

Determinants of Operational Efficiency of Microfinance Institutions in Bangladesh

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Abstract

This paper investigates the performance of operational self-sufficiency and its determinants of Microfinance Institutions (MFIs) and compared their positions in Bangladesh. The study used secondary quantitative data from the MIX market website where containing information from financial statements from the MFIs operating in Bangladesh. Toward the achievement of its objectives the study used descriptive statistical and financial ratio analysis techniques as well as econometric technique on the several performance indicators standardized by CGAP to measure of MFIs performance. The multiple regression technique used to measure the determinants of operational self-sufficiency to justify with yield on gross loan portfolio (nominal), cost per borrower, average loan balance per borrowers, age of MFIs, and number of active borrowers and operating expense ratio of MFIs in Bangladesh. The multiple regression output revealed that most of the MFIs are operational self-sufficiency to operate their operations in this region. However, study recommended for policy considerations of the successful and effective operation of microfinance programs through simplify of distribution of loan, improve yield on gross loan portfolio, personnel productivity and reduces of borrowing fund from the donors, reducing operating cost, utilize resources to generate financial revenue and focused on increase of value of their total assets in Bangladesh.

Keywords: microfinance, microfinance institutions (MFIs), operational self-sufficiency and Bangladesh

1. Introduction

The Microfinance Institutions (MFIs) target the poor through innovative approaches, which include group lending, progressive lending, regular repayment schedules, and collateral substitutes (Thapa, 2007). The sustainable operational growth is essential for each of MFIs, to continue their operation smoothly. But previous studies in different countries have revealed mixed results with regards to the efficiency and financial sustainability of the MFIs. Gopal et al. (2011) examined the outreach and sustainability of microfinance institutions in the district of Assam, India. Analysis through various financial performance indicators such as Operational Self Sufficiency (OSS), Financial Self Sufficiency (FSS), Subsidy Dependence Index (SDI) and Subsidy Dependence Ratio (SDR) were conducted. He found that although the MFIs reached a large number of clients, analysis indicates that MFIs are still financially not self-sufficient which is reflected by a number of calculated indicators.

In a similar study, Martinez-Gonzalez (2008) also capitalized that, most MFIs have been more efficient in pursuing sustainability but fall short of achieving the breath of outreach to the targeted poor people in the country Martinez-Gonzalez (2008). However, Bayeh (2012) identifies factors affecting financial sustainability of MFIs in Ethiopia. The study found that microfinance breadth of outreach, depth of outreach, dependency ratio, and cost per borrower significantly affect the financial sustainability of microfinance institutions in Ethiopia. However, the microfinance capital structure and staff productivity have an insignificant impact on financial sustainability of MFIs in Ethiopia during the period of study. Moreover, other studies also indicate that there is a positive relationship between MFI efficiency and domestic financial development (Hermes, Lensink, & Meesters, 2009).

Thapa (2007) also compared the outreach of Bangladesh MFIs with those in other countries. Several other studies examined the level of financial sustainability and outreach as a case study in certain MFIs from Bangladesh. Nonetheless, no study has covered all MFIs in Bangladesh. In addition, several other studies have examined the level of financial sustainability and outreach as a case study in certain MFIs from Bangladesh. However, no study has covered all MFIs in Bangladesh. Based on the existing gap in previous researches, this study will make an attempt to fill that gap by measuring operational self-sufficiency and determining the determinants of operational of microfinance institutions (MFIs) in Bangladesh.

