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Comparing Food and Cash Transfers to the Ultra Poor in Bangladesh

Akhter U. Ahmed, Agnes R. Quisumbing, Mahbuba Nasreen, John F. Hoddinott, and Elizabeth Bryan

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Foreword

The recent global food crisis and the subsequent economic downturn have prompted vitally important efforts to promote sustainable food production and speedy recovery of economic growth in developing countries. At the same time, these crises reveal the urgent need for strengthening social-protection mechanisms for poor people in developing countries to improve their resilience to systemic shocks. In Bangladesh, a quarter of the country's population lives in extreme poverty, is chronically underfed, and is highly vulnerable to shocks. Clearly, targeted interventions to improve the food security and livelihoods of Bangladesh's extreme poor are strongly needed. Given the limited resources available for targeted-transfer programs and the large number of needy people, however, safety-net programs in Bangladesh need to become more efficient. This study by Akhter Ahmed, Agnes Quisumbing, Mahbuba Nasreen, John Hoddinott, and Elizabeth Bryan is particularly timely and relevant as a guide to streamlining the targeted interventions.

To help determine the relative effectiveness of food and cash transfers, the authors examine the efficacy of both types of transfers in enhancing the food security and livelihoods of the ultra poor in rural Bangladesh. The evaluation assesses how well transfers were delivered; which transfers beneficiaries preferred; how well transfers were targeted; what effects the transfers had on food security, livelihoods, and gender-related outcomes; and how cost effective the transfers were.

The study shows that transfers from safety-net programs in Bangladesh are playing an important role in improving food security and protecting and expanding the asset bases of poor households, and that the programs are fairly well targeted. The authors also show, however, that revisions within the current portfolio of social safety-net programs are urgently needed. Most of the programs seem to be providing poverty-alleviation impacts that are only temporary. Increasing the size of transfers and strengthening access to microcredit and savings services are critical to achieving sustainable improvements in the food security and livelihoods of the ultra poor, while promoting overall food production and economic growth.

Shenggen Fan
Director General, IFPRI

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Acronyms and Abbreviations

AusAID	Australian Agency for International Development
BBS	Bangladesh Bureau of Statistics
BMI	body mass index
BRAC	Bangladesh Rural Advancement Committee
CBN	cost of basic needs
CCT	conditional cash transfer
DATA	Data Analysis and Technical Assistance Ltd.
DFID	Department for International Development (U.K.)
DRR	Directorate of Relief and Rehabilitation
DWA	Department of Women's Affairs
EC	European Commission
FFA	Food for Asset Creation
FGDs	focus group discussions
FFW	Food for Work
FSVGD	Food Security Vulnerable Group Development
GDP	gross domestic product
GoB	Government of Bangladesh
GR	Gratuitous Relief
IFPRI	International Food Policy Research Institute
IFS	Integrated Food Security
IGAs	income-generating activities
IGVGD	Income-Generating Vulnerable Group Development
HIES	Household Income and Expenditure Survey

ITSH	internal transportation, storage, and handling
LGRDC	Ministry of Local Government, Rural Development, and Cooperatives
MDMR	Ministry of Disaster Management and Relief
MPC	marginal propensity to consume
MPCc	marginal propensity to consume calories
MPCf	marginal propensity to consume food
MWCA	Ministry of Women's and Children's Affairs
NGOs	nongovernmental organizations
PES	Primary Education Stipend
PFDS	Public Food Distribution System
PPS	predicted propensity score
PSM	propensity score matching
RD	Rural Development
RMP	Rural Maintenance Program
SF	School Feeding
TR	Test Relief
UP	union *parishad*
VGD	Vulnerable Group Development
VGF	Vulnerable Group Feeding
WFP	World Food Programme of the United Nations
WHO	World Health Organization of the United Nations

Summary

The study reported here examined the efficacy of food and cash transfers in enhancing the 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 be women. In contrast, RMP targets only women, 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; the accuracy of targeting; the 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 payments 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 the Government of Bangladesh, (2) irregular flow of funds from the Bangladesh Bank (the central bank) to local commercial bank branches due to administrative difficulties, and (3) disruptions in payment disbursements because the FSVGD program was in its last phase in 2006 and the process of closing it down caused delays.

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 moving earth for construction) 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 periodic 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 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. During the period when the program was being phased out from CARE, an audit of accounts was in progress, and payments to program participants were often withheld.

What Do Participants Prefer—Food or Cash?

Most participants express a preference for the type of transfer provided by the program in which they are participating: 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 the 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. Beneficiaries' preference for a combination of food and cash transfer, however, is unrelated to household income.

Accuracy of Targeting

All programs are fairly well targeted to the poorest, with FFA 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 moving earth. Only out of desperation would a rural Bangladeshi 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 in income-generating activities (IGAs), life skills, and basic literacy and numeracy and increasing their awareness of 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. Raising poultry and cows or goats is the most common IGA undertaking. 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 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. However, this success may not 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 in 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 of Transfers on Food Consumption

Transfer sizes and the type of food offered are especially important in explaining the differences in the impact of transfers on food consumption. Participation in IGVGD, RMP, FSVGD, and FFA increase household per capita food consumption by 45, 35, 66, and 23 kilocalories (kcal) respectively per person per day per 1 taka transferred. These increases can be interpreted as the marginal propensity to consume calories out of income transfers in food (IGVGD), cash (RMP), and a food-cash combination (FSVGD and FFA).

The amount of the FSVGD *atta* ration is vastly larger 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. Because a large part of households' 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 have only 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 RMP—the intervention providing around 70 percent higher payments than IGVGD and FSVGD—do the 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 a 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 greatest impacts on indicators of women's decisionmaking and mobility are FFA and RMP, which are the programs that have the largest payments and that challenge traditional norms of gender seclusion. IGVGD, however, has the largest impact on indicators related to taking loans from nongovernmental organizations (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 were previously unable to control and to expand their area of decisionmaking beyond their traditional roles. FSVGD and RMP have the largest positive impact on married women's empowerment. Compared with recipients of IGVGD, a pure food transfer, FSVGD recipients receive a combination of food and cash (a 50:50 value). Likewise, compared with participants in FFA, RMP participants receive a higher proportion of the payment (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 the 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, for 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 payment of 100 taka increases

household income by a significantly smaller amount for FFA (Tk 32 per month) and RMP households (Tk 85 per month) than for those in the other two programs. By contrast, the increase in income for IGVGD and FSVGD households 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 moving earth 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 extremely poor before they joined the programs, the range of their incomes varied considerably. Therefore, those who were extremely 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, however, are 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 payments as well as the unevenness of these payments seems to have enabled participants 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 in the other three programs, which explains why the impact on saving is so great for RMP women.

Effects on Sustainability of Livelihood

Our analysis of the income of former program beneficiaries suggests that IGVGD and RMP result in reasonably long-term sustainable improvements in the income of their beneficiaries, lasting at least 18 months for former IGVGD and 25 months for former 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 (among the four programs, only IGVGD has this) 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 the costs of providing measured benefits to transfer recipients. The fiscal costs consist of the direct cost of the transfer itself (food, cash, or a combination) and the costs of delivering the transfer amount to the point of distribution. On average, the food-based programs transfer 1 taka's worth of food at a cost of Tk 1.20, which includes the cost of the transferred food.[1] In other words, the delivery

[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

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 the 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 does FSVGD to increase calorie intake by the same amount, primarily because it distributes an inframarginal quantity of rice.

The full monthly costs of increasing monthly household incomes 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 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 participation in the programs. Those who escape extreme poverty during their program participation could fall back into it after leaving the program. Therefore, these findings 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 were 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 (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.

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port. Our calculation suggests that 96 percent of all wheat (including the wheat used to produce 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. The total food provided by the food-based programs is 6 percent wheat, 36 percent *atta,* and 58 percent rice.

CHAPTER 1

Introduction

Scope and Objectives of the Study

Bangladesh possesses a wealth of institutional diversity and has had 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. The final section of this chapter provides an inventory of current safety-net programs in Bangladesh and the characteristics of each.

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-deficient 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 use of 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 commissioned this study to help inform the debate about the relative effectiveness of food transfers and cash transfers in improving the well-being of the very poor in Bangladesh. The International Food Policy Research Institute (IFPRI) carried out the study.

This study assesses the relative merits of food and cash transfer programs in improving the food security and livelihood of the ultra poor in Bangladesh. The information generated through this study should strengthen the empirical basis upon which policymakers can make informed policy choices to refine the social safety-net programs in Bangladesh. The objectives of the study are (1) to establish the relevance of food and cash in enhancing food security of the

ultra poor, especially women and children, in a sustainable fashion through overall improvements in livelihoods; (2) to inform and guide the ongoing social protection policy formulation exercise; and (3) to guide the formulation of effective program implementation strategies for the WFP in Bangladesh.

This report is organized in eight chapters. The rest of Chapter 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. Chapter 2 describes the salient features of the four programs covered by this study. Chapter 3 discusses the analytical methodology and the data used in the empirical work. Chapter 4 gives a profile of survey households. Chapter 5 evaluates the delivery of transfers, looks into beneficiary preferences as to the form of transfers, and assesses the targeting performance of the four programs. Chapter 6 assesses the impact of the programs on various food security and livelihood outcomes. Chapter 7 discusses gender issues concerning targeted interventions and presents the impacts of the programs on gender-related outcomes. Chapter 8 summarizes the main findings and provides policy conclusions.

Defining Food Security and Livelihood

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 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 use 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, the 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 a household's 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 use of food by the body, which in turn is influenced by the overall health and caring environment. This interaction is often called the "leaking bucket effect"; 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).

Livelihood

Livelihood has to do with the ways and means of making a living. Academics and development practitioners have discussed the definition of *livelihood* extensively (Bernstein, Crow, and Johnson 1992; Chambers and Conway 1992; Carney 1998; Ellis 1998, 2000; Batterbury 2001; Francis 2002; Radoki 2002).[1] 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."

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

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 also have to do with 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.

Cash and Food Transfers: Conceptual Issues and Empirical Evidence

Conceptual Issues

In assessing the impact of these transfer programs, there are three conceptual issues to consider: their general impact on household welfare, the specific fact that these target women, and the fact that some of them are in-kind rather than cash transfers.

To provide a framework for understanding these issues, we propose a conceptual framework grounded in three components: "settings," "assets," and "activities."[2] *Settings* describes the environment in which a household resides. All *assets* share a common characteristic, namely, that alone or in conjunction with other assets, they produce a stream of income over a period of time. Some assets have a second characteristic, namely, that they are a store of value. The allocation of these assets to IGAs is conditioned by the settings in which these households find themselves. (Indeed, these activities can be thought of as the livelihoods described earlier.) The outcome of these allocations is income, which is a determinant of consumption, poverty, and vulnerability.

Consider a household residing in a rural locality. This locality is characterized by a growing season, followed by a period of time in which no crops are cultivated. As shown in Figure 1.1, this household exists within five types of settings: physical, social, political, legal, and economic. The physical setting refers to natural phenomena such as the level and variability of rainfall, the natural fertility of soils, distances to markets, and the quality of infrastruc-

[2] This framework draws on ideas developed by Deaton (1992), Baulch and Hoddinott (2000), Hoddinott, Haddad, and Mukherjee (2000), Dercon (2001, 2002), Hoddinott and Quisumbing (2003, 2008), and Hoddinott (2006).

ture. The social setting captures such factors as the existence of certain norms of behavior, of social cohesion and strife. The legal setting can be thought of as the general "rules of the game" in which exchange takes place, which, in turn, is partly a function of the political setting that captures the mechanisms by which these rules are set. Finally, there is the economic setting, which captures policies that affect the level, returns, and variability of returns on assets. Within these settings, the household has endowments of capital and labor. Capital includes physical capital (agricultural tools, livestock), natural capital (land), human capital (in the form of knowledge, skills, and health), financial capital (cash in hand, bank accounts, net loans outstanding), and social capital (networks, norms, and social trust that facilitate coordination and cooperation). Labor endowments reflect the household's ability to work either for itself or for external employers.

The household allocates these endowments across a number of activities. In Figure 1.1, these activities are food crops, cash crops, and other IGAs, but these are solely for illustration. They could just as easily be disaggregated into, say, agricultural and nonagricultural activities or disaggregated further by crop and livestock type. These allocations are based on the household's perception of the level of returns to these activities as well as the variability of returns and their covariance. Similarly, the household might diversify into off-farm activities (such as handicrafts of processing) or casual wage labor.[3]

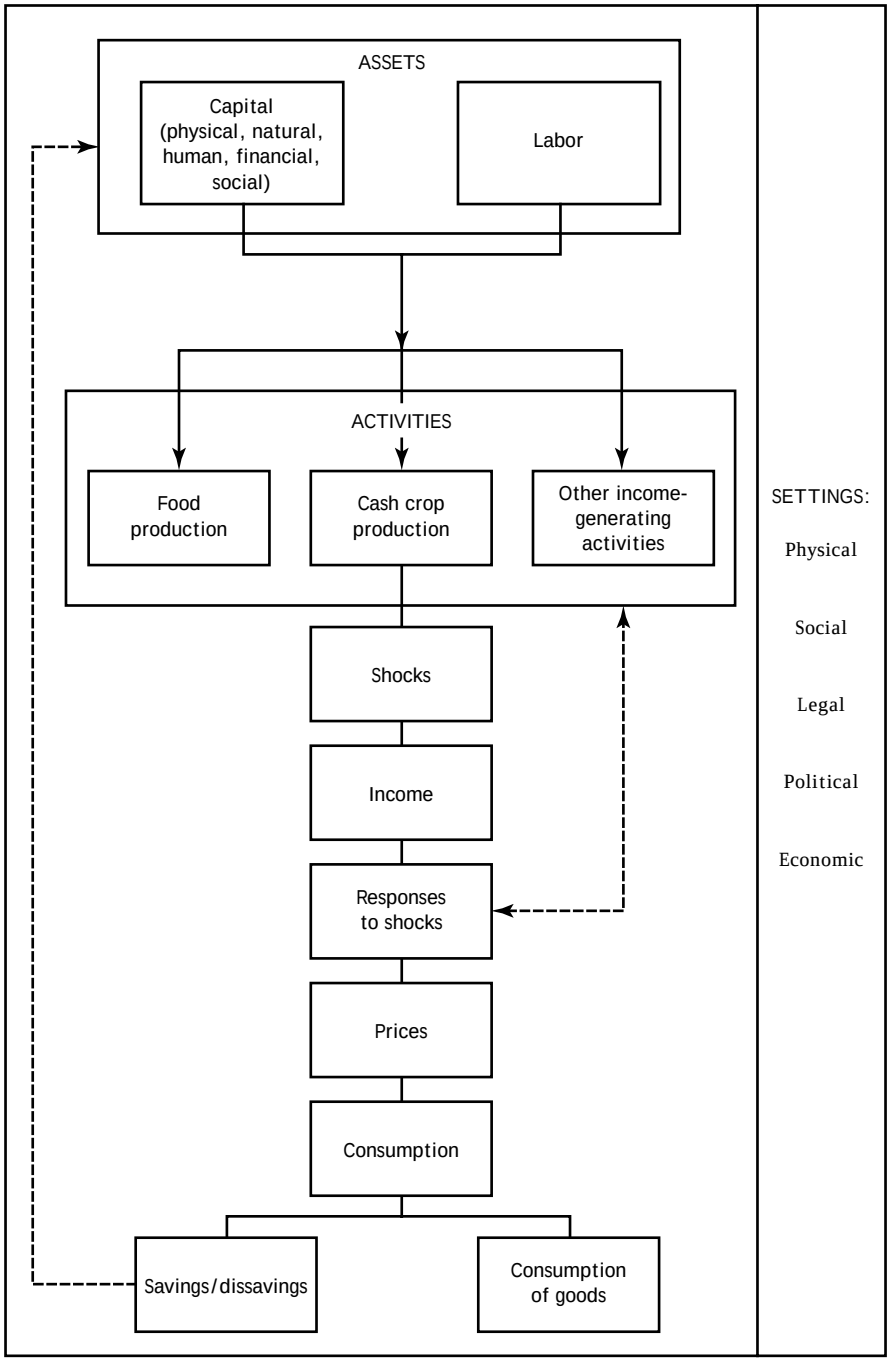
The relationships among endowments, activity choice, and income are affected by the likelihood of a shock's occurring. A shock could emanate from the setting in which households are situated—a common or covariant shock—or it could be restricted to a given household—an idiosyncratic shock. The distinction between covariant and idiosyncratic shocks is not always clear-cut. A drought in only one locality might result in poor, rainfall-dependent households' selling assets to richer, non-rainfall-dependent households so that, although the event was common to both types of household, it adversely affected only the poor.

The allocation of endowments to activities, together with returns to endowments in these activities, generates income.[4] However, it is unlikely that there is a one-to-one relationship between income and consumption. Households engage in ex post risk management; for example, they may alter the amount of labor they supply to the labor market. They may draw down

[3]Morduch (1990, 1995, 1999), Alderman and Paxson (1992), Townsend (1995), and Baulch and Hoddinott (2000) discuss these mechanisms further.

[4]Some households may allocate assets to activities that may not generate income immediately but may have a return at some point in the future. Investments in social relations and covering the costs of the migration of a family member are examples.

Figure 1.1 Conceptual framework: Settings, assets, and activities



Source: Quisumbing and Hoddinott (2003).

savings held in financial form, as livestock, as jewelry, or in the form of other durables. Alternatively, they may enter the credit market and borrow. They may alter their investment in human capital.[5] As shown in Figure 1.1, some ex post responses generate feedback mechanisms from consumption decisions to inform changes in asset holdings.

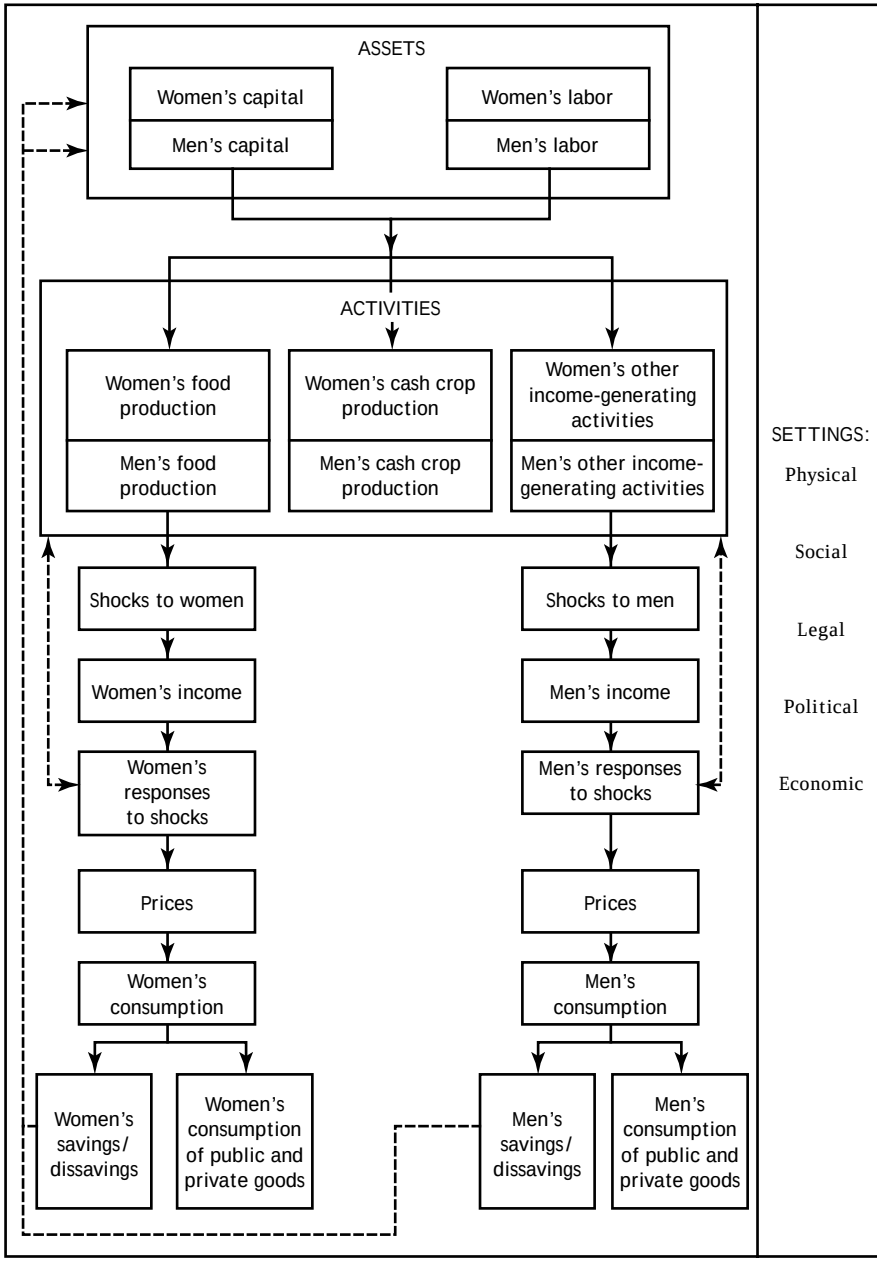
An unattractive feature of this framework is that it treats the household as a single undifferentiated unit. It is plausible that household welfare and the impact of the program on desired outcomes may depend on the preferences of the specific decisionmaker within the household. For example, recent conditional 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. The model described in Figure 1.1 assumes that household members pool their income, including transfers, and make consumption decisions according to a single household preference structure. Therefore, the models predict that regardless of which household member receives a transfer, household consumption will be affected in the same way. However, there is now a considerable body of evidence that contests this assumption (Alderman et al. 1995; Quisumbing and Maluccio 2003).

Fortunately, it is relatively straightforward to make it gender, and generational, sensitive. This is shown in Figure 1.2. Rather than assume that the household has an endowment of assets, assume that assets are held individually. Allocations of assets to activities is a function of intrahousehold allocation rules, themselves a function of the settings in which the household is placed. So, for example, changes in the legal environment—such as laws banning wage discrimination against women—will change the allocation of assets to activities within the household. Some shocks may be individual specific. Further, changes in these settings will influence household consumption decisions. For example, strengthening women's rights to assets upon household dissolution will enhance women's bargaining position within the household (McElroy 1990; Haddad, Hoddinott, and Alderman 1997; Adam, Hoddinott, and Ligon 2003; Quisumbing 2003; Quisumbing and Maluccio 2003).

The interventions considered in this study work through several channels. Those that provide training in IGAs augment women's human capital. Interventions that provide access to credit or make deposits into savings accounts increase financial capital. Pure transfer programs provide additional resources that can be used for consumption or investment. Programs with a labor requirement can be considered as falling into the box labeled "women's

[5] Jacoby and Skoufias (1997) note that adverse income shocks cause households to reduce the schooling of girls in semiarid India.

Figure 1.2 Making the conceptual framework gender sensitive



Source: Meinzen-Dick and Quisumbing (2008).

other IGAs." Note that such programs have a complex relationship with the generation of income. On the one hand, they can crowd out labor supplied to other IGAs such as food production, either because participants choose to reduce the labor they supply to these other activities (and thus maintain their preprogram level of leisure consumption) or because the timing of program activities directly conflicts with the agricultural activities that cannot be shifted to other dates. On the other hand, to the extent that these programs provide new resources to households, they may relax liquidity constraints that restrict food production.

A number of additional 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 does 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.

In 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 could not otherwise afford the food or would be unlikely to purchase an 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 the food assistance is inframarginal (in other words, the ration is less than what would normally be consumed without the transfer). Economic theory holds that if the food (or other in-kind) transfer is inframarginal, the transfer will result in the same additional food purchases as would a cash transfer of 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 commodity, as well as increased consumption of complementary products and reduced consumption of substitutes (Kennedy and Alderman

1987).[6] 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, 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 (such as intrahousehold control of cash and food resources), the size of the ration, the price of the ration and the ease with which it 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, the value of the MPCf is 0.65 and that of the 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 MPCf than does a cash transfer, 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 household essentials (such as health care, education, clothing, and shelter) from a cash transfer is higher than that for a food transfer, a cash transfer program may be preferable if the program's primary goal is to improve overall livelihoods.

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 do 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 are those 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 with the 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

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

percent because of the internal costs for the transport and handling 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.[7] For example, in Tunisia, semolina (durum wheat pasta) has been subsidized because it is consumed disproportionately more by the poor than by 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. Unlike in the case of 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 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, 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, because effective self-targeted commodities are hard to identify.

In the case of 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, in the case of food transfers, the real value of benefits to consumers is constant, and the cost to the government (or food aid donors) rises and falls with the price of the commodity (Grosh 1994).[8]

Empirical Evidence

A number of studies conducted in Bangladesh and other developing countries suggest that the poor tend to have a higher MPCf out of food transfers than cash transfers or increased cash income (Edirisinghe 1987; Garcia and Pinstrup-Andersen 1987; Bouis and Haddad 1990; Ahmed 1993; Ahmed and Shams 1994; Del Ninno and Dorosh 2003). 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

[7] 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 the wealthy.

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

the impact of wheat transfers and cash income on wheat consumption and wheat markets in Bangladesh. Their study suggests that the MPC wheat out of wheat transfers to poor households is approximately 0.25, while the 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 are cash transfers.

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 the success of programs in Brazil, Colombia, Mexico, Nicaragua, and Turkey in increasing school enrollment rates, improving preventive health care, and raising household consumption levels (Behrman and Hoddinott 2000; Behrman, Sengupta, and Todd 2000; Gertler 2000; Hoddinott, Skoufias, and Washburn 2000; Schultz 2000a–c; Yap, Sedlacek, and Orazem 2001; Maluccio and Flores 2005; Morris 2005; Skoufias 2005; Ahmed et al. 2006).

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 the use of regular and predictable cash schemes is 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 that target older people, because 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 targets 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 in two districts where Save

the Children, United Kingdom, 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 the development of local infrastructure (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, but cash transfers did not. Therefore, if an education incentive program seeks to support nutrition in addition to increasing school enrollment, a food-based incentive system appears to be more effective (Ahmed 2005b).

In 2006, WFP implemented a Cash Transfer Pilot Project in Sri Lanka in the aftermath of the tsunami. The key objective was to compare outcomes for food and livelihood security between households that receive food assistance and households that receive an equivalent amount of cash assistance. Significant differences were seen in expenditure patterns between cash-receiving households and food-receiving households only in the poorer, more remote, and more conflict-ridden communities in eastern Sri Lanka, 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 made larger expenditures on dairy products, meat, and packaged foods and on nonfood essentials such as clothing and footwear. The study concludes that cash transfers are 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 in improving specific household members' outcomes than are transfers given to households as a whole (see Box 1.1 and the section headed "Results" in Chapter 7).

