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Impact of Microfinance on Poverty and Vulnerability: A Review of the Existing Evidence in Bangladesh

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ABSTACT

Bangladesh has been at the forefront of microfinance for more than four decades. This article reviews current evidence on the impact of microfinance on poverty and vulnerability in Bangladesh. Existing evidence on the impacts of microfinance on poverty reduction is mixed – few studies have reported significant positive impacts, while others have yielded contested findings. A few studies have suggested heterogeneous impacts, depending on households' socio-economic and community backgrounds. The limited literature on vulnerability suggests that microfinance generally helps households cope with shocks, though evidence remains sparse. The review suggests that future research should examine aggregate economic outcomes and evaluate the impacts of extreme poverty programs. They should investigate the impacts of microfinance on covariate shocks such as climate events. They should also assess



how social capital, debt cycles, and the seasonality of labour markets mediate household resilience.

Keywords: Microcredit, Microfinance, Impact evaluation, Poverty, Vulnerability, Resilience, Shocks

JEL classification: O10, I30

INTRODUCTION

Microfinance constitutes an important source of finance for poor households in low-income and developing countries¹. Microfinance institutions (MFIs) are the major stakeholders in poverty-reduction programs of these countries. Poor households in these countries usually don't have collateral, so the formal banking sector is not inclined to offer loans to them. In such circumstances, they have to rely on various informal sources for credit, which usually charge exorbitant interest rates. During the last couple of decades, the MFIs have played a pivotal role in providing poor households with collateral-free microloans, thus relaxing their credit constraints.

Bangladesh is a lower-middle-income country² with a per capita national income of \$2,784 [1]. It has attained notable progress in reducing poverty over the last few decades; however, according to the Household Income Expenditure Survey (HIES) 2022, still about 18.7 % of the people live below the national Upper poverty line and 5.6 % below the national Lower poverty line [2]³.

¹ The term “microfinance” is used to refer to a broad spectrum of financial services provided to low-income individuals including micro-credit, micro-savings, micro-insurances, and also often some support services. This article uses “microcredit” and “microfinance” synonymously throughout the text.

² According to World Bank country classification.

³ Poverty lines refer to a threshold minimum per capita expenditure required to purchase the basic consumption bundle of food and non-food items. The HIES constructs two poverty lines using the Cost of Basic Needs (CBN) method to estimate the head count poverty rates in the country. According to HIES 2022, the estimated Lower and Upper

Although the country has achieved moderate economic growth in recent years, its benefits have not trickled down to most of its population. This has resulted in high inequality of income and wealth in the country. Apart from poverty and inequality, vulnerability to various types of shocks constitutes one of the crucial challenges in the country. From a household survey in Bangladesh, Santos et al. [3] found that more than half of households had experienced one or more shocks during the year preceding the survey. In another study, Osmani et al. [4] found that as many as 40% of rural households in Bangladesh had faced some economic shocks during the three years preceding the survey.

Bangladesh is the leading country that pioneered microfinance. Since its inception in the nineteen-eighties with the Grameen model, the MFIs have been serving millions of poor clients, especially women, by providing them with microloans and microinsurances, generating microsavings, and engaging them in various types of income-generating activities, etc. In 2022, the total number of microfinance members in Bangladesh was 66.44 million, of whom 44.66 million were borrowers (about 90% of them being women). The MFI clients comprise 23% of the population [5]. However, the role of microfinance in poverty reduction remains controversial. This paper aims to review the role of microfinance in addressing poverty and vulnerability in Bangladesh. The novelty of the article rests on two counts. *First*, empirical literature on microfinance's impacts in Bangladesh has adopted diverse methodologies and data, and arrived at conflicting findings. Given this, there is a relative scarcity and lack of studies aiming to synthesise the findings of such literature. The article aims to fulfil this deficit by extracting the salient findings of the

poverty lines are BDT 2,755 and BDT 3,822 per capita per month (See detail in BBS, 2023).

major empirical studies in Bangladesh. *Second*, existing studies have paid more attention to exploring microfinance's impacts on the current poverty status of households. A significant but less explored area in this respect is its impacts on household poverty-dynamics (i.e., shocks and vulnerability). There has been growing interest in this area in recent times, although there is a relative paucity of such literature. The article attempts to review the findings of such literature.

AN OVERVIEW OF MICROFINANCE INSTITUTIONS IN BANGLADESH

The institutions providing microfinance in Bangladesh can be grouped into a few categories – (i) NGO-MFIs licensed by the Microcredit Regulatory Authority (MRA). The major NGOs under these MFIs are – BRAC, ASA, BURO Bangladesh, TMSS, etc.; (ii) Grameen Bank as a specialised institution; (iii) various Government departments/ institutions/ special programs; and (iv) government and nongovernment banks.[49] These institutions provide multiple types of loans, such as general microcredit, ultra-poor loans, microenterprise loans, home loans, agricultural loans, etc.