2. Literature Review

Annim, S. K. in 2012 tested two hypotheses; first, they argued that there is a trade-off between the social objectives of MFIs and their financial efficiency and secondly, they asserted complementarity between the external environment and MFIs' social efficiency. The study showed that financially efficient MFIs failed to reach out to poorer clients; on the other hand, socially efficient MFIs reached out to poorer clients. They also observed that bureaucracies in property registration and a lack of credit information adversely affected the social efficiency of MFIs. The research recommended that the effective role of external institutions and the removal of information barriers are important for reducing poverty through microfinance intervention (Annim, 2012). Moreover, examined by Arnone, M., C. B. Pellegrini, et al. in 2012, presents an empirical analysis of the operational efficiency of microfinance institutions. The analysis showed that operating costs and efficiency are negatively related. It pointed out that operating costs are less when institutions give high focus on traditional financial aspects of commercial banking, thereby improving their efficiency, and enhancing the development of the sector and the quality of offered services. Successively, the study tried to figure out the effect of these factors in different geographical regions. Finally, the study highlighted the importance of various legal and organizational frameworks and macro-governance features (Arnone, Pellegrini, Messa, Pellegrini, & Sironi, 2012).

Bassem, B. S. in 2008 by applying the non-parametric Data Envelopment Analysis (DEA) method with all the limitations where error could cause significant problems, investigated the efficiency of 38 Microfinance institutions in the Mediterranean region. Results found that eight institutions are relatively efficient, and have a notable level of average efficiency and a potential of evolution while being referent to their technical efficiency. The survey ended by proposing that the size of the MFIs has a negative effect on their efficiency since the MFIs of medium size are more efficient than the eminent (Bassem, 2008). However, Gregoire, J. R. and O. Ramirez Tuya in 2006 analyzed the efficiency of Microfinance Institutions (MFIs) in Peru by estimating a stochastic cost frontier. The main findings of the study resolved that MFIs with the largest assets tend to post the highest efficiency levels, and that MFIs operating in less concentrated markets tend to be more efficient. Thus, the cost efficiency of MFIs is affected by average loan size, proportion of net assets, financial sufficiency, financial leverage, business experience and proportion of farm loans (Gregoire & Tuya, 2006).

Gutiérrez-Nieto, B., C. Serrano-Cinca, et al. in 2007 analyzed Microfinance Institutions (MFIs) as special financial institutions; they have both a social nature and a for-profit nature. This study used a data envelopment analysis (DEA) approach to measure the efficiency of MFIs. The results revealed that MFIs efficiency can be explained by means of four principal components of efficiency, and by this way, the differences between the DEA scores can be understood. Moreover, it has shown that there are country effects on efficiency; and effects that depend on non-governmental organization (NGO)/non-NGO status of the MFI (Gutiérrez-Nieto, Serrano-Cinca, & Molinero, 2007). In the same way, in 2009, Gutiérrez-Nieto, B., C. Serrano-Cinca, et al. asserted that microfinance institutions (MFIs) are a special case in the financial world and it has a double financial and social role and needs to be efficient at both. The study measured the efficiency of MFIs in relation to financial and social outputs using data envelopment analysis. They added two indicators of social performance: impact on women and a poverty reach index. The observation studied the relationship between social and financial efficiency, and the relationship between efficiency and other indicators, such as profitability. Other aspects studied are the relation between social efficiency and type of institution Non-Governmental Organization (NGO), non-NGO, and the importance of geographical region of activity. The findings reveal the importance of social efficiency assessment (Gutiérrez-Nieto, Serrano-Cinca, & Molinero, 2009).

Hartarska, V. and R. Mersland in 2012 evaluated the effectiveness of several governance mechanisms on microfinance institutions' (MFI) performance. The study explored the impact of measurable governance mechanisms on the individual efficiency coefficients. The results indicated that efficiency increases with a board size of up to nine members and decreases after that. MFIs in which the CEO chairs the board and those with a larger proportion of insiders are less efficient. Moreover, the study didn't find consistent evidence for the effect of competition, but it found weak evidence that MFIs in countries with mature regulatory environments reach

fewer clients, while MFIs regulated by an independent banking authority are more efficient. The evidence recommended that donors' presence on the board is not beneficial (Hartarska & Mersland, 2012). Furthermore, Hartarska, V., X. Shen, et al. in 2013 evaluated the efficiency of microfinance institutions (MFIs) using a structural approach which also captures institutions' outreach and sustainability objectives. The study estimated economies of scale and input price elasticities for lending-only and deposit-mobilizing MFIs using a large sample of high-quality panel data. The outcomes confirm that improvements in efficiency can come from the growth or consolidations of MFIs, as they find substantial increasing returns to scale for all but profitability-focused deposit-mobilizing MFIs. It also supported the existence of a trade-off between outreach and sustainability (Hartarska, Shen, & Mersland, 2013).

