comparison group propensity scores. Similarly, comparison group observations with a propensity score below the minimum or above the maximum of the treatment observations can be dropped. A shortcoming of this approach identified by Heckman, Ichimura, and Todd (1997) is that treatment observations near these cut points face a potential comparison group with propensity scores that are either all lower or all higher than that of the treatment observation. To account for this problem, we modified this "min/max" approach to identifying a region of common support using the following procedure.

We identified the lower and upper cut points of common support in the comparison or treatment groups in our first estimate of the probit model for program participation. Typically only comparison observations were dropped in the left of the distribution and treatment observations were dropped in the right. We then added back the 5 percent of observations from each tail that had been dropped that were closest in terms of propensity score. In addition, we trimmed the treatment observations from the interior of the propensity score distribution that had the lowest density of comparison observations. We chose to drop 2 percent of treatment observations with this trimming procedure. On this common support sample, the probit model was estimated again to obtain a new set of propensity scores to be used in creating the match. We also re-tested the balancing properties of the data. All impact results presented in this study are based on specifications that passed the balancing tests.

We matched treatment and comparison observations through local linear matching with a tricube kernel using Stata's PSMATCH2 command. Heckman, Ichimura, and Todd (1997) and Smith and Todd (2005) argue in favor of local linear matching over other matching techniques. Local linear matching performs well in samples with low densities of the propensity score in the interior of the propensity score distribution. Frölich (2004) provides evidence in support of the finite-sample properties of local linear matching relative to most other matching estimators, with the exception of an infrequently used ridge matching

approach. Finally, standard errors of the impact estimates are estimated by bootstrap using 1,000 for each estimate.

Table A1 shows the effects of enforcing the common support on sample size. Overall, only about 11 percent of all observations were dropped. The levels of rejection, however, were not evenly distributed across the programs for treatment and control observations. Hardly any of the FFA treatment and control observations were discarded for imposing common support. On the other hand, 27.7 percent of FSVGD treatment and control observations were dropped. Even this relatively higher level of rejection, however, is unlikely to compromise the representativeness of the results.

**Table A1 — Observations dropped as a result of imposing the common support**

| Treatment and control groups | Number of observations in the first probit | Number of observations in the final probit after imposing common support | Percentage of observations dropped for imposing common support |
|---|---|---|---|
| IGVGD and control | 415 | 326 | 21.4 |
| FSVGD and control | 364 | 263 | 27.7 |
| FFA and control | 557 | 552 | 0.9 |
| RMP and control | 450 | 441 | 2.0 |

The feasibility of PSM requires an overlap in the distribution of propensity scores between treatment and control groups. A high degree of overlap implies a strong common support. Figure A1 shows the distributions (kernel densities) of estimated propensity scores for treatment and control groups for household-level observations for each of the four programs (used for comparing outcomes such as household income between treatment and control groups). Figure A2 illustrates these distributions for individual-level observations (used for comparing child nutritional status between treatment and control groups). For example, in Figure A1, we see a greater overlap of propensity scores between treatment and control groups for IGVGD—hence, an evidence of stronger common support—than for RMP, which thus has weaker common support.

**Figure A1 — Distributions of estimated propensity scores for household level observations**

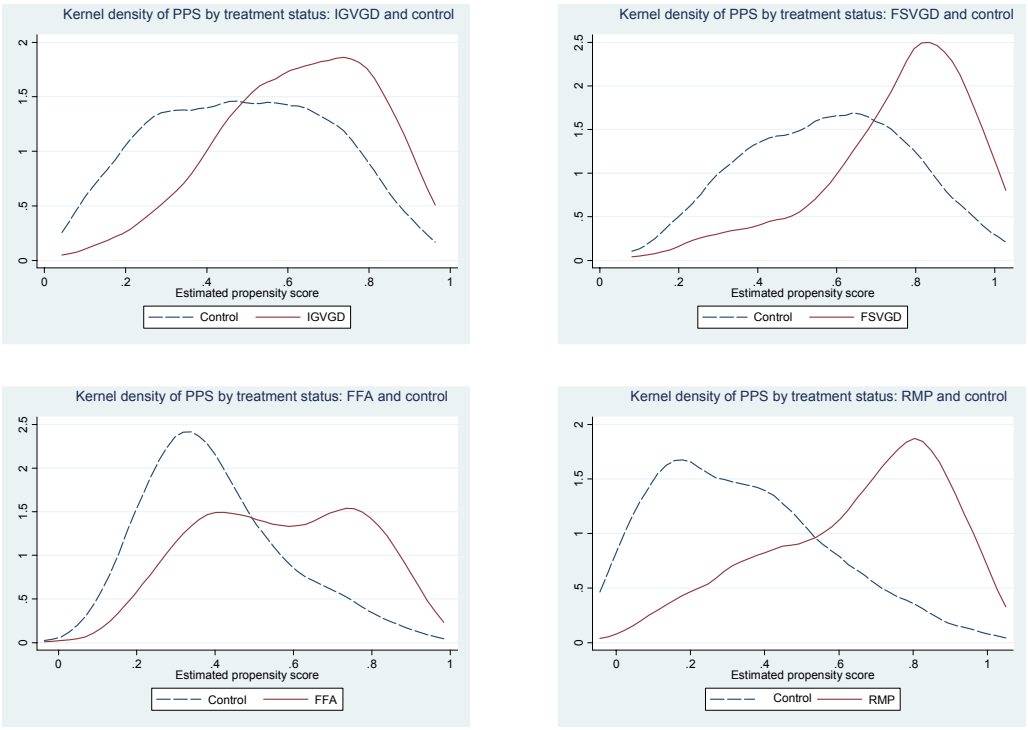
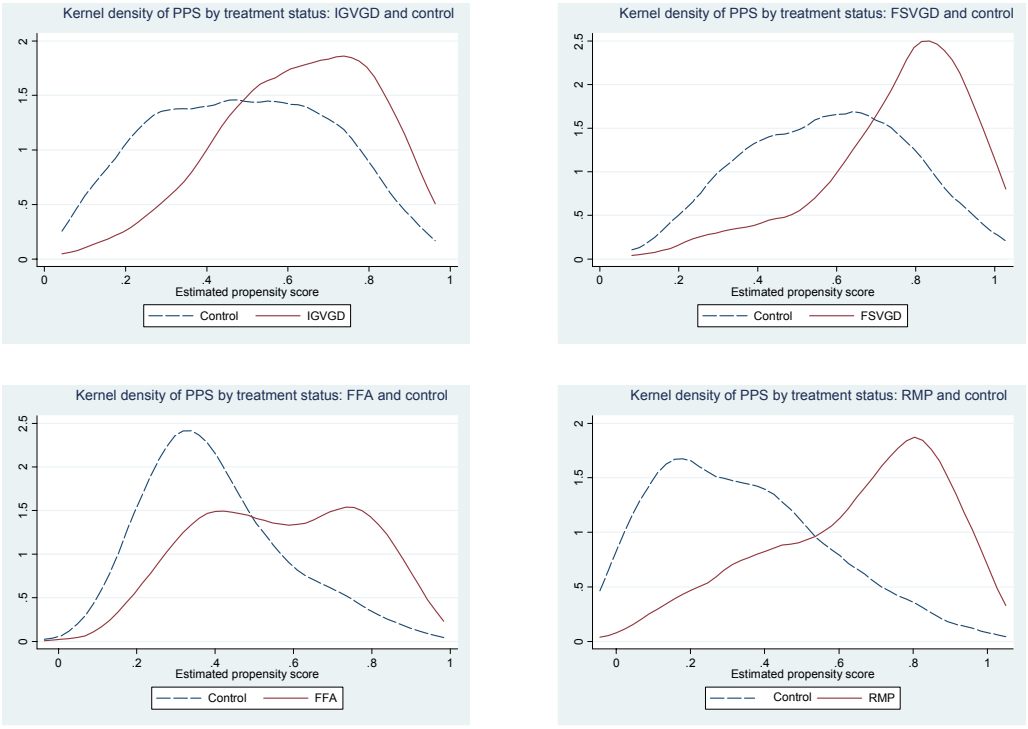



**Figure A2 — Distributions of estimated propensity scores for individual level observations (child nutritional status)**



## APPENDIX 3

## CONSUMPTION EFFECTS OF FOOD TRANSFERS

The effects of a free or subsidized rationed food on household consumption of goods (food and nonfood items) will depend on the relative size of the ration and its resale status. If the size of the ration is less than what a household would have consumed without the ration, then the ration is inframarginal. The ration is extramarginal if the ration quantity is greater than the amount of that commodity the household would have consumed without the ration.

If the ration is extramarginal, and if resale of the ration is prohibited or entails a high transaction cost, then the income transfer through such a ration may have two effects—an income effect and a substitution effect. On the other hand, the effect of an inframarginal ration is equivalent to the income effect only (that is, the value of the income transfer from ration), regardless of its resale status.

### Extramarginal Ration: FSVGD *Atta*

The likely household-level consumption effects of an extramarginal ration are illustrated in Figure A3, using the example of the FSVGD *atta* (whole-wheat flour) ration. The quantity of *atta* ($Q$) is shown on the horizontal axis, and the aggregate quantity of all other goods ($Y$) is shown on the vertical axis. Each indifference curve ($I_1$, $I_2$, and $I_3$) identifies the various combinations of $Q$ and $Y$ that would give the household equal satisfaction. The budget line $AB$ represents the maximum quantities of $Q$ and $Y$ that the household could purchase with its given budget before participating in the FSVGD program. The optimum choice of the household before entering the program is denoted by the point $m$ where the household selects the combination of $OQ_0$ amount of *atta* and $OY_0$ amount of all other goods for consumption. This is the point at which the budget line $AB$ just touches the indifference curve $I_1$—that is, the point of tangency $m$.