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 on which member brings income into the house and whether the income is conditional or unconditional (Thomas 1990; Duflo 2003; Quisumbing 2003; Quisumbing and Maluccio 2003). 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 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 increase 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 is 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 in which 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 shares of expenditure on education (Quisumbing and Maluccio 2003) as well as lower incidence of child illness, particularly in 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. Because 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.

Country Profile

With a population of 144.4 million 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.[9] The population density was 609 people per square kilometer of land area in 1981. It increased to 755 per square kilometer in 1991 and to 979 per square kilometer in 2006. The annual rate of population growth 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).

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 1986–96, 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, led to a near-doubling of annual per capita GDP growth, from 1.8 percent in 1986–96 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 growth rate of 6.7 percent of GDP, up from 6.0 percent in

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

2005. Its per capita GDP increased by 4.8 percent in 2006 (World Bank 2006, 2007).

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 in the poverty level over time have aroused considerable interest and passionate debate in Bangladesh. Although the data gathered by the Bangladesh Bureau of Statistics in its Household Income and Expenditure Survey (HIES) remain 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 recording direct calorie intake to recording the cost of basic needs in 1995/96) have compromised efforts to make comparable assessments over long periods of time (Ahmed 2000).

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.[10] At the national level, the poverty headcount declined by only about 2 percentage points between 1995/96 and 2000. This minimal poverty reduction over the five-year period was probably due to the offsetting effect of the devastating floods of 1998, which severely damaged crops, livestock, housing, and other assets of people across Bangladesh. Nevertheless, a significant decline of nearly 9 percentage points occurred in the first half of 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 were substantial improvements in the livelihoods of the poorest of the poor during the period 2000–05, as the decline in the incidence of extreme poverty and the distributionally sensitive poverty measures (poverty gap and poverty severity) reveal. These improvements were likely due to the relatively high level of economic growth in recent years.

[10] The population below the upper poverty line is poor. The upper poverty line includes the food consumption expenditure and the cost of consuming a bundle of nonfood items. The lower poverty line identifies the households of the extremely poor, 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.

Table 1.1 Trends in income poverty, selected years, 1995-2005

	Upper poverty line (%)			Lower poverty line (%)		
Indicator	**1995-96**	**2000**	**2005**	**1995-96**	**2000**	**2005**
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, however, is 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 extremely poor people are a group that straddles the outer limits of human survival. Therefore, the need for targeted interventions to improve the food security and livelihood of the extremely poor remains strong.

Characterization of the 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, made 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.[11] Appendix A provides a summary of the programs, includ-

[11] 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 because these programs do not fall directly under the rubric of transfer programs.

ing 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-net programs amount to less than 1 percent of GDP and about 4.4 percent of public expenditures. Although reasonable growth rates have led to declines in the percentage of the poor, the number of those who are 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 (Ahmed 2005a). 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). GoB replaced *Palli* rationing with the innovative Food for Education 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 the consequences of disaster, 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 FFA component of the Integrated Food Security program, and Test Relief (TR) distribute foodgrains (rice and wheat) as wage payments 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 be women.

Only women can participate in RMP, which offers cash wages for maintaining rural earthen roads. All these programs require the participants to do physical work that mainly involves moving earth. 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. Chapter 2 provides detailed descriptions of FFA and RMP.

Training Programs

The 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 in IGAs; awareness-raising on social, legal, health, and nutrition issues; and training in basic literacy and innumeracy. Similar to VGD in design, the FSVGD program also provides a combination of food and cash to program participants. Beneficiaries of the VGD and FSVGD programs are selected by administrative review. Chapter 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 biscuits fortified with energy-producing micronutrients 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 spans and learning capacity by reducing short-term hunger and micronutrient deficiency. GoB also provides cash assistance to girls in secondary schools through the four components of the Female Secondary School Assistance Program.

Relief Programs

These programs are designed as a mechanism for mitigating the consequences of disasters such as floods, cyclones, and other natural calamities. Currently, there are only two such programs: the Vulnerable Group Feeding (VGF) and Gratuitous Relief (GR) programs. Unlike other programs, these programs have no preset 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 program most recently introduced, Allowance for the Distressed Disabled Persons. See Appendix A 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 VGF program, which had served as a pure relief distribution program since its inception in 1975, was renamed the VGD 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 in IGAs, administered by national NGOs such as the Bangladesh Rural Advancement Committee (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 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.

CHAPTER 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 VGD program, IGVGD and FSVGD; the FFA component of the IFS program; and the RMP. IGVGD provides food transfers, FSVGD and FFA provide a combination of food and cash transfers, and RMP provides cash payments to program beneficiaries. Based on a review of various documents, this chapter 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 Chapter 5 of this report, which assesses the targeting performance of the programs. To avoid repetition, this chapter does not list the selection criteria for program beneficiaries.

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: IGVGD and FSVGD. Of the 750,100 women served by VGD, 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 2005–06. Of the total 460 *upazilas* (subdistricts) of Bangladesh in 61 districts, FSVGD operated in 57 *upazilas* in 7 districts in northern Bangladesh and IGVGD operated in 364 *upazilas* in 54 districts.[1]

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

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's and Children's Affairs (MWCA) is the main coordinating ministry for the VGD program. Under its coordination, the Department of Women's 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 served.

The IGVGD program exclusively targets poor women, who receive a monthly food ration. Each participant is entitled to receive either 30 kilograms of rice or 30 kilograms of wheat or a 25-kilogram sealed bag of micronutrient-fortified *atta* (whole-wheat flour) per month. The fortified *atta* is called *pusti* (nutritious) *atta.* Although it is otherwise similar to IGVGD in design, the FSVGD program provides a combination of food and cash to program participants. Monthly entitlements are a 15-kilogram sealed bag of micronutrient-fortified *atta* and Tk 150 per beneficiary.[2] 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 providing training in IGAs (such as rearing poultry, raising livestock, maintaining fisheries, and sericulture); raising awareness on social, legal, health, and nutrition issues; offering basic literacy and numeracy training; and providing 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.

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 on which each *upazila*

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

of the country has been categorized by its relative level of food insecurity. The level of food insecurity is determined by factors such as the area's food-grain surplus or deficit, agricultural wage rate, infrastructure status, population density, number of landless households, employment opportunities, and susceptibility to natural disasters. Based on this map, VGD food resources geographically target *upazila*s in proportion to their levels of food insecurity.

The VGD program's 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* 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 2005–06, simplified selection criteria were formulated and introduced to make targeting more accurate. These criteria are provided in Chapter 5.

The Food for Asset Creation 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 2001–05. The three activities undertaken during the Country Program are the two existing activities—the VGD and RD programs—and a new activity, the IFS program. The IFS program was introduced in February 2002 in 10 *upazila*s in 3 districts in the Rangpur cluster of northern Bangladesh.

The IFS program is designed as follows. The purpose of the program is to allocate resources to the most food-insecure areas in the country as identified by vulnerability analysis and mapping 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 improving the household food security and nutrition of the rural ultra poor. It is beneficiary-driven; it uses participatory techniques for microplanning 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 has three components: the Community Nutrition Initiative, training and nutrition centers, and FFA activities. The FFA component of the IFS is described here.

The FFA component has been designed to promote human and capital resource development for the ultra poor by providing awareness and training in legal, social, health, and nutrition issues; by enabling participants to work

for community infrastructure development and productive asset creation; and by providing marketable skills training for IGAs. The Local Government Engineering Department under the Ministry of Local Government Rural Development and Cooperatives coordinates FFA activities.

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

Participants in the FFA component (who are not already VGD beneficiaries) receive food and cash compensation. Food and cash for work are normally provided during the months of December to May, which is the period suitable for moving earth. Training in awareness-raising and IGAs is 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 kilograms of rice or wheat and Tk 15 per working day, subject to the accomplishment of a minimum amount of work. A participant's monthly entitlements for the training period are 20 kilograms of wheat or rice and Tk 100. FFA participants are required to save Tk 25 per month.

FFA follows a one- to two-year project cycle. Depending on the type of activities, however, the implementation period may vary. For the training in awareness-raising and IGAs, a flexible schedule is followed for the convenience of the project participants. In 2006 FFA covered 39,200 participants in 38 *upazilas.*

The Rural Maintenance Program

In 1983 CARE initiated the RMP as a cash-for-work road maintenance project on a pilot basis in seven unions of seven 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.

RMP provides destitute women with four years of employment maintaining rural roads.[3] The term *destitute* refers to female heads of households who are

[3] In other words, RMP makes a four-year contract with the women selected for the program.

divorced, widowed, separated, or abandoned, with little or no other means of financial support (see Chapter 5 for the selection criteria used to determine beneficiaries). 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. 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.Therefore, RMP provides a steady, year-round income to one of the poorest segments of society. Rural communities benefit from good roads, and poor women benefit from 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 the bank accounts of women's groups. Banks offer other services as well. They facilitate a savings element of the RMP program. A fraction of participants' wages (Tk 10 per day) is deducted by the bank before salaries are paid. This share is transferred to each individual's 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 she may use 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 that helps them understand and establish their rights and improve their health and nutrition and that of their families.

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.[4] 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).

In sum, the four case study programs have a number of common features: they target impoverished rural women, use similar criteria for administrative selection of program beneficiaries, impart skill development and awareness-raising training, and have mandatory savings requirements for program participants. There are also notable differences across these programs. Whereas IGVGD provides only food payments, RMP provides only cash payments, and

[4] Each household has one participant.

Table 2.1 Summary of program characteristics

Program characteristics	IGVGD	FSVGD	FFA	RMP
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)[a]	Tk 342.4 crore (US$49.58 million)	Tk 48.5 crore (US$7.02 million)	Tk 40.2 crore (US$5.83 million)	Tk 76.3 crore (US$11.05 million)
Annual full cost per beneficiary in 2006 (value of full entitlement of transfers + delivery costs)[a]	Tk 5,343 (US$77.38)	Tk 4,431 (US$64.17)	Tk 10,266 (US$148.67)	Tk 18,360 (US$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[b]	30 kg rice or wheat or 25 kg *pusti atta* (nutrient-fortified whole-wheat flour) per month	15 kg *pusti atta* + Tk 150 per month	Wage during work season: 2 kg rice or wheat + Tk 15 per work day. Transfer during training season: 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
Are there work requirements?	No	No	Yes Full day Physically demanding Paid at a piece rate	Yes Half day Moderately demanding Fortnightly salary
Access to credit (is there built-in credit service in the program)?	Yes	No	No	No
Access to training?	Yes	Yes	Yes, but not started before survey	Yes

Source: Based on authors' review of various documents and interviews with concerned officials of implementing agencies of the program.

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

[a]Annual full costs are obtained from Chapter 6 of this report (see the section headed "The Cost-Effectiveness of Transfers").

[b]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.

FSVGD and FFA provide a combination of food and cash; these are not the only differences. IGVGD and FSVGD beneficiaries receive transfer payments; FFA participants receive daily wages for their workdays during the work season (December–May) and transfer payments during the training season (June–November); and RMP participants receive wages on a fortnightly fixed-salary basis. Because payments for work are different from direct transfer payments, we use the term "payments" or "wages" for FFA and RMP payments in this study.

CHAPTER 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 chapter first presents the methodology of evaluating the impact of the programs. It then describes the data collection approach and process.

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, all individuals (or communities, schools, etc.) have the same chance of being selected for 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 characteristics and, more important, the same unobserved characteristics (more important because 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 of a randomized design is that program impact is easy to calculate and, as a consequence, easier to understand and explain.[1]

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

IFPRI has taken the randomized design approach in its evaluations of CCT programs in a number of countries in Latin America, as well as in recent evaluations of the effectiveness of food and cash transfers in emergencies in Sri Lanka and of 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 to treatment and control groups.

For the evaluation of the four case study programs in Bangladesh, however, a randomized approach was not feasible because the programs had already been implemented before the evaluation. Therefore, in this study we employed a nonrandomized approach for impact assessment. Moreover, budgetary constraints did not permit us to complete two survey rounds; therefore, we compared the control and treatment groups at a given point in time rather than comparing changes through time.

The approach we used for constructing a comparison group was PSM. Through comparisons with experimental estimators, Heckman, Ichimura, and Todd (1997, 1998) and Heckman et al. (1998) have shown 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 participation that are typically unobservable by the researcher, which helped to reduce a potentially significant source of bias in PSM estimators.

The Evaluation Problem and the Propensity Score Matching Methodology

Constructing a valid estimate of program impact requires the comparison of outcomes for program beneficiaries with 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 that was statistically similar to the program beneficiaries but that was not included in 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) have shown 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 being selected for 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 of 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.

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).

Propensity Score Matching

Let Y_i^1 be the outcome of the ith household if it is a beneficiary of the program, and let Y_i^0 be that household's outcome if it is not selected for 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 participates in the program or "treatment": $D = 1$ if the household is selected for the program; $D = 0$ otherwise. The evaluation problem is to estimate the average impact of the social program on those included in it. So

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

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 regarding beneficiary households to observations regarding nonbeneficiaries with similar values of $P(X)$. This requires two assumptions:

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

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

The first assumption, known as "conditional mean independence," requires that after controlling for *X,* mean outcomes of nonparticipants be identical to outcomes of participants if they had not received the program. Expression (3) ensures 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,* an effect 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,* 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) used 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 participating in 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. In addition, we included village dummies to control for unobserved village-specific effects.

Estimation Methodology

The PSM procedure involves several steps. For each outcome and each type of transfer, we estimated 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) emphasized 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 overlaps 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's propensity scores. Similarly, observations of the comparison group with a propensity score below the minimum or above

the maximum of the score for the observations of the treatment group can be dropped.[2]

A shortcoming of this approach identified by Heckman, Ichimura, and Todd (1997) is that observations of the treatment group with a score near these cut points have a potential of being compared with a group with propensity scores that are either all lower or all higher than those of the treatment observations. To account for this problem, we 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 part of the distribution and treatment observations were dropped in the right part. We then added back the 5 percent of observations from each tail that had been dropped that were closest in terms of propensity scores. 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 using this trimming procedure. On this common support sample, the probit model was again used 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) have argued 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. Standard errors of the impact estimates are estimated by bootstrap using 1,000 replications for each estimate.

[2] 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.

It is important to note that matching is done on the basis of observable characteristics. When multiple rounds of data are available, a difference-in-differences PSM estimator can be used. Changes in outcomes are compared across treatment and control groups before and after the intervention, and thus the influence of unobserved time-invariant differences between recipients and matched nonrecipients is eliminated. With the single round of data available to us, this approach was not feasible. Instead, our matching relied on a stronger assumption, namely, that unobservables and observables had the same distribution.

Quantitative Data Collection

The information collection approach we used involved combining quantitative surveys with qualitative semistructured key informant interviews and focus group discussions (FGDs). 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 quantitative data required to address the research questions came mostly from a household survey. The survey included beneficiaries of the four programs and nonbeneficiary control households. The quantitative data were supplemented by qualitative information, to be discussed in the next section.

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

Sample Size

The budget for the household survey supported data collection on 2,000 households. Of this total sample, the survey included 1,200 households of beneficiaries of the four programs (300 households per program), 400 households in control groups, and 400 former beneficiaries of the four programs.

Although the decision on the total sample size was driven by budgetary considerations, we derived estimates of statistical power for the size of the sample used in assessing the impacts of the case study programs on household welfare. We worked backward to determine the minimum change in household welfare that could be identified at the given sample size for evaluating each program. We used per capita monthly total consumption expenditure (a proxy for income) as the outcome indicator for household welfare for

determining minimum effect size because increasing income is the primary objective of the programs.

The calculation of minimum sample size determined the smallest change in outcome indicators that could be identified (using a Pearson's chi-square test) between intervention and control groups. We followed the standard practice to find the sample size that would give an 80 percent chance (the power of the test) of rejecting the null hypothesis of zero change in income at the 0.05 level of significance. The design effect for clustered random sampling was taken into account in determining sample size.[3]

To estimate the parameters required to determine sample size, we used IFPRI's 2002 household survey in Bangladesh for "A Study on Food Aid Leakage in Bangladesh" (Ahmed et al. 2003), which included VGD and FFA beneficiary households and therefore was comparable to our present study. From the survey data, three parameters necessary for sample size estimates—mean, standard deviation, and intraclass correlation coefficient—were estimated for the outcome indicator of per capita monthly consumption expenditure.

Table 3.1 presents the minimum estimate of sample size required to detect a change in per capita total monthly expenditure. The estimates suggest that, with the predetermined sample of 400 households for each of the four programs (300 treatment and 100 control households), the study should be able to detect a minimum statistically significant increase in income of at least 17 percentage points for the program participants. However, it is worth noting that the matching methodology used for the evaluation would increase the power of the evaluation design. The power calculations used here are based on the assumption of a randomized trial, so the effects of the matching on the power calculations are not taken into account. As a result, we believe that the estimate of minimum effect size is conservative in that it may be possible to identify effect sizes smaller than that presented here because of the matching.

Selection of Survey Areas

The survey sample areas were selected using a random sampling technique known as probability proportional to size 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

[3]We used the Stata statistical software package and the *Sampsi* command to estimate the sample size for a two-sample comparison of means and the *Sampclus* command to adjust the sample size for cluster design.

Table 3.1 Minimum sample size required to detect change in the selected outcome indicator

Indicator	Minimum impact	Required sample size		
		Treatment	Control	Total
Per capita total expenditure per month (using the 2002 IFPRI household survey data)	An increase of 17 percentage points	285	94	379

Source: Estimated by authors using data from IFPRI's 2002 household survey in Bangladesh for "A Study on Food Aid Leakage in Bangladesh" (Ahmed et al. 2003).

same, RMP survey sample areas were taken from survey sample areas of the other three programs.

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 probability-proportional-to-size 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 (which met the beneficiary selection criteria but did not participate in the programs) were selected from the program areas.[4]

The sampling process and survey administration included the following steps:

1. Using the probability-proportional-to-size random sampling method, 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.*
2. One union from each of the 40 selected *upazilas* was randomly selected with probability proportional to size using a union-level number of IGVGD, FSVGD, and FFA cardholders. A total of 40 unions were selected.

[4] In Bangladesh, targeted safety-net programs cover only a fraction of the very large number of eligible candidates. In 2004 IFPRI conducted a study on the targeting effectiveness of the Vulnerable Group Development Program in Bangladesh (Ahmed 2004). The study revealed 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.

3. Thirty RMP unions were randomly selected from the 40 unions of the 40 *upazilas* selected in Steps 1 and 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 former 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 former FSVGD participant households were randomly selected from the union-level participants' list.
6. From each of the FFA unions, 30 current FFA participant households and 10 former 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 former RMP participant households were randomly selected from the union-level participants' list.
8. From each of the 40 unions selected in Steps 1 and 2, 10 control households were randomly selected from the union-level potential participants' list that met the selection criteria of respective programs but never participated in any of the programs.

Table 3.2 provides a list of the survey districts, *upazilas,* and unions and the programs covered by the survey in each of the locations. Figure 3.1 shows the survey *upazilas* on the map of Bangladesh.

Preparation of Survey Questionnaires

IFPRI has extensive experience in the design and implementation of similar impact evaluation surveys in Bangladesh and other countries. We also consulted the HIES questionnaires of the Bangladesh Bureau of Statistics 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 data on individual food intake using a 24-hour recall methodology. Female enumerators with expertise and long experience in administering the dietary intake module (including in past IFPRI surveys in Bangladesh) collected the dietary intake data.

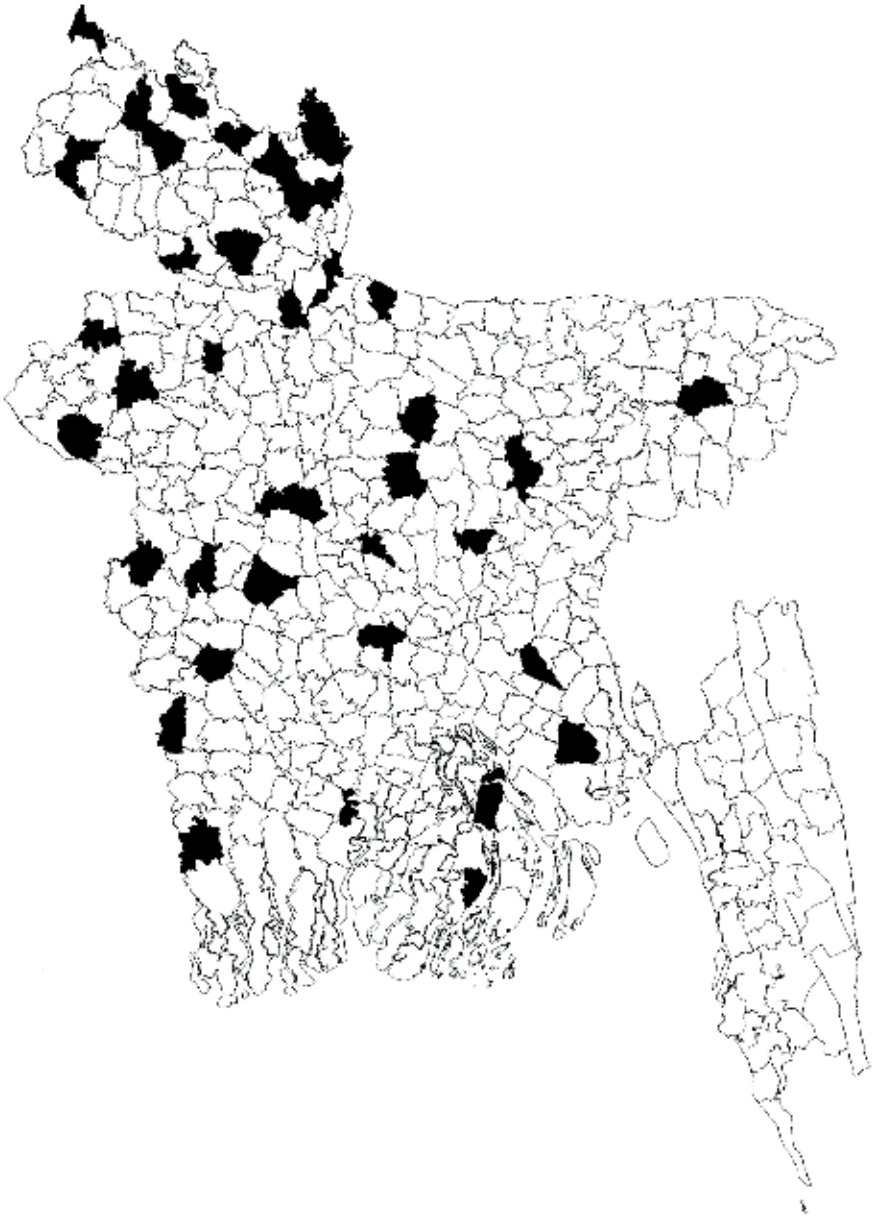
Table 3.2 Survey locations

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."

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

Figure 3.1 Map of Bangladesh showing the survey *upazilas*



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 these comments and suggestions.

Training and Survey Administration

IFPRI contracted with Data Analysis and Technical Assistance Ltd. (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.

Quality Control

Much care was taken to ensure the quality of the household survey data. In the field, survey supervisors routinely oversaw interviews conducted by enumerators and verified all questionnaires completed by enumerators on a daily basis. If inconsistencies in responses were detected in completed questionnaires, the supervisors visited the respondents involved to find out the reasons and corrected the responses as needed. In addition, the supervisors made random checks of about 10 percent of the completed questionnaires by revisiting the sample households. To ensure data quality, DATA survey coordinators made frequent field visits to supervise the field work.

The IFPRI study leader visited some of the survey sites and was in regular touch with DATA during the course of the survey, providing necessary guidance. Further, the representatives of the funding agencies of the study—the U.K. Department for International Development and WFP—made unannounced field visits to observe survey interviews.

Qualitative Data Collection

Quantitative data were supplemented by qualitative information in order to allow researchers to hear how participants and program implementers perceived the program "in their own words." Participatory approaches were used to collect detailed information. Qualitative exercises using participatory research appraisal (PRA) at the village level were conducted separately

for women and men. Women were further subdivided into two categories: beneficiaries and former beneficiaries. Husbands of beneficiary women were also consulted separately.

The Process and Locations

PRA was conducted in five different unions of four districts, with the highest concentration in the northern region of Bangladesh. The districts were selected based on the list of unions in the household survey (Table 3.2) in consultation with the members of the study team. To cover all the programs including RMP, Faridpur was selected from the southern part of Bangladesh. Although the qualitative study sample was not statistically representative, the unions and districts chosen for the qualitative study were those with the highest concentration of beneficiaries within each region. The villages covered under the study were located in the following unions:

- Sadarpur *upazila* (Sardarpur union) of Faridpur district (RMP, IGVGD),
- Shaghata *upazila* (Muktinagar union) of Gaibandha district (IGVGD),
- Nilphamari *upazila* (Panchapukur union) of Nilphamari district (FFA), and
- Tetulia and Deviganj *upazilas* (Bhajanapur and Sonahar Mallikadaha unions) of Panchagarh district (FSVGD, FFA, RMP).

A total of 16 FGDs were held with the different groups mentioned earlier. In addition, 16 case studies were conducted among female beneficiaries and former beneficiaries. Moreover, 10 key informants' interviews were held with the service providers (NGO representatives) in the field and with locally elected representatives. The key informants' interviews and stakeholders' meetings were also conducted at the central level with policymakers.

The processes of data collection and analysis were participatory. During PRA exercises at the village level, various tools of PRA, such as rapport-building, wealth-ranking, community-mapping, seasonal calendar development, and mobility-mapping were used. Open-ended questions were asked in key informants' interviews and FGDs to learn, 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; and whether cash and food transfers affect the social or community relations between beneficiaries and nonbeneficiaries within communities.

Quality Control

A four-member gender-balanced team of experienced facilitators conducted the FGD sessions guided by the research team, which included a sociologist with extensive experience in gender research in Bangladesh. The facilitators

also participated in the training arranged for the quantitative study team. In addition, the qualitative team underwent three additional days of training on qualitative methods.

The sociologist led the qualitative study team for the whole period of data collection. For in-field training she conducted the full PRAs in the first field while the other members of the team facilitated and observed. She also provided constant supervision and suggestions in person and/or over phone to the team members. She conducted the interviews of the service providers at the central level and cross-checked the field-level data. The field data collection started on July 20 and ended in the last week of August 2006.

Comparison of Quantitative and Qualitative Sample Sites

In order to assess whether participants in the qualitative work are similar to the sample, as a whole, and to other program beneficiaries who were not included in the qualitative work, one would ideally want to compare descriptive statistics only of those participants who were included in the qualitative study. However, because participation in FGDs can sometimes be fluid, and because participants in FGDs were not necessarily chosen from the respondents in the household survey, it was not possible to directly compare characteristics of respondents in the qualitative study with those in the quantitative study. Instead we compared characteristics of respondents at the sites chosen for the qualitative study with those in the sample as a whole.