Hermes, N., R. Lensink, et al. in 2011 used stochastic frontier analysis to examine whether there is a trade-off between outreach to the poor and efficiency of microfinance institutions (MFIs). Findings resolved convincing evidence that outreach is negatively related to efficiency of MFIs. More specifically, the observation found that MFIs that have a lower average loan balance (a measure of the depth of outreach) are also less efficient. Moreover, those MFIs that have more women borrowers as clients (again a measure of the depth of outreach) are less efficient. These results remain robustly significant after having added a number of control variables (Hermes, Lensink, & Meesters, 2011). On the other hand, in 2011, Hudon, M. and D. Traca used an original database of rating agencies; this study gave empirical evidence on the impact of subsidy intensity on the efficiency of Microfinance Institutions (MFIs). Findings resolved that subsidies have had a positive impact on efficiency, in the sense that MFIs that received subsidies are more efficient than those that do not. However, it also found that subsidization beyond a certain threshold renders the marginal effect on efficiency negative. Moreover, marginal cut on subsidy intensity would increase their efficiency (Hudon & Traca, 2011).

3. Methodology

The present study used descriptive, econometrics statistical, and financial ratio analysis techniques on the secondary data of existing selected MFIs in Bangladesh. The secondary data of all selected MFIs in Bangladesh was extracted from the prominent microfinance online database, Mix Market (MIX, 2013) from the year of 2005 to 2011. There are five MFIs that have been selected from the Bangladesh. The selection of MFIs has been done based on the highest number of active borrowers in the Bangladesh.

Table 1. The distribution of top MFIs in BD by the number of borrowers

Name of top MFIs in BD	No. of Borrowers
Grameen Bank	6710000
BRAC	4193218
ASA	4181690
BURO Bangladesh	850792
TMSS	574981

Sources: (Mixmarket, 2013)

Table 2. The distributions of the efficiency measurement indicators and ratios

Efficiency (%)	
Operating Expenses/Loan Portfolio	Operating Expense/Average Gross Loan Portfolio
Personnel Expenses/Loan Portfolio	Personnel Expense/Average Gross Loan Portfolio
Average Salary/GNI per capita	Average Personnel Expense/GNI percapita
Cost Per Borrower	Operating Expense/Average Number of Active Borrowers
Cost Per Loan	Operating Expense/Average Number of Loans Outstanding

Sources: Adopted from (CGAP, 2003)

Operating expense ratio is the most commonly used efficiency indicator for MFIs that includes all administrative and personnel expense. MFIs that provide smaller loans will compare unfavorably to others, even though they may be serving their target market efficiently. Likewise, MFIs that offer savings and other services will also compare unfavorably to those that do not offer these services, if gross loan portfolio is used as the denominator. Cost per borrower provides a meaningful measure of efficiency by showing the average cost of maintaining an

active borrower. Since the size of the loans is not part of the denominator, institutions with larger loans do not automatically appear more efficient, as is the case with the operating expense ratio.

Moreover, multiple regression models have been used to measure of determinants of financial self-sufficiency of microfinance institutions (MFIs) in Bangladesh. To measure the predictor variables of financial self-sufficiency, seven measures are used as independent variables which were extracted from Woldeyes in 2012 (Woldeyes, 2012), namely Age of MFIs, Cost per Borrower, Liquidity Ratio, Number of Active Borrowers, Operating Expense Ratio and Yield on Gross loan Portfolio (Nominal).