The FSVGD program provides a fixed monthly free ration of 15 kilograms of *atta* per participating household. If the resale of rationed *atta* is absolutely prohibited, then the recipient household would consume the entire amount of the ration, denoted by $OQ_1$. This would lead to two types of movement in the budget line: it would rotate around the vertical intercept $A$ and would become a horizontal line up to the point $R$, corresponding to the $OQ_1$, quantity of rationed *atta*. This portion of the budget line would be horizontal because the price of the $OQ_1$ quantity of rationed *atta* is zero. The point $R$ represents an endowment bundle that allows the recipient household to consume $OQ_1$ quantity of *atta* and $OA$ quantity of all other goods. Beyond point $R$, the movement represents an outward shift parallel to the original budget line from $AB$ to $RD$. The new budget line is depicted by $ARD$, with a kink at point $R$.

The resale of FSVGD *atta* is, however, not prohibited. If the recipient household could sell the entire ration at market price, then the budget line would shift outward in a parallel way, passing through the endowment bundle $R$. Here, the effect of income transfer in *atta* is equivalent to the income effect only. A number of studies show that the income elasticity of demand for *atta* or wheat for rural households in Bangladesh is negative, which implies that *atta* is an inferior good in rural areas (Ahmed and Shams 1996; Ahmed and Hossain 1990; Bouis 1989; Golleti 1993). That is, an increase in income would lead the households to consume less *atta*. Thus, the household consumption bundle would be, say, at point $n$ where the budget line $CD$ just touches the highest indifference curve $I_3$. The household would consume $OQ_2$ amount of *atta* and $OY_1$ amount of all other goods. Since *atta* is probably an inferior good, the household would consume less *atta* than the amount it would have

consumed without the ration, $OQ_0$. Thus, the transfer would lead to a reduction in household *atta* consumption in this case.

If the resale price of rationed *atta* is lower than the market price, or if the resale entails a high transaction cost that decreases the implicit selling price, then the upward portion of the budget line from the endowment bundle (point *R*) would become flatter. Since the endowment bundle is always affordable, the budget line would rotate around the point *R*. The *RD* portion of the budget line, however, is unaffected as the market price of *atta* remains unchanged. The resulting budget line is represented by the heavy line *ERD* with a kink at point *R*, as shown in Figure A3.

The IFPRI household survey data suggest that, on the average, the FSVGD recipient households sold about 8 percent of their *atta* ration at a price 26 percent lower than the market price of *atta*. The remaining quantity consumed, however, was 23 times more than the quantity consumed by the matched control group of households. Since *atta* is an inferior good, the resale of a portion of the *atta* ration at a lower price and the larger quantity consumed show that the household consumption bundle is located on the *FR* portion of the budget line (corresponding to $Q_0Q_1$ quantity). The optimum choice of the household is denoted by the consumption bundle at point *s*. The household indifference curve $I_2$ is tangent to the budget line at this point. The household would consume $OQ_4$ amount of *atta* and $OY_2$ amount of all other goods.

To show the income and the substitution effects of $OQ_4$ amount of *atta* consumption, the line *E'R'* is drawn parallel to line *ER*, which just touches the original indifference curve $I_1$ at point *t*. The movement along indifference curve $I_1$ from *m* to *t* is attributable to the substitution effect (SE) of lowering the price of rationed *atta*. The substitution effect of a price change is always negative—that is, a fall in the price of a commodity will always increase the consumption of that commodity. Assuming, however, that *atta* is an inferior good in rural Bangladesh (as empirical studies suggest), the income effect (IE) would offset part of the substitution effect. The total effect (TE) would still be an increase in *atta* consumption ($OQ_4$–$OQ_0$), because *atta* is not a "Giffen good." The household would increase its consumption of all other goods by the amount ($OY_2$–$OY_0$) because of the income and the cross-price effects of the ration.

A digression: If the household can sell the entire *atta* ration at market price, then the consumption effect would be exactly the same as that of the equivalent value of cash transfer. As microeconomic theory suggests, a household will be better-off if it can reach a higher indifference curve. Figure A3 shows that a cash transfer would enable the household to reach the highest feasible indifference curve $I_3$, where the household maximizes its satisfaction by selecting the consumption bundle at point *n*. This explains why a cash transfer should yield higher satisfaction than a food or other in-kind transfer in terms of program participants' own perception of welfare.

**Inframarginal Ration: FFA Rice**

Figure A4 illustrates the consumption effects of an inframarginal food ration, such as the rice ration received by FFA participants. The rationed quantity $OQ_1$ is less than the $OQ_0$ quantity consumed by the household before participating in the FFA program. This leads the budget line to shift outward in a parallel way from the original budget line *AB*, which shows that the inframarginal ration has only the income effect. The new budget line is denoted by the heavy line *ARH*, with a kink at point *R*. Since rice is a normal good (that is, the income elasticity of demand for rice is positive), the subsequent consumption bundle would be, say, at point *z* where the *RH* portion of the budget line is tangent to the indifference curve $I_2$. The household would consume $OQ_2$ amount of rice and $OY_1$ amount of other goods. Thus the

household would increase its rice consumption with an increase in income from the transfer, because rice is a normal good. The potential substitution effect on rice consumption from the free ration will be lost entirely because the size of the ration is less than the preprogram quantity consumed.

**Figure A3 — Consumption effects of an extramarginal *atta* ration**

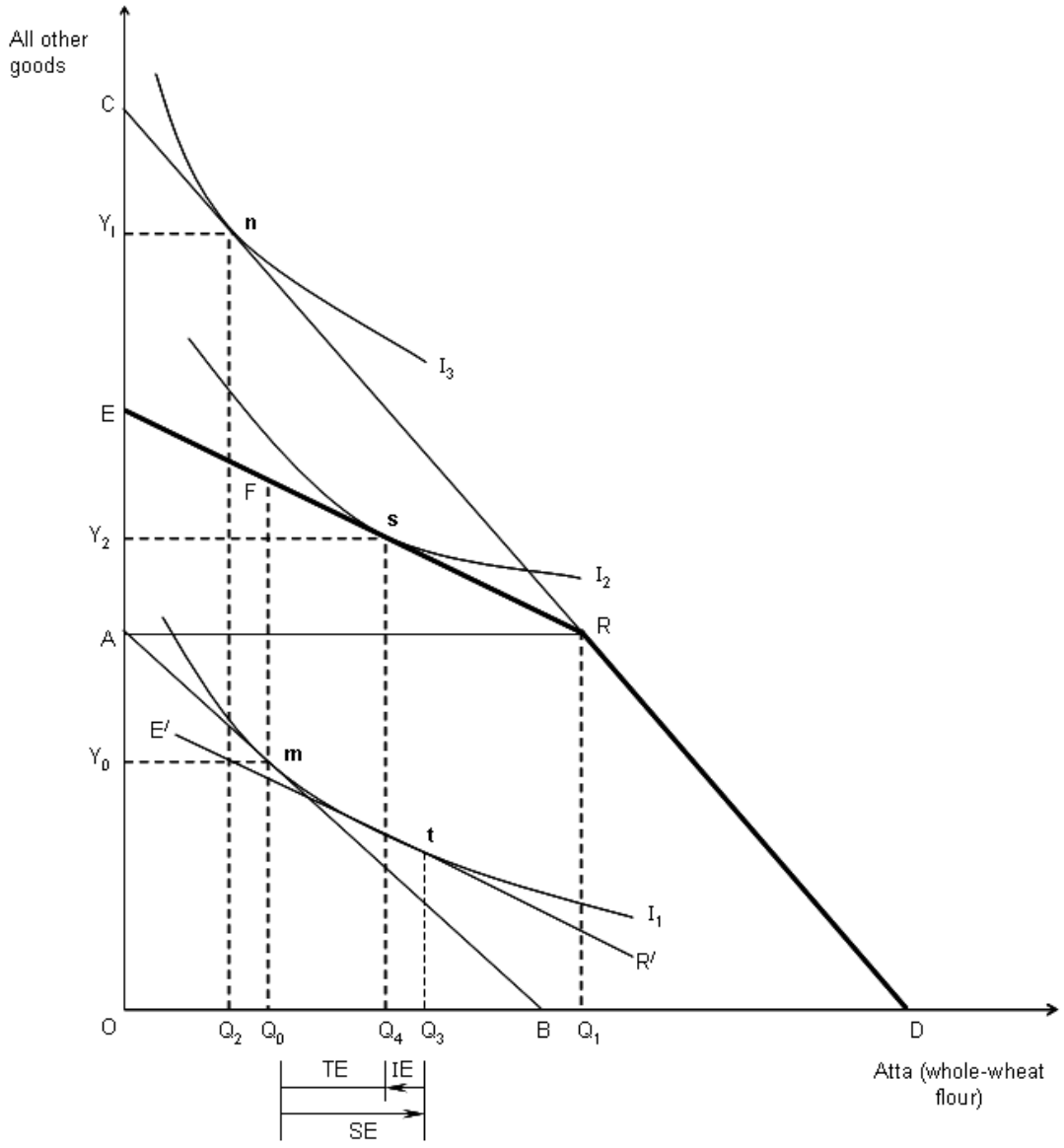
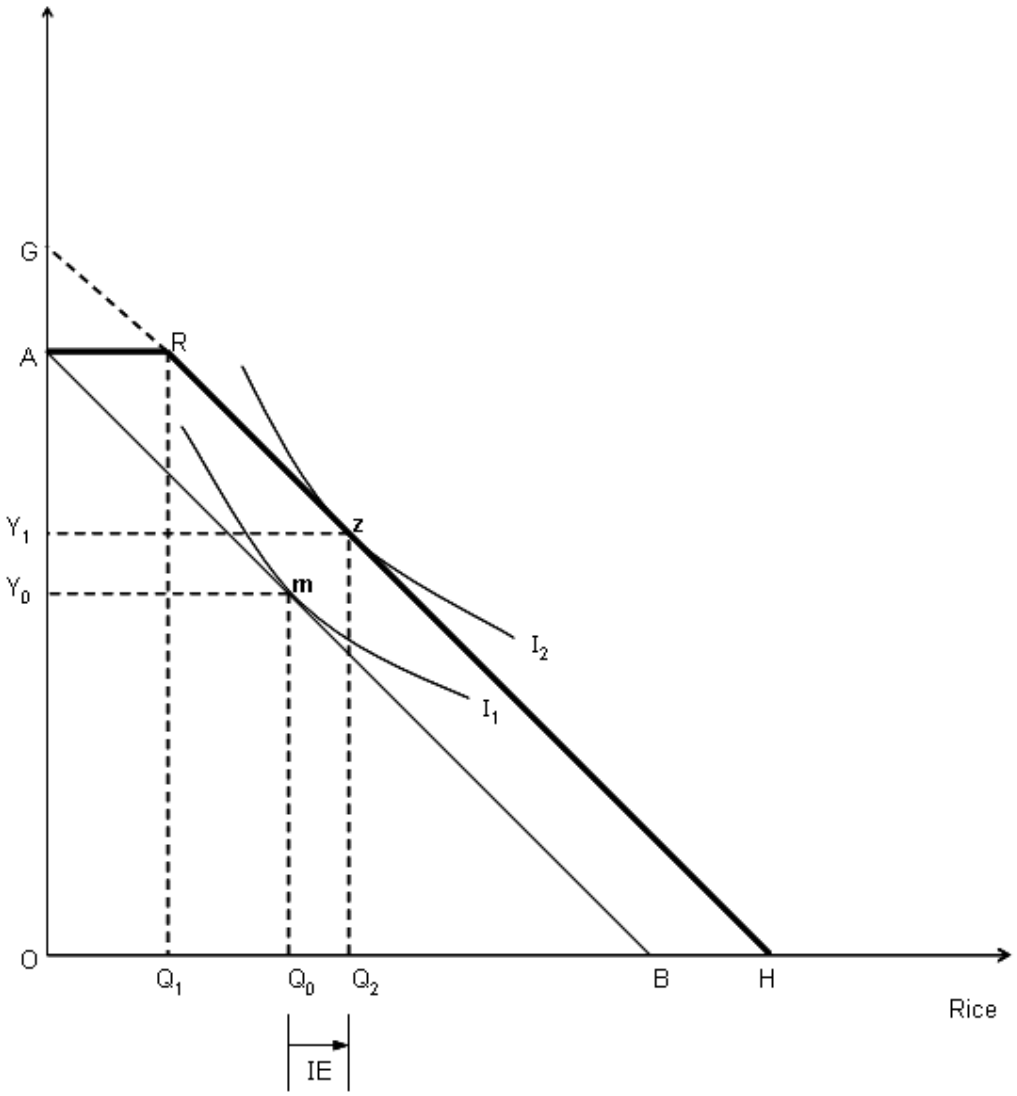