As of June 2024, 724 licensed MFIs with 26,071 branches were operating in Bangladesh. The total number of clients served by these MFIs was 41.55 million. In addition, another 22.84 million clients were served by Grameen Bank, various Government departments, and Government and Non-government Banks.[50] Thus, the total number of microfinance members in Bangladesh was 64.39 million, of whom 46.07 million are borrowers. About 90.82% of the MRA-licensed MFI clients are women. The microfinance sector provided 1,976.17 billion BDT as outstanding loans and 972.81 billion BDT as outstanding savings in 2023-24 [6].

**Table 1:** Few statistics on the microfinance sector in Bangladesh (FY 2023-24)

Description	Member (millions)	Borrowers (million)	Outstanding Loan (billion BDT)	Savings Outstanding (billion BDT)	Loan disbursement (billion BDT)
MRA licensed MFIs	41.55	32.17	1,594.10	685.91	2,615.24
Grameen Bank	10.61	7.25	165.93	226.03	246.87
Others ¹	12.23	6.64	216.14	60.87	143.2
Total	64.39	46.07	1,976.17	972.81	3,005.31

Note: ¹refer to various government departments/institutions/special programs and government and non-government banks.

Data source: [6]

During 2010-2024, the number of MFI members increased by 64.36%, and the number of borrowers increased by 67.46%. At the same time, the amount of outstanding loans increased by 10.99 times and outstanding savings increased by 13.35 times (Table 2). The trend of the MFI amount of outstanding loans and savings is shown in Figure 1. These statistics reveal that the MFI sector has continuously expanded during the last decade, which indicates the profound significance of the sector in Bangladesh's economy.

An important feature of Bangladesh's microfinance market is that it is heavily concentrated on a few dominant MFIs. Among the licensed NGO MFIs, the top two microfinance providers account for about 41.4% of the members, 44.7% of outstanding loans, and 48.9% of outstanding savings. The corresponding figures for the top-five NGOs are 53.9%, 58.0%, and 61.7%, respectively.



Table 2: The trend of activities of the MFIs during 2010-2024

Particulars	2009-10	2014-15	2019-20	2023-24
Number of branches	17,252	15,609	20,898	26,071
Number of employees	109,597	110,781	171,110	223,459
Members (million)	25.28	26.00	33.31	41.55
Borrowers (million)	19.21	20.35	26.15	32.17
Loan disbursement (billion BDT)	306.72	633.35	1,362.75	2,615.24
Loan outstanding (billion BDT)	145.02	352.41	888.64	1,594.10
Savings (billion BDT)	51.36	135.41	373.9	685.91

Data source: [4], [6]

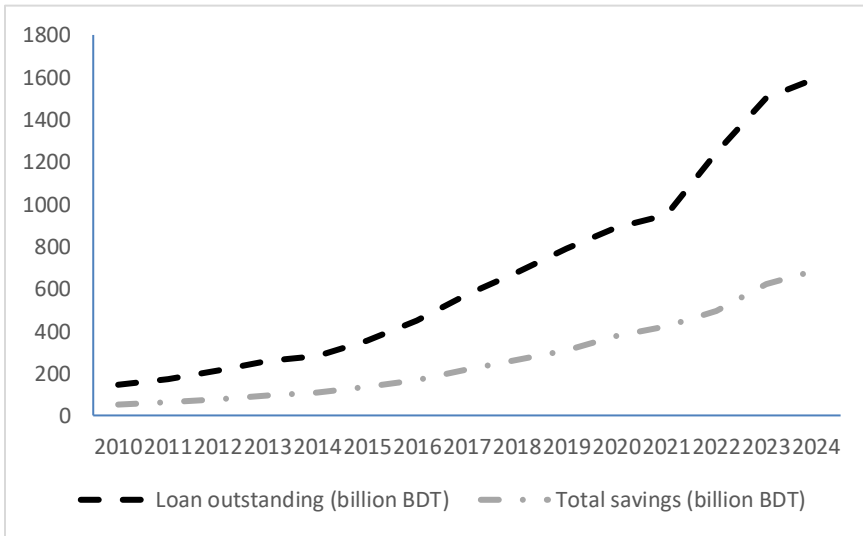


Fig. 1: The trend of outstanding-loans and outstanding-savings during 2010-2024

Data source: [6]