Table 3. Description of dependent variables

Variable Name	Measurement Formula
Financial Self-Sufficiency (FSS)	Adjusted Financial revenue/(Financial expense + Loan loss provision + Operating expenses + Expense Adjustment)
Operational Self-Sufficiency (OSS)	Financial revenue/(Financial expense+ Impairment losses + Operating expenses)

Sources: (Woldeyes, 2012)

Table 4. Description of independent variables

S.N	Variables Standard Name	Description	Variable name in regression model
1	Age of MFIs	Age of MFIs since their establishment	AGE
2	Cost Per Borrower	Adj. Operating Expense/Adj. Av. No. of Active Borrowers	CPB
3	Number of Active Borrowers	Number of active borrowers with loans outstanding	lnNAB
4	Operating Expense Ratio	The ratio of operating expense to the gross loan portfolio	OER
5	Yield on Gross loan Portfolio (Nominal)	Adjusted financial revenue from Loan Portfolio/Adj. average GLP	YIELD
6	Average Loan Balance per Borrowers	Adj. GLP/Adj. Number of Active Borrowers	lnALBPB
7	Debt to Equity Ratio	Adj. Total Liabilities/Adj. Total Equity	DER
8	Personnel Productivity Ratio	The expense incurred for personnel per the loan portfolio	PPR
9	Size of MFI	Total Asset of MFI	SIZE

Sources: (Woldeyes, 2012)

Regression Model for Operational Efficiency of MFIs:

$$OSS_{it} = \alpha_i + \beta_1 YIELD_{it} + \beta_2 \ln SIZE_{it} + \beta_3 PPR_{it} + \beta_4 DER_{it} + \beta_5 CPB_{it} + \beta_6 ALBPB_{it} + \beta_7 \ln AGE_{it} + \beta_8 \ln NAB_{it} + \beta_9 OER_{it} + \epsilon_{it} \quad (1)$$

Where: OSS it is the operational self-sufficiency ratio of microfinance i at time t (which is the dependent variable); α_i is a constant term; β measures the partial effect of independent or explanatory variables in period t for the unit i (MFI); X it are the explanatory variables as described in the above table; and ϵ it is the error term. The variables, both dependent and independent, are for cross-section unit i at time t, where i = MFI (1 to n), and t = 1 to 9.

4. Findings and Discussion

4.1 Operational Self-Efficiency of MFIS

4.1.1 ASA Efficiency over the Period of 2005-2011

Table 5 shows the distribution of average efficiency of ASA over the period of 2005-2011. The study has found that the value for operating expense per loan portfolio is 0.11639 with the ratio of personnel expense per loan portfolio turning out at 0.10093 accordingly. Meanwhile average salary to per GNI per capita stands at 3.47857, while cost per borrower and cost per loan is valued at 10.1084 and 10.0884, respectively.

Table 5. Distribution of efficiency of ASA in Bangladesh (average value from 2005 to 2011)

Indicators		Efficiency Of ASA							Average
		2005	2006	2007	2008	2009	2010	2011	
Operating Portfolio	Expenses/Loan	0.0849	0.0944	0.1125	0.1506	0.1283	0.1313	0.1127	0.11639
Personnel Portfolio	Expenses/Loan	0.073	0.0825	0.0938	0.1318	0.1123	0.1153	0.0978	0.10093
Average Salary/GNI per capita		2.88	3.09	3	4.39	3.83	3.87	3.29	3.47857
Cost Per Borrower		5.57	5.6603	7.0848	10.9908	11.9434	15.32	14.1895	10.1084
Cost Per Loan		5.4297	5.6603	7.0848	10.9908	11.9434	15.32	14.1895	10.0884

(Source: MIX Market database, 2013)

4.1.2 BRAC Efficiency over the Period of 2005-2011

Table 6 shows the distribution of average efficiency of BRAC over the period of 2005-2011. The study found that the value for operating expense per loan portfolio is 0.12651 with the ratio of personnel expense per loan portfolio turning out at 0.10951 accordingly. Meanwhile, average salary to per GNI per capita stands at 4.18714 as well as cost per borrower and cost per loan is valued at 11.2912 and 11.0252, respectively.