**Figure A4 — Consumption effects of an inframarginal rice ration**



## APPENDIX 4

## CALCULATION OF TRANSFER DELIVERY COSTS

This section provides the calculations of the fiscal costs of delivering the transfer amount (food and cash) to the point of distribution (that is, union *parishad* [UP] premises for food transfer and local bank branches for cash transfer).

The cost of cash transfers involves only the bank transaction cost (or processing fee) of 0.1 percent of the amount of money transferred. A 15 percent value-added tax (VAT) is charged on the processing fee. Therefore, the cost of transferring 1 taka to a program beneficiary at the distribution point (that is, the local bank branch in case of cash transfers) is 1.00115 taka, which includes the value of the transfer itself (that is, 1 taka). In other words, the transfer cost is only 0.00115 taka (0.115 paisa) per taka transferred, or 15 paisa per Tk 1,000 transferred to a cash recipient.

The calculations for food transfers and the method of calculation are provided in Table A2. Table A3 shows the breakdown of costs incurred at ports and internal transport, storage, and handling (ITSH) costs for imported wheat.

**Table A2–Calculation of delivery costs of food transfers and costs per taka transferred, 2006**

| Item | Rice | Wheat | *Atta* | Total[a] |
|---|---|---|---|---|
| | | (taka/metric ton) | | |
| a. Purchase cost of imported grains (c.i.f. price @$150/MT) | - | 10,092 | - | - |
| b. Purchase cost of local grains (domestic procurement price) | 14,500 | 12,000 | - | |
| c. Milling, fortification, and bagging costs for *atta* | - | - | 1,342 | - |
| d. Adjusted purchase costs[b] | 14,500 | 10,166 | 11,508 | 13,181 |
| e. Costs incurred at the ports; and internal transportation, storage, and handling (ITSH) costs for imported grains[c] | - | 2,689 | - | - |
| f. ITSH costs for local grains[d] | 1,663 | 1,663 | - | - |
| g. Delivery cost from LSD/mill to distribution point (UP) | 205 | 205 | 205 | - |
| h. Adjusted costs of leakage and losses[e] | 122 | 254 | - | - |
| i. Adjusted total delivery costs including leakage and losses | 2,016 | 3,108 | 3,108 | 2,580 |
| j. Adjusted total cost (d + i) | 16,516 | 13,274 | 14,616 | 15,761 |
| k. Cost/taka 1 transferred (j / d) | 1.14 | 1.31 | 1.27 | 1.20 |

Source: Calculated from data provided by WFP-Bangladesh, and the IFPRI household survey.

Notes:

[a] In 2006, the composition of total food distributed in IGVGD, FSVGD, and FFA programs were rice, 58 percent; fortified *atta*, 36 percent; and wheat, 6 percent (IFPRI household survey). Estimates for total food are adjusted according to this composition.

[b] Purchase costs are adjusted by taking the following factors into account: In 2005–06, GoB food contribution was 60 percent; and WFP/donors, 40 percent. GoB supplied the entire quantity of rice. Using the composition of total food distributed to the programs, our calculation suggests that 96 percent of all distributed wheat (including the wheat used for producing fortified *atta*) was imported and only 4 percent was domestically procured by GoB.

[c] For imported wheat, WFP-Bangladesh provided the information on costs incurred at the ports and internal transportation, storage, and handling (ITSH) costs. See Table A3 for the breakdown of these costs.

[d] We calculated ITSH costs for local rice and wheat as follows: The total handling and transportation cost of imported gains from ports silo/CSD/LSD is Tk 1,900 per metric ton (see Table A3 for cost breakdown). This includes transport cost of Tk 970. Since the ports are located at the southern end of the country, we used half of the transport cost (that is, Tk 485/MT) to reflect the average transport cost for domestically procured grains. Thus, we estimated the total handling and transport cost for local grains at Tk 1,415. We added the storage cost of Tk 248/MT (see Table A3) to transport and handling costs. Therefore, the total ITSH cost for local rice and wheat is estimated at Tk 1,663 per metric ton.

[e] Leakage and losses for imported wheat is 2.57 percent (1.55 percent at the ports plus 1.02 percent in internal distribution); and for local rice and wheat, 1.02 percent. Leakage/losses costs for wheat are adjusted for imported and domestic shares of distribution. Leakage/losses estimates are obtained from Ahmed et al. (2003).

**Table A3 — Costs incurred at ports and internal transport, storage, and handling (ITSH) costs for imported wheat, 2006**

| Item | Chartered shipment (bulk wheat) |
|---|---|
| | (taka/metric ton) |
| **I. Lightening at Outer Anchorage, Unloading, and Clearance at the Ports of Discharge** | |
| a) Lightening charges at outer anchorage | 176.00 |
| b) River dues and landing charges (1+2+3) | 365.54 |
| 1) River dues | 34.10 |
| 2) Landing charges | 46.00 |
| 3) Sliding charges | 19.85 |
| 4) VAT for the above 3 items (15%) | 15.00 |
| 5) Stevedoring charges (at jetty): | 200.00 |
| 6) Weighbridge charges | 2.50 |
| 7) Levy charges | 6.85 |
| 8) Crane charges | 5.00 |
| 9) VAT for the above 3 items (15%) | 2.15 |
| 10) Rigging gang | 25.00 |
| 11) Other miscellaneous charges | 6.00 |
| 12) Receiver agent fees (per vessel) | 0.05 |
| 13) Surveyor cost (mother plus lightering vessel at outer) (8,280 x 2) | 1.66 |
| 14) Surveyor cost at jetty (6,900 x 2) | 1.38 |
| c) Subtotal - I ( a + b) | 541.54 |
| **II. Handling/Transportation Costs from Ports to Silo, CSD/LSD** | |
| a) Establishment costs | 360.00 |
| b) Loading and unloading charges | |
| c) Cost of 12 gunny bags | 497.00 |
| d) Replacement cost of torn Gunny bags | 42.00 |
| e) Internal freight (port to LSDs nearest to distribution points) | 970.00 |
| f) Contingency | 2.00 |
| g) Quality control charges | 28.50 |
| h) Other charges (if any) | |
| i) Subtotal - II (a + b + c + d + e + f + g + h) : | 1,899.50 |
| **III. Storage Charges at Silo/CSD/LSD** | |
| a) Storage at CSD/LSD | 213.00 |
| b) Unloading and reloading charges | 35.00 |
| c) Other charges (if any at the transit points) | |
| d) Subtotal - III (a + b + c) | 248.00 |
| **IV. TOTAL ITSH COSTS (I + II + III)** | 2,689.04 |

Source: WFP - Bangladesh.