METHODOLOGY

The study has adopted a narrative review framework to synthesize the salient findings of the major studies relating to the impacts of microfinance on poverty and vulnerability in Bangladesh. Impact evaluations of microfinance programs are methodologically

challenging. Identifying credible estimates of microfinance’s impact is difficult because “microfinance”, as an explanatory variable in a quantitative econometric framework, usually suffers from the endogeneity bias. Two common sources of bias, which are intensively discussed in the literature, are – participants’ “self-selection”, and “non-random program placement.” Participants’ self-selectivity arises due to the unobserved heterogeneity among them, such as the unobserved differences in motivation, entrepreneurship skills, risk-taking attitudes, etc., which causes exogenous impact evaluation of programs difficult. Moreover, the MFIs often select relatively solvent and prosperous areas to operate their programs to ensure better repayment, which causes the program placement bias and makes exogenous impact evaluations challenging. Therefore, I have considered the following criteria for inclusion of an article for review in this study: (i) the article has undertaken empirical strategies in dealing with the endogeneity bias; and (ii) the article is published in peer-reviewed journals, scholarly books or academic sources.

Table 3: Concentration of MFI activities in Bangladesh (June, 2022)

	MFI share as % of total					
	Number of branches	Number of members	Number of borrowers	Loan outstanding	Loan disbursement	Saving outstanding
Top two	24.44	41.43	41.53	44.70	46.60	48.88
Top five	35.82	53.92	53.80	58.00	59.09	61.72
Top ten	45.64	60.90	60.52	67.18	67.52	67.52

Note: The author compiled and estimated this based on data provided in the MRA Annual Statistics (June 2022) and *Barshik Protibedon* (in Bengali) 2022.

The top-two MFIs are BRAC and ASA, and the top-five are BRAC, ASA, BURO Bangladesh, TMSS, and the Society for Social Service (SSS).

Microfinance and poverty reduction: what do we know so far

Earlier studies on the causal impacts of microfinance on poverty reduction in Bangladesh did not adequately address the self-selection problem. The seminal work by Pitt & Khandker [7] was perhaps the first attempt to address the issue. The authors estimated the impact of microfinance on three lending institutions in Bangladesh, using data from a cross-sectional survey conducted in 87 villages of 29 thanas (sub-districts) in Bangladesh during 1991-92. The author used the program eligibility criteria (i.e., the landownership cut-off point) as the exogeneity rule to identify the program effect, using the “regression discontinuity design” in a limited information maximum likelihood (LIML) framework. They assumed that the households having above 0.5 acres of land are excluded from participating in the program; and so, a comparison between “households with program choice” and “households without program choice”, subject to other village-level and household characteristics, would provide the treatment effect of microcredit. They estimated the program impacts on six outcome indicators, estimated separately for men and women program participants - (i) boys’ schooling, (ii) girls’ schooling, (iii) men’s labour supply, (iv) women’s labour supply, (v) per capita total expenditure, and (vi) women’s non-land assets. They found that microcredit has significant positive impacts on all six variables when the program participants are female, while it has significant positive impacts on only one of these variables for male participants.

A longstanding debate has been continuing since the publication of Pitt & Khandker [7]. Several studies have replicated the study and raised concerns about microfinance’s significant impacts on

poverty reduction. Morduch [8] replicated Pitt & Khandker using the same survey data. He argued that the regression discontinuity design, followed by the authors, is not reliable because the lending institutions did not strictly adhere to the landownership eligibility criteria. He mentioned,

“But the idea cannot be implemented reliably in this sample. The data demonstrate frequent violation of the rules. For example, 30% of Grameen borrowers owns more than the half-acre cut-off, with landholdings as large as fourteen acres. Among households labeled in the survey as ‘eligible’ to borrow and with access to programs, the fraction of borrowers is nearly twice as high for those holding over half an acre versus those below (63% versus 34% for the three programs combined). A solution is to turn the sampling strategy on its head. While the sample was designed so that the control groups are comparable to the ‘treated’ groups, the rule violation require that the treatment group be redefined in order to bring them into conformity with the controls” [8: p-4].

He redefined the treatment group by following the “de-jure eligibility rule”, excluding households with more than 0.5 acre of land from the treatment group, in contrast to Pitt & Khandker’s “de-facto eligibility criteria” based on program participation. He used simple difference-in-difference technique to estimate the average program impacts on the same variables. He found that the treatment group did not show “higher consumption” and “higher enrollment of children” as compared to the control group. He also found that the treatment group had lower variation in consumption across seasons, indicating the “consumption-smoothing” role of microfinance rather than the “poverty-reduction” role.