Appendix H, Table H.1, presents a comparison of selected household characteristics for all survey respondents (column 1), current and former beneficiaries (column 2), and current and former beneficiaries at the qualitative survey sites (column 3). Beneficiaries and former beneficiaries—both at all sites and at the qualitative sites only—have higher levels of schooling and monthly food and nonfood expenditures compared with the full sample that includes controls and beneficiaries. However, beneficiaries and former beneficiaries at all sites (column 2) and those at the qualitative study sites (column 3) are quite similar across a whole range of household characteristics. Because eligibility criteria differ across programs, we also compare beneficiaries and former beneficiaries in the full and qualitative site samples by program. This comparison shows that, by and large, the qualitative study sites are quite similar to those of the full sample. This is because, as we said earlier, sampling for the qualitative study focused on those regions with the highest concentrations of beneficiaries.

CHAPTER 4

Profile of Survey Households

Using household survey data collected for the evaluation, this chapter 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 chapter portray the state of affairs of program beneficiaries and the comparison group and do not necessarily reflect the impact of the programs. Chapters 6 and 7 provide the results of the impact assessments.

Household Characteristics

Table 4.1 shows the characteristics of the survey households, disaggregated by program and control. As mentioned in Chapter 3, control households were randomly selected from the pool of households that met the 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 HIES, the average household size in rural areas is 4.9 persons (BBS 2006).

A common selection criterion for all four programs is that households be headed by a female (one who is widowed, divorced, or deserted by her 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. Chapter 5 of this report provides the selection criteria of the programs and presents the results of an assessment of the selection process.

Some highlights of other results from Table 4.1 are as follows:

- 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).

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 (percentage 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 (percentage of all households with secondary school-age children)	55.5	50.7	59.1	62.3	56.7	56.5
Completed grades of schooling, male household head	1.5	1.9	0.6	1.3	1.0	1.3
Completed grades of schooling, wife of household head	1.2	1.3	0.6	0.5	0.7	0.9
Completed grades of schooling, adult male aged 15 years or older	2.2	2.5	0.9	2.0	1.1	1.8
Completed grades of schooling, adult female aged 15 years or older	1.4	1.8	0.9	0.7	0.9	1.1
No schooling, adult male (%)	63.0	56.1	83.0	66.7	78.2	69.1
No schooling, adult female (%)	75.4	71.3	86.0	86.3	82.3	80.3
Age at first marriage of men currently aged less than 30 years	20.7	20.6	20.0	19.8	19.9	20.2
Age at first marriage of women currently aged less than 25 years	15.5	15.2	14.9	14.9	14.7	15.0
Female-headed household (%)	31.0	21.7	36.0	79.0	46.3	43.0
Less than 0.5 acres of land owned (%)	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 (%)						
Salaried position	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 occupation	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 in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

- The educational attainment of adult family members is extremely low; the average completed grades of schooling range from only grade 0.5 for RMP households to grade 2.5 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 the survey, their age at first marriage was 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.
- Because the majority of households are landless, daily wage laborer is by far the most common occupation of the heads of households.

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), 0.5 children under age 5, 1.2 children between the ages of 5 and 14 years, and only 0.1 elderly persons over age 60.[1] 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 as 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 accounted for mainly 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.

Budget Shares of Food Consumption

The measure of total consumption expenditures is extensive and draws on responses to several sections of the household survey. In brief, consumption

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

Table 4.2 Demography and dependency ratio of survey households

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 (%)						
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 (%)						
Child (0–14 years) dependency ratio	96.3	79.8	86.3	101.9	95.4	92.2
Aged (more than 60 years) 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."

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

is measured as the sum of total food consumption and total expenses for non-food (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 their 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, clothing and footwear 4 percent.

Table 4.3 Budget share of selected budget items

	IGVGD	FSVGD	FFA	RMP	Control	All
Budget item						
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 (%)						
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 hygiene	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 (birthdays, weddings, funerals, 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."

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

Table 4.4 shows the patterns of food expenditures. 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?" directly translates 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 the programs: FSVGD households received only an *atta* ration, FFA households only a rice ration, and IGVGD households rice, *atta,* and wheat rations before the survey (see Chapter 5).

Table 4.4 Food budget share of selected food budget items

	IGVGD	FSVGD	FFA	RMP	Control	All
Budget item						
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 (%)						
Rice	45.5	42.9	52.4	44.5	52.7	47.9
Atta (whole-wheat flour)	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."

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

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. In contrast, FSVGD households consume 14 times more *atta* than FFA households and 7 times more *atta* than RMP households because FSVGD participants receive only 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 that there is very little diversity in the diet

Table 4.5 Quantity of daily per capita consumption of food items

	Quantity consumed (grams per person per day)					
Food item	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**All**
Rice	401	438	451	436	397	423
Atta (whole-wheat flour)	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."

Notes: Estimated from food expenditure data. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

of these households. Rice accounts for about three-fourths of total calorie intakes of RMP households, 73 percent for IGVGD, 69 percent for FSVGD, and 81 percent for FFA households.

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.

The 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 found that preschoolers are at the greatest risk of undernutrition, followed by pregnant and lactating women (Ahmed 1993).

Table 4.6 Calorie consumption and composition

	Calorie consumption (percentage of total calorie intake)					
	IGVGD	FSVGD	FFA	RMP	Control	All
Per capita calorie intake (kcal)	2,065	2,348	2,020	2,118	1,801	2,053
Food item						
Rice	72.5	69.3	81.1	75.3	80.3	76.0
Atta (whole-wheat flour)	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."

Notes: Estimated from food expenditure data. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.7 Cost of calories by food groups

	Cost (taka per 1,000 kilocalories)					
Food item	IGVGD	FSVGD	FFA	RMP	Control	All
Rice	4.6	4.3	4.5	4.5	4.5	4.5
Atta (whole-wheat flour)	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."

Notes: Estimated from food expenditure data. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 child growth standards devised by the World Health Organization (WHO) of the United Nations. The levels of nutritional status are expressed as *z*-score values.

Table 4.8 reports *z*-scores for height for age, a measure of stunting; weight for age, a measure of whether a child is underweight; and weight for height, a measure of wasting. Weight for height is a short-term measure (low weight for one's height indicates acute undernutrition), whereas height for age shows the long-term nutritional status of children (low height for one's age indicates chronic undernutrition). Low weight for age (indicating underweight) can be viewed as a medium-term indicator that reflects both acute and chronic undernutrition. The results show no remarkable difference in the nutritional status of preschoolers between the programs. For the entire sample of preschool children, 54 percent are stunted, 50 percent are underweight, and 20 percent are wasted. At the national level, about 48 percent of children under age 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 4.9 shows the nutritional status of women of childbearing age (15–49 years), the other high-risk group, from the program and control households. Body mass index (BMI) is used as the nutritional status indicator for this

Table 4.8 Prevalence of malnutrition among preschool children aged 6–60 months

Program participation of household	Number of children	Average HAZ	Percent HAZ < 2	Average WAZ	Percent WAZ < 2	Average WHZ	Percent WHZ < 2
IGVD	132	–2.10	56.5	–1.83	45.5	–0.89	18.3
FSVGD	131	–1.92	53.9	–2.01	55.0	–1.11	23.0
FFA	129	–1.95	54.4	–1.88	50.4	–1.04	15.7
RMP	71	–2.11	58.0	–2.08	53.5	–1.10	14.1
Control	201	–1.97	50.8	–2.09	48.8	–1.24	25.1
All	664	–2.00	54.0	–1.98	50.2	–1.09	20.3

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

Notes: HAZ—height-for-age z-score; WAZ—weight-for-age *z*-score; WHZ—weight-for-height *z*-score. The child growth standards developed by the World Health Organization (WHO) were used in calculating *z*-scores. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.9 Body mass index (BMI) of women of childbearing age, 15-49 years old

Program participation of household	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."

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

group.[2] 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 Chapter 6.

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.

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 in the sample aged 5 and under 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 a 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-highest incidence of illness is observed among 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.

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

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

	Percentage of household members in each age group					
Age group	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**All**
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."

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

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

Types of Primary School Attended by Children

Primary schools in rural Bangladesh include government schools, registered nongovernment schools, nonregistered nongovernment schools, Primary Training Institute 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

Table 4.11 Physical disabilities of household members

	Percentage of household members					
Type of disability	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**All**
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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.12 Types of primary schools attended

	Percentage of household members attending					
Type of school	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**Total**
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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

schools. About 63 percent of all students go to government schools. More children from FFA households (16 percent) attend NGO-run schools than do those from other households. Among the four programs, a relatively higher percentage of children from RMP households attend *madrassas.*

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.

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.

Because outer walls and the roof form the main part of each dwelling, information on these is provided in the table. Permanent walls are those made of tin, brick, and cement. Nonpermanent materials include bamboo,

Table 4.13 Selected household asset ownership

	Percentage of households					
Asset	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**Total**
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."

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

Table 4.14 Presence of electricity and structure of dwelling

Characteristic	Percentage of households					
	IGVGD	FSVGD	FFA	RMP	Control	All
Household has electricity	15.3	8.7	5.0	7.0	5.5	8.1
Structure of walls[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
Thatching (straw, grass, plastic, etc.)	7.0	15.3	24.0	11.7	18.5	15.5
Concrete or 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."

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

[a]Permanent materials are fired bricks, concrete, wood, and tin sheets.

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 latrines. 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.

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 over, the labor force participation rates range 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

Table 4.15 Types of latrine

Type of latrine	Percentage of households					
	IGVGD	FSVGD	FFA	RMP	Control	All
Kutcha (nonpermanent)	20.0	20.0	22.7	24.3	21.3	21.6
Pucca (permanent, 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 programs. For RMP households, the rates are 82 percent for men and 71 percent for women.

Rates of unemployment (calculated to include 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. The low unemployment rates indicate that the poor cannot afford to remain unemployed.

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

Participation in Public Intervention Programs

Besides the four case study programs, Bangladesh has several other public assistance programs, as described in Chapter 1. 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 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

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

Indicator	IGVGD			FSVGD			FFA			RMP			Control		
	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All
Number 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 work	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 a 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.17 Households receiving public assistance

Form of assistance	Percentage of households					
	IGVGD	FSVGD	FFA	RMP	Control	All
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."

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

other three programs received food assistance from the VGF program, which is designed as a mechanism for mitigating the consequences of disasters, such as floods, cyclones, and other natural calamities.

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.

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.

Access to Credit

Table 4.19 presents information on average loan size and sources of loans. The 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.

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 4.18 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 (percentage of households)	7.0	6.7	6.0	4.3	6.3	6.1
Remittance from abroad (percentage 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.19 Loan size and sources of loans

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
Percentage of households that have an outstanding loan amount	64.7	49.3	34.7	50.7	36.8	46.6
Source of loan (percentage of all loans)						
NGO	77.6	52.0	40.5	48.0	40.2	53.9
Bank or other financial institution	4.8	19.9	19.7	11.6	15.1	13.3
Relative, friend, or 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, or trader	2.8	5.0	9.5	13.7	8.1	7.5
Credit or savings group (other than an 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 4.20 shows the patterns of loan use by survey households. It is important to note that information elicited 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

Table 4.20 Use of loans

Loan size/use	IGVGD	FSVGD	FFA	RMP	Control	All
Average loan size (taka/household)	5,175	4,129	1,621	2,864	1,804	3,036
Productive use (percentage of all loans)						
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
Purchase of productive assets	14.0	11.8	14.4	6.1	4.6	10.2
Rental/leasing-in of land	2.9	1.2	1.1	4.9	2.4	2.6
Purchase of cow or goat	5.2	4.4	5.4	4.3	3.7	4.6
Lending at higher interest	2.3	0.7	0.9	1.6	2.0	1.6
Consumption use (percentage of all loans)						
Food	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
Improvement of 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 (percentage of all loans)						
Repayment of another 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

level of misreporting will nonetheless exist, and this should be borne in mind when interpreting the results.

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).

Patterns of Savings

Table 4.22 provides information on savings. Although all program households had some savings, 71 percent of control households had no savings at all. Mandatory saving requirements of 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

Table 4.21 Interest rates by loan source

	Interest rate (percent per year)					
Loan source	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**All**
NGO	14.2	13.8	13.5	14.6	13.8	14.1
Bank or other financial institution	12.1	12	12.7	10.8	12.3	12.0
Relative, friend, or 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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
Percentage of households with any savings	99.7	99.7	99.7	100.0	28.8	81.2
Place of saving (percentage of total savings amount)						
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 savings)	29.9	19.6	12.8	10.9	70.4	23.0
Savings group (other than NGO)	1.8	2.7	0.3	1.6	12.7	2.6
Bank or 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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

savings requirements are Tk 300 for RMP participants, Tk 32 for IGVGD and FSVGD participants, and Tk 25 for FFA participants.

Table 4.23 shows survey respondents' planned use 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
Planned use of savings (percentage of total savings amount)						
To buy productive assets	48.8	57.5	64.0	28.2	42.1	49.2
To start or help a 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 or repair a house	2.9	2.8	2.5	1.8	3.0	2.6
For marriage or dowry expenses	8.8	6.8	6.3	11.2	15.6	8.9
To get a 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 or 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."

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

Table 4.24 Incidence of shocks in the past five years

	Percentage of households					
Shock	IGVGD	FSVGD	FFA	RMP	Control	All
Death of main earner	8.3	6.7	5.0	12.7	9.5	8.3
Death of other family member	4.7	2.7	6.0	3.7	3.3	4.7
Serious injury or illness that kept a household member from performing 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 or 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 a natural disaster other than a flood	13.3	8.0	11.3	15.7	13.0	13.3
Paid a large amount as 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."

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

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 4.25 shows the measures taken by the affected households to cope with relatively severe shocks: the 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 responses)

	Percentage of cases					
Coping mechanism	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**	**All**
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 or 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 a loan from an NGO or other financial institutions	19.6	17.2	17.3	24.7	21.7	20.5
Ate less or 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
Was 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 a 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
Received government 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."

Notes: The coping mechanisms described are those used to deal with the death of the main earner, serious injury or illness, or floods and other natural disasters. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

CHAPTER 5

Transfer Delivery, Beneficiary Preferences and Training, and Accuracy of Targeting

In this chapter, first we 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.

Delivery of Transfers

Chapter 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 in 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 each month of the 12 months prior to the survey.

The FFA participants had been in the program for 6 months at the time of the household survey.[1] However, the length of program participation had been 18 months for IGVGD and FSVGD and 25 months for RMP households. Therefore, for comparability of receipts across the four programs we estimated the average value of transfers received (as reported by participants) over the six-month period prior to the survey.[2] 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 par-

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

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

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

Transfer value/composition/number	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 (nutrient-fortified whole-wheat flour)	141	200	0	0
Rice	249	0	572	0
Cash	0	192	265	694
Total	407	404	837	694
Households that received any transfers in the 6 months prior to the survey (%)	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."

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

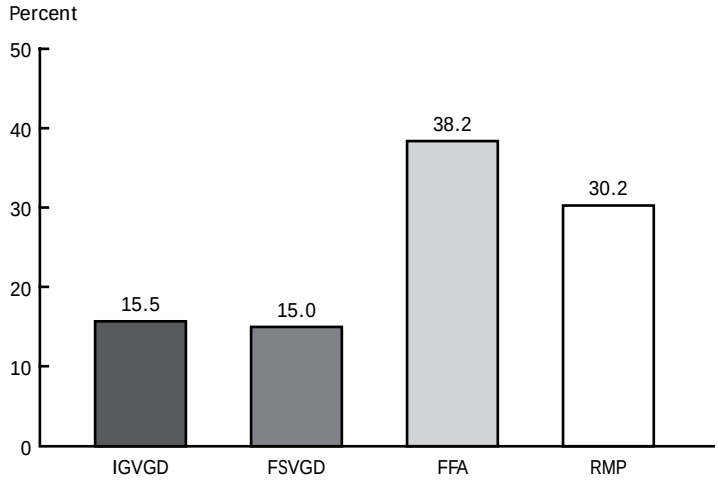
ticipants is as follows: rice, 61 percent; fortified *atta,* 35 percent; and wheat, 4 percent. For FSVGD participants, fortified *atta* accounted for 50 percent of the total value of the transfer, cash for 48 percent, and wheat for 3 percent. FFA participants received 68 percent of the total value of the transfer in rice and 32 percent in cash. RMP participants received all transfers in cash.

Figure 5.1 shows average monthly transfers as percentages of the total monthly household expenditures of participating households. For FFA participants, transfers accounted for as much as 38 percent of 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. In contrast, under FSVGD virtually all food transfers (93 percent) were in the form of micronutrient-fortified *atta* (Table 5.2).

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 interview. For FSVGD beneficiaries, however, the fluctuation in the amount of food rations received was mainly due to irregularities in the *atta* milling and fortification

Figure 5.1 Transfers as percentages of total household expenditures



Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

process, as the qualitative research indicates. For instance, many FSVGD beneficiaries did not receive any *atta* ration for some months but received two or three months' rations for 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 flows of funds from the Bangladesh Bank (the 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 5.2 Average quantity of food rations received monthly

Food item (kilograms/month/beneficiary)	IGVGD	FSVGD	FFA
Wheat	1.48	0.99	0.00
Pusti atta (nutrient-fortified whole-wheat flour)	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."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development.

Table 5.3 Amount of monthly transfers received per beneficiary over the six months prior to the survey

	IGVGD				FSVGD				FFA		RMP
Month	Rice (kg)	Wheat (kg)	*Atta*[a] (kg)	Total food (kg)	Wheat (kg)	*Atta* (kg)	Total food (kg)	Cash (taka)	Rice (kg)	Cash (taka)	Cash (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
Six-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."

Notes: "Month 1" represents the month immediately preceding the survey, and "month 6" refers to the sixth month before the survey. — denotes zero or a negligible amount. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

[a]Whole-wheat flour.

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 their 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.[3] 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 office. The levels of FFA workers' payments depend on how long it takes to complete a works project and on the amount of work (mostly work moving earth) 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 periodic 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 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 period when the program was being phased out from CARE, an audit of accounts was in progress and payments to program participants were often withheld. Recent information suggests that disbursements of outstanding payments from the CARE era were being made 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. In 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 payments in

[3] 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.

Table 5.4 Transfers received over the six months prior to the survey

Type of transfer/ number of times transfers were received	Percentage of program participants who received transfers			
	IGVGD	FSVGD	FFA	RMP
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."
Note: — denotes not applicable. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

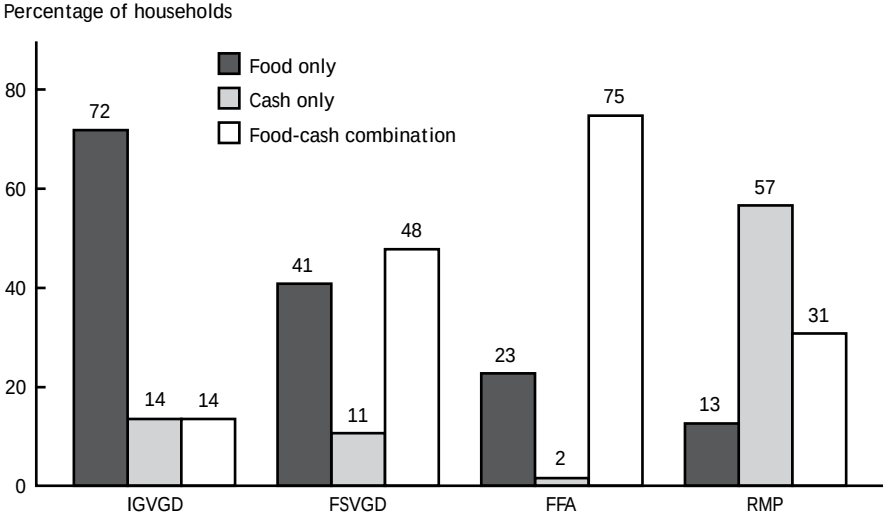
six months. Indeed, 9.7 percent of FFA and 6.8 percent of RMP beneficiaries received no payments in the six months prior to the household survey.

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 in which they are participating: 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.

Figure 5.2 Preferences of beneficiaries for the forms of transfer payments



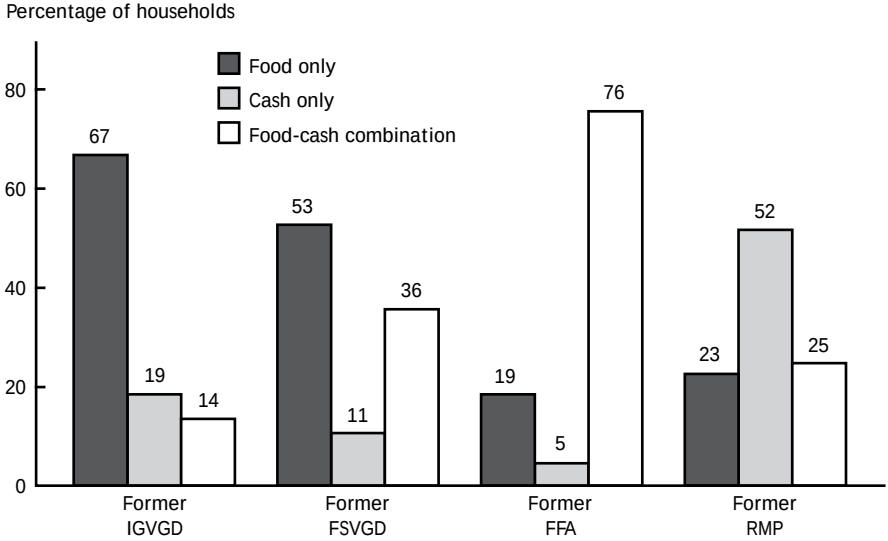
Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

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

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).

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 the income levels of beneficiaries on their preferences from program participation and from other factors that may affect preferences. The use of program participation variables in the models separates the effect on preferences of income from all attributes of program participation, 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 a proxy for income. Although most program participants in the household survey sample are poor, there are variations in their incomes, as shown later in this chapter.

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



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

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

Specification of an Empirical Model

The equation for estimating beneficiary preferences is

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

where D_i^P represents the preference of a program participant, *i*. For example, D_i^P equals one if a participant prefers "only food," zero otherwise. Y_i represents the total monthly per capita expenditure of the 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 $k = 1, \ldots, K$. β is a $K \times 1$ vector of parameters; λ_v represents location fixed effects; and u_i is a participant-specific error term representing unobserved determinants of preference.

The parameters of interest are α_1 and α_2; α_1 denotes the level of household income of the participant, and α_2 represents the program of which the

person is a beneficiary. The vector of additional control variables includes the participant's household size; dependency ratio; age; whether the participant is illiterate; whether the participant is widowed, divorced, or separated from her husband; the total land owned; the time required to go to the nearest bank; the time necessary to go to the local market or *haat;* the quantity of rice purchased last time; the price of the rice; and a set of location (union) dummy variables to control for union-level unobservable characteristics. Equation (1) is estimated using a probit regression.

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

Results

Table 5.5 presents the results of the estimated probit regressions for beneficiary preferences. The results suggest that as income increases, beneficiary preferences for food decline, 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 preferences for a combination of food and cash transfer, however, are unrelated to household income.

The food recipients appreciate being assured of food provided by the programs, as the following quotes 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.

The results in Table 5.5 also show that participants tend to prefer what their program provides: IGVGD participants prefer transfers in food only, FSVGD participants prefer a combination of food and cash, FFA participants prefer a combination, and RMP participants prefer only cash. Some of their responses were as follows:

- "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 an FGD 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 an FGD with RMP participants in Panchagarh district.

Training of Program Participants

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

The household survey for this study collected information on beneficiaries' 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 moving earth. Awareness-raising and training in IGAs 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 about IGAs. The qualitative part of the research covered the awareness-raising aspects of training.

Although IGVGD and FSVGD provide training in 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 later in this chapter). The high level of continuing illiteracy of VGD women despite the provision of basic literacy (and numeracy) training indicates that the literacy training was not very effective.[4]

Table 5.6 provides information on IGVGD, FSVGD, and RMP participants' IGA training. Most of the program participants received training in IGAs; only

[4] It is worth noting, however, that the illiteracy rates are even higher for FFA (93 percent) and RMP (91 percent) women, but these programs do not provide literacy training to participants.

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 (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	00.17	0.0001	0.76	–0.0001	–1.39	00.31		
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 landholding 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 needed to go to the 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 needed to go to the 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
Price of rice (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		
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: The dependent variables are beneficiary preferences. For example, if a beneficiary prefers "only food," the dependent variable for "only food" equals 1, otherwise 0. *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. The standard errors of the coefficients are conventional. The equation has been estimated using the "*dprobit*" command of the Stata statistical software. Significance levels: * significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

Table 5.6 Participants' training in income-generating activities (IGAs) and outcomes of training

	Percentage of participants		
Training indicator	**IGVGD**	**FSVGD**	**RMP**
Received training in IGAs	92.7	95.7	96.0
Type of IGA training received			
Poultry rearing	65.1	45.6	63.5
Cow or 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 or fishpond development	0.7	2.1	0.0
Weaving, sewing, or embroidery	1.1	5.9	1.0
Handicrafts	3.2	16.7	6.3
Food processing	0.0	1.7	2.1
Business skills development	10.8	24.7	56.3
Total (exceeds 100 because of multiple responses)	156.5	168.6	190.6
Started an IGA after training	68.7	65.5	85.4
Type of IGA started			
Poultry rearing	58.1	50.5	53.7
Cow or 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
Pisciculture or fishpond development	0.0	0.0	0.0
Weaving, sewing, or 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 an IGA			
Training was not useful	2.3	1.9	0.0
Received insufficient training	3.4	1.9	14.3
Lacked 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 an 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."

Note: FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 in cow or goat rearing was most common for IGVGD and FSVGD participants. Business skill development training was most widespread among RMP participants.

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 IGAs after the training show that the training was quite effective. Overall, poultry- and cow- or goat-rearing were the most common IGA undertakings. About 37 percent of RMP participants also started small business enterprises.

Among those who did not pursue IGAs 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 IGAs 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 for 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 of participants who did not. These results show the success of participants' adoption of IGAs after receiving the training. However, this success may not be fully attributable to training; qualitative field research found that IGVGD's built-in provision of microcredit is instrumental in such success.

