Factors influencing economic well-being of MFI clients in Delhi's slums

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Abstract
The provision of microcredit can be a highly effective tool for enhancing the economic well-being of participants. This paper aims to explore the factors impacting the welfare of microfinance institution (MFI) clients residing in the slums of Delhi where MFIs operate. The broad welfare indicator used is households' (HHs) monthly per capita consumption expenditure (MPCE). The empirical analysis relies on primary data obtained from 215 households, who were clients of microfinance institutions. The OLS regression model has been employed to identify the impact of MFI loans, loan utilization, and HH's socio-economic factors on their 'current' MPCE. The findings indicate that microfinance operations positively impact the economic well-being (MPCE) of participants. The benefits to the households grow as the loan amount increases, the duration of their relationship with MFIs lengthens, and when loans are utilized for productive purposes.

Keywords: microfinance institutions, economic well-being, household consumption expenditure, loan utilization

1. Introduction

The provision of microcredit can be a highly effective tool for enhancing the economic well-being of participants. Studies on microfinance programs have consistently shown their positive effects on household consumption and overall welfare, with household consumption expenditure commonly used as a proxy for household welfare. Islam (2011) found that microfinance benefits long-term borrowers while there are no significant benefits for short-term borrowers. According to Awan and Juiya (2015), household welfare and economic well-being increase in tandem with loan amounts. Additionally, Nugroho (2011) observed that when microcredit is used for productive activities, it substantially enhances household welfare. Self-employed and educated households are more likely to utilize MFI loans productively, resulting in greater welfare improvements. Given that the primary goal of microfinance programs is to improve living conditions, particularly for women, households headed by women are expected to experience more significant welfare gains compared to those led by men. Thus, the benefits of microcredit are most pronounced when the relationship with the microfinance institution (MFI) is longer, loan amounts are sufficient, and loans are used for productive purposes. Consequently, the interplay of these factors is crucial in determining the welfare levels of microcredit beneficiaries.

This paper aims to explore the factors impacting the welfare of microfinance institution (MFI) clients residing in the slums of Delhi where MFIs operate. The broad welfare indicator used is households' (HHs) monthly per capita consumption expenditure (MPCE). To identify the factors influencing HHs' MPCE in the 'current' situation, an OLS regression model has been employed. The dependent variable in this model is a continuous variable measuring the 'current MPCE' of HHs. The explanatory variables include HH's socio-economic factors, their MPCE in the 'before' period, loan amount category, and loan utilization. It is hypothesized that (a) loans accumulated over multiple loan cycles availed by the households result in their higher current consumption expenditure and (b) when the loans are utilized for production purposes, the current consumption expenditure of the households increases. The empirical analysis relies on primary data obtained from 215 households, who were clients of microfinance institutions (MFIs) operating in Delhi slums in 2016.

This paper is structured as follows. Section 2 provides an overview of the existing literature on the subject. Section 3 explains the database and the methodology used. Section 4 presents empirical findings on the effect of MFI loans and various socio-economic factors on a household's (MFI's clients /loan beneficiaries) 'current MPCE'. The last section concludes.

2. Factors affecting the well-being of clients of microfinance institutions – a brief survey of existing literature

Loans from microfinance institutions (MFIs) greatly enhance the economic and social welfare of households. They contribute positively at multiple levels, including the development of micro-enterprises, asset creation, job generation, investments in human capital, social collateral, and the empowerment of women (Aghion and Morduch, 2000; Tenaw and Islam, 2009; Roodman and Morduch 2014). Research on microfinance programs has consistently demonstrated their positive influence on household consumption and welfare levels. The positive influence of

loans becomes more pronounced as families remain engaged with microfinance institutions (MFIs) for longer periods and as the size of the loans they receive increases (Khandker and Chowdbury,1996; Tenaw and Islam, 2009; Saad and Duasa, 2011; Rahman and Khan, 2013; Li *et al.*, 2011b).

Samer *et al.* (2015) observed that the Malaysian microfinance program 'Amanah Ikhtiar Malaysia' (AIM) significantly raised income levels among women borrowers engaged for over three years, enhancing their socio-economic well-being. Bhuiya et.al. (2016) stated that participation in microfinance yields positive outcomes: a 1% increase in the duration of microfinance membership correlates with a 0.19% rise in income and a 0.16% increase in consumption per adult equivalent. Additionally, each additional month of microfinance participation is linked to a 7 percentage point reduction in the likelihood of being poor (based on $1.25 PPP per person per day). Banerjee et-al. (2009) used a randomized control trial (RCT) to evaluate the impact of microcredit in slums in Hyderabad, India. They found that access to microcredit significantly influenced household spending patterns and the establishment and growth of businesses, it did not affect overall average monthly expenditure in the short term. Similarly, Augsburg *et al.* (2015) conducted an RCT in Bosnia and Herzegovina, finding that access to credit facilitated the start and growth of small businesses, leading to increased self-employment and a decrease in wage employment. Households with higher education and pre-existing businesses often combined their savings with loans to meet investment needs, while those with lower education and fewer assets experienced reduced consumption. In Bangladesh, Islam (2011) found microfinance to be beneficial for long-term borrowers but not short-term participants, suggesting that household entrepreneurs need extended periods to achieve higher income levels from self-employment ventures.