Table 6. Distribution of efficiency of BRAC in Bangladesh (average value from 2005 to 2011)

Indicators		Efficiency of BRAC							Average
		2005	2006	2007	2008	2009	2010	2011	
Operating Portfolio	Expenses/Loan	0.15	0.1322	0.1466	0.1106	0.101	0.1165	0.1287	0.12651
Personnel Portfolio	Expenses/Loan	0.12	0.1096	0.1257	0.1	0.0933	0.1033	0.1147	0.10951
Average Salary/GNI per capita		3.86	3.61	3.88	3.67	4.53	5	4.76	4.18714
Cost Per Borrower		9.4217	9.3936	11.7725	10.2307	10.3168	12.535	15.3684	11.2912
Cost Per Loan		9.2427	9.3186	11.652	10.0141	10.0433	12.22	14.6856	11.0252

Source: MIX Market Database (2013)

4.1.3 GB Efficiency over the Period of 2005-2011

Table 7 shows the distribution of average efficiency of GB over the period of 2005-2011. The study found that the value for operating expense per loan portfolio is 0.11681 with the ratio of personnel expense per loan portfolio turning out at 0.07476. Meanwhile, average salary to per GNI per capita stands at 4.01, accordingly. Cost per borrower and cost per loan values are at 12.3492 and 12.2277, respectively.

Table 7. Distribution of efficiency of GB in Bangladesh (average value from 2005 to 2011)

Indicators		Efficiency of GB							Average
		2005	2006	2007	2008	2009	2010	2011	
Operating Portfolio	Expenses/Loan	0.126	0.112	0.1272	0.1087	0.1122	0.1184	0.1138	0.11681
Personnel Portfolio	Expenses/Loan	0.075	0.072	0.08	0.0734	0.0764	0.0757	0.0712	0.07476
Average Salary/GNI per capita		4.44	3.9	3.66	3.35	4.05	4.62	4.05	4.01
Cost Per Borrower		10.95	9.196	10.6454	10.3195	12.9536	15.989	16.3907	12.3492
Cost Per Loan		10.1	9.196	10.6454	10.3195	12.9536	15.989	16.3907	12.2277

(Source: MIX Market database, 2013)

4.1.4 BURO BD Efficiency over the Period of 2005-2011

Table 8 shows the distribution of average efficiency of BURO BD over the period of 2005-2011. The study found that the value for operating expense per loan portfolio is 0.15991 with the ratio of personnel expense per loan portfolio turning out at 0.1125 accordingly. Meanwhile, average salary to per GNI per capita stands at 2.50429 accordingly. Cost per borrower and cost per loan values are at 14.8283 and 13.3048, respectively.

Table 8. Distribution of efficiency of BURO BD in Bangladesh (average value from 2005 to 2011)

Indicators	Efficiency of BURO BD							Average
	2005	2006	2007	2008	2009	2010	2011	
Operating Expenses/Loan Portfolio	0.1392	0.1524	0.1678	0.1702	0.1636	0.1737	0.1525	0.15991
Personnel Expenses/Loan Portfolio	0.0954	0.1037	0.1168	0.1166	0.1135	0.1293	0.1122	0.1125
Average Salary/GNI per capita	2.79	2.78	2.52	2.61	2.31	2.44	2.08	2.50429
Cost Per Borrower	11.461	12.938	14.9998	15.794	15.9986	17.9252	14.6817	14.8283
Cost Per Loan	9.3137	11.006	13.2395	14.5849	14.9172	16.5458	13.5266	13.3048

(Source: MIX Market database, 2013)

4.1.5 TMSS Efficiency over the Period of 2005-2011

Table 9 shows the distribution of average efficiency of GB over the period of 2005-2011. The study found that the value for operating expense per loan portfolio is 0.16563 with the ratio of personnel expense per loan portfolio turning out at 0.11777 accordingly. Meanwhile, average salary to per GNI per capita stands at 2.5 accordingly. Cost per borrower and cost per loan values are at 15.5597 and 15.1434, respectively.