Pitt [9] refuted Morduch [8] and argued that he “misunderstood and mischaracterised the method of Pitt & Khandker and applied incorrect methods to obtain his new evidence.” He provided further clarification about how the credit programs were allocated, how the eligible households made their decisions to participate in the program, and how these decisions affected household outcomes. As he wrote,

“Indeed, it is easy to show that taking program households with more than ½ acre of land and treating them as ineligible is precisely the wrong direction to take. The much better procedure is to take nonprogram households with somewhat more than ½ acre of land and treat them as if they have choice, not to take program households and treat them as if they are not program participants. Dropping from the sample those households owning more than ½ acre of land that are program participants imparts classical sample selection bias to any estimates of program effects” [9: p-4]

He re-estimated the results of Pitt & Khandker [7], raising the program eligibility cut-off – i.e., treating households with more than 0.5 acres as eligible households and below the cut-off as ineligible households. Thus, he re-estimated the results for different eligibility rules, with landownership values 0.66, 1.20, 1.60, and 2.00 acres. He found that the results of Pitt and Khandker are still consistent with these new eligibility cut-offs.

Chemin [10] conducted another replication of the study using the propensity score matching (PSM) technique. He found positive impacts of microfinance on per capita expenditure, supply of labour, and children’s education; however, he claimed a lesser magnitude of the impacts than what had been claimed by Pitt & Khandker. Duvendack & Palmer-Jones [11] replicated Chemin [10], conducting the sensitivity of PSM results on the same

outcome variables. They found that the PSM results of Chemin are not robust, and they outright rejected the claims that microfinance has a significant impact on poverty reduction. In another replication, Roodman & Morduch [12] highlighted that the findings of Pitt & Khandker is susceptible due to the flaws involved in its identification strategy, violation of critical assumptions, lack of robustness to alternative methods, vulnerability of findings to the existence of outliers, etc. Pitt [13] again refuted these criticisms by forwarding further methodological details and re-estimations.

It is often argued that the impact-evaluation results based on cross-sectional studies may not be robust and that the consistency of the estimates of such studies may not hold in alternative methods. Khandker [14] carried out a study using a household-level fixed effects model in a two-period panel data. He found that the female-borrowing of microfinance has significant and positive impacts on increasing per capita household consumption, which corroborated the cross-sectional findings of Pitt and Khandker's study.

Razzaque [15] measured the impact of microfinance on poverty reduction based on a panel survey conducted in four rounds in Bangladesh during 1999-2005. Using panel fixed effects and panel tobit model with random effects, the study found strong and positive impacts of microfinance borrowing in increasing household per capita income and stock of assets and lowering the incidence of poverty. Imai & Azam [16] conducted another study using a nationally representative panel data, covering four rounds of survey during 1997-2004. They used different versions of the household fixed effects models and difference-in-difference propensity score matching (DID-PSM) method and found

significant positive impacts of microfinance on household income and food consumption.

Recently, a good number of randomised control trials (RCTs) have been conducted in a few countries to examine the impact of microcredit on poverty reduction. With a few exceptions, the general upshot from the findings of such studies is that microcredit does not have transformative effects, although it has some positive impacts on a few other indicators, such as business expansion, liquidity, risk management, intra-household decision-making, women empowerment, etc. [17], [18], [19], [20], [21], [22].

Khandker & Samad [23] claimed that the RCT studies may not reflect the true impacts since they typically evaluate programs shortly after intervention. They examined the long-term effects of microfinance using a longitudinal panel survey conducted in three-periods (1991/92, 1998/99, and 2011/12). They used the household-level fixed effects method and found that participation in the microcredit program increases per capita household income and reduces extreme poverty. They also found that the magnitude of the impact is more profound among the continuous participants than the irregular participants. Islam [24] also observed similar findings on a panel survey conducted over a longer time horizon in Bangladesh.

While the average impact of microfinance may be harmful or small, its effect may be significant for some groups. Khandker, Khalily & Samad [25] argued that microfinance may benefit certain groups, although the “benefits may not be large enough to outweigh the negative effects of others.” The authors used a three-period panel survey in a propensity score fixed effects model. They found that the large landholders (having greater than 2.5 acres) received income-gain from the microfinance, but the marginal holders (less than 0.5 acres) and small and medium holders (0.5-

2.5 acres) did not gain. While all households gained in terms of other outcomes, such as male and female labour supply, non-land assets, and net worth, the large and medium holders gained more than marginal holders. Similarly, they found that households with heads with better educational attainment performed better than those with less attainment. They also found that households in villages with better electricity connections and road access benefited more from the program. Based on quantile regression, they found that households with lower expenditure quantiles received more benefits, in terms of household income and expenditure, than households with higher quantiles. In another study in Bangladesh, Islam [26] found that the causal effect of microcredit on household consumption expenditure varied across different groups, with the poorest of the poor receiving more benefits.