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

Table 5.7 Value of livestock and poultry assets for those who started income-generating activities (IGAs) after receiving training and for those who did not

	Value of assets (taka per household)		
Assets	**IGVGD**	**FSVGD**	**RMP**
Livestock assets			
For those who started an IGA	5,569	4,818	4,255
For those who did not start an IGA	1,947	2,319	3,362
Poultry assets			
For those who started an IGA	555	701	525
For those who did not start an IGA	293	396	339

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

Note: FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

- "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-raising information and training on IGAs. She added, "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) in livestock-rearing, making hand fans, and running a tea stall.
- 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. Shefali reported that the nursery was a profitable enterprise. She also said, "Mujibor, my husband, is a very nice man. I learnt from the training the bad effects of 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 in earth-digging, raising dikes, and road maintenance–related activities before starting RMP work. She also received awareness-raising information and training in business skills, preventing violence both at work and home, and providing first aid for fellow workers. Nurjahan thought that the training was very useful in 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.*

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 those who are extremely 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 population of needy people, 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 extremely 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 on which each *upazila* of the country has been categorized by its relative level of food insecurity. Based on this map, VGD food resources geographically target *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 of 640 rural *upazilas* in the country. IGVGD covered 364 *upazilas,* and FSVGD covered 57 *upazilas.* The FSVGD and IGVGD selection processes are 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 allowing people to self-target based on willingness and physical ability to work, FFA uses a set of selection criteria to target the poorest.

Criteria for Beneficiary Selection

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 2005–06 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:

1. The household consumes less than two full meals per day.
2. It owns no land or less than 0.15 acres of land.
3. It has very poor housing conditions (construction material and sanitation facilities).

4. It has an extremely low and irregular family income from daily or casual labor.
5. It is headed by a woman with no adult male income earner and no other source of income.

Households that meet all five criteria will be given priority.

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

1. Women not within the 18–49 age group.
2. Those who were already members of other food and/or cash assistance programs.
3. Those who were VGD cardholders at any time during 2001–04.

A household can have only 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 targets the following participants:

1. Individuals who depend predominantly on manual or casual labor, have extremely low or irregular income, and do not operate and are not employed at a business.
2. Those from households that do not own or operate more than 0.15 acres of land.
3. Those who are physically fit to carry out the scheduled work.
4. Those from households with malnourished pregnant or nursing mothers and/or children of school-going age who are often engaged in paid work.
5. Female heads of households (women who are widowed, separated, divorced or deserted, or have disabled husbands).
6. Individuals from households with virtually no productive assets.
7. Those in households with no more than one participant.
8. Those who are not underaged or overaged (the recommended age group is 18–50 years).

Among the individuals listed based on the previously stated criteria, priority will be given to the following:

1. Women who are heads of households (for example, women who are widowed, separated, divorced or deserted, or have disabled husbands);
2. Women or individuals from households with virtually no productive assets and no confirmed source of income (such as women from absolutely land-

less households who are economically most vulnerable and socially most disadvantaged and live on others' land and have no agricultural land); and
3. Former VGD women who meet the previously stated criteria and are not regularly receiving benefits from any service-providing agency (such as NGOs, the RMP, or the Bangladesh Rural Development Board) and are also not engaged in significant IGAs (still suffering from hunger and malnutrition).

RMP Selection Criteria

RMP women are selected for road maintenance using pre-established selection criteria. The women should have the following characteristics indicating their disadvantaged status:

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

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. Because the status of land and other asset ownership and the occupation of beneficiary households could be different after program participation, the household survey collected information on households' preprogram status regarding 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 for the programs.

The programs require beneficiaries to be within certain age ranges. Eighty-nine percent of both IGVGD and FSVGD beneficiaries and 94 percent

Table 5.8 Households meeting selection criteria

Criterion	Households meeting each criterion (%)			
	IGVGD	FSVGD	FFA	RMP
Female-headed household	31.1	21.7	36.0	79.3
Beneficiary women who				
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
Are aged 18–35 years with children aged 0–12 years	53.2	51.6	53.6	66.3
Are aged 18–49 years	89.3	88.7	93.7	97.0
Are illiterate	82.7	84.3	92.7	91.3
Never went to school	75.0	73.0	87.7	84.7
Had few years of schooling (average number of years)	1.0	1.0	0.5	0.5
Before joining the program, beneficiary women				
Owned less than 0.15 acres land	82.0	78.7	91.7	88.7
Operated less than 0.15 acres 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
Were daily wage laborers	38.0	51.0	56.7	48.3
Had no productive assets (including livestock)	26.0	16.7	20.3	32.3
Had no productive assets (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."

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

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.

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 of RMP women and compared these rates with those of 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. The level of educational attainment of all beneficiary women is extremely low; 73 to

88 percent of the 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 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. However, households can use some assets (for example, a sewing machine) for consumption or income generation or both. 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, as indicated by the following stories and quotations:

- 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 the 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 for 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 announcements in their communities.

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 had selected them, whereas 36 percent of FFA partici-

Table 5.9 Participants' selection into the program

	Percentage of participants				
Source of knowledge/selection process	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**All**
How participant learned about the program					
From union *parishad* (UP) chairman	9.3	14.3	9.0	6.3	9.8
From a UP member	66.7	58.0	21.3	24.7	42.7
From an NGO worker	4.3	3.7	49.0	1.3	14.6
From friends or neighbors	15.7	15.0	17.7	11.7	15.0
From a loudspeaker announcement in the community	0.0	0.0	0.0	40.7	10.2
From former beneficiaries	2.7	6.7	1.0	14.0	6.1
Other	1.3	2.3	2.0	1.3	1.8
How participant was selected for the program					
Participant applied and got selected	22.3	23.3	25.3	1.0	18.0
Participant was selected by a UP	58.7	42.0	16.7	1.0	29.6
Participant was selected by an NGO	3.3	2.0	35.7	0.7	10.4
Participant was selected by lottery	0.7	0.3	7.0	95.7	25.9
Participant pursued selection	7.7	17.3	8.7	0.3	8.5
Another member of the program pursued selection for the participant	5.7	12.0	6.0	0.3	6.0
Participant does 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."

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

pants stated that they had been selected by NGOs. In contrast, 96 percent of RMP participants affirmed that they had been selected through lottery. Among the VGD and FFA participants, 22 to 25 percent indicated that they had been included in the programs through application. About 29 percent of FSVGD and 13 percent of IGVGD participants reported that their own persistent demands or those of other members of the programs made their inclusion in the programs possible.

Assessing the Effectiveness of Targeting

We assessed the effectiveness of targeting of each of the four programs by looking at the patterns of income distribution of program participants. Although the IFPRI household survey collected data on household consumption expenditures for the sample households, these data are insufficient to show the pattern of distribution of program beneficiaries across income groups in the society because the sampling frame did not include all households at the community levels. Therefore, we adopted a method of comparing the expenditure patterns of the households of program participants in the IFPRI

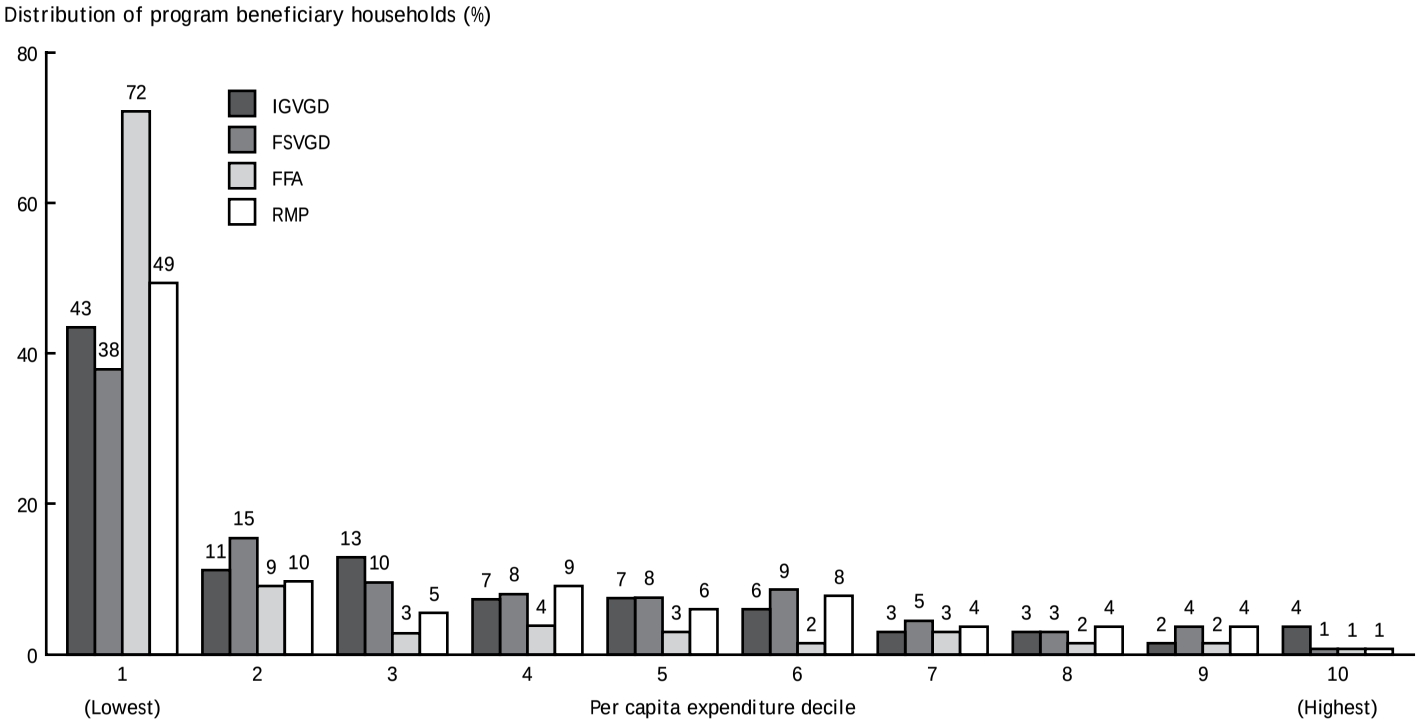
Table 5.10 Distribution of program beneficiary households by 2005 Household Income and Expenditure Survey per capita expenditure deciles

Per capita expenditure decile	Percentage of households			
	IGVGD	FSVGD	FFA	RMP
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 Household Income and Expenditure Survey (HIES) of the Bangladesh Bureau of Statistics and the IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

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

Figure 5.4 Distribution of program beneficiary households by 2005 Household Income and Expenditure Survey per capita expenditure decile



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

Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; HIES—Bureau of Statistics' Household Income and Expenditure Survey; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

household survey with those of households from a nationally representative household survey in Bangladesh to assess targeting performance. For this we used the dataset of the 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 in which IFPRI had carried out the household survey for this study. We then selected all HIES households that lived in rural areas of these districts.
2. From the IFPRI survey data we subtracted transfer values from the 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 the total per capita consumption expenditures (food plus nonfood) derived from the 2006 IFPRI household survey data to 2005 prices using the rural consumer price index.[5]
4. We calculated the per capita monthly expenditure deciles of the HIES households selected in Step 1. We then determined the expenditure cut-off point of each of the deciles.
5. Finally we assigned program participants' households from the IFPRI survey to the HIES decile groups by matching their inflation-adjusted per capita expenditures with the expenditures at the HIES decile cut-off point.

The distribution of participants' 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 fairly well target the poorest, with FFA the best-targeted program.

In the absence of the program, 72 percent of all FFA beneficiary households would have been among the poorest 10 percent and 84 percent among the poorest 30 percent of all households in the income distribution. In the FFA program, both female and male beneficiaries do physical work that mainly involves moving earth. Only out of desperation would a rural Bangladeshi woman be willing to work with men at onerous, low-paying manual labor. As a result, the program is strongly self-targeted.

Among the other three programs, 67 percent of IGVGD, 64 percent of RMP, and 63 percent of FSVGD households would have belonged to the poorest 30 percent of all households in the income distribution without the programs.

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

CHAPTER 6

Impacts of the Programs on Livelihood and Food Security and the Cost-Effectiveness of Transfers

The first part of this chapter presents estimates of the impacts 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 looking at 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 the transfers, and the presence or extent of complementary forms of assistance, such as savings and credit. All factors play a role when we assess impacts and compare impacts across programs.

Assessing Impact: General Issues

In this report we are undertaking two broad sets of comparisons to answer the following questions: 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 a program's impacts 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 the program (the individuals or households who are the "control group"). As explained in Chapter 3, the most appropriate approach here is PSM. In our application of PSM, we first estimate a probit regression in which 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 Chapter 3, 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 level of education of adult household members).

Specifically, we include the following variables in these probit regressions: household size and demographic composition, indicators of the level of literacy and educational attainment of the household head and spouse, whether the household is headed by a female, whether the household head's occupation was daily laborer prior to the commencement of the program, the preprogram level of ownership of land and other assets, whether the household had electricity before joining the program, and the 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.[1] 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 to calculate the propensity scores used to estimate the impacts on income of the four programs. Appendix B explains the implications of using PSM on sample size and shows the distributions of estimated propensity scores for the treatment and control groups.

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[1] 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 the equality of the means of these variables across ranked groupings of the propensity score.) When 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 when the distribution of the density of the propensity scores overlaps treatment and comparison observations—that is, when the propensity score densities have "common support." For this reason, we used the common support approach for all PSM estimates. For 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 retested the balancing properties of the data. All results presented in the following pages are based on specifications that passed the balancing tests. We matched treatment and comparison observations by means of local linear regression with a tricube kernel. We used Stata's PSMATCH2 command with common support imposed. The standard errors of the impact estimates are calculated by bootstrap using 1,000 replications for each estimate.

Table 6.1 Sample size of treatment and control groups used for propensity score matching

	Unions (number)		Sample size (number)	
Current program	**Treatment**	**Control**	**Treatment**	**Control**
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."

Notes: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program. 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 propensity score matching estimates.

Comparative assessment of these programs requires clarity about program similarities and differences. Table 6.3 summarizes the characteristics of these four interventions.[2] Whereas IGVGD provided only food payments, RMP provided only cash payments, and FSVGD and FFA provided a combination 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.

Payment Size

FFA and RMP provide substantially larger payments 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.

Type of Food

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

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

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 half a 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.

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 providing training, IGVGD facilitates access to credit.

Timeliness of Payment

IGVGD recipients received food transfers on a monthly basis, and beneficiaries under 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 the 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 payments in the reference period.

Differences in "payment size" and "type of food" are especially important when we assess the impact of different programs on food consumption. As we explain in more detail in Appendix C, economic theory suggests that the size of a 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 have consumed without the transfer, the ration is termed "inframarginal." An inframarginal food transfer is equivalent to what would have been bought using a cash transfer of equal value. Put another way, an inframarginal food transfer has the same income effect as a cash transfer.

In contrast, the food transfer is "extramarginal" if the size of the transfer is greater than the amount of the food that the recipient household would have consumed without the ration. Here the transfer may have two effects—an income effect and a substitution effect.[3] The pure price effect of

[3] 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.

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

	IGVGD		FSVGD		FFA		RMP	
Variable	**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 years	1.359	0.92	3.155	2.59**	0.399	0.39	4.207	3.24***
Females 55 years and over	1.593	1.18	0.791	0.68	–0.365	–0.31	2.404	1.81*
Years of education: male	0.056	1.08	0.033	0.5	–0.139	–3.07***	0.056	1.06
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 cultivable land owned 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* (an indigenous type of rice-husking equipment) 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 owned before joining program	0.106	1.03	0.257	1.65	0.025	0.2	0.002	0.02
Number of cows owned before joining program	0.173	0.85	0.29	1.26	–0.347	–1.52	0.236	1.41
Number of chickens owned 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 comes 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				

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

Notes: The dependent variable is a program participation dummy (participant = 1, control = 0). — denotes that a variable has been dropped to satisfy the balancing property of propensity score matching. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 Full day Physically demanding Piece rates	Yes 1/2 day Moderately demanding 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 (%)				
Wheat	4	3	0	0
Pusti atta (nutrient-fortified whole-wheat flour)	35	50	0	0
Rice	61	0	68	0
Cash	0	48	32	100
Frequency of food transfers in previous six months (percentage of all beneficiaries)				
Monthly	84.3	1.3	4.0	—
Four or five transfers	15.7	77.0	49.3	—
One, two, or three transfers	0	21.7	46.7	—
No food transfer received	0	0	0	—
Frequency of cash transfers in previous six months (percentage of all beneficiaries)				
Monthly	—	0	0	0
Four or five transfers	—	0.3	38.0	11.1
One, two, or three 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."

Note: — denotes not applicable. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

the ration is captured through the substitution effect.[4] The net effect, which also includes the income effect, may lead to an increase in the consumption of the ration commodity as well as increased consumption of complementary products and reduced consumption of substitutes.[5]

The substitution effect, however, will take place only if the resale of a ration is effectively prohibited, if the resale price is lower than the market price, or if the 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—receiving an extramarginal ration—sold only 8 percent of the total quantity of *atta* rations received, at a price 26 percent lower than the market price of *atta.* The remaining quantity consumed was 23 times more than the quantity consumed by the matched control group of households. Two factors most likely prevented the *atta* recipients from selling a larger share of their extramarginal ration: (1) the resale price was lower than the market price and (2) the resale involved transaction costs.

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 from home production and other sources, including food transfers from various programs and private sources. The quantities of food produced by the household and the food transfers received were valued at the average unit market prices of foods and converted to monthly per capita figures.[6]

Table 6.4 presents the PSM impact estimates for per capita food expenditures. Participation in all four programs leads to statistically significant

[4] 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.

[5] 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.

[6] 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, it could substantially influence decisionmaking. This potential problem, however, is negligible for the sample of households included in the survey for the following reasons: (1) Most sample households are landless; therefore, the share of food consumed from their 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.

increases in food expenditures. In absolute terms, participants in FSVGD have the largest increase in food expenditure and FFA participants the smallest.

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 the actual nutrient intakes of individual household members (see Chapter 3 for details). Table 6.5 provides the PSM impact estimates of 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 increases households' per capita food consumption by 164, 247, 194, and 271 kilocalories per person per day, respectively.

Because the size of the transfer varied considerably among the four programs (see Table 6.3), interpreting these results is easier if we adjust them

Table 6.4 Propensity score matching impact estimates of per capita food expenditure per month (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

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

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

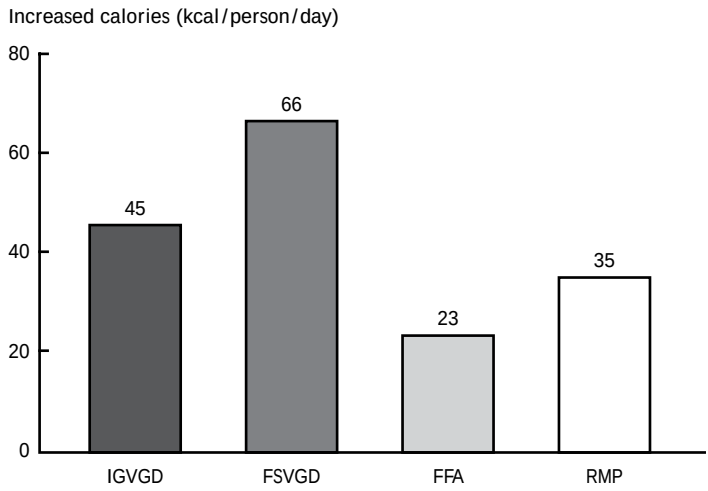
Table 6.5 Propensity score matching impact estimates of calorie intake (kcal per person per day)

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

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

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

Figure 6.1 Increased calories per 1 taka transferred



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

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

to take this variation 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.

These increases can be interpreted as the marginal propensity to consume calories (MPCc) out of income transfers in food (IGVGD), cash (RMP), and a 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 showed that for very poor households the MPCc 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 that reported for each of the other programs. This finding is particularly striking given that FSVGD participants were better off before joining the program (see Table 5.10) relative to participants in the other programs and that MPCc typically declines as household income levels rise. As noted earlier, differences in the size and type of food rations may be playing a role here.

FSVGD participants received an average per capita monthly ration of 3.58 kilograms of *atta.* To examine whether the FSVGD *atta* ration was extramarginal we used PSM to match FSVGD households' *atta* consumption with that of the matched control households. The average monthly per capita *atta*

consumption of the matched control households is only 0.11 kilograms.[7] The FSVGD *atta* ration per month is vastly greater (33 times) than the monthly *atta* consumption of the control households; the *atta* ration is clearly extramarginal.

We performed the same analysis for the FFA rice ration. The amount of the rice ration was 10.84 kilograms per capita per month on average. The average monthly per capita rice consumption of the matched control households (matched with FFA households) is 13.14 kilograms.[8] This indicates that the FFA rice ration is inframarginal: the amount of the ration is 18 percent smaller 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 C), 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. Because a large part of the consumption of other products is food, the net effect on food consumption was quite large for FSVGD households. In 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. Because 56 percent of the IGVGD ration was rice, which had only the income effect, the food consumption effect of the IGVGD ration was less than that of the FSVGD ration.

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

The preceding analysis describes the impact of the programs 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 information on individual-level dietary intake, we can assess the impact of these programs on the calorie intakes of individuals.

Table 6.6 shows the results of program participation on the 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

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

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

Table 6.6 Propensity score matching impact estimates of calorie intakes by individual household members (kcal per person per day)

Household members	Treatment	Control	Difference	*t*-statistic	*p*-value
Children aged 1–5 years					
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 years					
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 years					
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 years and elderly aged 50 years 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

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

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

caloric intakes of preschool children. Second, only in the case of the RMP—which provides transfers in amounts about 70 percent higher than do IGVGD and FSVGD—do the caloric intakes of school-age and older persons increase. Third, the benefits in terms of increased caloric intake from the cash-only program, RMP, appear to be evenly split between men and women; however, there is an important caveat to this finding, to be discussed later. Fourth, the food interventions that provide rice (IGVGD and FFA) have a larger effect on men's caloric intake relative to women's, 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 a household benefits. Here it appears that the use of *atta*—a less preferred food—increases the share of food that goes to women relative to men.

Another way of considering the intrahousehold impacts of the programs on individuals is to assess their impact on nutritional status. For women we use

Table 6.7 Propensity score matching impact estimates of nutritional status (BMI) of women aged 16–49 years (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

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

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

BMI—weight (in kilograms) divided by height (in meters) squared. Table 6.7 shows that although the average absolute values of women's BMIs are somewhat higher for program beneficiaries' 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 BMIs than did 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 6.8 provides PSM impact estimates for three indicators of the 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 whether a child is underweight. The mean differences in *z*-score values between program and matched control groups suggest that children belonging to the IGVGD, FSVGD, and RMP households have better nutritional status than do those from matched control households. These differences, however, are not statistically significant.

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. We note that, consistent with the broader economic literature, 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

Table 6.8 Propensity score matching impact estimates of nutritional status of children aged 6-60 months

Program	Treatment	Control	Difference	*t*-statistic	*p*-value
Weight-for-height *z*-score					
IGVGD	–1.01	–1.06	0.05	0.09	0.929
FSVGD	–1.29	–1.46	0.18	0.33	0.742
FFA	–0.97	–0.68	–0.29	–0.70	0.482
RMP	–1.07	–1.65	0.58	1.09	0.278
Weight-for-age *z*-score of children aged 6–60 months					
IGVGD	–1.79	–2.08	0.29	0.55	0.584
FSVGD	–2.21	–2.14	–0.08	–0.17	0.867
FFA	–1.84	–1.61	–0.23	–0.61	0.540
RMP	–2.16	–2.39	0.24	0.45	0.654
Height-for-age *z*-score of children aged 6–60 months					
IGVGD	–1.87	–2.07	0.20	0.26	0.797
FSVGD	–1.99	–2.31	0.32	0.51	0.609
FFA	–2.00	–1.77	–0.23	–0.42	0.674
RMP	–2.26	–1.83	–0.43	–0.68	0.495

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

Notes: The child growth standards developed by the World Health Organization (WHO) were used in calculating *z*-scores. FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 the average impacts on the 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 that the combination of food and cash transfers from the FSVGD program has the greatest impact on 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 increase income by 27.8 percent, and the combination of food and cash transfers from the FFA program increases income by 13.3 percent.

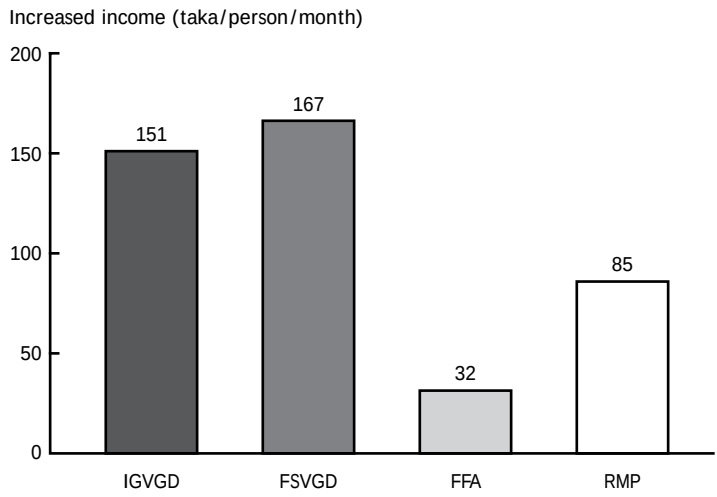
Recall, however, that the size of the transfer varied substantially among the four programs. So, as earlier, expressing the absolute values of increased income per unit of transfer is a more meaningful way of comparing impacts across programs, as seen in Figure 6.2.

Table 6.9 Propensity score matching impact estimates of per capita total expenditure per month (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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Figure 6.2 Increased income per 100 taka of transfer



Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Two striking results appear in Figure 6.2. For FFA and RMP, a transfer of 100 taka increases consumption by significantly less than 100 taka. In 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 field work, would seem to account for these findings:

1. IGVGD and FSVGD do not require their participants to do physical work. Although participants in these two programs are supposed to attend training sessions, these sessions are normally held once a week and do not affect participants' income-earning activities.[9] There is some qualitative evidence suggesting that this training has been effective, such as the following quote:
   - "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.*
2. In contrast, FFA and RMP have work requirements that may crowd out other income-generating opportunities. Note, however, that these requirements differ across the two programs. Whereas FFA engages its members mostly in moving earth for construction, RMP engages its crews in road maintenance. Whereas most FFA participants work a full day during the working season, the daily RMP work schedule is 8 a.m. to 2 p.m.[10] The FFA work is also relatively harder than that of RMP. For these reasons, wage earners in public works programs, particularly FFA, hardly find the time and energy to engage in additional income-earning activities. The following quotes illustrate the demands of the work:
   - "We get up at 5 o'clock and say our prayers. From 7 in the morning to 5 in the afternoon we work in an earth-digging project," said someone in a FGD with FFA participants in Panchapukur union of Nilphamari district.
   - "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, a former FFA participant in Debiganj *upazila* of Panchagarh district.

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

[10] Note that in the FFA program, food- and cash-for-work activities are normally carried out from December to May, which is the period suitable for moving earth. Training in 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.

3. Among participants in the four programs, 78 percent of RMP women do not have husbands (that is, they are widowed, divorced, or have been abandoned by their 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," said someone in a FGD with RMP participants in Tetulia *upazila* of Panchagarh district.
4. In addition to training services, the IGVGD program has a built-in mechanism to provide credit support to program participants (see Chapter 2). The value of this feature is reflected in the following quote:
   - "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 the Sadarpur *upazila* of Faridpur district.