# APPENDIX 5

## A REVIEW OF THE LITERATURE ON WOMEN'S EMPOWERMENT AND INTRAHOUSEHOLD RELATIONS

### Definitions and Frameworks of Empowerment

Empowerment is generally defined as both an outcome (having greater access to and control over resources and decisionmaking ability) and a process of change (the process of expanding people's freedom to act and ability to make choices) (Alsop, Bertelsen, and Holland 2006; Datta and Kornberg 2002; Kabeer 2001). Other terms often associated with empowerment as both an outcome and a process are capability and power. Stemming from Amartya Sen's (1999) capabilities approach, many argue that empowerment is closely related to increasing the capacity of the poor (Alsop, Bertelsen, and Holland 2006; Stern, Dehier, and Rogers 2005; Nussbaum 2000). Others stress the importance of power relations, referring to empowerment as an increase in the "power over" (control) and the "power to" (the ability and freedom to make decisions) (Mosedale 2005; Datta and Kornberg 2002). Deshmukh-Ranadive points to another type of power, the "power within," to capture the individual's sense of freedom from restriction.

Given the understanding that empowerment is both an end and a process, an outcome and an instrument, many authors have designed frameworks, drawing on a variety of disciplines, to better explain and illustrate this concept. Most describe the opportunity structure (formal and informal institutions), agency (individual and collective assets and capacities), and the interaction between these as determinants of empowerment (Alsop, Bertelsen, and Holland 2006; Narayan 2005; Petesch et al. 2005). Alsop, Bertelsen, and Holland (2006) and Narayan (2005) identify the components or determinants of agency. These are informational, organizational, material, social, financial, human, and psychological assets and capabilities. The opportunity structure is defined as the broader social and political context in which actors pursue their interests (Narayan 2005; Petesch et al. 2005). Changing the opportunity structure to create space for the disadvantaged involves removing the formal and informal barriers to participation (Narayan 2005). Formal institutions include the laws, rules, and regulations of states, markets, civil society, and international actors, while informal institutions include the social norms that can subvert formal rules.

This framework implies that empowerment is multidimensional and cannot be fully achieved by simply increasing individuals' agency or by just removing institutional barriers (Alsop, Bertelsen, and Holland 2006; Petesch et al. 2005; Narayan 2005). Rather, "Empowerment of the poor, excluded, or subordinate groups is a product of the interaction between the agency of these groups and the opportunity structure in which this agency is potentially exercised" (Petesch et al. 2005, 41). This framework also suggests that empowerment is a universal concept that is applicable in a variety of contexts and settings. Although some support this notion (Nussbaum 2000), others point out the relational and context-specific nature of empowerment (Mason 2005). In acknowledgement of the complexities of empowerment, it is important that frameworks allow for some flexibility and variation by context and location (Narayan 2005).

The complexity of empowerment also makes measurement more difficult. While there may be some universal measures of empowerment and disempowerment such as domestic violence (Narayan 2005), the extent to which empowerment is context-specific poses a challenge (Mason 1986, 2005; Malhotra and Schuler 2005; Narayan 2005; Petesch et al. 2005). The various dimensions and levels of empowerment also present measurement

challenges (Malhotra and Schuler 2005; Narayan 2005). For these reasons, few empirical studies have attempted to shed light on the empowerment impacts of development interventions. Given the importance of empowerment as both an outcome and an instrument for promoting development effectiveness, however, more development organizations have made empowerment of the poor a specific objective of their work. Thus, it is worth examining whether such efforts are succeeding or if new approaches are required. Some questions dealt with in this study include: Does placing resources directly in the hands of women enhance their empowerment, or are other approaches required? Do the type and size of transfers matter for empowerment?

Using both universal and context-specific indicators that aim to capture various dimensions of empowerment, this study examines the potential for development interventions targeted to women to promote greater social change through the empowerment process. Given the fact that the programs examined in this paper all have the objective of empowering poor women, it is important to assess whether this goal is being achieved.

## The Impact of Targeting Resources to Women: A Review of the Literature

### *Intra-Household Relations: Theory and Evidence*

This section discusses how changes in our understanding of household decisionmaking processes have given us new insights into the design of transfer programs. Early models of the household did not pay attention to differences in bargaining power between men and women within the household. These models, referred to as unitary models, view the household as a single unit in which individuals have the same preferences and agree on how to combine time and goods purchased in markets and produced at home to maximize their welfare (Haddad, Hoddinott, and Alderman 1997). That is, households are assumed to have only one utility function. In addition, this model assumes that individual members pool their resources and that all outcomes are Pareto efficient. Collective models, such as those developed by Chiappori (1988, 1992) do not assume that individuals share the same preferences or pool their resources, but do require that allocations are Pareto efficient. Among these are cooperative bargaining models, which often use game-theoretic models to show how conflicts of interest among family members are resolved (McElroy 1990; McElroy and Horney 1981). These models introduce the concept of a fall-back position or threat point, determined by the individual's "extrahousehold environmental parameters." This means that the opportunity cost of family membership is important for the distribution of income and resources within the household and that a person's fall-back position strengthens their ability to bargain within the household. Agarwal (1997) builds on the concept of the fall-back position by defining the specific factors that influence an individual's bargaining power. These are identified as ownership of and control over assets (particularly land), access to employment and other income-earning means, access to communal resources, and access to traditional social support systems.

Noncooperative models of the household drop many of the assumptions of the collective bargaining model including Pareto efficiency and enforceable and binding contracts while maintaining the concepts of the fall-back position and Nash bargaining (Agarwal 1997). The lack of binding agreements in this model means that individuals act independently without coordinating with each other. Other models combine cooperative and noncooperative bargaining models. Lundberg and Pollak (1994) describe a "separate spheres" model, essentially a cooperative model in which the fall-back position is not divorce but a noncooperative game. Other combined approaches recognize the possibility that elements of

conflict, cooperation, and collective decisionmaking may all exist within the same household (Agarwal 1997).

### *The Impact of Increasing Women's Control of Resources*

A growing body of empirical evidence has shown that the unitary model is inadequate to capture household dynamics; this evidence is reviewed in Haddad, Hoddinott, and Alderman (1997), Behrman (1997), Strauss and Thomas (1995) and Quisumbing (2003), among others. This evidence suggests that individuals within households may have different preferences and may bargain over the household's resources to realize those preferences. For instance, Hoddinott and Haddad (1995) show that changes in the control over income among individual family members leads to changes in expenditure patterns. Using data from the Côte d'Ivoire, they find that increasing female income shares leads to greater expenditures on food and less on alcohol and cigarettes. Doss (2005) supports these findings with data from Ghana. She found that increasing women's share of assets leads to changes in the expenditure patterns of the household with more funds devoted to education and food. Furthermore, Thomas (1992) shows that in Brazil additional income controlled by women raises the share of the household budget spent on health, education, and household services three to six times more than if the additional income is controlled by men.

A number of studies also examine the relationship between women's bargaining power and other development outcomes. Quisumbing and Maluccio (2003) show that the level of women's assets at marriage, an indication of their bargaining power, is associated with higher expenditure shares on education in Bangladesh and South Africa. Also, women's having greater assets at marriage has been shown to decrease the incidence of illness among girl children (Hallman 2000). Using other measures of bargaining power, such as education, has produced similar results. Smith and Haddad (2000) show that increases in women's education contribute to reducing the rate of child malnutrition. Using a measure of decisionmaking power based on indicators such as whether a woman works for cash, her age at marriage, the age difference between her and her husband, and the education difference between her and her husband, Smith et al. (2003) find that increasing women's status relative to men reduces child malnutrition in Sub-Saharan Africa, Latin America and the Caribbean, and, particularly, South Asia.

Other studies have shown that other interventions—such as changes in divorce law and changes in economic opportunities available to women—can influence women's bargaining power. Rangel (2006) finds that increases in women's bargaining power due to the extension of alimony rights to cohabitants in Brazil increased leisure time of women and led to greater investments in the schooling of children, particularly older girls. Ashraf, Karlan, and Yin (2006) show that access to a commitment savings service increased women's decisionmaking power and shifted household expenditures toward female-oriented goods in the Philippines. Such studies show that there are other measures available to policymakers to enhance the status of women and promote greater development effectiveness. In Bangladesh, Grameen Bank and Bangladesh Rural Advancement Committee (BRAC) programs have had significant effects on a variety of measures of women's empowerment, including mobility, economic security, control over income and assets, political and legal awareness, and participation in public protests and political campaigning (Hashemi, Schuler, and Riley 1996). Pitt and Khandker's (1998) study on the impacts of three NGO microcredit programs tests for the differential impact of male and female borrowing on eight outcomes: boy's and girl's schooling, women's and men's labor supply, total household expenditure, contraception use, fertility, and value of women's nonland assets. They find that female borrowing had a significant effect on seven out of eight of these. By contrast, male borrowing was significant

in only three out of eight. One of the implications of their results is that household consumption increases by 18 taka for every 100 taka lent to a woman and by 11 taka for every 100 taka lent to a man (Morduch 1999). Kabeer (1998), using participatory evaluation techniques, finds that despite increased workloads due to receipts of credit, women feel empowered by it. They clearly feel more self-fulfilled and valued by other household members and the community.

