

Role of Microfinance in Poverty Transition

Introduction

The previous chapters have examined the income effect of microfinance, along with its impact on household assets, labor supply, and net worth, including indebtedness. Because the income and asset effects of microfinance are expected to enhance household consumption and thus reduce poverty, advocates of microfinance have argued that microfinance has a direct effect on poverty reduction through increasing consumption. But opponents argue that, although microfinance has succeeded in reaching the poor, particularly women, and other marginalized groups who lack access to mainstream financial institutions and has helped in consumption smoothing,¹ these are short-term effects that may not be sustainable over time; thus, success in reducing poverty, a stated goal of microcredit programs, is uncertain.

The microfinance system has created such innovations as group liability enforcements and dynamic incentives, claiming that many of the poor, including women and other vulnerable groups, could be lent to profitably, and beneficiaries could accrue both short- and medium-term welfare gains. In our previous chapters, we have shown that microborrowing has both short- and long-term benefits in terms of income, employment, and other welfare gains. However, critics argue that, while microfinance may satisfy the unmet financial demand of the poor and enhance short-term welfare gains, the accrued gains in income and employment may not suffice to affect poverty reduction in a sustainable way.

There are two strands of empirical literature on the poverty-reduction role of microcredit. The first strand of studies, which uses nonexperimental research methods, observes that microcredit helps to reduce consumption and other dimensions of poverty in various ways (e.g., Angelucci, Karlan, and Zinman 2013; Boonperm, Houghton, and Khandker 2009; Chemin 2008; Dunford 2006; Hossain 1988; Imai, Arun, and Annim 2010; Kevane and Wydick 2001;

Khandker 1998, 2005; McIntosh 2008; Panjaitan-Drioadisuryo and Cloud 1999; Pitt and others 1999; Pitt and Khandker 1996, 1998; Shaw 2004).² A recent study, using panel data from 1997 to 2005, finds that larger benefits are realized from medium-term, rather short-term, participation (Islam 2011).

The second strand of studies, using randomized control trials (RCTs), finds that microcredit has mixed effects on poverty reduction.³ Various studies show the positive effects of microfinance (Coleman 1999, 2006; de Mel, McKenzie, and Woodruff 2008; Karlan and Zinman 2009; McKenzie and Woodruff 2008), while others find no evidence for income or consumption gains (Attanasio and others 2012; Augsburg and others 2011; Banerjee and others 2010; Crépon and others 2011; Karlan and Zinman 2011). Summarizing the findings of several RCT studies, a critic states that microfinance does not end poverty despite all the hype (Roodman 2012).⁴

Microfinance has also come under attack for charging “exorbitant” interest rates (e.g., some argue that the nominal on-lending rate of Grameen Bank in Bangladesh is 20 percent, 7 percent higher than the commercial bank rate, which goes against its stated mission of poverty alleviation). Using anecdotal evidence, many critics cite microcredit’s high interest rates and inadequate benefits relative to the cost of borrowing as reasons for rising indebtedness among borrowers. Their argument is simple: If microcredit programs were so helpful, indebtedness should not have increased over time relative to asset accumulation; thus, microcredit is not a “miracle,” as its proponents would have us believe. However, while the interest rates of microfinance institutions (MFIs) are higher than those of formal lenders, they are much lower than informal lending rates (Faruqee and Khalily 2011). Thus, as shown in the previous chapter, long-term borrowers are not necessarily trapped in debt by borrowing repeatedly from MFIs because asset accumulation exceeds the debt accrued.

Against the backdrop of these findings, this chapter revisits the controversies surrounding the role of microfinance in poverty reduction.⁵ Using a long panel survey of respondents over more than 20 years, it examines whether the earlier findings of Pitt and Khandker (1998) and Khandker (2005) can be substantiated and whether microcredit participants are indeed trapped in poverty as many have argued. The chapter also examines whether the gender of program participants matters, as observed by Pitt and Khandker (1998) and Khandker (2005). The unusually long panel of the complete data set provides a unique opportunity to examine whether households that participated in microcredit programs over a long period remained poor or graduated from poverty.

Using a fixed-effects (FE) method that controls for both time-invariant and time-varying heterogeneity, the net effect of program participation is estimated for an average participant and separately by gender. Contrary to the prevailing view about microfinance dependence, the findings show that microcredit participants are not trapped in poverty,⁶ confirming the positive effects of microfinance observed in earlier studies (Khandker 2005; Pitt and Khandker 1998).

Dynamics of Participation Status with Consumption and Poverty: What Is the Correlation?