Impact evaluations of microfinance programs typically examine their impacts on the beneficiary level; however, less attention has been paid towards investigating aggregate-level impacts. Critics have raised concerns that the microfinance model has been detrimental to sustainable poverty reduction and long-run economic and social development at the community and national level, although it may be beneficial for a few lucky individuals who have been able to secure gains in the short run. Excessive dominance and proliferation of informal microenterprises financed through the MFIs have saturated the local economies in some countries, causing high competition, reduced turnover, and enterprise failure. The mushrooming growth of tiny informal enterprises has diverted scarce financial resources away from the more productive and efficient small-and medium-sized enterprises (SMEs), thus undermining the bottom-up industrial development at the local level [27]. Although a few studies found microfinance's positive impacts on non-participants through positive spillover

effects [14], [23], there is a relative scarcity of studies which have adequately investigated the local-economy or aggregate-level impacts of microfinance in Bangladesh, and future research should focus more on these issues.

While the ultra-poor households usually don't have access to traditional microfinance programs, given their lack of entrepreneurial ability and inability to pay the regular repayment installments, the MFIs in Bangladesh have launched some targeted programs in the last two decades. BRAC's Ultra Poor Graduation (UPG) program provides a multipronged intervention to graduate extremely poor households in 24-months tenure. PKSF and Grameen bank also have been launching programs to combat extreme poverty and hunger. However, apart from the project evaluation reports, independent impact evaluations of such programs have been very scarce in Bangladesh. Future studies should focus more on the impacts of such programs, particularly if these programs have sustainable impacts on reducing extreme and chronic poverty.

Microfinance and vulnerability to shocks in Bangladesh

A primary concern associated with the poverty dynamics in developing countries is households' exposure to various shocks. There are two types of shocks as classified in the literature. "Idiosyncratic" shocks are those faced by an individual household, such as the death of livestock, loss in business, a large expenditure caused by the illness of a member of the household, or the death of the income earner. "Covariate" or "systemic" shocks affect many people or households with similar characteristics, such as the households of a particular region or community (for example, shocks due to flood, drought, earthquake, etc.).

Recent literature has suggested the greater role of microfinance in reducing shocks and vulnerability [4], [28], [29], [30], [31],

[32], [33], [34], [35], [36], [37], [38]. Theoretically, microfinance reduces households' vulnerability to shocks in several ways. MFIs typically provide loans for financing non-farm activities. Income streams from such activities are not subject to seasonal shocks, as is the case with agricultural activities. Loans given for production activities also release beneficiaries' funds from other sources of borrowing, thus enabling them smooth consumption by relaxing their liquidity constraints in the face of adverse shocks [38]. Recipients of microfinance are typically engaged in different income-generating activities, so they are more resilient to shocks due to having diversified sources of income. Sometimes, microfinance programs impart skill-development training such as financial literacy, entrepreneurship skills, etc., giving them greater confidence to cope with shocks. Moreover, the recipients of microfinance have better social networks; so, they can borrow from a mutual support system rather than selling an asset, depleting savings or stopping children from going to school, etc. [4], [36]. In recent years, there has been a body of literature which has emphasised the role of microfinance as an important tool for climate change adaptation [33], [39], [40]. Hammill et al. [39] has outlined a conceptual framework for understanding the link between microfinance, vulnerability, and adaptation to climate change. The authors have used the livelihood framework in which the three microfinance products – microcredit, microinsurance, and microsavings – increase the assets and capabilities of the poor through direct and indirect income effects and thus reduce vulnerability.

A few studies have expressed negative views about the role of microfinance in reducing vulnerability to shocks. Such studies have argued that microfinance may not reduce vulnerability if it is used for consumption rather than income-generating activities and may even increase vulnerability by increasing over-indebtedness

[31], [32]. Even when loans are used for income-generating activities, they may not end in a profitable venture, thus exacerbating the poverty and impoverishment of the borrowers rather than reducing their vulnerabilities. Microfinance borrowers often use multiple loans to repay existing loans, which causes them to fall into a spiral of debt. The MFIs use aggressive loan recovery techniques by introducing a culture of surveillance among the group members and endangering public shame of the defaulters, which worsens the solidarity within the community network rather than improving it [41]. There are instances of selling lands or even body organs to repay debts. In India, there have been reports of hundreds of suicidal cases due to increased impoverishment and indebtedness caused by microfinance loans [42], [43].

In Bangladesh, there are very few studies which have investigated microcredit's impact on vulnerability. Islam & Maitra [36] estimated microcredit's impact in mitigating the effect of idiosyncratic health shocks in rural Bangladesh based on a large panel dataset. They used the IV-2SLS framework and concluded that households having access to microcredit either don't need to sell productive assets, such as livestock, in the face of health shocks, or if required, they don't need to sell as many productive assets as compared to those not having access to microcredit. They suggested that microcredit mitigates the negative effects of idiosyncratic health shocks by playing the role of insurance. In another study in rural Bangladesh, Osmani et al. [4] came up with similar findings and argued that microcredit-recipient households are better able to protect their asset base in the face of economic shocks than non-recipient households.