According to Awan & Juiya (2015), as loan amounts rise, so do household welfare and economic well-being. They observed that households taking multiple loans have a higher likelihood of reducing their poverty levels. The data indicates a negative correlation between the amount of loan taken by a household and their poverty level; as the loan amount increases, it aids in business expansion and access to better opportunities, thereby helping to alleviate poverty. Li *et al.* (2011b) discovered that microloans had a positive and significant impact on rural Chinese households' income, indicating that larger loan sizes correlated with greater benefits for households.

as measured by their consumption expenditure. Li *et al.* (2011b) also found a similar positive and significant impact of the total amount of loans on a household's consumption expenditure and stated that benefits to the households increase with the increase in the size of the loan amount. Rahman and Khan (2013), found a significant positive effect of ASA microcredit programmes in Bangladesh in improving the socioeconomic status of their clients and stated that the longer the period of association with ASA, the better the overall livelihood of borrowers. Khandker and Chowdbury (1996), studied the impact of BRAC and Grameen Bank and found that a larger number of loans are associated with the decline in the

incidence of poverty for all participants in the microfinance programmes of both institutions. Tenaw and Islam (2009) also arrived at similar conclusions that poverty decreases as the amount of loans borrowed increases. The result conforms to the hypothesis that loans accumulated over multiple loan cycles availed by the households result in their higher current consumption expenditure.

Coleman (1999) found that while modest loan sizes are insufficient for income-generating activities, there is no discernible improvement in household income or assets in village banking in Thailand. Kondo (2007) investigated the Philippines' Rural Microenterprise Finance Project (RMFP), while Linn & Charoenloet (2009) examined Myanmar's Chin-MFI membership. Their findings indicated that, mainly due to the loans' inadequacy, microfinance loans did not improve borrowers' well-being through income-generating activities. Rahman and Khan (2013) came to similar conclusions about the ASA microcredit program's efficacy in Bangladesh. They concluded that the loan amounts offered by ASA were inadequate and recommended that the loan amounts be increased to enhance the beneficiaries' socioeconomic standing.

According to Attanasio *et al.* (2015), MFI loans, due to their small and insufficient amounts, typically fulfill consumption needs rather than being used for investment, which restricts long-term enhancements in the welfare of the HHs. Nugroho (2011) investigated the impact of microfinance on the welfare of rural households in four villages in Boyolali, Indonesia. The study found that access to microfinance services can improve rural households' welfare, particularly when microcredit is used for productive activities, enhancing overall production. However, it also noted that microfinance can negatively affect household welfare when loans are used for consumption rather than production. This can lead to loan defaults, resulting in debt and social stigma. In close-knit rural communities, failing to repay loans can lead to social repercussions, such as being labeled as defaulters, which can damage individuals' confidence in social interactions. Additionally, consumption loans do not generate income, and the obligation to repay these loans can further strain the limited income of rural households, exacerbating their financial and social challenges. In a 1999 study, Coleman examined village banking in Thailand and found that its effects on household income and assets were minimal. This was because the loans were mainly utilized for consumption instead of generating income, with the loan amounts being insufficient for investment purposes.

Roodman and Morduch, 2014). Irobi (2008) found the positive impact of microcredit on the women beneficiaries in Nigeria as it resulted in an increase in their incomes as well as an improvement in their social economic and political status. Padia (2005) asserts that microfinance programs are a crucial strategy for alleviating poverty and raising standards of life, especially for women. Consequently, it is anticipated that households headed by women will engage with microfinance institutions (MFIs) more frequently and see higher welfare gains than households headed by men. Swamy (2014) evaluated the gender-specific impacts of microfinance in India

and discovered that women's income increase (8.4%) significantly outpaced men's (3.97%). Using data from the World Bank and the Bangladesh Institute of Development Studies (BIDS) from the 1990s, Pitt and Khandker (1998) and Khandker (2005) discovered that microfinance programs significantly increased household consumption levels, with a particularly strong effect on female borrowers.