Because the literature has shown that increasing women's control of resources is associated with improved development outcomes, it is no surprise that a number of interventions now target transfers directly to women. One of the most famous of these was Mexico's nationwide program, Programa Nacional de Educación, Salud, y Alimentación (PROGRESA), initiated in 1997 to fight extreme poverty in the country's rural areas. Now renamed Oportunidades and expanded to urban areas, this multisectoral program provides an integrated package of health, nutrition, and educational services to poor families. The program offers monetary assistance, nutritional supplements, educational grants, and a basic health package to its beneficiaries for at least three consecutive years. One of the innovative aspects of the program is its attempt to transfer the monetary assistance to women. An impact evaluation shows that the program has put additional resources under women's control, given women greater control over their movements, educated them on health and nutrition issues, provided new spaces in which to communicate with other women, educated girls to improve their position in the future, and increased their self-confidence and self-esteem (Skoufias and McClafferty 2003; Adato et al. 2003). Transfer amounts received by the wife also decreased the incidence of husbands' sole decisionmaking for five of eight outcomes. These outcomes are medical treatment, child school attendance, child clothing expenses, food expenditures, and major household repairs. The change in decisionmaking patterns is consistent with PROGRESA's focus on primary health care, nutrition, and education, and its objective of empowering women to participate more fully in household decisionmaking. PROGRESA transfers also have a small but significant negative effect on the probability that the woman will let her husband decide how to spend her additional income. The significance of the monetary transfers confirms the belief that transfers targeted to poor women have the potential to change decisionmaking patterns within households.

These studies show that increasing women's bargaining power relative to men tends to be reflected in positive changes in the well-being of women and their families. In their study of household dynamics in the Bolivian Amazon, however, Patel et al. (2007) suggest that the type of power structure within the family is also important. They find that parents who make joint decisions regarding food acquisition and preparation have children with slightly better BMI than children whose father or mother makes food decisions independently. Thus, clearly more work in this area is warranted to determine the most effective approaches to increase women's bargaining power and development effectiveness.

## APPENDIX 6

**Table A4 — Estimating the propensity score: Determinants of participation in the four programs**

| Variable | IGVGD | p-value | FSVGD | p-value | FFA | p-value | RMP | p-value |
|---|---|---|---|---|---|---|---|---|
| Age | -0.10 | 0.17 | 0.05 | 0.59 | -0.05 | 0.56 | 0.09 | 0.19 |
| Age squared | 0.00 | **0.03** | 0.00 | 0.81 | 0.00 | 0.25 | 0.00 | 0.13 |
| Total assets at marriage | 0.01 | **0.10** | 0.01 | 0.32 | 0.02 | 0.13 | 0.01 | 0.13 |
| No of boys aged 0–4 | 0.23 | 0.13 | 0.14 | 0.46 | . | . | -0.53 | **0.00** |
| No. of girls aged 0–4 | 0.23 | 0.14 | 0.29 | 0.14 | -0.14 | 0.44 | -0.50 | **0.00** |
| No. of boys aged 5–14 | 0.33 | **0.00** | 0.13 | 0.34 | -0.08 | 0.49 | -0.07 | 0.43 |
| No. of girls aged 5–14 | 0.34 | **0.00** | 0.15 | 0.27 | 0.11 | 0.35 | 0.09 | 0.32 |
| No. of males aged 15–19 | 0.12 | 0.55 | 0.08 | 0.81 | 0.19 | 0.47 | 0.12 | 0.46 |
| No. of females aged 15–19 | 0.47 | **0.06** | 0.57 | **0.05** | 0.61 | **0.10** | 0.27 | 0.25 |
| No. of males aged 20–34 | 0.31 | 0.13 | 0.03 | 0.90 | -0.09 | 0.70 | -0.26 | 0.13 |
| No. of females aged 20–34 | 0.48 | **0.02** | 0.46 | **0.06** | 0.42 | **0.08** | 0.32 | **0.03** |
| No. of males aged 55 plus | 0.09 | 0.70 | 0.52 | 0.13 | -0.13 | 0.63 | -0.22 | 0.30 |
| No. of females aged 55 plus | 0.24 | 0.25 | 0.24 | 0.46 | -0.06 | 0.83 | 0.13 | 0.45 |
| Highest years of female education | -0.07 | 0.21 | -0.02 | 0.73 | 0.00 | 1.00 | 0.05 | 0.27 |
| No. of males w/ primary education | 0.29 | 0.16 | 0.49 | **0.10** | 0.30 | 0.26 | 0.22 | 0.23 |
| No. of females w/ primary education | 0.35 | 0.19 | 0.18 | 0.53 | 0.02 | 0.96 | -0.38 | 0.13 |
| Years of education of male + female HH heads | 0.04 | 0.41 | -0.05 | 0.37 | -0.07 | 0.26 | -0.06 | 0.13 |
| HH had radio in 2004 | 0.16 | 0.71 | -0.18 | 0.69 | . | . | . | . |
| HH had bike in 2004 | 0.31 | 0.53 | 0.43 | 0.40 | 1.20 | **0.10** | 0.86 | **0.02** |
| HH had van in 2004 | 0.29 | 0.44 | -0.51 | 0.28 | 1.39 | **0.05** | -0.65 | 0.16 |
| HH had tubewell in 2004 | -0.32 | 0.33 | 0.17 | 0.54 | 0.08 | 0.76 | -0.16 | 0.46 |
| HH had *dheki* in 2004 | 0.73 | 0.14 | . | . | . | . | 0.84 | **0.07** |
| HH had fishing net in 2004 | 0.72 | **0.01** | 0.03 | 0.94 | 0.44 | 0.25 | -0.12 | 0.66 |
| HH had plow in 2004 | -0.73 | 0.36 | 0.61 | 0.38 | 0.02 | 0.90 | -0.92 | 0.30 |
| HH had goat in 2004 | 0.18 | **0.07** | 0.26 | 0.12 | . | . | 0.06 | 0.54 |
| HH had cows in 2004 | 0.25 | 0.21 | 0.05 | 0.77 | -0.74 | **0.01** | 0.04 | 0.77 |
| HH had chickens in 2004 | 0.09 | **0.00** | 0.06 | **0.02** | 0.04 | 0.31 | 0.08 | **0.00** |
| Total land in 2004 | 0.06 | **0.00** | 0.04 | **0.01** | 0.05 | **0.01** | 0.03 | **0.00** |
| HH has earth floor | 0.60 | 0.16 | . | . | 0.06 | 0.87 | . | . |
| Cooking fuel is firewood | 0.27 | **0.10** | 0.97 | **0.00** | 0.25 | 0.18 | 0.25 | **0.06** |
| Cooking fuel is dry dung | 0.47 | **0.05** | 0.29 | 0.33 | 0.35 | 0.34 | 0.12 | 0.62 |
| HH has electricity | 0.35 | 0.18 | . | . | 0.31 | 0.47 | . | . |
| HH has sanitary latrine | 0.59 | **0.02** | 1.63 | **0.01** | -0.63 | **0.03** | . | . |
| Drinking water from own tubewell | 0.09 | 0.77 | 0.26 | 0.33 | -0.27 | 0.32 | 0.26 | 0.19 |

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

**Table A5 — Impact of participation in IGVGD, by schooling Terciles**

| | Schooling | | |
|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years |
| **Panel 1: Work** | | | |
| Decision to work | | | |
| Woman and husband | 0.145 | 0.371 | 0.391 |
| t-statistic | 1.071 | **2.171** | **2.869** |
| Decision to spend money earned | | | |
| Woman and husband | 0.168 | 0.421 | 0.331 |
| t-statistic | 1.229 | **1.685** | 1.317 |
| Ever taken loan from NGO | 0.258 | 0.319 | 0.341 |
| t-statistic | **1.761** | 1.534 | **1.658** |
| **Panel 2: Loans** | | | |
| Decision to spend loan proceeds | | | |
| Woman alone | -0.276 | -0.591 | 0.163 |
| t-statistic | -1.023 | **-1.857** | **2.009** |
| **Panel 3: Household expenditures** | | | |
| Who makes the decision on the following household expenditures | | | |
| FOOD | | | |
| Woman alone | 0.058 | -0.395 | -0.291 |
| t-statistic | 0.370 | **-1.976** | -1.324 |
| Woman and husband | 0.070 | 0.332 | 0.190 |
| t-statistic | 0.473 | **1.728** | 0.907 |
| HOUSING | | | |
| Woman alone | 0.008 | -0.348 | -0.391 |
| t-statistic | 0.050 | **-1.730** | **-1.783** |
| EDUCATION | | | |
| Woman and husband | 0.092 | 0.315 | 0.361 |
| t-statistic | 0.636 | 1.589 | **1.956** |
| **Panel 4: Mobility** | | | |
| Whether woman decides by herself to go to: | | | |
| Bazaar | -0.108 | -0.454 | -0.289 |
| t-statistic | -0.684 | **-2.282** | -1.318 |
| Cinema | 0.072 | -0.447 | -0.369 |
| t-statistic | 0.563 | **-2.275** | **-1.686** |
| **Panel 5: Reproductive Decisions** | | | |
| Whether husband ever used birth control | 0.011 | 0.070 | 0.065 |
| t-statistic | 0.204 | **1.859** | **1.942** |
| Who made the decision to use birth control | | | |
| Woman alone or woman and husband | -0.067 | 0.349 | 0.007 |
| t-statistic | -0.437 | **1.719** | 0.029 |