The outcome of particular interest in this chapter is poverty dynamics over a long period of time. Conceivably, as a result of a higher level of microborrowing and savings mobilized over this period, households enjoyed a higher level of income (assuming it was augmented through activities financed under microcredit programs), a higher level of consumption (since the participating households were poor to begin with), and thus a reduced level of poverty. For purposes of comparison, a set of four key indicators of household welfare was selected: (a) income, (b) expenditure, (c) moderate poverty, and (d) extreme poverty.⁷ The expenditure data are expressed in real terms (in 1991/92 Tk.). The cost-of-basic-needs method was used to establish the poverty line, which requires one to establish the cost of a minimum food basket or food poverty line, and then add an allowance for non-food expenditure to estimate the moderate poverty line. By contrast, extreme poverty was determined by comparing the household's total consumption expenditure on food and nonfood items against the food poverty line.⁸ Descriptive statistics of these indicators are presented in table 6.1. The sample for this descriptive analysis was restricted to eligible households from the 1991/92 survey, regardless of their actual participation status.⁹ This was done to ensure that comparisons could be made between similar households.

Growth in Food, Nonfood, and Total Consumption

Table 6.1 shows that the average annual growth in per capita expenditure was higher for nonparticipants (4.5 percent) than for participants (3.7 percent) over the 20-year period between the first and third survey rounds (1991/92–2010/11).

Table 6.1 also shows that, over the same period, food as a share of total expenditure declined by about 15–16 percentage points and varied little between participants and nonparticipants. This means that both groups experienced growth in their share of nonfood consumption, indicating a higher level of welfare in rural Bangladesh. Indeed, in 1991/92, nonfood consumption accounted for less than one-fifth of total consumption, compared to about one-third by 2010/11.

Reduction in Moderate and Extreme Poverty

In 2010/11, the incidence of both moderate and extreme poverty was significantly less for participants than for nonparticipants (table 6.1). That survey year saw a 1.7 percentage point gap between participants and nonparticipants for moderate poverty (32.9 percent versus 34.6 percent). The gap for extreme poverty was about four times wider, at 6.9 percentage points (16.2 percent versus 23.1 percent). Thus, it appears that the extent of poverty reduction was higher for program participants than for nonparticipants, despite the scant difference in poverty status between the two groups in earlier years (e.g., 1991/92).

For program participants, extreme poverty was reduced by 2.9 percentage points per year, compared to 2.7 percentage points for nonparticipants. This trend runs counter to the notion that microcredit program participants could be

Table 6.1 Household Expenditure Distribution and Poverty Measures by Microcredit Participation Status in the Three Survey Periods

Outcome variable	1991/92		1998/99		2010/11	
	Participants (N = 769)	Non- participants (N = 483)	Participants (N = 1,014)	Non- participants (N = 420)	Participants (N = 1,554)	Non- participants (N = 334)
Per capita expenditure (Tk./month)	327.3	318.6	440.0	436.9	571.6	604.0
		(1.04)		(0.17)		(-1.71)
Food expenditure as share of total expenditure (%)	81.3	82.1	75.1	76.2	66.2	65.0
		(-1.23)		(-1.15)		(1.59)
Moderate poverty (%)	86.3	87.6	60.6	58.2	32.9	34.6
		(-0.67)		(0.88)		(-0.62)
Extreme poverty (%)	75.1	78.5	43.6	46.5	16.2	23.1
		(-1.38)		(-1.05)		(-3.19)

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Monetary figures are consumer price index-adjusted Tk. with 1991/92 = 100. The analysis is restricted to 1991/92 microcredit-eligible households (i.e., those who participated in microcredit programs in 1991/92 and those who were eligible to but did not), which constituted 64, 62, and 61 percent of the surveyed households in 1991/92, 1998/99, and 2010/11, respectively. Figures in parentheses are t-statistics of the differences between participants and nonparticipants.

trapped in poverty as critics have claimed.¹⁰ However, this simple comparison between participants and nonparticipants is not compelling enough to suggest that this reduction in poverty is indeed the case since many factors beyond borrowing affect intergroup differences in outcomes. The key question is whether program participation played a causal role in determining income and consumption growth and thus poverty reduction among participants.

Analysis of the Poverty Transition

The range of outcomes discussed thus far provides a picture of the overall welfare of rural households. Among the outcomes of interest to policy makers, researchers, and development practitioners, the poverty measure is most important since poverty alleviation is the focus of all microcredit discussions and debates. Proponents of microcredit most often tout its poverty-alleviation effect as the basis for its success, while critics point to microcredit's inability to lower poverty as the reason for its failure. These opposing views suggest the need for a deeper examination of the poverty trend than what is reported in table 6.1. More specifically, one needs a better understanding of the underlying movements of households between poor and nonpoor status, and whether any distinct pattern emerges in such movements by changes in program participation status over time. To investigate the transition in poverty status over time, a set of households must be followed across the survey years.