Table 9. Distribution of efficiency of TMSS in Bangladesh (average value from 2005 to 2011)

Indicators	Efficiency of TMSS							Average
	2005	2006	2007	2008	2009	2010	2011	
Operating Expenses/Loan Portfolio	0.178	0.1748	0.2121	0.1726	0.1455	0.1526	0.1238	0.16563
Personnel Expenses/Loan Portfolio	0.1132	0.1065	0.1334	0.1332	0.1189	0.123	0.0962	0.11777
Average Salary/GNI per capita	2.42	1.81	2.19	2.75	2.78	3.19	2.36	2.5
Cost Per Borrower	11.928	12.517	16.339	14.8541	15.8086	20.4566	17.0148	15.5597
Cost Per Loan	11.267	12.367	15.8631	14.539	15.3415	19.8539	16.772	15.1434

Table 10. Distribution of overall efficiency of MFIs in Bangladesh (average value from 2005 to 2011)

Efficiency of MFIs (average score from 2005 to 2011)					
	ASA	BRAC	GB	BURO BD	TMSS
Operating Expenses/Loan Portfolio	0.11639	0.12651	0.11681	0.15991	0.166
Personnel Expenses/Loan Portfolio	0.10093	0.10951	0.07476	0.1125	0.118
Average Salary/GNI per capita	3.47857	4.18714	4.01	2.50429	2.5
Cost Per Borrower	10.1084	11.2912	12.3492	14.8283	15.56
Cost Per Loan	10.0884	11.0252	12.2277	13.3048	15.14
Operational Self-Sufficiency	1.92739	1.0759	1.60561	1.17539	1.13

Source: MIX Market Database (2013)

4.1.6 MFIs Efficiency over the Period of 2005-2011

Based on the findings and analysis, it is found that the average values for Operating Expenses/Loan Portfolio of ASA, GB BRAC, BURO Bangladesh and TMSS is 0.11639, 0.12651, 0.11681, 0.15991, and 0.166, respectively. Moreover, in terms of efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 0.166 and ASA the lowest at 0.11639, accordingly. Moreover, in the case of the average values for Personnel Expenses/Loan Portfolio of ASA, GB BRAC, BURO Bangladesh and TMSS is 0.10093, 0.10951, 0.07476, 0.1125, and 0.118, respectively. Moreover, in terms of efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 0.166 and GB the lowest at 0.07476, accordingly.

In terms of the average values for Average Salary/GNI per capita of ASA, GB BRAC, BURO Bangladesh, and TMSS is 3.47857, 4.18714, 4.01, 2.50429, and 2.5, respectively. Moreover, in terms of efficiency, BRAC has the highest proportion of operating expense to loan portfolio at 4.18714 and TMSS the lowest at 2.5, accordingly. Furthermore, in the case of the average values for Average Salary/GNI per capita of ASA, GB BRAC, BURO Bangladesh, and TMSS is 10.0884, 11.0252, 12.2277, 13.3048, and 15.14, respectively. Moreover, in terms of efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 15.14 and ASA the lowest at 10.0884, accordingly.

In terms of efficiency, ASA has the highest proportion of operating expense to loan portfolio at 0.12708 and GB the lowest at 0.11606. Moreover, in terms of Personnel Expenses to Loan Portfolio, ASA also has the highest score 0.1102 and GB has the lowest 0.07534, respectively. However, in terms of Average Salary to GNI per capita, GB has the highest score 3.946 and BRAC has the lowest 4.368, respectively. On the other hand, for Cost per Borrower BRACK has the highest score 13.2597 and ASA has the lowest 4.368, respectively. This means that ASA, GB BRAC, BURO Bangladesh, and TMSS can be considered to be Operationally Self Sustainable.