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

**Table A6 — Impact of participation in FFA, by terciles of schooling, landholdings, and assets**

| | Schooling terciles | | | Landholdings terciles | | | Asset terciles | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years | (4) Tercile 1 | (5) Tercile 2 | (6) Tercile 3 | (7) Tercile 1 | (8) Tercile 2 | (9) Tercile 3 |
| **Panel 1: Work** | | | | | | | | | |
| Whether working now | 0.267 | -0.016 | 0.215 | 0.027 | 0.305 | 0.013 | 0.093 | 0.201 | -0.049 |
| t-statistic | **2.214** | -0.269 | 0.869 | 0.118 | 1.421 | 0.137 | 0.701 | 1.357 | -1.782 |
| Decision to work | | | | | | | | | |
| t-statistic | **-2.466** | -0.909 | 0.567 | -0.041 | 0.370 | -0.990 | -1.601 | -1.486 | -2.356 |
| Decision to spend money earned | | | | | | | | | |
| Woman and husband | 0.082 | 0.337 | 0.042 | -0.099 | 0.139 | 0.361 | -0.069 | 0.121 | 0.394 |
| t-statistic | 0.402 | **1.995** | 0.144 | -0.369 | 0.560 | 1.603 | -0.321 | 0.566 | 1.583 |
| **Panel 2: Loans** | | | | | | | | | |
| Ever taken loan from NGO | 0.121 | 0.248 | 0.235 | -0.073 | 0.196 | 0.290 | 0.031 | 0.274 | 0.102 |
| t-statistic | 0.812 | 1.378 | 1.196 | -0.335 | 1.022 | 1.769 | 0.185 | **2.127** | 0.416 |
| **Panel 3: Household expenditures** | | | | | | | | | |
| Who decides on the following household expenditures: | | | | | | | | | |
| FOOD | | | | | | | | | |
| Woman alone | 0.111 | -0.057 | 0.035 | -0.187 | 0.198 | 0.013 | 0.288 | -0.131 | -0.088 |
| t-statistic | 0.669 | -0.260 | 0.127 | -1.060 | 1.162 | 0.057 | **1.663** | -0.702 | -0.337 |
| Woman and husband | 0.090 | 0.055 | 0.360 | 0.513 | -0.162 | 0.008 | -0.096 | 0.200 | 0.141 |
| t-statistic | 0.576 | 0.250 | 1.587 | **2.161** | -0.707 | 0.036 | -0.507 | 1.207 | 0.608 |
| HOUSING | | | | | | | | | |
| Woman alone | 0.024 | -0.056 | 0.260 | -0.176 | 0.193 | -0.013 | 0.289 | -0.151 | -0.088 |
| t-statistic | 0.160 | -0.270 | 1.504 | -1.031 | 1.280 | -0.065 | **1.788** | -0.851 | -0.388 |
| Woman and husband | 0.163 | 0.272 | 0.117 | 0.474 | -0.135 | 0.214 | -0.048 | 0.198 | 0.391 |
| t-statistic | 1.165 | 1.427 | 0.421 | **2.168** | -0.623 | 1.022 | -0.277 | 1.207 | **1.943** |
| HEALTH CARE | | | | | | | | | |
| Woman alone | 0.068 | -0.089 | 0.246 | -0.194 | 0.217 | -0.004 | 0.301 | -0.103 | -0.149 |
| t-statistic | 0.448 | -0.412 | 1.047 | -1.171 | 1.431 | -0.020 | **1.865** | -0.599 | -0.585 |
| Woman and husband | 0.207 | 0.097 | 0.124 | 0.512 | -0.130 | 0.074 | -0.038 | 0.209 | 0.203 |
| t-statistic | 1.486 | 0.476 | 0.515 | **2.201** | -0.569 | 0.326 | -0.216 | 1.285 | 0.872 |
| Woman alone or woman and husband | 0.275 | 0.008 | 0.370 | 0.319 | 0.088 | 0.070 | 0.263 | 0.106 | 0.053 |
| t-statistic | **1.707** | 0.043 | 1.296 | 1.366 | 0.419 | 0.392 | 1.435 | 0.574 | 0.247 |

(continued)

| | Schooling terciles | | | Landholdings terciles | | | Asset terciles | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years | (4) Tercile 1 | (5) Tercile 2 | (6) Tercile 3 | (7) Tercile 1 | (8) Tercile 2 | (9) Tercile 3 |
| CLOTHING | | | | | | | | | |
| Woman alone | 0.001 | -0.089 | 0.196 | -0.194 | 0.217 | -0.133 | 0.288 | -0.198 | -0.162 |
| t-statistic | 0.009 | -0.412 | 0.832 | -1.187 | 1.542 | -0.628 | **1.726** | -1.133 | -0.613 |
| Woman and husband | 0.200 | 0.111 | 0.224 | 0.501 | -0.120 | 0.107 | -0.026 | 0.238 | 0.215 |
| t-statistic | 1.484 | 0.506 | 0.889 | **2.200** | -0.542 | 0.478 | -0.154 | 1.443 | 0.917 |
| **Panel 4: Control over household resources** | | | | | | | | | |
| Whether women controls money needed to buy | | | | | | | | | |
| Food from the market | -0.035 | -0.071 | 0.159 | -0.050 | 0.133 | -0.207 | 0.070 | -0.166 | -0.091 |
| t-statistic | -0.284 | -0.406 | 0.572 | -0.229 | 0.658 | **-3.343** | 0.420 | -1.115 | -0.587 |
| Medicine for self | 0.076 | -0.042 | 0.234 | 0.068 | 0.171 | -0.163 | 0.066 | -0.008 | -0.042 |
| t-statistic | 0.557 | -0.250 | 0.827 | 0.307 | 0.834 | **-2.786** | 0.392 | -0.046 | -0.264 |
| **Panel 5: Mobility** | | | | | | | | | |
| Whether woman decides by herself to go to: | | | | | | | | | |
| Bazaar | 0.097 | 0.030 | 0.002 | 0.027 | 0.035 | 0.100 | 0.293 | -0.182 | 0.068 |
| t-statistic | 0.637 | 0.148 | 0.010 | 0.145 | 0.191 | 0.508 | **1.652** | -1.000 | 0.311 |
| Clinic | -0.052 | 0.059 | 0.073 | -0.131 | 0.036 | 0.153 | 0.213 | -0.337 | 0.169 |
| t-statistic | -0.323 | 0.285 | 0.257 | -0.660 | 0.192 | 0.732 | 1.154 | **-1.809** | 0.705 |
| Cinema | 0.123 | -0.152 | 0.150 | -0.080 | 0.155 | -0.044 | 0.137 | -0.048 | 0.013 |
| t-statistic | 1.443 | -0.792 | 2.447 | -0.804 | **1.983** | -0.289 | 1.012 | -0.364 | 0.094 |
| **Panel 6: Reproductive Decisions** | | | | | | | | | |
| Whether husband ever used birth control | -0.105 | -0.043 | 0.175 | 0.304 | -0.334 | 0.066 | -0.049 | -0.123 | 0.074 |
| t-statistic | -1.066 | -0.440 | 2.664 | **2.387** | **-2.414** | **2.326** | -0.617 | -0.953 | 2.161 |
| Who made the decision to use birth control | | | | | | | | | |
| Woman alone or woman and husband | 0.235 | 0.207 | -0.339 | -0.022 | 0.188 | 0.237 | 0.086 | 0.102 | 0.013 |
| t-statistic | 1.540 | 0.990 | **-1.684** | -0.084 | 0.846 | 1.154 | 0.171 | 0.183 | 0.239 |
| **Panel 7: Domestic abuse** | | | | | | | | | |
| Husband ever threatened divorce | 0.028 | 0.052 | 0.000 | 0.026 | -0.005 | 0.029 | 0.006 | 0.082 | 0.015 |
| t-statistic | 0.190 | 0.511 | . | 0.217 | -0.046 | 0.207 | 0.034 | **2.304** | 0.712 |
| Husband ever threatened to take another wife | 0.038 | 0.052 | 0.000 | 0.026 | -0.005 | 0.044 | 0.004 | 0.095 | 0.015 |
| t-statistic | 0.251 | 0.500 | . | 0.199 | -0.044 | 0.307 | 0.024 | **2.476** | 0.713 |
| Woman ever verbally abused | -0.038 | 0.217 | -0.500 | -0.008 | 0.243 | -0.297 | -0.004 | 0.114 | -0.370 |
| t-statistic | -0.199 | 0.912 | **-1.679** | -0.033 | 1.085 | -1.199 | -0.021 | 0.498 | -1.391 |
| Woman ever physically abused | -0.169 | 0.169 | -0.611 | -0.102 | 0.097 | -0.310 | -0.059 | 0.017 | -0.406 |
| t-statistic | -1.108 | 1.140 | **-2.005** | -0.497 | 0.562 | -1.390 | -0.366 | 0.084 | -1.497 |