This analysis considered four distinct household types, according to their program participation status, as follows: (a) those who were participants in

1991/92 and maintained an unbroken participation status until 2010/11 (denoted by PPP), (b) those who became program participants after 1991/92 (referred to as new participants in the 1998/99 data) and remained participants until 2010/11 (denoted by NPP), (c) those who became program participants for the first time after 1998/99 (referred to as new participants in the 2010/11 data) (denoted by NNP), and (d) those who never participated in microcredit programs (denoted by NNN).¹¹

Transition in Moderate Poverty Status

Table 6.2 shows the transition in moderate status over time (1991/92–2010/11) for all possible combinations of poverty status. As shown, three out of the four household types started out on an equal footing in 1991/92, with about 87 percent in moderate poverty; NPP households were the exception, with 91 percent in moderate poverty. The transitions that these household groups experienced over time differed as their participation status varied.

Among the PPP households, nearly 35 percentage points of the 87 percent that were moderately poor in 1991/92 had moved out of poverty by 1998/99. Furthermore, a great majority of these nonpoor households (about 27 percentage points) remained out of poverty at the time of the third survey

Table 6.2 Transition in Moderate Poverty Status by Microcredit Participation

Survey year	Transition in moderate poverty								Aggregate poverty status for the year		
Among continuous participants since 1991/92 (PPP)											
1991/92	87.4								12.6	87.4	12.6
1998/99	52.6		34.8		5.3		7.3		57.9	42.1	
2010/11	17.4	35.2	7.7	27.1	2.2	3.1	1.0	6.3	28.3	71.7	
Among continuous participants since 1998/99 (NPP)											
1991/92	91.0								9.0	91.0	9.0
1998/99	64.4		26.6		4.2		4.8		68.6	31.4	
2010/11	31.1	33.3	4.0	22.6	2.1	2.1	0.2	4.6	37.3	62.7	
Among new participants in 2010/11 (NNP)											
1991/92	87.6								12.4	87.6	12.4
1998/99	59.6		28.0		4.7		7.7		64.3	35.7	
2010/11	26.5	33.1	6.8	21.2	1.5	3.2	1.1	6.6	35.9	64.1	
Among nonparticipants in all three survey years (NNN)											
1991/92	86.7								13.3	86.7	13.3
1998/99	48.6		38.1		1.7		11.6		50.3	49.7	
2010/11	23.1	25.5	8.4	29.7	0.0	1.7	2.1	9.5	33.6	66.4	

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Shaded cells indicate the percent of moderately poor households and nonshaded cells show the percent of nonpoor households. These findings are restricted to 1991/92 microcredit-eligible households (i.e., those who participated in microcredit programs in 1991/92 and those who were eligible but did not).

round (2010/11). Among the nearly 53 percentage points of households out of the original 87 percent who remained poor in 1998/99, about 35 percentage points had moved out of poverty by 2010/11. Altogether, about 62 percentage points out of the original 87 percent of PPP households moved out of poverty over the 20-year period, implying a poverty graduation rate of nearly 72 percent.

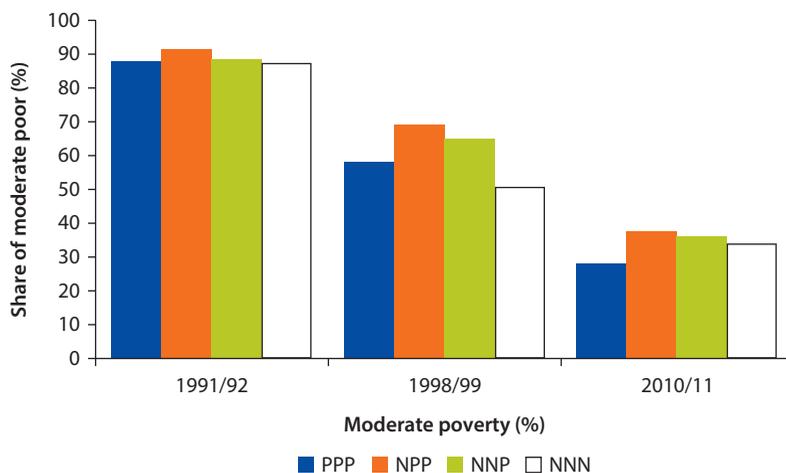
A similar analysis of the NNN households shows that, out of the nearly 87 percent who were moderately poor in 1991/92, about 55 percentage points had moved out of poverty by 2010/11, with a poverty graduation rate of more than 66 percent. NPP and NNP household types also showed significant reductions in moderate poverty, although less than PPP households. Figure 6.1 also summarizes the trend in moderate poverty reduction for the four household types over time (1991/92–2010/11). Overall, PPP households—those who were regular/continuous microcredit participants over the 20-year period—were found to have the lowest poverty rate in 2010/11, at about 28 percent.