3. Database and methodology

This study conducted a primary survey involving 215 households residing in slums in urban Delhi where microfinance institutions (MFIs) are active. The selection of MFIs and households was done using the convenience sampling method. The research utilized a scorecard methodology to forecast the Monthly Per Capita Expenditure (MPCE) of these households. To construct the scorecard, data from the National Sample Survey (NSS) 68th round (2011-12) on household consumption expenditure in urban Delhi was utilized. The scorecard selected specific indicators, which were then incorporated into a structured household questionnaire used during the primary survey with MFI clients, encompassing all variables identified in the scorecard. Utilizing a scorecard approach (regression model) and information derived from the household questionnaire, the study estimated the Monthly Per Capita Expenditure (MPCE) for each household. This estimation involved inputting values of independent variables from the questionnaire into the regression model to compute the dependent variable, MPCE, for each household.

Data was gathered from 215 clients of selected MFIs operating in Delhi's slums, all of whom had been associated with these institutions for a minimum of three years and had previously received loans. The study collected primary data covering two distinct time periods: the 'before' period, which corresponds to the time of joining a specific MFI, and the 'current' period, representing the time of a household survey conducted in the last quarter of 2016. Recall-based data collection was employed for the 'before' period.

To empirically understand the factors that affect the current MPCE of the MFI's clients, an OLS regression method is used. The dependent variable is the 'current' MPCE of the households and the independent variables are various socio-economic factors of the households.

4. Empirical estimates on the impact of MFI's loans on household's MPCE

An ordinary least squares (OLS) regression is used to identify the factors influencing the 'current' monthly per capita expenditure (MPCE) of households who have taken loans from MFIs and have been associated with an MFI for three years or more. The dependent variable is a continuous variable measuring the 'current MPCE' of the households. The explanatory variables are the household's social group, religious group, dwelling type, female-headed households, number of children below 15 years of age, education of household's head, age of women, education of women, MPCE in 'before' period, loan amount category and loan usage. 'Loan category' is a categorical variable representing the total loan amount taken by the household from MFIs, being grouped into three categories. (0-loan amount from Rs 10,000 to up to Rs 50,000, 1-loan amount from Rs 50,000 to up to Rs 75,000, 2-loan amount over and above Rs 75,000). 'Loan usage' is a categorical variable showing the use of the current loan amount for consumption purposes, production purposes, or both. (0-loan used for consumption purposes, 1-loan used for both consumption and production purposes, 2-loan used for production purposes).

All the variables (dependent and independent) are measured in the 'current' period except for MPCE-B, which is measured in the 'before' period. The OLS regression equation (1) is given below, and Table 1 presents the estimated coefficients of the parameters obtained in the empirical analysis.

MPCE-current (T group) $= \beta_0 + \beta_1$Social-group $+ \beta_2$Religion $+ \beta_3$Dwelling-type $+ \beta_4$Female-headed-HH $+ \beta_5$dummy-loan-usage $+ \beta_6$Education-head $+ \beta_7$Age-lessthan15 $+ \beta_8$Education-women $+ \beta_9$Age-women $+ \beta_{10}$MPCE-B $+ \beta_{11}$ dummy-loan-category $+ \mu_t$ ....(1)

Table 1: Factors affecting the household's current MPCE based on OLS regression

	β-Coefficients	Standard errors	T-statistics
(Constant)	709.270	192.636	3.682***
0.Dummy-SC/ST			
1.Dummy-OBC	66.557	57.936	1.149
2.Dummy-others-social-group	-15.502	49.057	-0.316
0.Religion (Islam)			
1.Religion (all other)	77.181	70.764	1.091
0.Dwelling (owned)			
1.Dwelling (hired)	68.738	51.185	1.343
0. Male-headed-HH			
1.Female-headed-HH	63.990	52.944	1.209
0.Dummy-loan-usage-cons			
1.Dummy-loan-usage-cons-prod	15.714	78.270	0.201
2.Dummy-loan-usage-prod	81.748	41.858	1.953*
Education-head	17.070	8.455	2.019**
Age-lessthan15	-79.249 {-0.0397}	21.639	-3.662***
Education-women	10.645	9.034	1.178

Age-women	-1.042 {-0.017}	2.799	-0.372
MPCE-B	0.748 {0.618}	0.046	16.168***
0.Dummy-loan-category			
1.Dummy-loan-category	39.179	46.845	0.836
2.Dummy-loan-category	306.371	90.578	3.382***
Dependent Variable: MPCE-current Number of observations = 215 Adjusted R-squared = 76.5% F value = significant			

Source: Author's calculation (primary data). Note: *** $p<0.01$; ** $p<0.05$; * $p<0.1$, B implies 'before' period, 0= Reference category for all categorical variables, { } denote mean elasticities, 'cons' implies consumption purposes, 'prod' implies production purposes.

The results show that the current MPCE of households in the treatment group is affected by MPCE during the 'before' period, number of children below 15 years of age, education of the household's head, loan amount category, and loan usage.