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

**Table A7 — Impact of participation in RMP, by terciles of schooling, landholdings, and assets**

| | Schooling | | | Landholdings | | | Assets | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years | (4) Tercile 1 | (5) Tercile 2 | (6) Tercile 3 | (7) Tercile 1 | (8) Tercile 2 | (9) Tercile 3 |
| **Panel 1: Work** | | | | | | | | | |
| Whether working now | 0.179 | 0.130 | 0.161 | 0.085 | 0.236 | 0.104 | 0.063 | 0.210 | 0.094 |
| t-statistic | **1.884** | 0.959 | 0.860 | 0.516 | **1.740** | 0.867 | 0.651 | 1.372 | 0.649 |
| Decision to work | | | | | | | | | |
| Woman alone | 0.183 | 0.029 | 0.304 | 0.007 | 0.004 | 0.439 | 0.027 | 0.132 | 0.212 |
| t-statistic | **1.702** | 0.211 | 1.411 | 0.042 | 0.023 | **2.608** | 0.256 | 0.899 | 1.196 |
| Woman and husband | -0.116 | -0.051 | -0.326 | -0.119 | 0.033 | -0.345 | -0.065 | -0.096 | -0.262 |
| t-statistic | -1.269 | -0.398 | -1.529 | -1.095 | 0.341 | **-2.220** | -0.779 | -0.760 | -1.467 |
| Decision to spend money earned | | | | | | | | | |
| Woman and husband | 0.002 | -0.291 | -0.349 | -0.105 | -0.116 | -0.143 | -0.160 | -0.069 | -0.204 |
| t-statistic | 0.024 | **-1.847** | -1.627 | -0.834 | -0.805 | -0.997 | -1.471 | -0.506 | -1.152 |
| **Panel 2: Loans** | | | | | | | | | |
| Decision to take loan | | | | | | | | | |
| Woman alone | 0.248 | 0.262 | 0.636 | 0.342 | 0.124 | 0.597 | 0.245 | 0.186 | 0.505 |
| t-statistic | 0.989 | 0.980 | **2.277** | 0.946 | 0.428 | **3.478** | 0.881 | 0.656 | **2.008** |
| Woman and husband | -0.211 | -0.255 | -0.607 | -0.185 | -0.213 | -0.423 | -0.436 | -0.145 | -0.308 |
| t-statistic | -0.892 | -0.873 | **-1.951** | -0.651 | -0.852 | -1.275 | -1.629 | -0.496 | -1.011 |
| Decision to spend loan proceeds | | | | | | | | | |
| Woman alone | 0.300 | 0.262 | 0.636 | 0.371 | 0.133 | 0.595 | 0.250 | 0.216 | 0.549 |
| t-statistic | 1.191 | 1.006 | **2.509** | 1.057 | 0.468 | **5.107** | 0.917 | 0.780 | **2.406** |
| Woman and husband | -0.314 | -0.228 | -0.607 | -0.174 | -0.226 | -0.545 | -0.441 | -0.318 | -0.308 |
| t-statistic | -1.259 | -0.783 | **-1.891** | -0.599 | -0.891 | **-1.668** | **-1.678** | -1.133 | -1.017 |
| **Panel 3: Household expenditures** | | | | | | | | | |
| Who decides on the following household expenditures | | | | | | | | | |
| FOOD | | | | | | | | | |
| Woman alone | 0.326 | 0.404 | 0.233 | 0.172 | 0.401 | 0.248 | 0.197 | 0.432 | 0.341 |
| t-statistic | **2.659** | **2.510** | 1.029 | 0.987 | **2.549** | 1.452 | 1.524 | **2.698** | **1.883** |
| Woman and husband | -0.239 | -0.125 | -0.241 | -0.115 | -0.160 | -0.152 | -0.112 | -0.384 | -0.224 |
| t-statistic | **-2.073** | -0.979 | -1.379 | -0.823 | -1.469 | -1.005 | -1.220 | **-2.485** | -1.314 |
| Woman alone or woman and husband | 0.087 | 0.279 | -0.008 | 0.057 | 0.241 | 0.096 | 0.085 | 0.048 | 0.118 |
| t-statistic | 0.813 | **1.750** | -0.042 | 0.331 | 1.617 | 0.625 | 0.768 | 0.309 | 0.632 |

(continued)

| | Schooling | | | Landholdings | | | Assets | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years | (4) Tercile 1 | (5) Tercile 2 | (6) Tercile 3 | (7) Tercile 1 | (8) Tercile 2 | (9) Tercile 3 |
| HOUSING | | | | | | | | | |
| Woman alone | 0.311 | 0.408 | 0.211 | 0.197 | 0.385 | 0.237 | 0.212 | 0.447 | 0.294 |
| t-statistic | **2.544** | **2.678** | 0.932 | 1.078 | **2.521** | 1.376 | **1.675** | **2.839** | 1.551 |
| Woman and husband | -0.097 | -0.082 | -0.117 | -0.006 | -0.131 | -0.060 | -0.067 | -0.315 | 0.000 |
| t-statistic | -0.931 | -0.677 | -0.712 | -0.048 | -1.142 | -0.495 | -0.767 | **-2.024** | 0.000 |
| Woman alone or woman and husband | 0.214 | 0.326 | 0.094 | 0.191 | 0.254 | 0.177 | 0.145 | 0.132 | 0.294 |
| t-statistic | **1.808** | **2.063** | 0.465 | 1.026 | **1.669** | 1.047 | 1.232 | 0.858 | 1.474 |
| HEALTH CARE | | | | | | | | | |
| Woman alone | 0.326 | 0.394 | 0.313 | 0.227 | 0.346 | 0.305 | 0.232 | 0.455 | 0.294 |
| t-statistic | **2.641** | **2.463** | 1.399 | 1.253 | **2.213** | 1.821 | **1.802** | **2.907** | 1.545 |
| Woman and husband | -0.164 | -0.117 | -0.240 | -0.146 | -0.073 | -0.129 | -0.099 | -0.439 | -0.071 |
| t-statistic | -1.448 | -0.828 | -1.287 | -0.992 | -0.601 | -0.876 | -1.042 | **-2.697** | -0.469 |
| Woman alone or woman and husband | 0.163 | 0.276 | 0.074 | 0.081 | 0.273 | 0.176 | 0.133 | 0.016 | 0.224 |
| t-statistic | 1.494 | **1.882** | 0.396 | 0.471 | **1.913** | 1.213 | 1.182 | 0.131 | 1.190 |
| EDUCATION | | | | | | | | | |
| Woman alone | 0.341 | 0.438 | 0.233 | 0.220 | 0.369 | 0.304 | 0.260 | 0.501 | 0.235 |
| t-statistic | **2.799** | **2.758** | 1.063 | 1.224 | **2.303** | **1.896** | **2.098** | **3.170** | 1.227 |
| Woman and husband | -0.211 | -0.129 | -0.218 | -0.152 | -0.114 | -0.141 | -0.167 | -0.442 | -0.047 |
| t-statistic | **-1.926** | -0.934 | -1.113 | -1.152 | -0.966 | -0.937 | -1.659 | **-2.721** | -0.303 |
| Woman alone or woman and husband | 0.131 | 0.309 | 0.015 | 0.068 | 0.255 | 0.163 | 0.093 | 0.059 | 0.188 |
| t-statistic | 1.313 | **2.028** | 0.087 | 0.381 | **1.800** | 1.162 | 0.872 | 0.426 | 1.013 |
| CLOTHING | | | | | | | | | |
| Woman alone | 0.375 | 0.480 | 0.335 | 0.244 | 0.416 | 0.351 | 0.242 | 0.540 | 0.365 |
| t-statistic | **3.213** | **2.966** | 1.419 | 1.322 | **2.621** | **2.119** | **1.864** | **3.396** | **2.038** |
| Woman and husband | -0.178 | -0.160 | -0.056 | -0.093 | -0.076 | -0.164 | -0.085 | -0.338 | -0.118 |
| t-statistic | -1.569 | -1.173 | -0.312 | -0.701 | -0.658 | -1.104 | -0.945 | **-2.088** | -0.674 |
| Woman alone or woman and husband | 0.197 | 0.320 | 0.279 | 0.152 | 0.340 | 0.187 | 0.157 | 0.202 | 0.247 |
| t-statistic | 0.326 | 0.404 | 0.233 | 0.810 | **2.249** | 1.290 | 1.341 | 1.360 | 1.318 |
| **Panel 4: Control over household resources** | | | | | | | | | |
| Whether woman controls money needed to buy | | | | | | | | | |
| Food from the market | 0.264 | 0.339 | 0.098 | 0.238 | 0.272 | 0.151 | 0.165 | 0.299 | 0.224 |
| t-statistic | **2.391** | **2.247** | 0.562 | 1.286 | **1.883** | 1.024 | 1.419 | **1.945** | 1.176 |
| Clothing for self | 0.325 | 0.406 | 0.120 | 0.309 | 0.315 | 0.162 | 0.182 | 0.347 | 0.329 |
| t-statistic | **2.877** | **2.593** | 0.741 | 1.642 | **2.104** | 1.072 | 1.579 | **2.220** | **1.708** |

(continued)