Transition in Extreme Poverty Status

The reduction in extreme poverty showed similar progress for the four household types over time. Table 6.3 shows that, among the some 77 percent of PPP households considered extremely poor in 1991/92, the poverty graduation rate was about 85 percent by 2010/11. The graduation rates among NPP, NNP, and NNN household types were 80 percent, 82 percent, and 77 percent, respectively. Thus, PPP households had the highest poverty graduation rate, as well as the lowest incidence of extreme poverty in 2010/11, at about 13 percent.

Figure 6.2 summarizes the trend in extreme poverty reduction for the four household types over time (1991/92–2010/11). Summing up, the overall

Figure 6.1 Moderate Poverty Reduction over Time by Extent of Microcredit Program Participation



Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

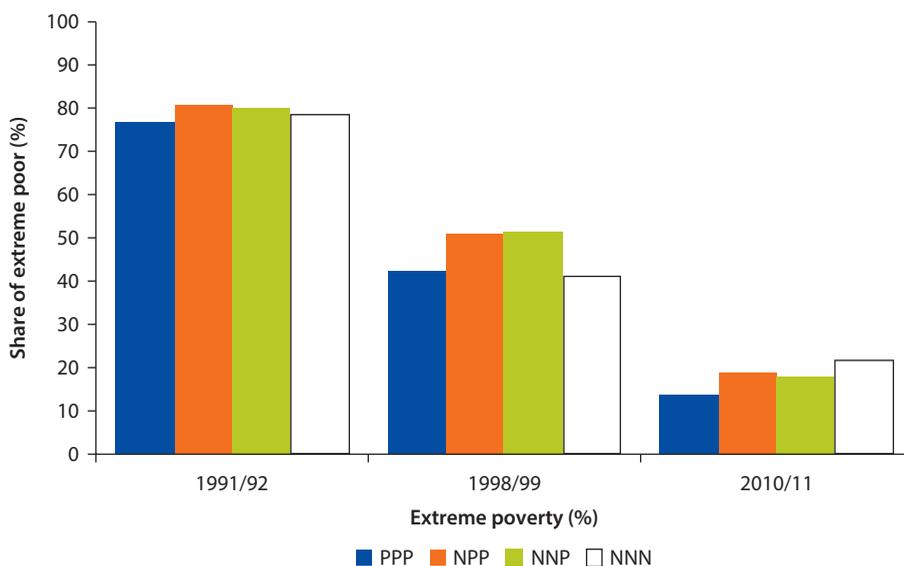
Table 6.3 Transition in Extreme Poverty Status by Microcredit Participation

Survey year	Transition in extreme poverty								Aggregate poverty status for the year	
Among continuous participants since 1991/92 (PPP)										
1991/92	76.7				23.3				76.7	23.3
1998/99	34.8		41.9		7.2		16.1		42.0	58.0
2010/11	6.8	28.0	4.7	37.2	1.0	6.2	0.9	15.2	13.4	86.6
Among continuous participants since 1998/99 (NPP)										
1991/92	80.3				19.7				80.3	19.7
1998/99	42.9		37.4		8.0		11.7		50.9	49.1
2010/11	11.4	31.5	4.6	32.8	2.1	5.9	0.6	11.1	18.7	81.3
Among new participants in 2010/11 (NNP)										
1991/92	80.0				20.0				80.0	20.0
1998/99	46.6		33.5		4.5		15.4		51.1	48.9
2010/11	10.8	35.8	3.5	30.0	1.1	3.4	2.5	12.9	17.9	82.1
Among nonparticipants in all three survey years (NNN)										
1991/92	78.4				21.6				78.4	21.6
1998/99	36.9		41.5		4.1		17.5		41.0	59.0
2010/11	7.6	29.3	10.2	31.3	1.6	2.5	2.1	15.4	21.5	78.5

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Shaded cells indicate the percent of extremely poor households and nonshaded cells show the percent of nonpoor households. These findings are restricted to 1991/92 microcredit-eligible households (i.e., those who participated in microcredit programs in 1991/92 and those who were eligible but did not).

Figure 6.2 Extreme Poverty Reduction over Time by Extent of Microcredit Program Participation



Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

findings confirm that the benefits of microcredit programs are higher for households that participated regularly/continuously than for those who participated irregularly (Khandker and Samad 2014).