4.2 Regression Result of Determinants of OSS

The estimated result of multiple regression analysis is also at a quite satisfactory level where the adjusted R^2 is 0.80 and observed R^2 value is 0.73, respectively. The value of adjusted R^2 revealed that there are good relationships with dependent variables and independent variables where all independent variables can explain about 73% of the operational self-sufficiency. On the other hand, the ANOVA table also reflects the goodness of model and F-test estimates that the regression is quite meaningful in the sense that the dependent variable is related to each specific explanatory variable.

Table 11. The distribution of regression result of OSS of MFIs in Bangladesh

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.544	4.337		.587	.563
YIELD	-.747	3.322	-.034	-.225	.824
PPR	-1.162	7.477	-.034	-.155	.878
DER	.015	.032	.084	.479	.636
CPB	.126	.085	.622	1.485	.150
OER	-10.914	7.212	-.444	-1.513	.143
LN_SIZE	.083**	.032	.366	2.617	.015
LN_ALBPB	-1.395	.935	-.522	-1.492	.148
LN_Ages	-.751***	.228	-.399	-3.287	.003
LN_NAB	.401***	.105	.674	3.832	.001
R-Squared 0.80					
Adjusted R-Squared 0.73					
F-statistic 11.264					
Prob. (F-stat.) .000					

*** Significant at 1%; ** Significant at 5%

The linear relation of the model is highly significant where the p value for the F is less than 0.001% level. Furthermore, the estimated coefficient also denoted from the model that most of the variables are significantly related at the 0.01 and 0.05 levels, which is significantly different than zero.

Moreover, the regression result also reveals that Size of MFIs (SIZE) Cost Per Borrower (CPB) and Personnel Productivity Ratio (PPR) positively explain the financial self-sufficiency of MFIs in Bangladesh. On the other hand, variables of average Loan Balance per Borrowers (ALBPB), Age of MFIs (AGE) Debt to Equity Ratio (DER), Operating Expense Ratio (OER), and Number of active borrowers (NAB) have a negative effect on the financial self-sufficiency at a significant level of FSS of MFIs in Bangladesh whereas the Yield on Gross loan Portfolio (YIELD) of MFIs is also positive but not at a significant level.

Table 12. The distribution of hypothesis status of OSS of MFIs in Bangladesh

Hypothesis	B	Sig.	Status
<i>H1b: There is a significant positive relationship on the yield on gross loan portfolio of microfinance institutions with operational self-sufficiency</i>	-0.747	0.824	Rejected
<i>H2b: There is a positive significant relationship between Size of microfinance institutions and operational self-sufficiency.</i>	-1.162	0.878	Rejected
<i>H3b: There is a positive significant relationship between personnel productivity ratio and operational self-sufficiency.</i>	0.015	0.636	Accepted
<i>H4b: There is a negative significant relationship between debt to equity ratio of microfinance institutions with operational self-sufficiency.</i>	0.126	0.15	Rejected
<i>H5b: Cost per borrower is negatively related and operational self-sufficiency.</i>	0.401	0.001	Rejected
<i>H6b: There is a significant positive relationship between average loan balances per borrower to operational self-sufficiency.</i>	0.083	0.015	Accepted
<i>H7b: Age of a microfinance institution is significantly and positively related to operational self-sufficiency.</i>	-1.395	0.148	Rejected
<i>H8b: There is significant positive relationship between number of active borrowers and operational self-sufficiency.</i>	-0.751	0.003	Rejected
<i>H9b: There is a negative significant relationship between operating expense ratio and operational self-sufficiency.</i>	-10.914	0.143	Accepted

Finally, the study found that estimated result of multiple regression analysis is also at a quite satisfactory level where the adjusted R^2 is 0.73 and observed R^2 value is 0.80, respectively. The value of adjusted R^2 revealed that there are good relationships with dependent variables and independent variables where all independent variables can explain about 73% of the financial self-sufficiency. Moreover, the study recommends for policy considerations of the successful and effective operation of microfinance programs by simplifying distribution of loan, improving yield on gross loan portfolio, personnel productivity and reducing of borrowing funds from the donors, reducing operating cost, utilizing resources to generate financial revenue and focus on increasing the value of their total assets in Bangladesh.