| | Schooling | | | Landholdings | | | Assets | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) No schooling | (2) 1–4 years | (3) 4 + years | (4) Tercile 1 | (5) Tercile 2 | (6) Tercile 3 | (7) Tercile 1 | (8) Tercile 2 | (9) Tercile 3 |
| Medicine for self | 0.232 | 0.370 | 0.099 | 0.204 | 0.322 | 0.116 | 0.119 | 0.318 | 0.247 |
| t-statistic | **2.078** | **2.353** | 0.623 | 1.111 | **2.277** | 0.871 | 1.103 | **2.005** | 1.330 |
| Toiletries/ cosmetics for self | 0.239 | 0.359 | 0.059 | 0.209 | 0.312 | 0.116 | 0.110 | 0.223 | 0.306 |
| t-statistic | **2.267** | **2.391** | 0.715 | 1.139 | **2.130** | 0.927 | 1.061 | 1.477 | **1.718** |
| **Panel 5: Mobility** | | | | | | | | | |
| Whether woman decides by herself to go to | | | | | | | | | |
| Outside the community to visit friends | | | | | | | | | |
| or relatives | 0.303 | 0.391 | 0.357 | 0.163 | 0.365 | 0.429 | 0.123 | 0.464 | 0.435 |
| t-statistic | **2.575** | **2.468** | 1.537 | 0.831 | **2.285** | **2.560** | 1.011 | **2.908** | **2.466** |
| Bazaar | 0.278 | 0.376 | 0.249 | 0.274 | 0.267 | 0.305 | 0.167 | 0.307 | 0.388 |
| t-statistic | **2.354** | **2.457** | 1.105 | 1.450 | **1.696** | **1.808** | 1.346 | **1.910** | **2.202** |
| Clinic | 0.330 | 0.405 | 0.378 | 0.206 | 0.339 | 0.440 | 0.190 | 0.443 | 0.424 |
| t-statistic | **2.763** | **2.573** | **1.681** | 1.077 | **2.140** | **2.605** | 1.540 | **2.637** | **2.325** |
| Cinema | 0.234 | 0.189 | -0.035 | 0.096 | 0.177 | 0.229 | 0.200 | 0.198 | 0.059 |
| t-statistic | **2.358** | **1.427** | -0.147 | 0.601 | 1.259 | 1.502 | **1.714** | 1.356 | 0.352 |
| Training | 0.432 | 0.489 | 0.174 | 0.191 | 0.373 | 0.508 | 0.286 | 0.445 | 0.400 |
| t-statistic | **3.575** | **3.179** | 0.835 | 1.063 | **2.483** | **3.034** | **2.216** | **2.787** | **2.024** |
| **Panel 6: Reproductive decisions** | | | | | | | | | |
| Whether woman ever used birth control | -0.143 | -0.213 | -0.257 | -0.036 | -0.158 | -0.357 | -0.127 | -0.261 | -0.236 |
| t-statistic | -1.176 | -1.533 | -1.339 | -0.237 | -1.060 | **-2.366** | -0.965 | **-1.743** | -1.320 |
| Who made the decision to use birth control | | | | | | | | | |
| Woman and husband | -0.076 | 0.020 | -0.245 | 0.126 | -0.113 | -0.284 | -0.055 | -0.059 | -0.127 |
| t-statistic | -0.606 | 0.153 | -1.150 | 0.867 | -0.811 | **-1.663** | -0.432 | -0.410 | -0.720 |
| Woman alone or woman and husband | -0.104 | -0.024 | -0.274 | 0.136 | -0.107 | -0.375 | -0.077 | -0.178 | -0.096 |
| t-statistic | -0.800 | -0.171 | -1.376 | 0.876 | -0.721 | **-2.321** | -0.581 | -1.184 | -0.520 |
| **Panel 7: Domestic abuse** | | | | | | | | | |
| Husband ever threatened divorce | 0.034 | -0.138 | 0.100 | 0.115 | -0.180 | 0.143 | -0.166 | 0.070 | 0.125 |
| t-statistic | 0.237 | -0.570 | 0.654 | 0.409 | -0.790 | 0.892 | -0.676 | 0.804 | **1.690** |
| Husband ever threatened to take | | | | | | | | | |
| another wife | 0.061 | -0.138 | 0.100 | 0.115 | -0.180 | 0.190 | -0.119 | 0.030 | 0.167 |
| t-statistic | 0.463 | -0.507 | 0.646 | 0.447 | -0.934 | 1.191 | -0.575 | 0.659 | **1.831** |
| Woman ever verbally abused | -0.172 | -0.227 | -0.195 | -0.058 | -0.168 | -0.149 | -0.324 | -0.317 | 0.036 |
| t-statistic | -1.035 | -1.230 | -0.694 | -0.259 | -0.807 | -0.659 | **-1.774** | -1.624 | 0.152 |

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

## APPENDIX 7

## GENDER OUTCOMES BY REGION

Table A8 presents gender and empowerment-related outcomes for program participants and controls, by region. There are highly significant differences in most gender-related outcomes across regions, even taking into account differences in sample size. The direction of these regional effects is not always self-evident, and the results for the sample districts in Chittagong division in particular are counterintuitive. Women in Chittagong division do surprisingly well with respect to many of the empowerment indicators, which is contrary to our expectations. The districts in Chittagong division are believed to be much more conservative than those in the Rajshahi and Khulna division. Further, although Kurigram is the poorest district, women are less conservative there than those in, say, Chittagong or Noakhali districts.

These counterintuitive results for Chittagong can be explained by a number of factors. First, respondents in the sample districts of Chittagong division are predominantly composed of women living without their husbands—75 percent of the sample are female heads of household. In contrast, for Kurigram, Nilphamari, and Lalmonirhat, 32 percent of women are living without their husbands, and for other districts of Rajshahi division, Dhaka division, and Khulna division, the corresponding figures are 39 percent, 42 percent, and 50 percent, respectively. Thus, it is no surprise that a higher proportion of women in Chittagong are making decisions over a large number of areas independently, and therefore fare well with respect to the gender-related outcomes. Second, widows account for about 43 percent of the Chittagong sample, compared with 16–22 percent of the samples in other areas. Widows may be particularly reluctant to say negative things about their dead husband and thus may choose not to reveal whether they were ever abused or threatened with divorce while their husbands were still living. Third, the districts in Chittagong are the richest in Bangladesh. They also have relatively better infrastructure (roads, electricity, markets/trade). Indeed, for our sample of households, per capita expenditure is 19 percent higher for households in Chittagong than in Rajshahi. Because the Chittagong sample may not be representative of societal norms in that region, we therefore concentrate on comparisons of gender-specific outcomes in the remaining four regions.

Significant regional differences remain even when comparing the remaining four regions. For example, the Dhaka division reports the highest proportion of women taking loans from NGOs (52.55 percent), compared with 39.66 percent in Kurigram, but the proportion of women in the Dhaka region threatened with divorce (13.08 percent) is much higher than those in the other regions, even conservative Kurigram (6.51 percent). Women in the Dhaka and Khulna regions report higher proportions deciding by themselves whether to attend NGO trainings, in contrast to those in the Rajshahi region. Women in the Dhaka region also reported the highest incidence of physical abuse (28.45 percent), whereas women in the other districts of the Rajshahi region reported the highest incidence of verbal abuse (61.54 percent). With respect to decisions to visit relatives outside the village, women in Khulna appear to be the most able to make decisions by themselves, whereas those from Kurigram, Nilphamari, and Lalmonirhat are the least able to do so. Women in the other districts of the Rajshahi region are the least independent in making decisions to go to the bazaar, clinic, and cinema—women in the Rajshahi division fare worst with respect to decisions regarding mobility, whereas those in Khulna fare best. These regional differences suggest that there may be significant differences in community norms and attitudes toward women participating in food and cash transfer programs, particularly those that require challenging the norms of purdah by

going outside the home and the village. Thus, even if transfer programs have the potential to change intrahousehold relations (see section 7 for a fuller discussion), they may be slower to change community norms.

Finally, we need to offer some caution regarding the use of these regional breakdowns to infer regional differences in gender norms. For this study, the sample was chosen to be representative of programs rather than of the population at large. Thus, our attempt to discern regional effects in terms of gender- and empowerment-related outcomes by combining the samples from different programs and then disaggregating by region is imperfect.

**Table A8—Gender- and empowerment-related outcomes by region (total sample of beneficiary and control women)**

| Indicator | Kurigram, Nilphamari and Lalmonirhat | Other districts of Rajshahi division | Dhaka division | Khulna division | Chittagong division | All | p-value for significance of regional effects[a] |
|---|---|---|---|---|---|---|---|
| Proportion of women: | | | | | | | |
| Working for additional income | 82.76 | 84.60 | 87.67 | 82.44 | 76.19 | 83.94 | 0.05** |
| Deciding by themselves to work | 71.13 | 67.02 | 67.58 | 73.15 | 88.75 | 70.48 | 0.00*** |
| Ever taking a loan from an NGO | 39.66 | 51.12 | 52.55 | 44.66 | 40.00 | 46.74 | 0.00*** |
| Controlling resources to buy food | 70.69 | 65.40 | 69.17 | 80.92 | 88.57 | 71.70 | 0.00*** |
| Controlling resources to buy clothing | 72.41 | 64.96 | 67.83 | 80.92 | 88.57 | 71.70 | 0.00*** |
| Controlling resources to buy medicine | 72.91 | 65.40 | 76.14 | 81.30 | 88.57 | 73.96 | 0.00*** |
| Deciding by themselves how to spend money on food | 36.21 | 39.06 | 49.87 | 53.82 | 64.76 | 44.98 | 0.00*** |
| Deciding by themselves how to spend money on education | 37.93 | 39.29 | 46.65 | 55.34 | 64.76 | 44.98 | 0.00*** |
| Deciding to visit relatives outside the village | 43.10 | 48.66 | 53.62 | 56.11 | 72.38 | 51.19 | 0.00*** |
| Deciding to go to the bazaar | 36.70 | 33.48 | 41.02 | 55.34 | 72.38 | 42.22 | 0.00*** |
| Deciding to go to a clinic | 41.63 | 39.29 | 54.16 | 61.83 | 72.38 | 49.25 | 0.00*** |
| Deciding to go to the cinema | 5.42 | 7.37 | 29.22 | 43.51 | 72.38 | 22.21 | 0.00*** |
| Deciding to attend NGO training | 54.93 | 51.12 | 58.98 | 60.69 | 72.38 | 56.90 | 0.00*** |
| Ever used birth control | 73.35 | 68.83 | 58.81 | 65.12 | 24.27 | 64.08 | 0.00*** |
| Experienced physical abuse | 18.15 | 18.93 | 28.45 | 19.57 | 6.45 | 21.01 | 0.00*** |
| Experienced verbal abuse | 41.96 | 61.54 | 48.67 | 36.96 | 6.67 | 48.43 | 0.00*** |
| Threatened with divorce | 6.51 | 9.69 | 13.08 | 7.33 | 0.00 | 8.92 | 0.03** |
| Threatened that husband will get another wife | 7.19 | 10.00 | 11.39 | 6.67 | 0.00 | 8.71 | 0.12 |
| Number of observations | 406 | 448 | 373 | 262 | 105 | 1,594 | |

Source: "Relative Efficacy of Food and Cash Transfers, 2006: Household Survey," Bangladesh.

[a] p-values from one-way analysis of variance. *** indicates statistical significance at 1 percent; **indicates statistical significance at 5 percent.

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