Estimating Consumption and Poverty Effects of Microcredit Participation

The above analysis shows that participants and nonparticipants in microcredit programs appear to have performed equally well over the years in attaining higher living standards. Participants have done slightly better on average than nonparticipants for such outcomes as extreme-poverty reduction; however, the differences in poverty reduction between the two household groups are not substantially high. If both participants and nonparticipants fared equally well over the 20-year period, then the welfare gains could not necessarily be attributed to microfinance, but perhaps to overall economic growth that affected all groups equally over time. If participants would still have been better off, then what was the net effect of microcredit participation in this process?

One may counter this argument by saying that participants would probably have been worse off without microcredit because they were less capable than their nonparticipant counterparts. Earlier studies show a negative self-selection bias, suggesting that less capable households are more likely to participate in microcredit programs (Pitt and Khandker 1998). Estimating the causal effect of microcredit program participation requires an econometric analysis, which will show the effect of microcredit net of other changes in the economy that equally affected everyone in the society.

Given the methods employed in chapter 4 (based on appendix B), table 6.4 presents the p-score weighted FE and LDV model estimates of microcredit's impact on three measures of consumption and two measures of poverty. The R square fits well for most of the outcomes, ranging from 0.271 to 0.442. While men's borrowing matters little for the outcomes, women's borrowing matters for most outcomes. For example, a 10 percent increase in women's borrowing reduces both moderate and extreme poverty by about 0.1 percentage point.

The possibility that past consumption affects current consumption and poverty cannot be ignored in a long panel spanning more than 20 years; thus, the dynamic panel model is also covered, including the LDV as an additional regressor.¹² The reported findings based on the dynamic panel model vary little from those using the static FE model (table 6.4). Both the static and dynamic model results show that men's borrowing plays no role in improving consumption or reducing poverty. For women's borrowing, however, the dynamic model results, unlike those using the static model, show an improvement in per capita food expenditure. For other outcomes, the impacts of women's credit are smaller than those observed using the static FE model.

Table 6.4 Alternate Panel Estimates of Microcredit Borrowing Impacts on Household Outcomes
N = 1,509

<i>Microcredit loan variable</i>	<i>Log per capita total expenditure (Tk./month)</i>	<i>Log per capita food expenditure (Tk./month)</i>	<i>Log per capita nonfood expenditure (Tk./month)</i>	<i>Moderate poverty</i>	<i>Extreme poverty</i>
<i>p</i>-score weighted household FE model					
Log loans of household males (Tk.)	0.002 (0.73)	0.004 (1.13)	0.011 (1.24)	-0.003 (-0.61)	-0.002 (-0.67)
Log loans of household females (Tk.)	0.007* (1.72)	0.0003 (1.17)	0.016* (1.83)	-0.008* (-1.74)	-0.007** (-2.67)
<i>R</i> ²	0.375	0.271	0.442	0.300	0.333
<i>Dynamic panel LDV model</i>					
Log loans of household males (Tk.)	-0.002 (-0.80)	-0.002 (-0.95)	-0.002 (-0.33)	-0.002 (-0.76)	-0.004* (-1.79)
Log loans of household females (Tk.)	0.005* (1.87)	0.004* (1.80)	0.009* (1.78)	-0.006* (-1.95)	-0.005** (-2.38)
F statistics of the model	<i>F</i> (26, 86) = 27.12, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 24.80, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 25.40, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 9.18, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 8.00, <i>p</i> > <i>F</i> = 0.00

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Figures in parentheses are t-statistics based on standard errors clustered at the village level. Regressions include more control variables at the village level (e.g., price of consumer goods, male and female wages, and availability of schools). FE = fixed effect; LDV = lagged dependent variable.

Significance level: * = 10 percent, ** = 5 percent or less.

Marginal Returns to Consumption for Microborrowing?

While the above section presented the response elasticity of consumption with respect to borrowing, this section examines the marginal effects of microcredit borrowing on consumption to determine whether the returns to consumption from microborrowing are declining over time. Of course, the consumption effects of borrowing are only one among an array of welfare dimensions (e.g., income, assets, net worth, and education) that accrue from microfinance participation. By examining the returns to consumption over time, one can at least discover whether consumption gains have been declining from microborrowing when consumption smoothing needs are diminished with higher income accrued to borrowers of microfinance.