The coefficient of MPCE-B is positive and statistically significant implying that higher MPCE in the 'before' period results in higher MPCE in the 'current' period. For every rupee increase during the initial MPCE, the current MPCE increases by Rs 0.75. In terms of mean elasticity, a 1 percent increase in MPCE-B brings about approximately a 0.62 percent increase in current MPCE. The findings align with Tilakaratna's (2006) research, which examined the effects of microcredit on households from different income brackets in Sri Lanka. Tilakaratna observed that microcredit has a notable impact on income, assets, and housing conditions primarily among households in the middle-income quintiles (second, third, and fourth quintiles). These households tend to have a higher capacity for risk-taking and typically use loans for investments. In contrast, microcredit did not significantly affect these welfare indicators for poorer households.

The negative and statistically significant coefficients of Age-lessthan15 imply that the larger the number of children in the households, the lower the current MPCE. As the number of children increases by one, the MPCE of the household reduces by Rs. 79.25. In terms of mean elasticity, a 1 percent increase in the number of children brings about approximately a 0.04 percent decrease in the current MPCE. This is consistent with the NSS 68th round consumption expenditure report, which states that the average number of children in both rural and urban areas falls as the MPCE of the household increases. High-income households tend to have a smaller number of children on average,

The coefficient of Education-head is positive and statistically significant, implying that one unit increase in the education level of household head increases current MPCE by Rs 17. This is because the educated household head can optimally invest loan amounts in the projects, which increases the household's income and consumption expenditure (Rahman *et al*., 2014).

The coefficient of the loan category is positive and statistically significant. This implies that households who are in the second loan category (i.e., who have taken cumulative loans of an amount equal to or more than Rs 80,000) have higher current MPCE compared to the households in the reference loan category (who have taken cumulative loans of an amount less than or equal to Rs 50,000). As a household moves from the reference loan category to the second loan category, its MPCE increases by Rs 306 approximately. In the second category, the respondent has completed four or more loan cycles, thus, implying that the larger the years of association with MFI, the higher the current MPCE. The result is consistent with the findings of the various studies (Saad and Duasa (2011), Li *et al*. (2011b), Rahman and Khan (2013), Khandker and Chowdbury (1996) & Tenaw and Islam (2009)) who observed that the total quantum of a loan significantly influences the borrower's welfare and longer the period of association with MFI, higher is the welfare of the household.

A positive and statistically significant coefficient of loan-usage implies that those households who utilized their loans for productive purposes have higher MPCE (by Rs 82 approximately) than those who utilized their loans for consumption purposes. Investments in productive avenues give higher returns, while using it for consumption purposes does not give any returns in the future and thus, negatively affects the spending capacity of the individuals (Saad and Duasa, (2011), Nugroho (2011). The result conforms to the hypothesis that when the loans are utilized for production purposes, the current consumption expenditure of the households increases. Thus, the analysis indicates that both the amount of loan and its use affect the current MPCE of the households.

5. Conclusion

This paper seeks to investigate the factors influencing the well-being of clients of microfinance institutions (MFIs) living in the slums of Delhi where these MFIs operate. The broad welfare indicator used is households' (HHs) monthly per capita consumption expenditure (MPCE). The OLS regression model has been employed to identify the impact of MFI loans, loan utilization, and HH's socio-economic factors on their 'current' MPCE. The empirical analysis relies on primary data obtained from 215 households, who were clients of microfinance institutions operating in Delhi slums in 2016.

The results revealed that the 'current' MPCE of households is affected by the education level of household's head, the number of children in the family, household's MPCE in the 'before' period, the total loan category, and loan usage. Higher MPCE in the 'before' period results in higher MPCE in the 'current' period. As the education level of the household head increases, the 'current' MPCE increases while as the number of children in the households increases, the 'current' MPCE decreases. The households who are in the second loan category (i.e., who have

taken cumulative loans of an amount equal to or more than Rs 80,000 and completed four or more loan cycles) have higher current MPCE compared to the households in the reference loan category (who have taken cumulative loans of an amount less than or equal to Rs 50,000), thus, implying that larger the years of association with MFI, higher is the current MPCE. The positive coefficient of 'loan-usage' implies that those households who utilized their loans for productive purposes have higher 'current' MPCE compared to those who utilized their loans for consumption purposes.

These results substantiate the existing literature and accept the postulated hypotheses that the loans accumulated over multiple loan cycles availed by the households result in their higher current consumption expenditure and, when the loans are utilized for production purposes current consumption expenditure of the households increases. The findings indicate that microfinance operations positively impact the economic well-being (MPCE) of participants. The benefits to the households grow as the loan amount increases, the duration of their relationship with MFIs lengthens, and when loans are utilized for productive purposes.

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