Impact on Livelihood Outcome: Poverty Status

A limitation of our analysis of the programs' 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 periodically conducts HIESs, 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 to estimate poverty—the cost of basic needs (CBN) and direct calorie intake 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.[11] People below the upper poverty line are considered poor, and those below the lower poverty line are considered extremely poor. The headcount poverty incidences based on the CBN method suggest that 43.8 percent of the

[11] The upper poverty line includes the food consumption expenditure and the cost of consuming a bundle of nonfood items. The lower poverty line identifies extremely 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.

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 involved 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 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 to 2005 prices by using the rural consumer price index.[12]
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, 51 percent of FSVGD, 64 percent of FFA, 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 extremely poor before they joined the programs, the range of their income varied considerably. Therefore, those who were extremely 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 of these poorest of the poor.

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

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

Table 6.10 Propensity score matching impact estimates of extreme poverty reduction (percentage of households below the lower poverty line)

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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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 to generate income (as in the case of agricultural implements and other productive assets) or consumption (as in the case of 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 savings—liquid assets 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 the programs' impact on landownership given the smallness of transfers in relation to land prices. Indeed, the household survey data suggest that none of the program participants bought any land after joining the programs. Instead, we investigated the programs' impact on land rented or leased-in for cultivation. Table 6.11 provides the PSM results. The difference in the amount of rented or leased-in land between program and control households is statistically significant only for IGVGD participants. The amount of rented or leased-in

Table 6.11 Propensity score matching impact estimates of rented, leased-in, share cropped land (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

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

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

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 or lease additional land for crop cultivation, as the following quote illustrates:

> "After I had joined VGD, I received a 4,000 taka loan from BRAC," reported Julekha, an IGVGD beneficiary, during a presurvey field visit to the Taraganj *upazila* of Rangpur district. She continued, "With that money I rented a small piece of land for 2 years. My husband and I grow potatoes, chilis, and vegetables on that land. We sell most of what we produce."

Table 6.12 presents the PSM impact results for consumption assets. All programs had statistically significant impacts in increasing the value of the consumption asset bases of 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 in generating consumption assets for their members—a 41 percent increase for FFA and a 42 percent increase for RMP.

In the case of productive assets, the IGVGD, FSVGD, and FFA programs had statistically significant impacts, but not the RMP program (Table 6.13). Compared with the 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.

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 pro-

Table 6.12 Propensity score matching impact estimates of 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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 6.13 Propensity score matching impact estimates of 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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

grams put emphasis on developing the livestock- and poultry-raising skills of program participants. Because of the importance and programmatic relevance of these two categories of assets, we carried out separate analyses for each.

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. However, there was no statistically significant impact on livestock assets 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.

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 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 a single payment, and 32 percent of them received it in two installments (see Chapter 5).

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.

In addition to assessing the impact of program participation on the building of physical assets, we estimated the impact on liquid asset holdings in the form of savings. 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 Chapter 5, the

Table 6.14 Propensity score matching impact estimates of 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

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

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

Table 6.15 Propensity score matching impact estimates of 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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Table 6.16 Propensity score matching impact estimates of household savings (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

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

mandatory savings requirement of the case study programs accounted for 64–80 percent of the 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 Chapter 2), which explains why the impact on savings is so high for RMP women.

Sustainability of Livelihood

Is the impact of transfers on the 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 former RMP house-

holds, 18 months prior for former IGVGD and FSVGD households, and 6 months prior for former 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, former IGVGD, FFA, and RMP households sustained their increased income even beyond the transfer period. Income was 28 percent higher for former IGVGD, 36 percent higher for former FFA, and 49 percent higher for former RMP households than for their matched comparison groups, and these differences are statistically significant. The difference in the level of income between former FSVGD households and their matched comparison group, however, is not significantly different from zero statistically.

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

Former 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 survey data available.

IGVGD and RMP showed reasonably long-term sustainable improvements in the income of their beneficiaries—at least 18 months for former IGVGD and 25 months for former RMP households. IGVGD probably achieves this result through a 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, a former IGVGD woman from Sadarpur *upazila* of Faridpur district, received a loan of 5,000 taka from BRAC when she was in the program. She

Table 6.17 Propensity score matching impact estimates of former program beneficiaries' per capita monthly household expenditure (taka)

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

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

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

bought a hybrid milk cow for 8,000 taka. She reared the cow, and in a year she was selling about 7 liters of milk every day. She used the savings to buy a second cow. Her family now lives well, and her four daughters attend school.

The main reason for RMP women's sustained livelihood improvements is likely 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.

The Cost-Effectiveness of Transfers

The preceding analysis assesses the impact or effectiveness of these programs but does not assess their 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 for the short term? This section addresses these questions.

An assessment of the cost-effectiveness of transfers involves a comparison of the costs of providing measured benefits to transfer recipients.[13] The fiscal costs consist of the direct costs of the transfers themselves (cash transfers and/or the value of food transfers) and the costs of delivering the transfer amounts to the points of distribution (that is, UP premises for food transfers and local bank branches for cash transfers).[14] A benefit consists of the monetary value of the transfer received by a program participant.[15] Benefits are the supply-side values of transfers, with food commodities (wheat and rice) 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 D describes the method of calculating transfer delivery costs, provides cost components, and shows the calculations in detail.

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[13] 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.

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

[15] The two public works programs—FFA and RMP—create benefits at the community level (the value of the road being maintained by RMP, community assets created by FFA) where these programs are implemented. As community members, the participants in these programs also share the benefits. However, these benefits are not considered in the cost-effectiveness analysis because the study assesses 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.

It is important to note that this analysis represents the fiscal costs, which do not necessarily reflect the opportunity costs of private and public resources. The primary reason for using the fiscal costs instead of the real resource costs for the analysis is that the former tend to have more policy relevance. The results of this analysis would provide policymakers and program managers with a clear understanding of how much benefit accrues to a program participant from one unit of government budgetary outlay. This information would be useful to policymakers in ranking programs according to budgetary costs relative to benefits; such ranking would not be feasible from the information that includes the opportunity cost of program participation, for example. Further, one main advantage of using budgetary costs is that the calculations tend to be unequivocal because they do not depend on assumptions (often questionable) of the opportunity costs of public and private resources.

Figure 6.3 presents the costs of transferring 1 taka of income to a program participant through food and cash. On average, the food-based programs (IGVGD, FSVGD, and FFA) transfer 1 taka's 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.

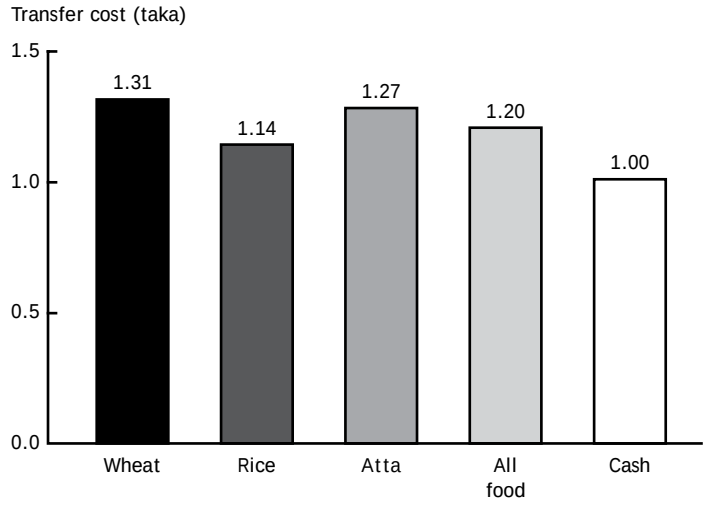
The delivery costs of transferring wheat and *atta* to program beneficiaries are higher than delivering rice, mainly owing to handling costs and the costs of pilferage or loss incurred for wheat at the ports. Our calculation suggests that 96 percent of all wheat (including the wheat used to produce fortified *atta*) provided to the food-based programs was imported and that 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 from each program to its participants. The type and composition of transfer commodities influence the differences in transfer costs per taka. The average shares of transfer values for the four programs were as follows: 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 in cash.[16]

Based on full entitlements, we estimated the total annual costs of transfers for each program in 2006. These costs were Tk 342.4 crore (US$49.58 million) for IGVGD, Tk 48.5 crore (US$7.02 million) for FSVGD, Tk 40.2 crore

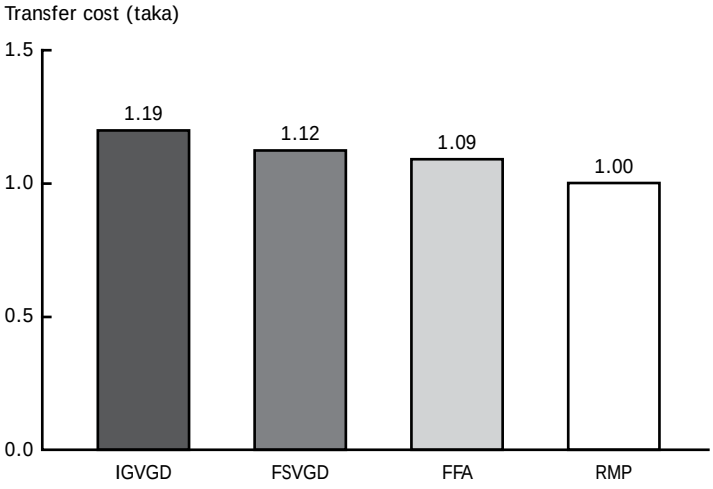
[16] Food transfers are valued at procurement prices (domestic and c.i.f. import prices are used as appropriate; see Appendix D).

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



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

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



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

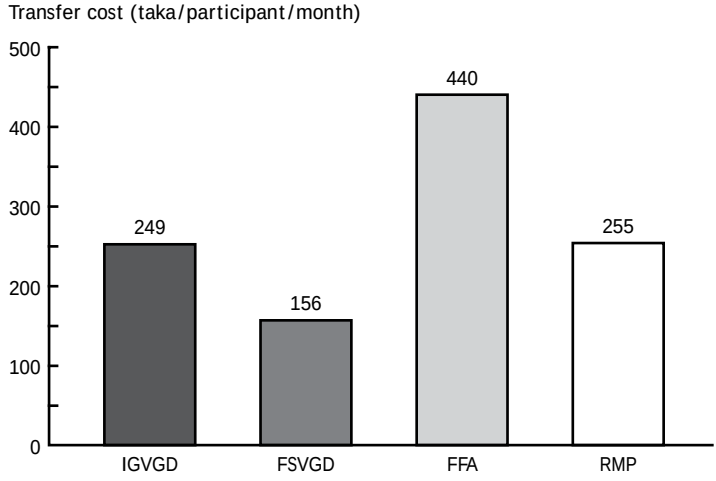
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

(US$5.83 million) for FFA, and Tk 76.3 crore (US$11.05 million) for RMP. The total transfer cost for all four programs was Tk 507.3 crore (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 full monthly cost (that is, the transfer cost plus delivery cost) of increasing the daily energy intakes of household members by 100 kilocalories per program participant. This cost is lowest for FSVGD, mainly owing to its distribution of the extramarginal *atta* ration, as already explained. In contrast, FFA incurs 182 percent higher costs than FSVGD in increasing caloric intakes by the same amount, primarily because it distributes an inframarginal quantity of rice.

Figure 6.6 shows the full monthly costs of increasing a household's monthly income by 100 taka per program beneficiary. FSVGD and IGVGD increase household incomes at much lower costs than do FFA and RMP because FSVGD and IGVGD transfers have multiplier effects in terms of generating incomes, as mentioned earlier. It is worth noting, however, that whereas FSVGD increases income at the lowest cost for its current participants, their increased level of

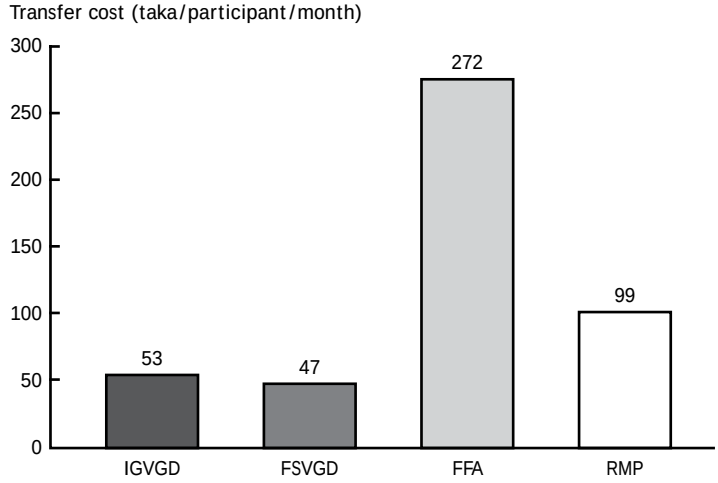
Figure 6.5 Cost of increasing per capita daily calorie intake by 100 kilocalories



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

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

Figure 6.6 Cost of increasing household monthly income by 100 taka



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

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

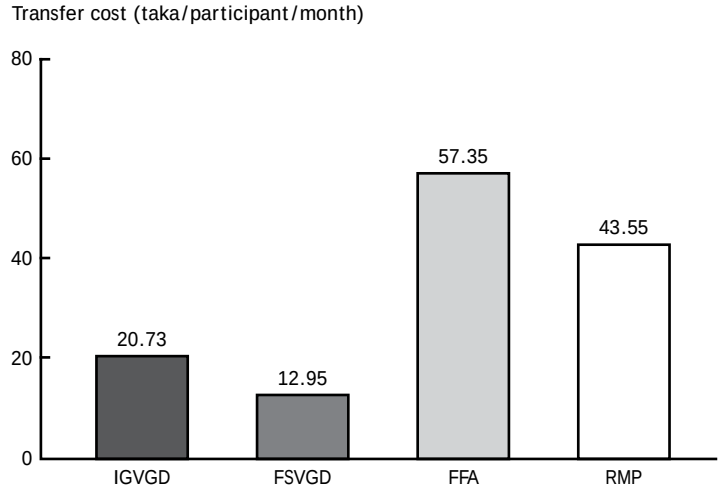
earned income may not be sustainable after they leave the program, as the results reported earlier indicate.

Figure 6.7 shows the full monthly costs of reducing extreme poverty by 1 percent *during program participation,* in taka per program beneficiary. In 2006 the four case study programs covered a total of 830,840 beneficiary households, 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).[17] In aggregate terms, the total annual 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.

How much would it cost to move all participant households out of extreme poverty *for 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 extremely poor in

[17] Each household has one participant.

Figure 6.7 Cost of reducing extreme poverty by 1 percent



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

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

2006, as discussed earlier. The annual costs for the complete elimination of extreme poverty *during the program* for all households in each of the four programs could amount to 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 (58.2 percent of which were in extreme poverty), 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 the 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 could fall back into poverty after leaving the program. Therefore, these findings should be interpreted with caution and should not be 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.

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 amounts to the points of distribution and the costs of any pilferage or leakage in the process of delivering the transfers to the distribution points. Here we present 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 the 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 the 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 in which a food distributor (that is, a UP member) makes a VGD cardholder "share" her VGD card with a noncardholder 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 a leakage of 2.0 percent 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. 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 the 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.

CHAPTER 7

Gender-Related Impacts

This chapter examines the gender-related impacts of food and cash transfers that target women. Interest in the gender-related impact of transfers that target 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).[1] 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 a household in ways that reinforce women's subordination.

Although many studies (reviewed in detail in Appendix E) have shown that channeling resources to women has concrete benefits, few address the empowerment effects of such efforts.[2] This is because women's empowerment, although it is often viewed as essential to achieve gender equity and promote lasting social change, is an elusive and complex concept. Despite the challenges of measuring empowerment, it is worthwhile to investigate whether development programs that target 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 in promoting women's empowerment can have important implications for the design of future development interventions.

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[1] A key element of the Nash bargaining framework is the recognition that individuals within households do not necessarily share the same preferences and that bargaining power affects the outcome of intrahousehold allocations. Although we do not explicitly use a Nash bargaining framework in this report, our results are consistent with expansions of the Nash framework, notably the work of McElroy and Horney (1981) on the importance of extraenvironmental parameters in determining bargaining power within the household. The provision of food/cash transfers targeted specifically to women within the household is one such example.

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

In this chapter 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. In a methodology similar to that used in Chapter 6, we use PSM to create a counterfactual for program participants from a subsample of women who were eligible for the programs but were not selected into them due to capacity constraints of 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 FGDs 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. However, it did not capture psychological changes that may have occurred as a result of the program, affecting women's 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 in the family and the community. The qualitative information gathered through FGDs and informal interviews suggests that this may have been the case.

This chapter is organized as follows. The first section presents descriptive statistics on empowerment and gender-specific outcomes, and the next gives results from the PSM exercise. The section after that section concludes the chapter with a discussion of the limitations of the study and lessons for other development interventions seeking to promote women's empowerment.

A Description of 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 that empowerment is essential to the development process. Empowerment is now often viewed as important for both its intrinsic value (as an end in itself) and for its instrumental value (as a means of achieving other development objectives) (Kabeer 2001; Narayan 2002; Stern, Dehier, and Rogers 2005). It is often argued that empowerment increases the

effectiveness of development by promoting good governance and pro-poor economic growth, reducing socioeconomic inequalities, and improving development outcomes at the project level (Narayan 2005; Stern, Dehier, and Rogers 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. The IFPRI household survey dataset contains a rich set of variables that 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 in the household and the 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 to use birth control) are measured. Women's autonomy is determined by whether they made decisions independent of their husbands; joint decisionmaking by a woman and her spouse was considered an indication of her participation in decisionmaking. A third measure of decisionmaking considers whether the women make decisions independently or jointly with their spouses.

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 her 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 7.1–7.6 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 spouses. A small percentage of working women claim to have been initially prevented from working by their husbands. In terms of who controls

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

	Percentage of participants making decision				
Decision	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**
For women to work to earn additional income	70.00	79.33	97.33	97.00	77.92
If working, where to 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 to work					
Decided alone	63.81	64.29	58.90	87.63	74.59
Decided with husband	31.90	29.83	33.90	8.25	20.20
If working, decision not to work (made by husband)	1.43	5.46	3.08	3.09	3.26
How to dispose of income					
To give it all to the woman's husband/other	29.05	20.59	17.12	9.28	19.22
To give some to the woman's husband/other	23.33	26.47	24.66	19.24	18.89
To keep all	47.62	52.94	58.22	71.48	61.89
If working, how to spend work income					
Decided alone	48.10	34.45	43.84	81.44	57.00
Decided 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."

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

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.

The data show that women taking loans from an NGO often share with their husbands the decision to borrow and spend the loan proceeds (see Table 7.2). A majority of women also report sharing with their husbands the decision to use birth control, with only a small number of women making this decision on their own (see Table 7.3). Table 7.4 shows that women's autonomy and participation in spending decisions vary 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, as well as food for their families.

Table 7.5 shows a variety of responses regarding freedom of movement outside the household by program and destination. It appears that women

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

	Percentage of participants making decision				
Decision	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**
For women to take a loan from an NGO	66.33	50.33	35.33	52.67	33.25
To take a loan from an NGO					
Decided alone	25.63	11.26	24.53	63.29	28.24
Decided with husband	51.76	51.66	52.83	21.52	42.75
How to spend loan proceeds					
Decided alone	21.61	7.95	22.64	63.29	24.43
Decided 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."

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

Table 7.3 Reproductive decisions, program participants versus controls

	Percentage of participants making decision				
Decision	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**
For woman to use birth control	65.17	74.66	70.27	49.33	61.93
If yes, who decided to use birth control					
Decided alone	10.00	16.10	17.23	8.05	14.21
Decided 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."

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

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 marriages.

Table 7.4 Spending decisions, program participants versus controls

	Percentage of participants making decision				
Decision	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**
Food					
Decided alone	35.33	23.67	43.00	77.33	45.43
Decided with husband	36.67	42.67	40.67	10.33	29.95
Housing					
Decided alone	30.33	20.67	35.33	74.67	41.62
Decided with husband	35.67	40.00	44.67	12.67	27.66
Health care					
Decided alone	32.33	21.67	37.67	77.00	42.89
Decided with husband	40.33	44.67	46.00	13.00	31.98
Education					
Decided alone	34.33	25.00	39.33	79.00	46.70
Decided with husband	39.00	43.33	46.67	13.00	31.22
Clothing					
Decided alone	35.00	24.33	37.67	80.00	44.42
Decided with husband	39.67	45.33	46.67	11.33	29.95
Whether the woman controls the money to buy					
Food from the market	60.00	58.33	78.67	93.67	68.78
Clothes for herself	60.67	60.00	78.67	95.00	65.99
Medicine for herself	64.00	59.67	81.33	95.67	70.30
Toiletries or cosmetics for herself	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."

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

Table 7.5 Women's mobility, program participants versus controls

	Percentage of women who decide by themselves to engage in the given activity				
Decision	**IGVGD**	**FSVGD**	**FFA**	**RMP**	**Control**
Visit friends of relatives	41.00	36.00	49.00	81.00	49.49
Go to the *haat* or bazaar	30.00	22.00	42.33	74.33	42.39
Visit the hospital, clinic, or doctor	38.33	29.67	50.67	80.67	47.46
Go to the cinema, fair, or theater	20.33	7.00	16.00	43.67	23.60
Attend 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."

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

Table 7.6 Domestic abuse, program participants versus controls

Form of abuse or result	Percentage of women abused				
	IGVGD	FSVGD	FFA	RMP	Control
Husband threatened wife 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
Verbal abuse	48.37	53.62	41.90	40.19	54.52
Physical abuse	24.08	17.03	19.37	15.38	27.02
If threatened or abused, woman wanted to leave	84.42	89.95	93.30	88.36	83.62
If threatened or abused, woman left					
Permanently	4.17	4.76	8.33	35.29	28.95
Temporarily	45.83	38.10	33.33	17.65	31.58
If did not leave permanently, reason					
Husband did not 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
Did not 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."

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

One strong pattern that emerges from these data reflects the independence of the women participants in RMP. A vast majority of the 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 women who are widowed, divorced, or separated and on those who are married.

Results

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 earlier

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 F.1 in Appendix F presents the probit estimates for individual participation in each of the four programs. These probit regression models of program participation are slightly different from those used in Chapter 6 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. The results reported here are based on the specification that satisfied the balancing test across program and control observations at various levels 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 number of chickens, total landholdings, and whether the household has a sanitary latrine, appear positive and significant. In the case of FFA, however, women with fewer assets appear to be more likely to participate.

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 and more bicycles, *dhekis* (rice-husking equipment), and chickens are more likely to participate in RMP.

The Average Impact of Participation

Tables 7.7–7.13 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 than participants in the other programs 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 whether the woman decides 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 the resources they 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). However, IGVGD did not increase women's autonomy or 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 their 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 that the program had no impact on women's ability to influence decisions regarding their use of birth control. However, it did 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 FGDs with IGVGD women and their spouses (or other male family members) reported in the qualitative field work. Several of these women reported having little say in decisionmaking and limited mobility in the community. Both men and women reported incidents of physical abuse. One husband of an IGVGD participant reported, "There is

Table 7.7 Average impact of participation on the decision to work

	IGVGD					FSVGD				
Indicators	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether working now	0.718	0.749	–0.032	–0.37	0.710	0.781	0.781	0.000	0.00	0.997
Decision to work										
Woman alone	0.658	0.721	–0.063	–0.52	0.604	0.691	0.755	–0.065	–0.46	0.648
Woman and husband	0.322	0.126	0.196	1.77	0.078	0.273	0.237	0.036	0.26	0.419
Woman alone or woman and husband	0.980	0.847	0.133	1.67	0.096	0.964	0.993	–0.029	–0.81	0.797
Decision to spend money earned										
Woman alone	0.503	0.535	–0.031	–0.24	0.814	0.360	0.532	–0.173	–0.97	0.335
Woman and husband	0.389	0.281	0.108	0.83	0.406	0.496	0.216	0.281	1.94	0.053
Woman alone or woman and husband	0.893	0.816	0.077	0.76	0.446	0.856	0.748	0.108	0.65	0.515

	FFA					RMP				
Indicators	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether working now	0.976	0.811	0.165	2.05	0.041	0.972	0.824	0.148	3.34	0.001
Decision to work										
Woman alone	0.580	0.634	–0.053	–0.39	0.698	0.871	0.751	0.120	2.08	0.038
Woman and husband	0.354	0.342	0.012	0.09	0.927	0.086	0.196	–0.110	–1.94	0.052
Woman alone or woman and husband	0.934	0.975	–0.041	–0.82	0.414	0.957	0.948	0.009	0.36	0.716
Decision to spend money earned										
Woman alone	0.432	0.486	–0.053	–0.39	0.697	0.817	0.637	0.181	2.74	0.006
Woman and husband	0.444	0.288	0.156	1.16	0.248	0.122	0.246	–0.124	–2.07	0.039
Woman alone or woman and husband	0.877	0.774	0.103	0.84	0.402	0.939	0.882	0.057	1.41	0.160

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

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

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

	IGVGD					FSVGD				
Value	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Ever taken loan from NGO	0.665	0.386	0.279	3.44	0.001	0.497	0.454	0.043	0.35	0.730
Decision to take loan										
Woman alone	0.239	0.225	0.014	0.05	0.959					
Woman and husband	0.551	0.725	–0.174	–0.60	0.551					
Woman alone or woman and husband	0.790	0.949	–0.159	–0.74	0.463					
Decision to spend loan proceeds										
Woman alone	0.196	0.196	0.000	0.00	1.000					
Woman and husband	0.536	0.739	–0.203	–0.70	0.484					
Woman alone or woman and husband	0.732	0.935	–0.203	–0.96	0.338					

	FFA					RMP				
Value	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Ever taken loan from NGO	0.355	0.209	0.146	1.54	0.125	0.523	0.388	0.134	2.35	0.019
Decision to take loan										
Woman alone						0.631	0.339	0.292	2.25	0.025
Woman and husband						0.221	0.502	–0.280	–1.96	0.051
Woman alone or woman and husband					0.852	0.841	0.011	0.11	0.91	
Decision to spend loan proceeds										
Woman alone						0.631	0.315	0.316	2.43	0.016
Woman and husband						0.228	0.529	–0.300	–2.08	0.038
Woman alone or woman and husband					0.859	0.844	0.016	0.15	0.88	