Microfinance can mitigate the adverse employment shock by providing poor households with alternative employment opportunities and reducing their dependence on distress labour

sales during the lean season of agriculture, which is typical in the rural areas of north-western districts in Bangladesh. Pitt & Khandker [38] observed that smoothing lean-season consumption poverty and male labour supply are important motivations of the poor households in participating the credit programs. Berg & Emran [37] conducted a study among a large dataset of poor and ultra-poor households in northern Bangladesh. They used the IV-2SLS approach and found robust positive evidence that microfinance increases poor households' ability to cope with seasonal food deprivation, although they did not find a significant impact of microfinance in reducing distress labour sale. They also found negative association of MFI membership with the probability of short-term migration during seasonal famine.

Since the standard repayment obligation of MFIs can potentially increase the vulnerability of the borrowers during natural disasters, most MFIs in Bangladesh have started launching a contingent repayment system since 2002, which allows rescheduling the loan and savings instalments during natural disasters. A study conducted by Shoji [44] found that the contingent repayment system helps poor households smooth food consumption during natural disasters. While contingent repayment acts as a safety net for borrowers during negative shocks, it might have significant implications on the financial sustainability of the MFIs due to the arrears caused by the rescheduling of the loans, and there is scope for further research on this issue.

CONCLUSION

With a per capita national income of \$2784, Bangladesh is a lower-middle-income country. Despite having considerable success in attaining growth and poverty reduction in the last few decades, as high as 18.7 % of the population lives below the poverty line [2]. Microfinance occupies a central feature amongst

the poverty reduction programs in Bangladesh. During the last couple of decades, the country has pioneered microfinance programs. However, the role of microfinance in poverty reduction still remains unresolved and disputed in the development economics literature. In this article, I have reviewed the major studies investigating the poverty-reducing impacts of microfinance in Bangladesh (Table A-1). The most authoritative study, based on a cross-sectional survey, is by Pitt & Khandker [7]. The study found significant positive impacts of microfinance on poverty reduction. The study came under intense scrutiny and criticism due to its survey design and various associated assumptions. Among the studies that replicated Pitt and Khandker, a few have outright rejected the claims about microfinance's significant impacts on poverty reduction [8], [11], [12]. One study has underestimated the magnitude of the impact [10], although it does not nullify the positive impacts. However, all the studies using panel data have found significant positive impacts of microfinance on poverty reduction [14], [15], [16], [17], [23]. While the RCT studies conducted in a few countries cast doubt on the transformative effects of microfinance, few authors argue that the RCT studies may not reflect the true impacts since these studies are typically conducted shortly after completion of the intervention. They argue that impact evaluations should focus on the long-term rather than the short-run impacts. Islam [24] argues that the conventional impact evaluations of microfinance are primarily based on short-term effects, and they produce biased estimates since the impact changes with the change in the duration of participation. Some authors also suggest that the impact evaluations should focus on the heterogeneous impacts rather than the average or marginal impacts, since the impacts may change with various individual, community, or socio-economic characteristics. Therefore, although

the average impacts of microfinance may be negative or small, it may be positive or substantial for certain groups [26].

It is often argued that MFI loans support small-scale informal activities and that such small-scale transactions simply redistribute income within the local community, which may have very little or no impact on the growth of the local economy or aggregate poverty reduction in the economy. It may, therefore, be important to examine various spillover effects of MFI operations on the local economy rather than impacts at the participant's level. These studies should examine microfinance's impacts on the local credit market and the allocation of loans to small and medium enterprises (SMEs), demands of the local economy and market prices, competition among the informal small enterprises and their turnover and the degree of saturation of the MFIs, employment generation, inequalities, community networks, etc. It is also important to collect periodic surveys and construct panel data so as to conduct scientific studies aimed at investigating the community and village-level impacts of microfinance rather than participant-level impacts.

In recent years, MFIs have introduced some targeted programs towards alleviating extreme poverty in Bangladesh; a few of these programs has widespread coverage. However, there are very few studies in the country, which have empirically investigated the impacts of such programs. Khandker, Khalily & Samad [46] found that one such program, called PRIME, was more effective than regular microfinance programs in tackling hardcore poverty and seasonality. However, the author wrote - "given that PRIME has been operational only since 2006 and our follow-up survey was done in 2008/09, it is perhaps premature to say whether it equal or surpass regular microfinance in tackling poverty and seasonality" (p-39). Therefore, in order to better understand if these programs

have sustainable impacts in reducing extreme and chronic poverty, the follow-up studies of such programs should be designed so as to capture their long-terms impacts on poverty reduction.