Table 6.5 shows the marginal returns to women's borrowing for three categories of per capita expenditure.¹³ The estimated returns are presented for both the static FE and dynamic LDV models. The results show that, for each Tk. 100 borrowed, a household's total annual expenditure increases by Tk. 2.3 using the static FE model and by about Tk. 1.9 based on the dynamic panel model. For the same amount of borrowing, the respective increases in nonfood expenditure are Tk. 1.5 and Tk. 1.2. These estimated gains are much less than those reported in Pitt and Khandker (1998) (Tk. 18 for Tk. 100 borrowed) and Khandker (2005) (nearly Tk. 21 for Tk. 100 borrowed), clearly showing that microcredit returns to consumption have diminished substantially over time. Given that the average cost of borrowing runs as high as 14.5 percent

Table 6.5 Marginal Returns to Women's Borrowing for Household Expenditure and Income

<i>Model used</i>	<i>Tk. per year/Tk. 100 borrowed</i>			
	<i>Total expenditure</i>	<i>Food expenditure</i>	<i>Nonfood expenditure</i>	<i>Income</i>
p-score weighted FE estimates ^a	2.30* (1.72)	0.77 (1.17)	1.47* (1.83)	-0.82 (-0.16)
Dynamic panel estimates ^a	1.87* (1.87)	0.89* (1.80)	1.15* (1.78)	8.72** (2.76)

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Figures in parentheses are t-statistics from the estimates of per capita expenditure reported in table 6.4. FE = fixed effect.

Significance level: * = 10 percent, ** = 5 percent.

a. Based on tables 4.5, 4.6, and 6.4.

(see chapter 3), the consumption gain is not enough to absorb the cost of borrowing. Since microfinance helps borrowers benefit in other ways than consumption gains, as demonstrated in chapter 4, the overall benefits of microcredit borrowing must be higher than its cost. Consider, for example, the marginal returns to income from microborrowing. As per table 6.5, participants get Tk. 8 for each additional Tk. 100 borrowed, gains higher than that of consumption gains.

Predicted versus Estimated Poverty Effects

In our estimation approach using both the static FE and dynamic panel models, we consider poverty as a dichotomous variable that takes a value of 1 if a household is poor and 0 if it is not poor. This means we must run a logistic distribution function with the panel data to obtain a consistent poverty estimate. But such an equation is not viable for panel data analysis; therefore, we used an FE (differenced ordinary least squares) and dynamic panel (LDV estimates). Because they are not the preferred way to estimate a dichotomous outcome equation,¹⁴ we also estimated the poverty effects from consumption effects, which is practiced in the literature. This was done using a three-step process. First, the coefficient of log per capita total expenditure from the regression of consumption was multiplied by the total per capita expenditure to obtain the change in total per capita expenditure due to borrowing. Next, this change was subtracted from the total per capita expenditure to obtain the preborrowing measure of total per capita expenditure. Finally, preborrowing poverty was calculated by comparing preborrowing per capita expenditure with the moderate or extreme poverty line. The poverty effect due to microcredit borrowing is the difference between the average of current poverty and that of preborrowing poverty.

These predicted poverty effects, shown in table 6.6, and the actual estimates of poverty effects, found in table 6.4, are about the same. For example, using the static FE model, both the predicted and estimated effects of women's borrowing on moderate poverty is -0.008; based on the dynamic panel model, the predicted

Table 6.6 Impacts of Microcredit Borrowing on Poverty Calculated from Estimated Effects of Per Capita Expenditure*N* = 1,509

<i>Microcredit loan variable</i>	<i>Calculated from p-score weighted FE estimates^a</i>		<i>Calculated from dynamic panel estimates^a</i>	
	<i>Moderate poverty</i>	<i>Extreme poverty</i>	<i>Moderate poverty</i>	<i>Extreme poverty</i>
Log male loans (Tk.)	−0.002 (−0.73)	−0.003 (−0.73)	0.003 (0.80)	0.002 (0.80)
Log female loans (Tk.)	−0.008* (−1.72)	−0.011* (−1.72)	−0.005* (−1.87)	−0.009* (−1.87)

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Figures in parentheses are t-statistics from the estimates of per capita expenditure reported in table 6.4. FE = fixed effect.

Significance level: * = 10 percent.

a. Reported in table 6.4.

effect is -0.005 , while the estimated effect is -0.006 . Whatever the relative merits and demerits of poverty estimates using alternative techniques, it is clear that microfinance reduces moderate and extreme poverty by about 1 percentage point per 10 percent increase in women's borrowing.

Impacts from Women's Participation

To better understand what the above findings mean for aggregate poverty reduction in rural Bangladesh, this section examines the impacts from microcredit participation (as opposed to borrowing), using both the static FE and dynamic panel models. The reported findings again show that women's participation matters most in estimating microcredit program effects (table 6.7).

As shown, women's participation increased total per capita expenditure by about 5 percentage points based on the static model and 6 percentage points based on the dynamic model. It also lowered moderate poverty by about 3 percentage points according to the static model and 6 percentage points for the dynamic model.