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

Table 7.9 Average impact of participation on household expenditure decisions

	IGVGD					FSVGD				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Food										
Woman alone	0.364	0.478	−0.115	−1.35	0.179	0.278	0.304	−0.026	−0.21	0.831
Woman and husband	0.411	0.324	0.088	1.06	0.290	0.449	0.465	−0.016	−0.13	0.900
Woman alone or woman and husband	0.775	0.802	−0.027	−0.40	0.690	0.727	0.769	−0.042	−0.36	0.720
Housing										
Woman alone	0.316	0.460	−0.144	−1.68	0.094	0.257	0.308	−0.052	−0.40	0.687
Woman and husband	0.392	0.265	0.127	1.62	0.106	0.422	0.412	0.011	0.09	0.928
Woman alone or woman and husband	0.708	0.725	−0.017	−0.23	0.815	0.679	0.720	−0.041	−0.34	0.737
Health care										
Woman alone	0.354	0.481	−0.127	−1.49	0.136	0.273	0.294	−0.022	−0.17	0.863
Woman and husband	0.421	0.329	0.092	1.11	0.270	0.465	0.502	−0.037	−0.29	0.773
Woman alone or woman and husband	0.775	0.810	−0.035	−0.52	0.602	0.738	0.797	−0.059	−0.55	0.584
Education										
Woman alone	0.364	0.497	−0.134	−1.59	0.114	0.278	0.310	−0.032	−0.26	0.791
Woman and husband	0.421	0.298	0.123	1.52	0.131	0.476	0.452	0.024	0.19	0.851
Woman alone or woman and husband	0.785	0.795	−0.011	−0.16	0.873	0.754	0.763	−0.009	−0.07	0.941
Clothing										
Woman alone	0.378	0.470	−0.092	−1.06	0.289	0.294	0.347	−0.052	−0.42	0.675
Woman and husband	0.426	0.314	0.112	1.33	0.184	0.465	0.425	0.040	0.33	0.741
Woman alone or woman and husband	0.804	0.784	0.020	0.28	0.781	0.759	0.772	−0.012	−0.10	0.918

	FFA					RMP				
	Treatment	Control	Difference	*t*-statistic	*p*-value	Treatment	Control	Difference	*t*-statistic	*p*-value
Food										
Woman alone	0.431	0.361	0.071	0.63	0.530	0.780	0.495	0.285	5.30	0.000
Woman and husband	0.423	0.341	0.083	0.77	0.443	0.105	0.276	–0.172	–3.47	0.001
Woman alone or woman and husband	0.855	0.702	0.153	1.62	0.106	0.885	0.771	0.114	2.37	0.018
Housing										
Woman alone	0.351	0.293	0.058	0.56	0.573	0.753	0.480	0.272	5.07	0.000
Woman and husband	0.460	0.305	0.154	1.55	0.121	0.129	0.226	–0.097	–2.12	0.034
Woman alone or woman and husband	0.810	0.598	0.212	1.97	0.049	0.882	0.706	0.176	3.46	0.001
Health care										
Woman alone	0.375	0.296	0.079	0.73	0.464	0.777	0.498	0.279	5.02	0.000
Woman and husband	0.472	0.347	0.125	1.18	0.239	0.132	0.254	–0.122	–2.57	0.010
Woman alone or woman and husband	0.847	0.643	0.204	2.00	0.047	0.909	0.753	0.157	3.08	0.002
Education										
Woman alone	0.391	0.378	0.013	0.12	0.908	0.798	0.517	0.281	5.08	0.000
Woman and husband	0.480	0.326	0.154	1.45	0.147	0.132	0.263	–0.130	–2.64	0.009
Woman alone or woman and husband	0.871	0.704	0.167	1.71	0.087	0.930	0.780	0.150	3.21	0.001
Clothing										
Woman alone	0.371	0.355	0.016	0.15	0.883	0.808	0.475	0.333	6.03	0.000
Woman and husband	0.480	0.334	0.146	1.38	0.169	0.115	0.241	–0.126	–2.61	0.009
Woman alone or woman and husband	0.851	0.688	0.163	1.65	0.100	0.923	0.716	0.208	4.08	0.000

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

Table 7.10 Average impact of participation on women's control of money for selected expenditures

	IGVGD					FSVGD				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Food from the market	0.603	0.667	–0.064	–0.80	0.423	0.594	0.612	–0.018	–0.14	0.891
Clothing for self	0.622	0.652	–0.030	–0.36	0.716	0.604	0.621	–0.017	–0.13	0.899
Medicine for self	0.660	0.700	–0.040	–0.51	0.612	0.599	0.712	–0.113	–0.95	0.344
Toiletries for self	0.713	0.715	–0.002	–0.03	0.976	0.668	0.769	–0.101	–0.84	0.399
	FFA					**RMP**				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Food from the market	0.782	0.785	–0.003	–0.03	0.974	0.944	0.710	0.234	4.69	0.000
Clothing for self	0.790	0.712	0.078	0.78	0.433	0.955	0.667	0.287	5.46	0.000
Medicine for self	0.815	0.747	0.067	0.73	0.463	0.962	0.730	0.232	4.64	0.000
Toiletries for self	0.847	0.729	0.118	1.21	0.226	0.965	0.726	0.239	4.78	0.000

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

Table 7.11 Average impact of participation on women's mobility

	IGVGD					FSVGD				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether woman decides by herself to go:										
Outside the community to visit friends or relatives	0.411	0.532	–0.120	–1.39	0.164	0.406	0.439	–0.033	–0.25	0.800
To the bazaar	0.278	0.466	–0.189	–2.21	0.027	0.251	0.335	–0.083	–0.70	0.485
To the clinic	0.388	0.473	–0.086	–1.00	0.320	0.310	0.380	–0.070	–0.52	0.601
To the cinema	0.201	0.346	–0.145	–1.76	0.079	0.086	0.066	0.020	0.32	0.751
To attend training	0.502	0.469	0.033	0.37	0.708	0.529	0.358	0.171	1.38	0.170
	FFA					**RMP**				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether woman decides by herself to go:										
Outside the community to visit friends or relatives	0.480	0.357	0.123	1.19	0.236	0.815	0.545	0.270	4.85	0.000
To the bazaar	0.407	0.350	0.057	0.56	0.578	0.746	0.478	0.267	4.78	0.000
To the clinic	0.480	0.455	0.025	0.23	0.818	0.815	0.504	0.311	5.59	0.000
To the cinema	0.161	0.129	0.033	0.44	0.663	0.449	0.328	0.122	2.24	0.026
To attend training	0.556	0.417	0.139	1.26	0.209	0.854	0.502	0.351	6.18	0.000

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

Table 7.12 Average impact of participation on use of birth control

	IGVGD					FSVGD				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether woman ever used birth control	0.683	0.612	0.071	0.78	0.434	0.770	0.742	0.029	0.24	0.807
Whether husband ever used birth control	0.043	0.005	0.038	1.85	0.065	0.059	0.078	–0.018	–0.29	0.770
Who made the decision to use birth control										
Woman alone	0.114	0.115	–0.001	–0.01	0.991	0.180	0.133	0.047	0.52	0.603
Woman and husband	0.495	0.463	0.032	0.33	0.738	0.508	0.409	0.099	0.75	0.451
Woman alone or woman and husband	0.609	0.577	0.031	0.34	0.736	0.689	0.542	0.147	1.11	0.268

	FFA					RMP				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Whether woman ever used birth control	0.747	0.690	0.057	0.55	0.586	0.502	0.628	–0.126	–2.12	0.035
Whether husband ever used birth control	0.073	0.113	–0.040	–0.72	0.472	0.014	0.026	–0.012	–0.80	0.424
Who made the decision to use birth control										
Woman alone	0.192	0.179	0.013	0.16	0.872	0.081	0.076	0.005	0.14	0.886
Woman and husband	0.482	0.374	0.108	0.97	0.332	0.382	0.440	–0.058	–0.96	0.335
Woman alone or woman and husband	0.673	0.553	0.121	1.09	0.278	0.463	0.516	–0.053	–0.87	0.385

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

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 in 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 FGDs, 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 offered as part of the program was responsible for preventing three early marriages.

Similar to the findings for 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 their family (Table 7.10). Similarly, the program had no effect on women's mobility or reproductive decisionmaking or on 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 FGDs confirmed that there was little change in gender roles as a result of FSVGD. It appears that men continue to be the dominant figures in the household while women have little influence. There were also reports of physical and verbal abuse. One participant noted, "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 about whether to work. Nor did it have an impact on women's control over the money they earned. When interpreting these results,

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

	IGVGD					FSVGD				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Husband ever threatened divorce	0.080	0.120	–0.040	–0.33	0.745	0.061	0.088	–0.027	–0.19	0.849
Husband ever threatened to take another wife	0.072	0.080	–0.008	–0.07	0.948	0.075	0.061	0.014	0.09	0.926
Woman ever verbally abused	0.451	0.453	–0.002	–0.01	0.989	0.601	0.582	0.020	0.13	0.894
Woman ever physically abused	0.224	0.165	0.059	0.53	0.598	0.179	0.163	0.016	0.12	0.908
Woman left permanently	0.000	0.012	–0.012	–0.68	0.496	0.005	0.024	–0.018	–0.28	0.781
Woman left temporarily or permanently	0.024	0.035	–0.011	–0.30	0.763	0.032	0.044	–0.012	–0.16	0.870

	FFA					RMP				
	Treatment	**Control**	**Difference**	***t*-statistic**	***p*-value**	**Treatment**	**Control**	**Difference**	***t*-statistic**	***p*-value**
Husband ever threatened divorce	0.058	0.044	0.014	0.19	0.849	0.127	0.096	0.030	0.48	0.635
Husband ever threatened to take another wife	0.063	0.046	0.017	0.23	0.820	0.141	0.100	0.041	0.61	0.544
Woman ever verbally abused	0.439	0.415	0.024	0.17	0.864	0.410	0.594	–0.184	–2.26	0.024
Woman ever physically abused	0.201	0.220	–0.019	–0.16	0.870	0.156	0.187	–0.031	–0.48	0.628
Woman left permanently	0.004	0.032	–0.028	–1.09	0.274	0.021	0.029	–0.008	–0.42	0.678
Woman left temporarily or permanently	0.020	0.084	–0.063	–0.95	0.345	0.031	0.048	–0.017	–0.67	0.506

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

however, it is important to keep in mind that a large majority of women in both treatment and control groups decide independent of or jointly with their spouses whether to work and how to spend the money they earn.

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 expenditures for housing, health care, or education, 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 husbands 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 spouses 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 the 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 in the community, their reproductive decisionmaking, or the incidence of domestic violence and abuse.

The FGDs and personal interviews with FFA beneficiary women and their spouses revealed that because of the program 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 had become 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 result 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 greatest impact on women's empowerment and well-being. In the right-hand columns of Tables 7.7–7.13, practically every outcome indicator appears significantly different from the controls. As a result of the program, 14.8 percentage points more women are working (see Table 7.7). As in the case of 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 they make decisions on their own) while decreasing their participation in decisionmaking (defined as whether they decide jointly with their spouses). Women's autonomy in deciding to work and spend their earnings increased by 12 percentage points and 18.1 percentage points, respectively. However, women's participation in the decision to go to work and in deciding how to spend their income 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 spouses declined, although there was no difference between RMP women and control women when autonomy and participation in decisionmaking are examined jointly. As in the case of work decision indicators, these results suggest that 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 spouses declined (see Table 7.9). The fact that the estimates on the third decisionmaking indicator (whether a woman decides alone or with her 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 who previously were not involved in household decisionmaking now have a greater role.

Table 7.10 shows that RMP women also have greater control over the money needed to buy personal items and food for their household—between 23 and 29 percentage points more than control women. As a result of the program, RMP beneficiaries also have greater mobility in the community and are better 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 spouses.

The qualitative findings are supportive of these results. FGDs 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 taka's worth of food and cash, and RMP women received approximately 700 taka per month in cash; the monthly transfers to participants in IGVGD and FSVGD were worth only around 400 taka. 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. FGDs 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 acknowledgment of women's domestic work.

Impact by Marital Status: Widowed, Divorced, or 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 with no male head, 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 of each of the four programs by marital status. For this analysis, only the variables that are relevant to 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 their participation in

decisionmaking. We include the variables related to reproductive decisions because the survey questions were phrased so that they would apply to both widowed, divorced, or separated and married women. These questions asked if the women or their husbands *ever* used birth control. However, we do not look at variables related to physical, verbal, or psychological abuse, because 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, or separated and married). These results, therefore, are not presented. For FFA, on the other hand, there is some indication that the program had a greater impact on married women (see Table 7.14). 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 in 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.

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 they have earned) are not significant for married or for widowed, divorced, or separated women (see panel 1). With regard to decisions on household expenditures, RMP seems to have an effect on married women's autonomy in decisionmaking. More married women in 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 the 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 among 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 finan-

cial 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 have found that the net amount of 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.

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 in which 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 preintervention asset holdings, landholdings, and levels 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 whether women who were slightly better off were better 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 F, Tables F.2–F.4) show that among IGVGD participants, women with some schooling were most affected by the program in both positive and negative ways (see Appendix F, Table F.2). Women with one to four years of schooling were more likely to participate in the decision to go to work and spend the money earned, and women with five or more years of schooling were also 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 discernible pattern in the disaggregated results for FSVGD. Therefore, these results are

Table 7.14 Impact of participation in the Food for Asset Creation program and Rural Maintenance Program, by marital status

	FFA Treatment minus control						RMP Treatment minus control					
	Widowed, divorced, or separated	*t*-statistic	*p*-value	Married	*t*-statistic	*p*-value	Widowed, divorced, or separated	*t*-statistic	*p*-value	Married	*t*-statistic	*p*-value
Panel 1: Decision to work and spend money earned												
Whether working now	0.000	0.72	0.473	0.241	2.15	0.033	0.005	0.07	0.946	0.200	1.83	0.067
Whether woman alone decides to work	0.044	0.45	0.653	-0.010	-0.05	0.958	-0.026	-0.81	0.417	0.122	0.79	0.427
Whether woman alone decides to spend money earned	0.187	0.94	0.350	-0.065	-0.37	0.709	0.082	0.99	0.320	0.189	1.31	0.190
Panel 2: Decision to take loans from an NGO and send loan proceeds												
Ever taken loan from NGO	0.195	1.12	0.264	0.157	1.20	0.232	0.296	3.06	0.002	0.060	0.44	0.659
Panel 3: Household expenditure decisions												
Whether woman alone decides to buy food	0.108	0.68	0.499	0.080	0.63	0.530	-0.018	-0.18	0.854	0.228	1.90	0.058
Whether woman alone decides on housing expenditures	0.187	0.93	0.353	0.032	0.30	0.762	0.017	0.17	0.865	0.233	2.52	0.012
Whether woman alone decides on health care expenditures	0.187	0.94	0.346	0.046	0.40	0.690	-0.020	-0.21	0.834	0.198	1.92	0.055
Whether woman alone decides on education expenditures	0.108	0.67	0.501	0.009	0.07	0.942	0.034	0.35	0.728	0.157	1.25	0.213
Whether woman alone decides on clothing expenditures	0.108	0.64	0.520	0.018	0.15	0.881	0.031	0.33	0.740	0.331	3.55	0.000

Panel 4: Control over money to buy selected expenditures												
Food from the market	0.141	0.97	0.334	–0.073	–0.59	0.558	0.025	0.33	0.740	0.287	2.12	0.035
Clothing for self	0.141	0.95	0.343	0.072	0.53	0.598	0.022	0.34	0.734	0.330	2.39	0.017
Medicine for self	0.141	0.94	0.348	0.040	0.30	0.764	0.018	0.31	0.759	0.314	2.44	0.015
Toiletries or cosmetics for self	0.141	0.96	0.337	0.129	1.00	0.318	0.035	0.55	0.581	0.212	1.56	0.119
Panel 5: Women's mobility within the community												
Whether woman alone decides to visit friends or relatives	0.118	0.94	0.349	0.192	1.88	0.061	–0.011	–0.15	0.885	0.286	2.67	0.008
Whether woman alone decides to go to the bazaar	0.239	1.45	0.149	0.048	0.42	0.676	0.054	0.58	0.564	0.178	1.55	0.122
Whether woman alone decides to visit the clinic	0.092	0.89	0.373	0.029	0.22	0.830	0.044	0.43	0.666	0.292	2.69	0.007
Whether woman alone decides to go to the cinema	0.015	0.07	0.945	0.073	1.67	0.095	–0.078	–0.65	0.513	0.119	1.47	0.143
Whether woman alone decides to go to NGO training	0.091	0.57	0.571	0.180	1.35	0.178	0.118	1.12	0.263	0.363	2.94	0.004
Panel 6: Reproductive decisions												
Whether woman ever used birth control	–0.056	–0.25	0.802	0.103	0.90	0.371	0.015	0.12	0.901	–0.056	–0.53	0.599
Whether husband ever used birth control	–0.062	–0.71	0.481	–0.043	–0.57	0.567	–0.041	–1.15	0.251	–0.004	–0.10	0.922
Whether woman alone made the decision to use birth control	–0.036	–0.22	0.824	–0.022	–0.19	0.851	0.009	0.08	0.936	0.178	1.36	0.175

Source: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."
Note: IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

also not reported. In the case of FFA, it appears that the program had the greatest impact on those most in need of assistance (Appendix F, Table F.3). 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 the 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 regarding the program's 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 lower 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 the impact of RMP revealed more mixed results (Appendix F, Table F.4). In general, it seems that the program had the greatest 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 spouses (panels 1–3). These women also have greater control over the money needed to buy personal items and food (panel 4) and greater mobility in the community (panel 5). The program seems to have had a negative effect on women's use of birth control and their 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).

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 a combination—in affecting outcomes related to gender relations.

Table 7.15 presents the significant results of the comparison between IGVGD and FSVGD. The first column shows the average effect of participating in either program compared to 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 is mixed. Although FSVGD appears to have a positive effect compared to 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 compared to 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 (first column) showed that participation had a strong impact on the number of women working and taking loans from an NGO, their control over the money needed to buy personal items and food, and their mobility in the community. The marginal effect of FFA compared to RMP tends to be negative in most instances. FFA has a smaller impact on women's autonomy in decisionmaking, their control over the money needed to buy personal items and food, their mobility in the community, and the incidence of emotional abuse in their households. However, FFA had a positive effect compared to RMP with regard to the use of birth control by both men and women and to women's control over the decision to use birth control. The results disaggregated by marital status show that the marginal effect of FFA compared to RMP is negative for most variables but positive for a few. For widowed, divorced, or separated women, FFA is less effective than RMP in encouraging them to work and borrow money but more effective in promoting greater freedom of mobility in the community (except for leisure activities). For married women, FFA has a negative marginal impact relative to RMP with respect to women's autonomy in decisionmaking, their control over resources, and their ability to visit friends or relatives but a positive marginal impact on their use of birth control and on 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

Table 7.15 Marginal impact of receiving food or cash from the Food Security Vulnerable Group Development program relative to the Income-Generating Vulnerable Group Development program

	Mean impact of participating in IGVGD or FSVGD			All women					
	Treatment minus control	*t*-statistic	*p*-value	Average effect of IGVGD	*t*-statistic	*p*-value	Marginal effect of FSVGD	*t*-statistic	*p*-value
Panel 1: Work									
Whether working now	0.001	0.02	0.985	–0.060	–0.77	0.443	0.076	1.93	0.054
Decision to work									
Woman alone	0.030	0.32	0.750	0.078	0.72	0.470	0.009	0.18	0.858
Woman and husband	–0.017	–0.18	0.856	–0.066	–0.64	0.523	–0.028	–0.55	0.581
Decision to spend money earned									
Woman alone	0.059	0.69	0.493	0.147	1.42	0.157	–0.131	–2.42	0.016
Woman alone or woman and husband	0.172	1.84	0.067	0.193	1.93	0.054	–0.076	–1.97	0.050
Panel 2: Loans									
Ever taken loan from NGO	0.056	0.84	0.399	0.085	0.95	0.341	–0.159	–3.62	0.000
Decision to take loan									
Woman alone	–0.058	–0.48	0.633	0.031	0.22	0.826	–0.161	–3.54	0.000
Woman alone or woman and husband	–0.097	–0.79	0.430	–0.044	–0.33	0.745	–0.152	–2.51	0.012
Decision to spend loan proceeds									
Woman alone	–0.010	–0.12	0.908	0.063	0.56	0.576	–0.131	–2.97	0.003
Woman alone or woman and husband	–0.155	–1.56	0.120	–0.086	–0.71	0.478	–0.164	–2.66	0.008
Panel 3: Household expenditures									
Who makes the decision on the following household expenditures:									
Food									
Woman alone	–0.044	–0.66	0.508	0.033	0.37	0.710	–0.119	–2.98	0.003
Housing									
Woman alone	–0.048	–0.76	0.446	–0.026	–0.31	0.753	–0.102	–2.50	0.013
Woman and husband	0.117	1.92	0.055	0.105	1.18	0.238	0.048	1.12	0.264
Health care									
Woman alone	–0.058	–0.88	0.381	0.000	0.00	0.998	–0.112	–2.75	0.006

Education									
Woman alone	–0.107	–1.49	0.209	–0.054	–0.61	0.540	–0.092	–2.25	0.024
Clothing									
Woman alone	–0.060	–0.84	0.402	–0.010	–0.12	0.907	–0.103	–2.47	0.014
Panel 4: Mobility									
Whether woman decides by herself to go to:									
Bazaar	–0.034	–0.55	0.585	0.015	0.19	0.848	–0.076	–2.00	0.046
Clinic	0.013	0.20	0.841	0.038	0.45	0.650	–0.079	–1.79	0.074
Cinema	–0.048	–0.85	0.396	0.012	0.17	0.868	–0.129	–4.16	0.000
Training	0.152	2.22	0.026	0.103	1.16	0.247	0.019	0.43	0.670
Panel 5: Reproductive decisions									
Whether woman ever used birth control	0.014	0.22	0.823	–0.024	–0.31	0.760	0.103	2.60	0.010
Whether husband ever used birth control	0.037	2.18	0.030	0.041	1.94	0.053	0.019	0.89	0.371
Who made the decision to use birth control									
Woman alone	0.031	0.85	0.398	0.019	0.37	0.713	0.051	1.66	0.097
Panel 6: Domestic abuse									
Woman ever verbally abused	–0.106	–1.33	0.182	–0.154	–1.49	0.138	0.100	2.02	0.043
Woman ever physically abused	0.004	0.06	0.951	0.037	0.46	0.647	–0.050	–1.27	0.204

	Women who are widowed, divorced, or separated						**Married women**					
	Average effect of IGVGD	***t*-statistic**	***p*-value**	**Marginal effect of FSVGD**	***t*-statistic**	***p*-value**	**Average effect of IGVGD**	***t*-statistic**	***p*-value**	**Marginal effect of FSVGD**	***t*-statistic**	***p*-value**
Panel 1: Work												
Whether working now	–0.022	–0.13	0.894	0.060	0.86	0.394	–0.051	–0.57	0.571	0.097	1.83	0.068
Decision to work												
Woman alone	0.017	0.21	0.834	0.019	0.77	0.442	–0.073	–0.52	0.604	0.131	1.81	0.071
Woman and husband							0.083	0.60	0.547	–0.148	–2.12	0.035

(*continued*)

Table 7.15 Continued

	Women who are widowed, divorced, or separated						Married women					
	Average effect of IGVGD	*t*-statistic	*p*-value	Marginal effect of FSVGD	*t*-statistic	*p*-value	Average effect of IGVGD	*t*-statistic	*p*-value	Marginal effect of FSVGD	*t*-statistic	*p*-value
Decision to spend money earned												
Woman alone	0.143	1.05	0.295	0.044	0.79	0.429	0.004	0.03	0.974	–0.030	–0.47	0.640
Woman alone or woman and husband							0.125	1.06	0.292	–0.052	–1.00	0.316
Panel 2: Loans												
Ever taken loan from NGO	0.073	0.42	0.675	–0.141	–1.27	0.205	0.240	2.53	0.012	–0.187	–3.33	0.001
Decision to take loan												
Woman alone							–0.148	–1.00	0.320	–0.050	–1.18	0.240
Woman alone or woman and husband							–0.133	–0.92	0.359	–0.087	–1.13	0.258
Decision to spend loan proceeds												
Woman alone							–0.035	–0.34	0.737	–0.003	–0.09	0.927
Woman alone or woman and husband							–0.164	–1.15	0.250	–0.090	–1.09	0.277
Panel 3: Household expenditures												
Who makes the decision on the following household expenditures:												
Food												
Woman alone	0.027	0.18	0.858	0.047	0.58	0.562	–0.099	–1.22	0.223	–0.037	–0.92	0.360
Housing												
Woman alone	0.010	0.07	0.947	–0.027	–0.27	0.785	–0.068	–0.96	0.338	0.009	0.26	0.795
Woman and husband							0.126	1.32	0.187	–0.043	–0.75	0.454

Health care												
Woman alone	0.050	0.36	0.718	0.043	0.65	0.515	–0.113	–1.45	0.148	–0.017	–0.44	0.660
Education												
Woman alone	0.094	0.64	0.525	0.043	0.65	0.517	–0.152	–1.83	0.068	0.000	0.01	0.994
Clothing												
Woman alone	0.090	0.61	0.541	0.026	0.39	0.697	–0.051	–0.64	0.520	–0.019	–0.48	0.632
Panel 4: Mobility												
Whether woman decides by herself to go to:												
Bazaar	0.062	0.35	0.725	–0.139	–1.22	0.224	–0.151	–2.14	0.033	0.046	1.34	0.181
Clinic	0.061	0.40	0.689	–0.048	–0.57	0.570	–0.072	–0.98	0.327	0.016	0.35	0.726
Cinema	0.128	0.61	0.545	–0.262	–2.33	0.021	–0.037	–0.75	0.455	–0.028	–1.18	0.238
Training	0.164	0.92	0.359	0.034	0.39	0.696	0.057	0.62	0.533	0.059	1.06	0.291
Panel 5: Reproductive decisions												
Whether woman ever used birth control	–0.006	–0.04	0.972	0.172	1.47	0.144	–0.031	–0.43	0.670	0.023	0.52	0.603
Whether husband ever used birth control	0.019	0.27	0.786	–0.052	–1.61	0.110	–0.013	–0.35	0.730	0.026	0.94	0.346
Who made the decision to use birth control												
Woman alone	–0.015	–0.23	0.816	0.073	1.00	0.321	–0.081	–1.02	0.310	0.064	1.53	0.126
Panel 6: Domestic abuse												
Woman ever verbally abused							–0.116	–1.17	0.244	0.091	1.57	0.118
Woman ever physically abused							0.061	0.71	0.479	–0.104	–2.17	0.031

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

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

Table 7.16 Marginal impact of receiving food or cash from the Food for Asset Creation program relative to the Rural Maintenance Program