In recent years, a body of literature has emerged which has investigated whether microfinance reduces or exacerbates vulnerability to shocks. Such studies are still limited in numbers [45], and I have reviewed a few major studies conducted in Bangladesh (Table A-2). All of these studies have found positive impacts of microfinance in addressing vulnerability to shocks. Some of these articles have highlighted microfinance's positive impacts in protecting the assets of the participants while faced with negative shocks [4], [36]. Others have suggested the consumption-smoothing impacts of the participants [37], [38], [44]. However, it may be difficult to derive a positive conclusion based on the findings of these studies, given that such studies are quite numerous. More so, few studies from other countries have documented its negative impacts. For example, a study conducted among the *adivasi* people of Karnataka and Tamil Nadu states of India has highlighted that microfinance hasn't significantly reduced the vulnerability of households, who even after taking microfinance for a long duration, have resorted to various informal loans to meet up emergency expenses such as marriage, house-repairing, etc. [47]. Another study in rural Cambodia highlights that microfinance, instead of mitigating the short-run shocks, undermines the long-run adaptive capacity, leading to over-indebtedness among the already indebted borrowers [48].

The present study constitutes one of the very few attempts to synthesise the findings of the major empirical studies concerning microfinance's impacts on poverty and vulnerability in Bangladesh. The findings highlight a clear divergence: some studies have claimed microfinance's positive impacts, while others



have either refuted such claims or cast doubt on them. Existing evidence on microfinance's impacts on vulnerability is limited, though a few studies have found positive impacts on smoothing consumption and protecting the asset base of the beneficiaries during shocks. Future research should focus more on investigating the aggregate-level impacts rather than participant-level, and on assessing the impacts of targeted poverty programs. They should focus more on microfinance's impacts on covariate shocks rather than idiosyncratic shocks. Such studies should highlight microfinance's impacts on resilience mediated through social capital, debt cycles and seasonality in labour markets. Meta-analyses of existing studies could yield more robust conclusions about the interplay among microfinance, poverty, and vulnerability in Bangladesh.

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Table A-1 Summary of the studies about microfinance’s impacts on poverty reduction in Bangladesh

Author	Nature of the study/data	Outcome variables	Methods	Main Findings
Pitt & Khandker [7]	Cross-section: (1991/92) Sample size: 1,798 households	Boys’ schooling; girls’ schooling; men’s labour supply; women’s labour supply; per capita total expenditure; women’s non-land assets	“Weighted Exogenous Sampling Maximum Likelihood – Limited Information Maximum Likelihood – Fixed Effects (WESML-LIML-FE)” model	Microcredit has a significant positive impact on poverty reduction; the impact is more pronounced among female borrowers. The annual consumption expenditure increases by 18Tk per 100 Tk MFI loan when the borrower is male; it increases by 11 Tk when the borrower is female.
Morduch [8]	Replication of Pitt and Khandker [7]	Same variables	Difference-in-difference.	Microcredit does not have significant positive impacts on consumption, the schooling of children, etc. It has a consumption-smoothing role rather than a poverty-reduction role.
Pitt [9]	Re-estimation of Pitt & Khandker [7]	Per capita expenditure	The author provides alternative estimates using different landownership eligibility cut-offs	The author refutes Morduch [8] and claims that the findings of Pitt and Khandker [7] are consistent.

Author	Nature of the study/data	Outcome variables	Methods	Main Findings
Chemin [10]	Replication of Pitt & Khandker (1998)	Same variables	Propensity score matching; Cost-benefit analysis	Microfinance has positive impacts on per capita expenditure, supply of labour, and children's schooling. Magnitude of the impact would be lower than the claims by Pitt and Khandker [7]. From a cost-benefit point of view, microfinance is less cost-effective than other development programs.
Duvendack & Palmer-Jones [11]	Replication of Chemin [10]	Same variables	Propensity score matching method	The findings of Chemin [10] are not robust. The authors rejected the claims of Pitt and Khandker [7].
Roodman & Morduch [12]	Replication of Pitt & Khandker [7]	Same variables	The authors applied various tests to check the validity of assumptions and robustness of the findings of Pitt & Khandker	The authors show that the results of Pitt & Khandker disappears if the outliers are dropped, and if robust estimator is applied. They found that the data does not support the assumptions of Pitt & Khandker.
Pitt [13]	Reply to allegations of Roodman & Morduch (2014)	Household consumption expenditure	The author provides further clarification, methodological details, etc.	The author corroborates the finding of Pitt & Khandker and refutes the allegations of Roodman & Morduch (2014).