The 3 percentage point reduction in poverty among program participants can be used to estimate microcredit's role in aggregate (moderate) poverty reduction in rural Bangladesh. In 2010, rural Bangladesh had more than 19 million microcredit program borrowers.¹⁵ This means that, over the course of this 20-year study, about 0.57 million households, representing some 2.5 million rural people,¹⁶ were lifted out of poverty due to the microcredit intervention. Over that same period, aggregate poverty reduction in rural Bangladesh was about 25 percentage points for about 105 million rural people,¹⁷ implying that some 25 million rural people were uplifted from poverty. This means that nearly 10 percent of the poverty reduction in rural Bangladesh over that period can be attributed to microfinance.¹⁸

Table 6.7 Estimates of Microcredit Participation Impacts on Household Outcomes*N* = 1,509

<i>Microcredit participation variable</i>	<i>Log per capita expenditure (Tk./month)</i>			<i>Moderate poverty</i>	<i>Extreme poverty</i>
	<i>Total expenditure</i>	<i>Food expenditure</i>	<i>Nonfood expenditure</i>		
<i>p</i>-score weighted household FE					
Men's participation	-0.014 (-0.76)	-0.017 (-1.38)	0.011 (0.31)	0.0003 (0.01)	-0.051* (-1.82)
Women's participation	0.049** (2.09)	0.022 (1.43)	0.078** (2.54)	-0.029** (-2.14)	-0.034** (-2.11)
<i>R</i> ²	0.376	0.271	0.442	0.300	0.333
<i>Dynamic panel LDV model</i>					
Men's participation	-0.034 (-1.25)	-0.016 (-0.92)	-0.041 (-0.90)	0.003 (0.10)	-0.030 (-1.18)
Women's participation	0.062* (1.82)	0.052* (1.76)	0.083* (1.95)	-0.060* (-1.73)	-0.041* (-1.70)
F statistics of the model	<i>F</i> (26, 86) = 29.90, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 22.73, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 27.08, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 9.16, <i>p</i> > <i>F</i> = 0.00	<i>F</i> (26, 86) = 7.67, <i>p</i> > <i>F</i> = 0.00

Sources: World Bank/BIDS survey 1991/92 and 1998/99; World Bank/InM survey 2010/11.

Note: Figures in parentheses are t-statistics based on standard errors clustered at the village level. Regressions include more control variables at the village level (e.g., price of consumer goods, male and female wages, and availability of schools). FE = fixed effect; LDV = lagged dependent variable.

Significance level: * = 10 percent, ** = 5 percent or less.

Summary

To determine whether microcredit participants are trapped in poverty, as speculated in the public domain in recent years, this chapter examined the trend in welfare gains over the 20-year period covered by the three survey rounds (1991/92, 1998/99, and 2010/11). Our analysis was restricted to panel households of microcredit program participants and nonparticipants. The descriptive analysis found that participants fared better than nonparticipants for certain outcomes, while nonparticipants did better for others. Although simple comparisons do not prove a causal role of microfinance, the simple differences across participants and nonparticipants show the direction of changes in welfare gains over time. Our findings show that poverty rates for both groups fell substantially over time. For participants, extreme poverty fell from 77.8 percent in 1991/92 to only 14.0 percent in 2010/11; the corresponding figures for nonparticipants were 77.7 percent and 22.0 percent.¹⁹

No doubt, many economic changes occurred in Bangladesh over the 20-year period covered by the three survey rounds beyond the expansion of microcredit, including physical infrastructure and economic policies that may have contributed to the welfare status of both participants and nonparticipants. Also, nonparticipants may have gained from the spillover effects of microcredit expansion over that period. In such a setting, even with the long panel survey data, it is difficult to isolate the net effects of microcredit expansion on the welfare gains of borrowers over time. Thus, this chapter addressed the critical issue: What

would have happened to participants over that 20-year period without micro-credit programs?

The study used an econometric estimation technique that took into account the time-varying endogeneity of program borrowers (i.e., certain households borrowed from microcredit and remained borrowers while others did not, even though both groups were eligible to participate and borrow from the outset). Using two robust techniques to control for time-varying, unobserved household- and village-level heterogeneity (i.e., p-score weighted FE and dynamic panel LDV models), we found that program borrowing has indeed mattered for consumption and poverty reduction gains, and more for women than for men. The results show that microcredit has helped to increase consumption and, in the process, reduce both moderate and extreme poverty. Thus, counter to a common perception about a poverty trap among microfinance participants, we find that borrowers on average have gained in terms of improved consumption and reduced poverty and thus are not necessarily trapped in poverty as argued anecdotally. In fact, our results show that 10 percent of the total reduction in poverty among the rural population over the last 20 years—2.5 million rural people out of 25 million—can be attributed to microfinance.