	Mean impact of participating in FFA or RMP			All women					
	Treatment minus control	*t*-statistic	*p*-value	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of FFA	*t*-statistic	*p*-value
Panel 1: Work									
Whether working now	0.164	3.11	0.002	0.126	1.87	0.063	0.006	1.18	0.240
Decision to work									
Woman alone	–0.002	–0.03	0.977	0.151	1.41	0.160	–0.348	–5.97	0.000
Woman and husband	–0.022	–0.31	0.754	–0.147	–1.71	0.088	0.271	5.35	0.000
Woman alone or woman and husband	–0.025	–0.49	0.625	0.004	0.09	0.925	–0.077	–2.06	0.040
Decision to spend money earned									
Woman alone	0.059	0.82	0.414	0.320	3.02	0.003	–0.537	–11.35	0.000
Woman and husband	0.042	0.61	0.539	–0.158	–1.69	0.092	0.417	7.27	0.000
Woman alone or woman and husband	0.101	1.29	0.196	0.162	1.69	0.091	–0.120	–3.15	0.002
Panel 2: Loans									
Ever taken loan from NGO	0.159	2.08	0.038	0.254	2.35	0.019	–0.234	–3.73	0.000
Decision to take loan									
Woman alone	0.253	1.09	0.278	0.405	1.40	0.164	–0.544	–7.27	0.000
Woman and husband	–0.239	–0.97	0.335	–0.323	–1.10	0.272	0.392	2.39	0.018
Decision to spend loan proceeds									
Woman alone	0.275	1.20	0.233	0.420	1.39	0.166	–0.566	–6.54	0.000
Woman and husband	–0.237	–0.95	0.343	–0.327	–1.12	0.264	0.403	3.28	0.001
Panel 3: Household expenditures									
Who makes the decision on the following household expenditures:									
Food									
Woman alone	0.110	1.58	0.114	0.308	3.11	0.002	–0.479	–8.70	0.000
Woman and husband	–0.061	–0.90	0.367	–0.259	–2.91	0.004	0.385	7.34	0.000
Woman alone or woman and husband	0.049	0.76	0.449	0.049	0.61	0.545	–0.094	–1.96	0.051

Housing									
Woman alone	0.081	1.21	0.226	0.281	2.48	0.014	–0.511	–9.17	0.000
Woman and husband	0.065	1.11	0.269	–0.131	–1.61	0.108	0.384	7.10	0.000
Woman alone or woman and husband	0.146	2.07	0.039	0.150	1.54	0.125	–0.127	–3.05	0.002
Health care									
Woman alone	0.071	0.99	0.321	0.285	3.01	0.003	–0.536	–11.15	0.000
Woman and husband	–0.012	–0.19	0.852	–0.225	–2.37	0.018	0.417	7.03	0.000
Woman alone or woman and husband	0.059	0.87	0.384	0.060	0.78	0.433	–0.119	–2.15	0.032
Education									
Woman alone	0.100	1.37	0.170	0.292	2.95	0.003	–0.529	–9.67	0.000
Woman and husband	–0.004	–0.05	0.958	–0.215	–2.04	0.042	0.426	7.15	0.000
Woman alone or woman and husband	0.096	1.51	0.132	0.077	0.89	0.376	–0.103	–2.45	0.015
Clothing									
Woman alone	0.113	1.59	0.113	0.343	3.26	0.001	–0.557	–9.08	0.000
Woman and husband	–0.030	–0.45	0.653	–0.244	–2.60	0.010	0.436	7.88	0.000
Woman alone or woman and husband	0.084	1.26	0.210	0.099	1.22	0.225	–0.121	–3.13	0.002
Panel 4: Control over household resources									
Whether woman controls money needed to buy:									
Food from the market	0.155	2.46	0.014	0.127	1.51	0.132	–0.137	–3.56	0.000
Clothing for self	0.146	2.31	0.019	0.153	2.12	0.034	–0.172	–4.51	0.000
Medicine for self	0.161	2.34	0.021	0.114	1.51	0.131	–0.155	–4.66	0.000
Toiletries or cosmetics for self	0.144	2.29	0.022	0.125	1.67	0.096	–0.162	–4.36	0.000
Panel 5: Mobility									
Whether woman decides by herself to go to:									
Outside the community to visit friends or relatives	0.154	2.26	0.024	0.316	3.02	0.003	–0.450	–8.00	0.000
Bazaar	0.158	2.19	0.029	0.304	3.37	0.001	–0.399	–6.49	0.000
Clinic	0.141	2.14	0.033	0.294	2.92	0.004	–0.423	–8.14	0.000
Cinema	–0.019	–0.30	0.766	0.183	2.14	0.033	–0.447	–10.85	0.000
Training	0.258	3.32	0.001	0.376	3.60	0.000	–0.367	–6.78	0.000

(*continued*)

Table 7.16 Continued

	Mean impact of participating in FFA or RMP			All women					
	Treatment minus control	*t*-statistic	*p*-value	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of FFA	*t*-statistic	*p*-value
Panel 6: Reproductive decisions									
Whether woman ever used birth control	0.007	0.10	0.918	–0.075	–0.72	0.472	0.286	5.01	0.000
Whether husband ever used birth control	0.004	0.12	0.904	–0.036	–0.82	0.413	0.080	3.01	0.003
Who made the decision to use birth control									
Woman alone	0.043	0.72	0.469	–0.069	–0.83	0.406	0.179	3.39	0.001
Woman and husband	–0.016	–0.24	0.811	0.054	0.44	0.659	0.020	0.30	0.764
Woman alone or woman and husband	0.028	0.36	0.721	–0.015	–0.14	0.891	0.199	3.30	0.001
Panel 7: Domestic abuse									
Husband ever threatened divorce	0.016	0.17	0.864	0.122	1.35	0.179	–0.148	–2.50	0.013
Husband ever threatened to take another wife	0.040	0.44	0.663	0.135	1.43	0.153	–0.130	–1.96	0.051
Woman left permanently	–0.008	–0.20	0.841	–0.037	–1.19	0.236	–0.025	–2.03	0.043

	Women who are widowed, divorced, or separated						Married women					
	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of FFA	*t*-statistic	*p*-value	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of RMP	*t*-statistic	*p*-value
Panel 1: Work												
Whether working now	0.102	0.98	0.330	0.000	–2.02	0.046	0.232	1.48	0.142	0.030	0.85	0.394
Decision to work												
Woman alone	–0.006	–0.09	0.926	0.043	1.57	0.119	–0.084	–0.35	0.730	–0.130	–1.06	0.290
Woman and husband							0.163	0.72	0.473	0.034	0.27	0.784
Woman alone or woman and husband							0.079	0.51	0.610	–0.096	–1.64	0.104

Decision to spend money earned												
Woman alone	0.010	0.07	0.944	–0.008	–0.05	0.962	0.193	0.88	0.380	–0.333	–2.94	0.004
Woman and husband												
Woman alone or woman and husband						0.258	1.23	0.22	–0.189	–2.93	0.00	
Panel 2: Loans												
Ever taken loan from NGO	0.254	1.67	0.098	–0.341	–1.83	0.069	0.358	2.05	0.042	–0.379	–3.65	0.000
Decision to take loan												
Woman alone												
Woman and husband												
Decision to spend loan proceeds												
Woman alone												
Woman and husband												
Panel 3: Household expenditures												
Who makes the decision on the following household expenditures:												
Food												
Woman alone	0.071	0.55	0.581	0.028	0.24	0.808	0.380	2.35	0.020	–0.327	–2.98	0.003
Woman and husband							–0.153	–0.82	0.412	0.201	1.74	0.083
Woman alone or woman and husband							0.226	1.28	0.203	–0.126	–1.47	0.144
Housing												
Woman alone	0.089	0.57	0.568	0.028	0.25	0.799	0.240	1.55	0.123	–0.216	–2.10	0.037
Woman and husband							0.070	0.36	0.716	0.103	0.90	0.371
Woman alone or woman and husband							0.310	1.67	0.098	–0.112	–1.15	0.250
Health care												
Woman alone	0.061	0.44	0.663	0.028	0.23	0.817	0.284	1.85	0.066	–0.288	–2.67	0.008
Woman and husband							–0.002	–0.01	0.993	0.132	1.11	0.269
Woman alone or woman and husband							0.282	1.62	0.108	–0.156	–1.96	0.051

(*continued*)

Table 7.16 Continued

	Women who are widowed, divorced, or separated						Married women					
	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of FFA	*t*-statistic	*p*-value	Average effect of RMP	*t*-statistic	*p*-value	Marginal effect of RMP	*t*-statistic	*p*-value
Education												
Woman alone	0.101	0.68	0.500	0.007	0.06	0.953	0.250	1.43	0.155	–0.253	–2.31	0.022
Woman and husband							–0.002	–0.01	0.993	0.155	1.31	0.191
Woman alone or woman and husband							0.248	1.44	0.150	–0.097	–1.31	0.193
Clothing												
Woman alone	0.056	0.40	0.690	–0.003	–0.02	0.981	0.331	1.95	0.053	–0.283	–2.68	0.008
Woman and husband							–0.079	–0.41	0.681	0.181	1.50	0.135
Woman alone or woman and husband							0.252	1.45	0.149	–0.102	–1.28	0.203
Panel 4: Control over household resources												
Whether woman controls money needed to buy:												
Food from the market	0.126	1.02	0.309	0.032	1.52	0.131	0.235	1.30	0.197	–0.114	–1.38	0.169
Clothing for self	0.081	0.86	0.392	0.021	1.21	0.229	0.307	1.71	0.089	–0.156	–2.00	0.047
Medicine for self	0.062	1.17	0.244	0.021	1.19	0.236	0.321	1.89	0.060	–0.163	–2.45	0.015
Toiletries or cosmetics for self	0.091	1.05	0.293	0.011	0.80	0.422	0.209	1.19	0.236	–0.114	–1.35	0.179

Panel 5: Mobility												
Whether woman decides by herself to go to:												
Outside the community to visit friends or relatives	0.043	0.31	0.758	0.105	2.67	0.008	0.298	1.68	0.095	–0.250	–2.24	0.026
Bazaar	0.161	0.84	0.400	0.200	3.90	0.000	0.203	1.20	0.231	–0.152	–1.41	0.161
Clinic	0.051	0.49	0.623	0.116	2.74	0.007	0.207	1.17	0.243	–0.147	–1.36	0.176
Cinema	0.088	0.41	0.685	–0.579	–7.04	0.000	0.040	0.34	0.737	–0.079	–1.33	0.185
Training	0.343	1.83	0.070	–0.003	–0.03	0.977	0.312	1.77	0.079	–0.139	–1.20	0.231
Panel 6: Reproductive decisions												
Whether woman ever used birth control	0.078	0.32	0.748	–0.028	–0.10	0.918	–0.025	–0.15	0.884	0.154	1.70	0.091
Whether husband ever used birth control	–0.007	–0.12	0.908	–0.021	–1.27	0.206	–0.042	–0.80	0.426	0.118	3.06	0.003
Who made the decision to use birth control												
Woman alone	0.042	0.43	0.665	0.191	0.76	0.446	–0.141	–1.00	0.317	0.255	4.02	0.000
Woman and husband	0.123	0.54	0.587	–0.242	–3.33	0.001	0.167	0.85	0.396	–0.221	–2.04	0.043
Woman alone or woman and husband	0.165	0.71	0.481	–0.052	–0.20	0.838	0.026	0.15	0.884	0.035	0.34	0.733
Panel 7: Domestic abuse												
Husband ever threatened divorce							0.112	1.46	0.147	–0.114	–1.59	0.114
Husband ever threatened to take another wife							0.120	1.52	0.129	–0.091	–1.12	0.266
Woman left permanently							n.c.			n.c.		

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

Note: n.c.—not computed. IGVGD—Income-Generating Vulnerable Group Development; FSVGD—Food Security Vulnerable Group Development; FFA—Food for Asset Creation; RMP—Rural Maintenance Program.

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. The decisionmaking and empowerment outcomes of widowed, divorced, or separated women, who are the decisionmakers in their households anyway, appear to have been affected least by participating in the programs. However, transfers of food in combination with cash, as in FFA, 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 transfers.

The 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 objective, 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. 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. IGVGD is the most cost-effective in terms of the taka cost of increasing the percentage of women taking NGO loans by 1 percent: this costs 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.

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 did 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 of the income they earned, causing them to seek a greater role in family decisionmaking and to become more independent. Moreover, the women's providing income for their family may have caused other family members to have a greater appreciation for their 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 program 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 former beneficiary of IGVGD said 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 in 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 on 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 in a household do not automatically translate into changes at the community and societal levels. Although the programs appear 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 a 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 G, 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 help 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 measures of 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 has been 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.

CHAPTER 8

Conclusions for Policy

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 that 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.

All programs are reasonably well targeted, but there may be some scope for improving the targeting performance of IGVGD and FSVGD programs. 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 levels of cash payments.[1] Addressing this concern will be especially important if shifts from food to cash are envisaged. Our interviews with key informants suggest that these

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

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 the food security of the extreme poor, women in particular, is achieved through transfers of *atta* (whole-wheat flour). *Atta* is also technically better suited for micronutrient fortification than is rice or wheat. The current system for the 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. However, there are 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 emergency needs 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 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, which accounted for 71 percent of the total PFDS distribution in 2006, with rice accounting for 68 percent of the 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 that is in between food and cash transfers is to introduce a program of food stamps or food coupons to transfer income to the needy. A part of PFDS stocks could be used for such a system. Food stamps or cash vouchers could be distributed to eligible consumers. The stamps or vouchers would have a cash value when used for purchasing food and other commodities in a store, and the seller would redeem the stamps or vouchers at a bank or government office. The major advantage of such programs is that

they would use the normal marketing system, thus eliminating some administrative burdens. A food stamp or a cash voucher program would be a viable option for transferring income to the poor but one that would need to be piloted and evaluated carefully before any large-scale expansion.

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

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. Although 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 that they 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 of 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 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.

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.

APPENDIX A

Summary of Key Safety-Net Programs

Table A.1 Summary of key safety-net programs

Name of program	Major objective of the program	Administration/ financiers	Those targeted	Value of benefit	Annual costs and number of beneficiaries
		Infrastructure-building programs			
Food-for-works (Rural Infrastructure Development Program) (components: FFW and CFW)	1. Generating employment for the poor, mainly in the dry season, through infrastructure creation and maintenance. 2. Developing and maintaining rural infrastructure	Department of Local Government Engineering Department; Department of Social Services; other departments; financed by GoB, ADB, WFP	1. The functionally landless 2. Those without productive assets 3. Generally women who are heads of households, especially women who are widowed, deserted, and destitute 4. Those employed as day laborers or temporary workers 5. Those with an income of less than Tk 300 per month	a. No specific entitlement b. Food transfer by the public food distribution system	US$40 million; about 1 million participants annually
Rural Maintenance Program (RMP)	1. Empowering women 2. Maintaining rural infrastructure	Department of Local Government and Engineering, CARE–Bangladesh; financed by GoB, EC, CIDA, union *parishads*	1. Those with less than 30 decimals of land 2. Those with destitute family circumstances 3. Female heads of household 18–35 years of age	a. 51 Tk per day. This is a public works program in which cash is being transferred by the public-sector banks.	US$16 million (administrative costs are about 20% of program costs); about 42,000 participants annually

			4. Those widowed or separated for at least one year (priority is given to those with more dependents) 5. Those with no other income and not participating in other targeted programs		
Test Relief (Rural Infrastructure Maintenance Program, RIMP)	1. Employing the poor in the rainy season 2. Developing and maintaining rural infrastructure 3. Compared to FFW, requiring lighter labor	Ministry of Food and Disaster Management; financed by GoB and Development Partners	Generally a location is targeted	5–6 kg of wheat per day of work	US$1 million; about 100,000 beneficiaries annually
		Training programs			
Vulnerable Group Development program (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 2. Building social awareness of disaster management and nutrition through training in groups	Ministry of Women and Children Affairs, Directorate of Relief and Rehabilitations; financed by GoB, WFP, EC, Canada, Australia	1. Households with no more than 0.15 acres of land 2. Those with extremely low and irregular family income; those who are dependent on seasonal wage employment 3. Women of reproductive age (18–49 years) 4. Day laborers or temporary workers 5. Those without productive assets	a. 30 kg of wheat per month b. Training (totaling about 150 hours) c. Monthly wheat transfer received for a cycle of 24 months d. On graduation, ability to access BRAC's microcredit program e. Food transfer by the public food distribution system	US$40 million; close to 500,000 beneficiaries annually

(*continued*)

Table A.1 Continued

Name of program	Major objective of the program	Administration/ financiers	Those targeted	Value of benefit	Annual costs and number of beneficiaries
			Education programs		
Primary Education Stipend Project (PESP)	1. Increasing the number of children in primary school from poor families 2. Increasing primary school attendance and reducing dropouts 3. Increasing the rate of completion of the primary education cycle 4. Controlling child labor and reducing poverty 5. Increasing the quality of primary education	Department of Primary Education, Ministry of Education Financed by GoB	1. Families headed by a destitute woman (destitute means widowed, separated from husband, or divorced) 2. Families whose head's principal occupation is day labor 3. Families of low-income professionals (such as those engaged in fishing, pottery, black-smithing, weaving, and cobbling) 4. Households that are landless or own less than 0.50 acres of land (marginally or as share croppers)	a. Tk 100 (one-student family) b. Tk 125 (family with more than one student) Benefits are conditional on students' meeting attendance and examination criteria. Cash is transferred to the bank accounts of beneficiaries' guardians through the banks.	US$100 million (administrative costs are about 5% of program costs but do not include administrative costs of lower levels of government); over 5.3 million beneficiaries per year
Female Secondary School Assistance Program (FSSAP)	1. Increasing the number of students in secondary school 2. Increasing their prospect as employees and of self-employment	Ministry of Education, Directorate of Secondary and Higher Education; financed by GoB, USAID, Asia Foundation, NORAD, World Bank, ADB	All unmarried girl students studying in recognized institutions at the secondary level	a. Stipend: Tk 300 (G6), 360 (G7), 420 (G8), 720 (G9 and G10) b. Free tuition c. Book allowance d. Examination fees	US$40 million (administrative costs are about 18% of program cost); over 4 million beneficiaries annually

	3. Controlling underage marriage			Benefits are conditional on meeting attendance, examination, and marriage criteria. Cash is transferred to the bank accounts of beneficiaries through the banks.	
			Relief programs		
Vulnerable Group Feeding (VGF) program	1. Meeting calamity-related emergency needs 2. Providing short-term relief (food and basic necessities) to disaster victims	Ministry of Food and Disaster Management; financed by GoB and some Development Partners	Generally a location is targeted based on the occurrence of a natural disaster	No specific entitlement. Generally food is transferred by the public food distribution system.	US$30 million; about 240,000 beneficiaries annually
Gratuitous Relief (GR) program	1. Meeting calamity-related emergency needs 2. Providing short-term relief (food and basic necessities) to disaster victims	Ministry of Food and Disaster Management; financed by GoB and some Development Partners	Generally a location is targeted based on the occurrence of a natural disaster	No specific entitlement. No precise method of distribution.	n.a.
Fund for Mitigation of Risk of Natural Disaster	Mitigating the sufferings of people affected by natural disasters. Providing loans to set up small businesses.	Ministry of Food and Disaster Management; financed by GoB	Generally a location is targeted based on the occurrence of a natural disaster	A loan of between Tk 5,000 and Tk 25,000 for one to three years with a nominal 5% service charge. Cash is transferred by the public-sector banks.	US$15 million; about 100,000 beneficiaries annually

(*continued*)

Table A.1 Continued

Name of program	Major objective of the program	Administration/ financiers	Those targeted	Value of benefit	Annual costs and number of beneficiaries
		Programs for other disadvantaged groups			
Old Age Allowances	Providing cash allowances to the aged poor	Department of Social Services; financed by GoB	1. Those at least 65 years of age 2. Those with income no greater than Tk 2,000 per year 3. Those who have not worked in the formal sector 4. Based on the category of the union, the number of beneficiaries is predetermined 5. Beneficiaries evenly divided between men and women	Tk. 165 per month. Cash is 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 in distress through cash transfers	Ministry of Women and Children's Affairs; financed by GoB	1. Women who are widowed, deserted, or destitute 2. Based on the category of the union, the number of beneficiaries is predetermined	Tk 165 per month. Cash is transferred by the public-sector banks.	US$3 million; about 100,000 beneficiaries annually
Honorarium Program for Insolvent Freedom Fighters	Assisting poor freedom fighters through cash transfers	Ministry of Freedom Fighters Affairs; financed by GoB	1. Those who are verifiable by references 2. Those with an income of less than Tk 6,000 per year	Tk 300 per month. Cash is transferred by the public-sector banks.	US$8 million; about 200,000 beneficiaries

			3. Those who are disabled or partially disabled, landless or unemployed, or have no one in their family they can depend on		
Fund for Housing for the Distressed (Grihayan Tahabil)	Solve the housing problems of the homeless, the poor, and those with low incomes	Housing Fund Authority in association with NGOs and local governments; financed by GoB	1. Rural poor, low-income, and homeless families 2. Households affected by natural disasters and fires 3. Those capable of paying a flat interest rate of 5%	Loan of up to Tk 20,000. Cash is transferred by the public-sector banks.	n.a.
Fund for Rehabilitation of Acid Burnt Women and the Physically Handicapped	1. Assisting women burned by acid and disabled through the provision of credit and skills training 2. Creating opportunities for IGA 3. Raising social awareness	Ministry of Women and Children's Affairs; financed by GoB	Generally admission is made on a case-by-case basis.	a. Training b. Credit Details not known	US$4 million

Source: World Bank (2006).

Notes: n.a.—not applicable. ADB—Asian Development Bank; BRAC—Bangladesh Rural Advancement Committee; CFW—Cash for Work; CIDA—Canadian International Development Agency; EC—European Commission; FFA—Food for Asset Creation; FFW—Food for Work; FSVGD—Food Security Vulnerable Group Development; GoB—Government of Bangladesh; IGA—income-generating activities; IGVGD—Income-Generating Vulnerable Group Development; NORAD—Norwegian Agency for Development Cooperation; UPVGD—Union Parishad Vulnerable Group Development; USAID—U.S. Agency for International Development; WFP—World Food Programme.

APPENDIX B

Implications of Using PSM for Sample Size and the Distributions of Estimated Propensity Scores

Our use of the PSM method of impact estimation involves several steps. We first estimate a probit regression in which 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 (for example, calorie intake), and each has a different control group. We then check the balancing properties of the propensity scores. The balancing procedure tests whether treatment and comparison observations have the same distribution of propensity scores. A balancing test fails when a *t*-test rejects the equality of the means of these variables across ranked groupings of the propensity score. When 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 when the distribution of the density of the propensity scores overlap between treatment and comparison observations—that is, when 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 scores are greater than the maximum or less than the minimum of the comparison group propensity scores. Similarly, comparison group observations with propensity scores 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-off points face a potential comparison group with propensity scores that are either all lower or all higher than those 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-off 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 part of the distribution and treatment observations 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 scores. 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. For 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 retested 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, the standard errors of the impact estimates are estimated by bootstrap using 1,000 for each estimate.

Table B.1 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

Table B.1 Observations dropped as a result of imposing the common support

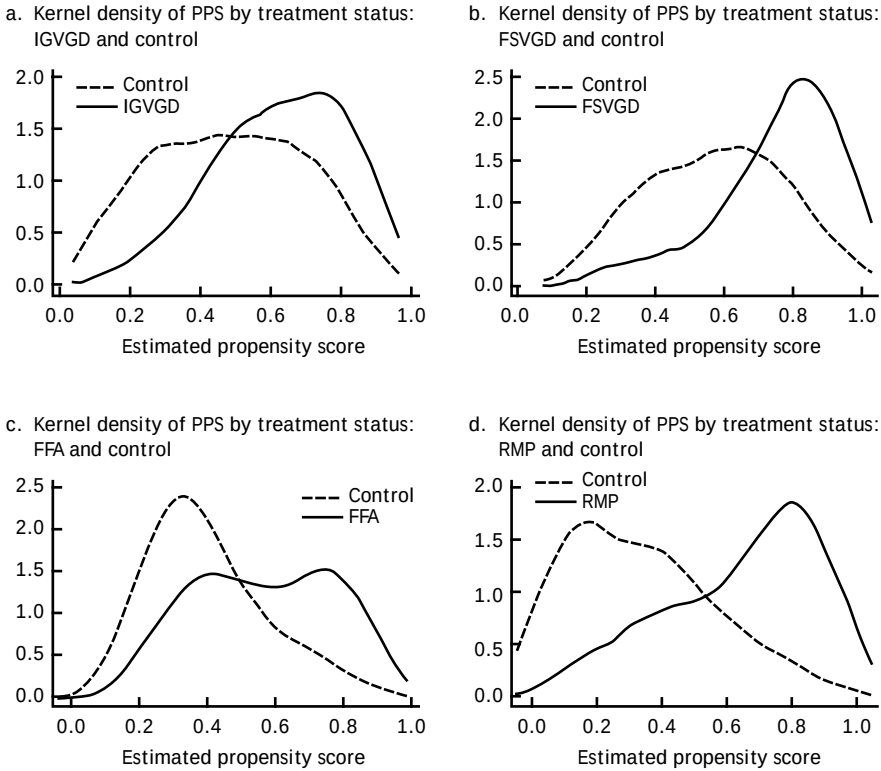
Treatment and control groups	Number of observations in the first probit	Number of observations in the final probit after imposing common support	Percentage of observations dropped for imposing common support
IGVGD and control	415	326	21.4
FSVGD and control	364	263	27.7
FFA and control	557	552	0.9
RMP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

Source: Intermediate computer outputs of propensity score matching estimates.
Note: FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

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.