5. Conclusion and Recommendations

As this paper aims to measure the performance of operational self-sufficiency and its determinants of Microfinance Institutions (MFIs) and compared their positions in Bangladesh. Based on the findings and analysis, it is found that the average values for Operating Expenses/Loan Portfolio of ASA, GB BRAC, BURO Bangladesh and TMSS is 0.11639, 0.12651, 0.11681, 0.15991, and 0.166, respectively. Moreover, in terms of efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 0.166 and ASA the lowest at 0.11639, accordingly. Moreover, in the case of the average values for Personnel Expenses/Loan Portfolio of ASA, GB BRAC, BURO Bangladesh and TMSS is 0.10093, 0.10951, 0.07476, 0.1125, and 0.118, respectively. Moreover, in terms of efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 0.166 and GB the lowest at 0.07476, accordingly.

In terms of the average values for Average Salary/GNI per capita of ASA, GB BRAC, BURO Bangladesh, and TMSS is 3.47857, 4.18714, 4.01, 2.50429, and 2.5, respectively. Moreover, in terms of efficiency, BRAC has the highest proportion of operating expense to loan portfolio at 4.18714 and TMSS the lowest at 2.5, accordingly. Furthermore, in the case of the average values for Average Salary/GNI per capita of ASA, GB BRAC, BURO Bangladesh, and TMSS is 10.0884, 11.0252, 12.2277, 13.3048, and 15.14, respectively. Moreover, in terms of

efficiency, TMSS has the highest proportion of operating expense to loan portfolio at 15.14 and ASA the lowest at 10.0884, accordingly. In terms of efficiency, ASA has the highest proportion of operating expense to loan portfolio at 0.12708 and GB the lowest at 0.11606. Moreover, in terms of Personnel Expenses to Loan Portfolio, ASA also has the highest score 0.1102 and GB has the lowest 0.07534, respectively. However, in terms of Average Salary to GNI per capita, GB has the highest score 3.946 and BRAC has the lowest 4.368, respectively. On the other hand, for Cost per Borrower BRACK has the highest score 13.2597 and ASA has the lowest 4.368, respectively. This means that ASA, GB BRAC, BURO Bangladesh, and TMSS can be considered to be Operationally Self Sustainable.

The study also found that estimated result of multiple regression analysis is also at a quite satisfactory level where the adjusted R^2 is 0.73 and observed R^2 value is 0.80, respectively. The value of adjusted R^2 revealed that there are good relationships with dependent variables and independent variables where all independent variables can explain about 73% of the financial self-sufficiency. Moreover, the study recommends for policy considerations of the successful and effective operation of microfinance programs by simplifying distribution of loan, improving yield on gross loan portfolio, personnel productivity and reducing of borrowing funds from the donors, reducing operating cost, utilizing resources to generate financial revenue and focus on increasing the value of their total assets in Bangladesh.

Finally, regression result also reveals that Size of MFIs (SIZE) Cost Per Borrower (CPB) and Personnel Productivity Ratio (PPR) positively explain the financial self-sufficiency of MFIs in Bangladesh. On the other hand, variables of average Loan Balance per Borrowers (ALBPB), Age of MFIs (AGE) Debt to Equity Ratio (DER), Operating Expense Ratio (OER), and Number of active borrowers (NAB) have a negative effect on the financial self-sufficiency at a significant level of FSS of MFIs in Bangladesh whereas the Yield on Gross loan Portfolio (YIELD) of MFIs is also positive but not at a significant level.

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