Notes

1. According to the Consultative Group to Assist the Poor (CGAP), microfinance beneficiaries total more than 200 million worldwide. In Bangladesh alone, about one-fifth of the country's 150 million people—including three-fifths of rural households—are members of microfinance institutions.
2. A recent experimental study carried out in Mexico found more positive than negative impacts on average for various dimensions (Angelucci, Karlan, and Zinman 2013).
3. RCT studies have their own methodological weaknesses and thus are not always necessarily better than non-RCT studies (Deaton 2010; Ravallion 2012; Rodrik 2008). Because microcredit operations are small in scale, realizing their impacts may exceed one or two years, which is the typical time frame for minimizing the spillover effects and contamination for most RCT studies (Hermes and Lensink 2007). In fact, the seminal study of Pitt and Khandker (1998), which uses an innovative quasi-experimental design, relies on borrowing data collected over a five-year period from areas where microcredit had been in operation for at least three years.
4. Roodman and Morduch have been critical of the underlying methodology of Pitt and Khandker (1998), the most cited study in the literature on microcredit impacts. Roodman and Morduch (2011) is the most recent in a series of papers and postings that seek to refute the findings of Pitt and Khandker. In 2012, Pitt and Khandker revisited the claims of Roodman and Morduch, observing a lack of due diligence in their replication of the Pitt and Khandker study and confirming that none of their statistical claims invalidate the findings of Pitt and Khandker on the substantial positive effects of microcredit, especially among women borrowers (see also Pitt [2014] for details).
5. In Mexico, Angelucci, Karlan, and Zinman (2013) found that, even at 110 percent interest rate, microfinance had more positive than negative benefits; thus, interest rate

is not a major concern in cases where returns to microinvestment are high enough to support such investments with borrowed funds from the MFIs.

6. Households trapped in poverty are those that participated in microcredit programs but failed to lift themselves out of poverty; in addition, households that continued to borrow but could not raise their assets compared to their debt over time are also trapped in poverty.
7. We considered income along with other indicators of welfare in chapter 4. This chapter considers the effect of microfinance on consumption and poverty.
8. The calculation of moderate poverty is based on the official poverty line, which includes the food poverty line and an allowance for nonfood expenditures. The food poverty line is calculated by estimating the cost of a food basket needed to maintain the per capita daily caloric requirement (2,120 calories) recommended by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) (FAO/WHO 1973). For Bangladesh, the food basket contains mainly rice, along with such other food items as pulses, milk, meat, fish, fruits, and vegetables in specific quantities. The cost of the food basket is calculated from the local prices for the food items. By contrast, extreme poverty is defined by the household's total consumption expenditure on food and nonfood falling short of the food poverty line.
9. Eligible households are those who participated in microcredit programs and those that could have participated but did not; eligible households constituted 83 percent, 87 percent, and 99 percent of the households surveyed in 1991/92, 1998/99, and 2010/11, respectively.
10. This finding appears counterintuitive since nonparticipants had slightly higher incomes and expenditures, compared to program participants. However, this is possible because the expenditure of participants who were extremely poor grew more than that of extremely poor nonparticipants, while nonparticipants that were moderately poor or nonpoor did better than their participant counterparts.
11. The abbreviations for the four household types—PPP, NPP, NNP, and NNN—denote participation status across years, where P stands for participation and N for nonparticipation; the leftmost letter refers to the household's participation status in 1991/92, while the middle one refers to its status in 1998/99 and the rightmost in 2010/11. For example, NNP refers to those households who were nonparticipants, according to the 1991/92 and 1998/99 survey data, but who were participants, according to the 2010/11 data.
12. The rationale and derivation of the dynamic panel model are provided in appendix B.
13. Only women's borrowing is considered because the consumption effects of male borrowing are not statistically significant.
14. The problem with the FE logit model is not that it cannot be run but that it drops many observations (i.e., those whose poverty status do not vary over time); such a drop in observations is not necessarily random, casting doubt on the results.
15. This number of borrowers was obtained from "NGO-MFIs in Bangladesh," Vol. 7, June 2010 (cleancookstoves.org/resources/105.html).
16. This number assumes an average household size of 4.3.
17. These figures are based on a national population of 150 million in 2010, 70 percent of whom were living in rural areas.
18. According to the LDV estimates, about 20 percent of the poverty reduction over the last 20 years can be attributed to microfinance. That is, 1 percent poverty reduction

due to microfinance every year. This is similar to 1 percent poverty reduction rate per year observed in an earlier study (Khandker 2005).

19. One should note that the difference in poverty reduction rates is above the attrition rate of 7.4 percent, indicating that the finding is robust.

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