Author	Nature of the study/data	Outcome variables	Methods	Main Findings
Khandker [14]	Two-period panel: (1991/92 and 1998/99) Sample size: 1,638 households	Household per capita food and non-food expenditure	Household fixed effects model	Borrowing by female household members has significant positive impacts on household consumption. Microfinance not only reduces poverty among the participants, it also reduces poverty among non-participants through positive spillover effects.
Razzaque [15]	Four-period panel: (1998, 1999,2000,2004) Sample size: 2,729 households	Per capita income; income gap; household asset	Panel fixed effects model; panel tobit model with random effects	Microfinance has significant positive impacts on household per capita income and asset holding.

Author	Nature of the study/data	Outcome variables	Methods	Main Findings
Imai & Azam [16]	Four-period panel: (1997/98, 1998/99, 1990/2000, 2004/05) Sample size: more than 3,000 households	Household per capita income; per capita food consumption; women's body mass index	Fixed effects; fixed-effects with propensity score matching; difference-in-difference propensity score matching	Microfinance has positive impacts on income and food consumption.
Khandker & Samad [23]	Three-period panel: (1991/92, 1998/99, 2011/12) Sample size: 1,509 households; Three-period upazila level (HIES) panel: (2000, 2005, 2010)	Per capita farm and non-farm income, per capita food and non-food expenditure	Household-level fixed effects estimates; Upazila-level fixed effects estimates	Participation in microcredit increases per capita income. Continuous participants performed far better, having higher per capita income and expenditure than irregular participants. The presence of Grameen Bank increases per capita expenditure at the village level.

Author	Nature of the study/data	Outcome variables	Methods	Main Findings
Islam [24]	Three-period panel: (1997/98, 1999/00,2004/05) Sample size: 2,694 households	Household income; household food and non-food consumption; household asset	Difference-in-difference-in-difference, propensity score matching	The treatment effects of microcredit are higher among the long-term participants than the short-term ones.
Khandker et al. [25]	Three-period panel: 1991/92,1998/99,2010/11 Sample size: 1,509 households	Per capita household income; per capita household expenditure; male labour supply; female labour supply; non-land asset; net worth	Household fixed effects estimates; quintile regression method	Microfinance impacts are heterogeneous - households having larger landholding, better educational attainment benefit more from microfinance. Households in an electrified village gain more benefits than those in a non-electrified village. Households in lower expenditure quintiles gains more than households in higher quintiles.
Islam [26]	Cross-section: (1998) Sample size: 3,026 households	Household total food consumption expenditure; household per capita food consumption expenditure	Difference-in-difference estimate; the author used the land-based eligibility as the exogeneity rule (instrument)	Microfinance increases household consumption; however, the effects differ across different groups. Poorest of the poor, who belong to the lowest landholding category, benefit most from the program. The effects are larger for female borrowers than male borrowers.

Table A-2: Summary of the studies about microfinance’s impacts on vulnerability to shocks in Bangladesh

Author	Nature of the survey/data	Outcome variables	Methods	Main findings
Islam & Maitra [36]	Three rounds of panel: (1997/98;1998/99;1999/00) Sample size: 2,694 households	Change in assets; change in livestock	IV-2SLS	Participant households don’t need to sell livestock in the face of shocks, or if needed, don’t need to sell as much as the amount sold by non-participants.
Osmani et al. [4]	Cross-section: (2010) Sample size: 2,613	Whether a household has adopted an “erosive” coping strategy	Probit (a separate test is conducted for endogeneity, which confirmed the exogeneity of microfinance)	Borrowers of microcredit are less likely to adopt “erosive” coping strategies than non-borrowers.
Pitt & Khandker [38]	Cross-section: (1991/92), quasi-experimental. Sample size: 1,798 households	Per capita expenditure; women’s labour supply; men’s labour supply	The same methodology as Pitt & Khandker [7]	Poor households are encouraged to participate in credit programs to smooth lean-season consumption, poverty, and male labour supply.
Berg & Emran [37]	Cross-section: (2006/07) Sample size: 24,132 households	Number of meals during seasonal famine; advanced labour sale; temporary migration during seasonal famine	IV- 2SLS	Microfinance significantly increases the food security of poor households, especially extremely poor households, during seasonal famine. However, it does not have a significant effect on distressed labour sales.

Author	Nature of the survey/data	Outcome variables	Methods	Main findings
Shoji [44]	Two period panel (2004, 2005) Sample size: 148 households	Number of meals taken by individual member	IV-2SLS	Rescheduling of MFI loans significantly reduces the probability that an individual skips a meal during a natural disaster.