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 B.1 shows the distributions (kernel densities) of estimated propensity scores for treatment and control groups for household-level observations for each of the four programs; these are used to compare outcomes such as household income between treatment and control groups. Figure B.2 illustrates these distributions for individual-level observa-

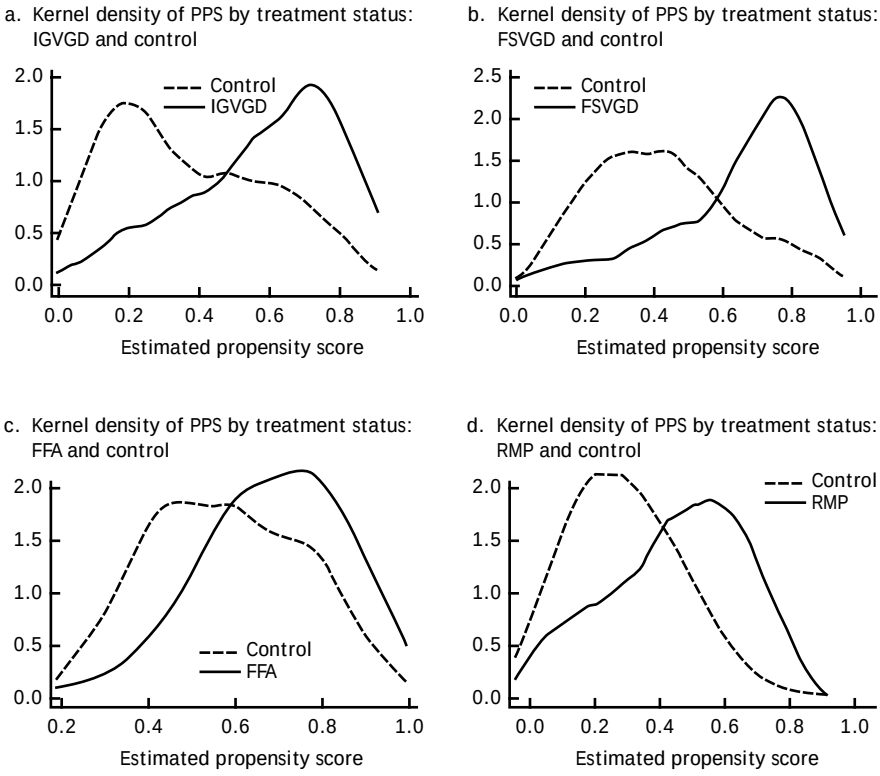
Figure B.1 Distributions of estimated propensity scores for household-level observations



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

Note: PPS—predicted propensity score; FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

Figure B.2 Distributions of estimated propensity scores for individual-level observations (child nutritional status)



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

Note: PPS—predicted propensity score; FFA—Food for Asset Creation; FSVGD—Food Security Vulnerable Group Development; IGVGD—Income-Generating Vulnerable Group Development; RMP—Rural Maintenance Program.

tions, which are used to compare child nutritional status between treatment and control groups. For example, in Figure B.1 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.

APPENDIX C

Consumption Effects of Food Transfers

The effects of 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, the ration is inframarginal. The ration is extramarginal if the amount of the ration is greater than the amount of that commodity the household would have consumed without the ration.

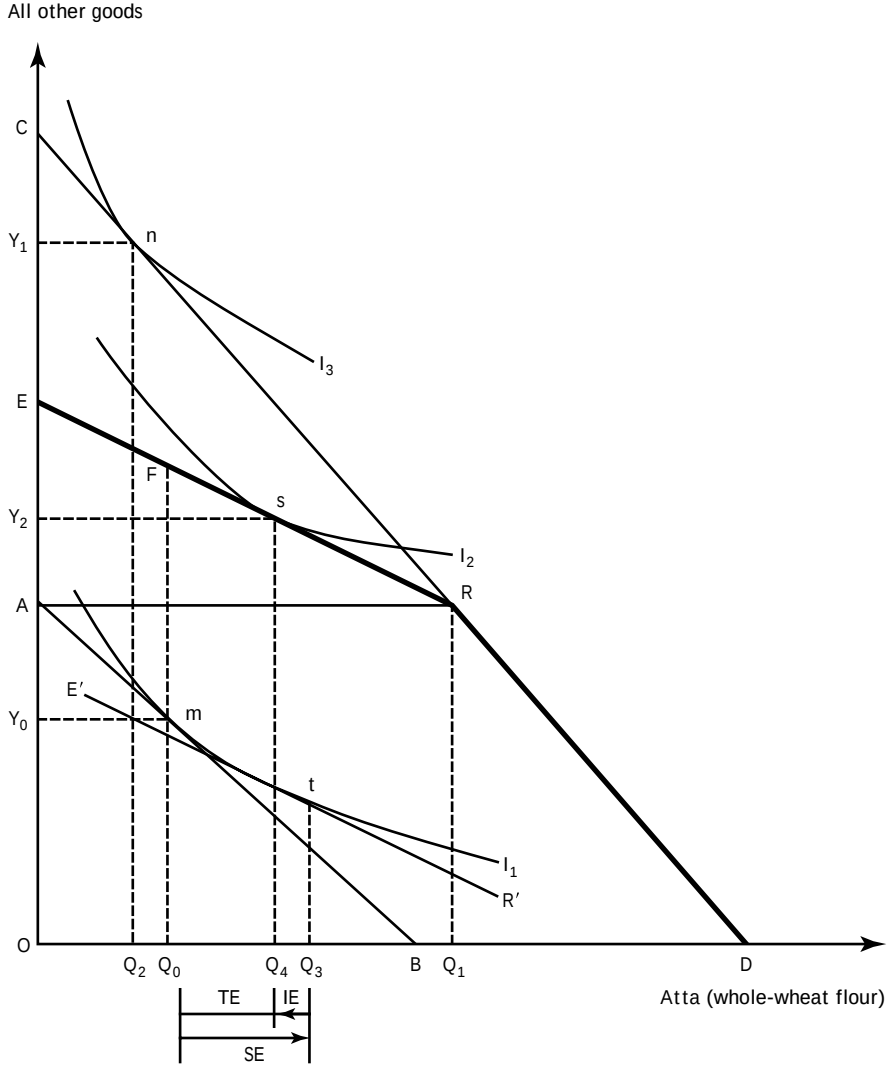
If the ration is extramarginal and if resale of the ration is prohibited or entails a high transaction cost, the transfer of income through such a ration may have two effects—an income effect and a substitution effect. On the other hand, the effect of an inframarginal ration is equivalent to the income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

Extramarginal Ration: FSVGD *Atta*

The likely household-level consumption effects of an extramarginal ration are illustrated in Figure C.1 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, at which 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* were absolutely prohibited, the recipient household would consume the entire amount

Figure C.1 Consumption effects of an extramarginal *atta* ration



Source: Developed by authors.
Notes: *Atta* is whole-wheat flour. IE—income effect; SE—substitution effect; TE—total effect.

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 OQ_1, the 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,* however, is not prohibited. If the recipient household could sell its entire ration at market price, the budget line would shift outward in a parallel way, passing through the endowment bundle *R.* Here the effect of transferring income 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 (Bouis 1989; Ahmed and Hossain 1990; Goletti 1993; Ahmed and Shams 1996). 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. Because *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* were lower than the market price or if the resale entailed a high transaction cost that decreased the implicit selling price, the upward portion of the budget line from the endowment bundle (point *R*) would become flatter. Because 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 because 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 C.1.

The IFPRI household survey data suggest that, on average, the FSVGD recipient households sold only 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 greater than the quantity consumed by the matched control group of households. Two factors most likely prevented the *atta* recipients from selling a larger share of their extramarginal ration: (1) the resale price was lower than the market price and (2) the resale involved transaction costs.

Because *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 decrease 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.

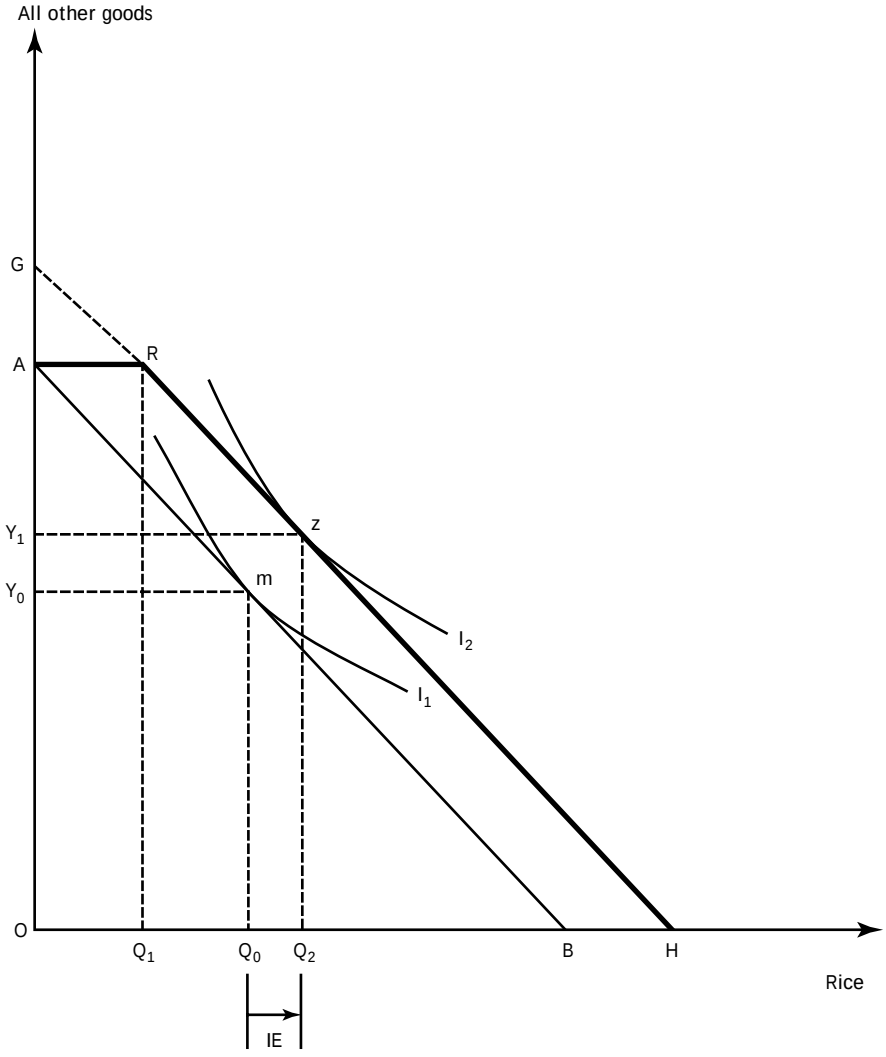
A digression: If the household could sell its entire *atta* ration at market price, the consumption effect would be exactly the same as that of a cash transfer of the equivalent value. As microeconomic theory suggests, a household will be better off if it can reach a higher indifference curve. Figure C.1 shows that a cash transfer would enable the household to reach the highest feasible indifference curve I_3, at which the household would maximize its satisfaction by selecting the consumption bundle at point *n.* This explains why a cash transfer should yield greater satisfaction than a transfer of food or another in-kind transfer in terms of program participants' own perception of welfare.

Inframarginal Ration: FFA Rice

Figure C.2 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.* Rice is a normal good (that is, the income elasticity of demand for rice is positive).[1] So the subsequent consumption bundle would be, say, at point *z,* where the *RH* portion of the

[1] A number of empirical studies show that rice has a positive income (or expenditure) elasticity not only for the poor but also for wealthy Bangladeshi consumers (Bouis 1989; Ahmed and Hossain 1990; Goletti 1993; Ahmed and Shams 1996).

Figure C.2 Consumption effects of an inframarginal rice ration



Source: Developed by authors.
Note: IE—income effect.

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.

APPENDIX D

Calculation of Transfer Delivery Costs

This section provides calculations of the fiscal costs of delivering the transfer amounts (of food and cash) to the points of distribution (UP premises for food transfers and local bank branches for cash transfers).

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 a cash transfer) 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 D.1. Table D.2 shows the breakdown of costs incurred at ports and the internal transport, storage, and handling (ITSH) costs for imported wheat.

Table D.1 Calculation of delivery costs of food transfers and costs per taka transferred

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

Source: Calculated from data provided by the World Food Programme (WFP)–Bangladesh and the IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

Note: — denotes not applicable.

[a]Whole-wheat flour.

[b]In 2006, the composition of the total food distributed in the Income-Generating Vulnerable Group Development, Food Security Vulnerable Group Development, and Food for Asset Creation programs was rice, 58 percent; fortified *atta,* 36 percent; and wheat, 6 percent (IFPRI household survey). Estimates of total food are adjusted according to this composition.

[c]Purchase costs are adjusted by taking the following factors into account: In 2005–06, the food contribution by the Government of Bangladesh (GoB) was 60 percent and that of 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.

[d]For imported wheat, WFP–Bangladesh provided the information on costs incurred at the ports and ITSH costs. See Table D.2 for the breakdown of these costs.

[e]We calculated ITSH costs for local rice and wheat as follows. The total handling and transportation cost of imported grains from ports to silo, central storage depot (CSD), or LSD is Tk 1,900 per metric ton (see Table D.2 for cost breakdown). This includes a transport cost of Tk 970. Because the ports are located at the southern end of the country, we used half of the transport cost (that is, Tk 485/metric ton) to reflect the average transport cost of domestically procured grains. Thus, we estimated the total handling and transport cost of local grains at Tk 1,415. We added the storage cost of Tk 248/metric ton (see Table D.2) to the transport and handling costs. Therefore, the total ITSH cost for local rice and wheat is estimated at Tk 1,663 per metric ton.

[f]Leakage and losses for imported wheat amount to 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. The costs of leakage/losses for wheat are adjusted for imported and domestic shares of distribution. The estimates of leakage/losses have been obtained from Ahmed et al. (2003).

Table D.2 Costs incurred at ports and internal transport, storage, and handling (ITSH) costs for imported wheat

Item	Cost of 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 + . . . + 14)	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 anchorage)	1.66
14. Surveyor cost at jetty	1.38
Subtotal I (a + b)	541.54
II. Handling/transportation costs from ports to silo, CSD, or LSD	
a. Establishment costs	360.00
b. Cost of 12 gunny bags	497.00
c. Replacement cost of torn gunny bags	42.00
d. Internal freight (port to LSDs nearest to distribution points)	970.00
e. Contingency	2.00
f. Quality control charges	28.50
Subtotal II (a + b + c + d + e + f)	1,899.50
III. Storage charges at silo, CSD, or LSD	
a. Storage at CSD or LSD	213.00
b. Unloading and reloading charges	35.00
Subtotal III (a + b)	248.00
Total ITSH costs (I + II + III)	2,689.04

Source: Calculated from data provided by the World Food Programme (WFP)—Bangladesh.
Note: CSD—central storage depot; LSD—local storage depot.

APPENDIX E

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) and a process of change (the process of expanding people's freedom to act and their ability to make choices) (Kabeer 2001; Datta and Kornberg 2002; Alsop, Bertelsen, and Holland 2006). 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 (Nussbaum 2000; Stern, Dehier, and Rogers 2005; Alsop, Bertelsen, and Holland 2006). 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) (Datta and Kornberg 2002; Mosedale 2005). Deshmukh-Ranadive (2005) 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 interaction between these as determinants of empowerment (Alsop, Bertelsen, and Holland 2006; Narayan 2005; Petesch, Smulovitz, and Walton 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, Smulovitz, and Walton 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 removing institutional barriers (Narayan 2005; Petesch, Smulovitz, and Walton 2005; Alsop, Bertelsen, and Holland 2006). Rather, in the words of Petesch, Smulovitz, and Walton (2005), "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" (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 acknowledgment 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. Although 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, Smulovitz, and Walton 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 new approaches are required. Some questions dealt with in this study include the following: 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 that target women to promote greater social change through the empowerment process. Given the fact that the programs examined in this report all have the objective of empowering poor women, it is important to assess whether this goal is being achieved.

The Impact of Targeting Women for Resources: A Review of the Literature

Intrahousehold 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 in 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 be 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 and Horney 1981; McElroy 1990). 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 in the household and that a person's fall-back position strengthens his or her ability to bargain in the household. Agarwal (1997) built 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 means of earning income, 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 have combined cooperative and noncooperative bargaining models. Lundberg and Pollak (1994) described 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 in 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 has been reviewed by Strauss and Thomas (1995), Behrman (1997), Haddad, Hoddinott, and Alderman (1997), and Quisumbing (2003), among others. This evidence suggests that individuals in households may have different preferences and may bargain over the household's resources to realize those preferences. For instance, Hoddinott and Haddad (1995) showed that changes in the control over income among individual family members leads to changes in expenditure patterns. Using data from Côte d'Ivoire, they find that increasing female income shares leads to greater expenditures on food and smaller ones on alcohol and cigarettes. Doss (2005) supported these findings with data from Ghana. She found that increasing women's share of assets leads to changes in the expenditure patterns of households, with more funds devoted to education and food. Furthermore, Thomas (1992) showed that in Brazil, if additional income is controlled by women, it increases 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) showed that the level of women's assets at marriage, an indication of their bargaining power, is associated with larger shares of expenditure on education in Bangladesh and South Africa. Also, women's having more 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) showed 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) found that increasing women's status relative to men reduces child malnutrition in Sub-Saharan Africa, Latin America, and the Caribbean, and particularly in South Asia.

Other studies have shown that other interventions—such as changes in divorce law and changes in the economic opportunities available to women—can influence women's bargaining power. Rangel (2006) found that increases in women's bargaining power due to the extension of alimony rights to cohabitants in Brazil increased the leisure time of women and led to greater investments in the schooling of children, particularly older girls. Ashraf, Karlan, and Yin (2006) showed that in the Philippines access to a commitment savings service increased women's decisionmaking power and shifted house-

hold expenditures toward female-oriented goods. Such studies show that there are other measures available to policymakers to enhance the status of women and promote development effectiveness. In Bangladesh, programs of Grameen Bank and BRAC 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 tested the differential impact of male and female borrowing on eight outcomes: boys' and girls' schooling, women's and men's labor supply, total household expenditure, contraception use, fertility, and the value of women's nonland assets. They found 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, found 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 directly target women for transfers. One of the most famous of these has been Mexico's nationwide 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 placed 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 women's self-confidence and self-esteem (Adato et al. 2003; Skoufias and McClafferty 2003). Transfers to wives have also decreased the incidence of husbands' sole decisionmaking regarding 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 a woman will let her husband decide how to spend her additional income. The significance of the monetary transfers confirms the belief that transfers that target poor women have the potential to change decisionmaking patterns in households.

These studies show that increasing women's bargaining power relative to men's 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) suggested that the type of power structure in the family is also important. They found that parents who make joint decisions regarding food acquisition and preparation have children with slightly better BMIs 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 F

Estimating the Propensity Score

Table F.1 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
Number of boys aged 0–4 years	0.23	0.13	0.14	0.46	—	—	–0.53	0.00
Number of girls aged 0–4 years	0.23	0.14	0.29	0.14	–0.14	0.44	–0.50	0.00
Number of boys aged 5–14 years	0.33	0.00	0.13	0.34	–0.08	0.49	–0.07	0.43
Number of girls aged 5–14 years	0.34	0.00	0.15	0.27	0.11	0.35	0.09	0.32
Number of males aged 15–19 years	0.12	0.55	0.08	0.81	0.19	0.47	0.12	0.46
Number of females aged 15–19 years	0.47	0.06	0.57	0.05	0.61	0.10	0.27	0.25
Number of males aged 20–34 years	0.31	0.13	0.03	0.90	–0.09	0.70	–0.26	0.13
Number of females aged 20–34 years	0.48	0.02	0.46	0.06	0.42	0.08	0.32	0.03
Number of males aged 55 years or more	0.09	0.70	0.52	0.13	–0.13	0.63	–0.22	0.30
Number of females aged 55 years or more	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
Number of males with primary education	0.29	0.16	0.49	0.10	0.30	0.26	0.22	0.23
Number of females with primary education	0.35	0.19	0.18	0.53	0.02	0.96	–0.38	0.13
Years of education of male + female household heads	0.04	0.41	–0.05	0.37	–0.07	0.26	–0.06	0.13
Household had radio in 2004	0.16	0.71	–0.18	0.69	—	—	—	—
Household had bicycle in 2004	0.31	0.53	0.43	0.40	1.20	0.10	0.86	0.02
Household had van in 2004	0.29	0.44	–0.51	0.28	1.39	0.05	–0.65	0.16
Household had tubewell in 2004	–0.32	0.33	0.17	0.54	0.08	0.76	–0.16	0.46
Household had *dheki* in 2004	0.73	0.14	—	—	—	—	0.84	0.07
Household had fishing net in 2004	0.72	0.01	0.03	0.94	0.44	0.25	–0.12	0.66

(*continued*)

Table F.1 Continued

Variable	IGVGD	*p*-value	FSVGD	*p*-value	FFA	*p*-value	RMP	*p*-value
Household had plow in 2004	–0.73	0.36	0.61	0.38	0.02	0.90	–0.92	0.30
Household had goat in 2004	0.18	0.07	0.26	0.12	—	—	0.06	0.54
Household had cows in 2004	0.25	0.21	0.05	0.77	–0.74	0.01	0.04	0.77
Household 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
Household 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
Household has electricity	0.35	0.18	—	—	0.31	0.47	—	—
Household 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."
Note: — denotes that a variable has been dropped to satisfy the balancing property of propensity score matching.

Table F.2 Impact of participation in the Income-Generating Vulnerable Group Development program, by schooling terciles

	Schooling		
	(1) No schooling	(2) 1–4 years	(3) 4 years or more
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."

Note: *** indicates statistical significance at the 1 percent level; ** indicates statistical significance at the 5 percent level; * indicates statistical significance at the 10 percent level.

Table F.3 Impact of participation in the Food for Assest Creation program, by terciles of schooling, landholdings, and assets

	Schooling terciles			Landholdings terciles			Asset terciles		
	(1) No schooling	(2) 1-4 years	(3) 4 years or more	(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									
Woman alone or woman and husband	–0.052	–0.075	0.092	–0.009	0.072	–0.065	–0.087	–0.107	–0.077
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
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 woman 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 herself	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

(*continued*)

Table F.3 Continued

	Schooling terciles			Landholdings terciles			Asset terciles		
	(1) No schooling	(2) 1–4 years	(3) 4 years or more	(4) Tercile 1	(5) Tercile 2	(6) Tercile 3	(7) Tercile 1	(8) Tercile 2	(9) Tercile 3
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	n.c.	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	n.c.	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."

Notes: n.c.—not computed. *** indicates statistical significance at the 1 percent level; ** indicates statistical significance at the 5 percent level; * indicates statistical significance at the 10 percent level.

Table F.4 Impact of participation in the Rural Maintenance Program, by terciles of schooling, landholdings, and assets

	Schooling			Landholdings			Assets		
	(1) No schooling	(2) 1–4 years	(3) 4 years or more	(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

(*continued*)

Table F.4 Continued

	Schooling			Landholdings			Assets		
	(1) No schooling	(2) 1–4 years	(3) 4 years or more	(4) Tercile 1	(5) Tercile 2	(6) Tercile 3	(7) Tercile 1	(8) Tercile 2	(9) Tercile 3
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
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 herself	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*
Medicine for herself	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 or cosmetics for herself	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:									
Location 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**

(*continued*)

Table F.4 Continued

	Schooling			Landholdings			Assets		
	(1) No schooling	(2) 1–4 years	(3) 4 years or more	(4) Tercile 1	(5) Tercile 2	(6) Tercile 3	(7) Tercile 1	(8) Tercile 2	(9) Tercile 3
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	–0.076	0.020	–0.245	0.126	–0.113	–0.284	–0.055	–0.059	–0.127
Woman and husband									
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."

Notes: *** indicates statistical significance at the 1 percent level; ** indicates statistical significance at the 5 percent level; * indicates statistical significance at the 10 percent level.

APPENDIX G

Gender Outcomes by Region

Table G.1 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, particularly in Chittagong division, 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 Rajshahi and Khulna divisions. 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 women living without their husbands; 75 percent of the sample are female heads of households. In contrast, in Kurigram, Nilphamari, and Lalmonirhat, 32 percent of women are living without their husbands, and in 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 independently over a large number of areas, 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 husbands 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, and markets or trade). Indeed, for our sample of households, per capita expenditure is 19 percent higher in households in Chittagong than in those in Rajshahi. Because the Chittagong sample may not be representative

Table G.1 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 having used birth control	73.35	68.83	58.81	65.12	24.27	64.08	0.00***
Having experienced physical abuse	18.15	18.93	28.45	19.57	6.45	21.01	0.00***
Having experienced verbal abuse	41.96	61.54	48.67	36.96	6.67	48.43	0.00***
Having been threatened with divorce	6.51	9.69	13.08	7.33	0.00	8.92	0.03**
Having been 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: IFPRI 2006 Household Survey in Bangladesh for the study "Relative Efficacy of Food and Cash Transfers."

[a] The *p*-values are from a one-way analysis of variance. Significance levels: ** significant at the 5 percent level; *** significant at the 1 percent level.

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 that in the other regions, even conservative Kurigram (6.51 percent). Women in the Dhaka and Khulna regions report that higher proportions are deciding by themselves whether to attend NGO training in contrast to those in the Rajshahi region. Women in the Dhaka region also report the highest incidence of physical abuse (28.45 percent), whereas women in the other districts of the Rajshahi region report 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 Chapter 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 the results by region is imperfect.

APPENDIX H

Comparison of Households in the Household Survey Sample and at Qualitative Study Sites

Table H.1 Comparison of selected characteristics of households in the household survey sample and at qualitative study sites

Selected household characteristics	(1) All households	(2) Beneficiaries and former beneficiaries	(3) Beneficiaries and former beneficiaries at qualitative sites	(4) IGVGD beneficiaries and former beneficiaries	(5) IGVGD beneficiaries and former beneficiaries at qualitative sites	(6) FSVGD beneficiaries and former beneficiaries	(7) FSVGD beneficiaries and former beneficiaries at qualitative sites	(8) FFA beneficiaries and former beneficiaries	(9) FFA beneficiaries and former beneficiaries at qualitative sites	(10) RMP beneficiaries and former beneficiaries	(11) RMP beneficiaries and former beneficiaries at qualitative sites
Sample size[a]	2,000	1,600	1,550	400	310	400	310	400	300	400	303
Household size	3.94	4.03	4.07	4.36	4.55	4.26	4.31	4.04	3.90	3.45	3.52
Members 15–60 years	2.13	2.20	2.22	2.33	2.39	2.39	2.42	2.24	2.13	1.87	1.87
Members less than 15 or more than 60 years	1.80	1.82	1.85	2.04	2.17	1.87	1.89	1.81	1.78	1.59	1.65
Highest level of male education (grades of schooling)	2.30	2.49	2.46	2.98	2.91	3.03	3.19	1.72	1.50	2.19	2.16
Highest level of female education (grades of schooling)	2.13	2.25	2.27	2.48	2.53	2.78	2.76	1.86	1.83	1.87	1.90
Female-headed household	0.44	0.44	0.42	0.39	0.31	0.27	0.23	0.33	0.36	0.78	0.79
Monthly food expenditures (taka)	1,835	1,957	1,947	2,059	2,119	2,101	2,189	1,863	1,695	1,806	1,794
Monthly nonfood expenditures (taka)	1,094	1,184	1,167	1,314	1,370	1,177	1,222	1,064	931	1,179	1,161

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

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

[a]Sample sizes refer to households with valid (nonmissing) observations.

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About this Report

Bangladesh has some social safety net programs that transfer food to the poor, some that transfer cash, and some that provide a combination of both. This study evaluates the relative impacts of food and cash transfers on food security and livelihood outcomes among the ultra poor in Bangladesh. The programs' impacts are evaluated according to various measures, including how well transfers are delivered; which transfers beneficiaries prefer; how accurately the programs target the extremely poor; effects on food security, livelihoods, and women's empowerment; and cost effectiveness. The report identifies what has and has not worked in food and cash transfers and recommends ways of improving these programs. This study will be valuable to policymakers and others concerned with poverty reduction in Bangladesh and elsewhere.

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