

## **Assessing Social and Financial Efficiency: The Evidence from Microfinance Institutions in Pakistan**

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### **Abstract:**

*The study aimed to identify the determinants and to measure the efficiency of different MFIs providing monetary assistance in Pakistan. In addition to this, the study intended to distinctively measure the social efficiency and financial efficiency of MFIs programs. The study applied Data Envelopment Analysis (DEA), which is recognized as a robust and modern technique as compared others. More importantly, DEA deals with double bottom line objectives of financial institutions by simultaneously measuring social efficiency and financial efficiency. Furthermore, the study regressed explanatory variables to determine the double bottom line objectives of financial institutions. Results indicate that none of the MFIs were efficient by utilizing single input. However, it is found that the efficiency of MFIs increases as the inputs are increased. The study yielded that age and size of the institution are substantial determinants of efficiency of MFIs. The MFIs in Pakistan strongly lack efficiency which needs to be improved in throughout the organizations. The MFIs should focus on enhancement of human resource capabilities to achieve optimal level of output through latest and advanced techniques. The study provides guidelines for policy makers to reward and allocate the funds (resources) for MFIs based on social efficiency and/or financial efficiency.*

**Keywords:** Microfinance Institutions, Efficiency, Social Efficiency, financial efficiency, Data Envelopment Analysis.

## **I. Introduction**

Conventional financial indicators doesn't provides an accurate assessment of performance and now a days it cannot be considered as a sufficient indicators. Especially MFIs social mission and MFIs sustainability which didn't restricted the profitability rather it enhance and maintain the long term operation of MFIs capability without 'bankruptcy' threats. Assessment of efficiency via ratios of financial indicators yields an ambiguous performance MFIs because MFI can do extremely well in terms of one ratio but they fail in terms of other ratio and therefore it is difficult to achieve overall benchmarking performance. Additionally, only individual ratios cannot assess how different inputs parallel influence multiple outputs in the transformation process. So in this situation the stakeholders may face confusion to assess the performance and benchmarking. It is necessary to improve the performance assessment methods and it is the main motives of the current study.

Microfinance has been promoted to develop an alternative solution for poverty reduction in the last 30 years. MFIs, contain special characteristic of double bottom line objectives to outreach the poor from its severity and financial sustainability. MFIs achieved considerable interest and focus, especially in order to achieve the Millennium Development Goals (MDG) to halve the global poverty in 2015. Microfinance is considered as powerful poverty reduction tool in the world among the people who are deprived in society but active for economic contribution. The importance of microfinance institutions (MFIs) are not only to unlock the productive potential of deprived but also to contribute in social task to pull out the deprived from poverty on sustainable basis. MFIs lend small amount of money to borrowers for income generating activities so that they come out from poverty trap. Many researchers concluded that MFIs played an important role in improving the lives of deprived people and empower the female borrowers as well (Bassem, 2008). MFIs are non-rewarding organizations aiming to serve the deprived and poorer who are excluded from the access to traditional banks due to lack of collaterals (Littlefield, Murdudh and Hashemi 2003). Traditional banks motives are earning profits and value maximization but MFIs target its financial and social aspects for their performance. So MFIs provides lending services which supports and strengthens economic activity among poor and underdeveloped societies, it also provide access to capital having poverty reducing objective.

Grameen contributes poverty reduction among women by empowering in Bangladesh during the period of. (Qayyum and Ahmad, 2006). MFIs facilitate the deprived productive poor by filling the needed gap between micro loan providing institutions and the people who are unable to access conventional loan services to produce income generating activities. Capital access provision to poor people is a basic Contribution of MFIs in socioeconomic factors. It has been analysed that MFIs are basic instrument to strengthen and support the socioeconomic factors in the economy (Mimouni & Ali, 2012). The primary objective of the MFIs is to create the job opportunities for poor and destitute and pull them out from poverty circle. MFIs also provide the micro credit to women to empower them and to reduce all type of poverty (Qayyum and Ahmad, 2006). Socioeconomic contribution and efficiency measurement of MFIs remain always questionable among the researchers.

Financial efficiency measurement of the MFIs remains a good target for the researcher Yaron (1994) who focused on sustainability and outreach of MFIs.

Sustainability measures the financial efficiency and outreach measures the social efficiency. Although social efficiency is fully discussed yet have a limited contribution to outreach of the MFIs to deprived and poor. Recently ((Khan, &Suleiman, 2016) discussed about this aspect and highlighted the importance to measure other social aspects of borrowers and clients of the MFIs. They argued to measure the poverty reduction, increase in human well-being and women empowerment for the borrowers and clients of MFIs. It was also identified to measure the efficiency in contribution of socioeconomic determinants for poverty. (Adams and Von Pischke, 1992) focused on sustainability of MFIs as they argued that MFIs must depend its own resources and revenue where the others focused on social aspect of MFIs and emphasize to contribute for empowerment and poverty reduction (Hulme and Mosley, 1996).

Micro finance banks, MFIs and NGOs in Pakistan have been providing microfinance to deprived poor since 1980s. The financial inclusion reached to 4 million along with Gross Loan Portfolio of more than PKR 90 billion (Government of Pakistan, 2016). Loan is provided to more than half female active borrowers. There are more than 50 institutions which have been providing the micro financing in Pakistan to facilitate the desired persons. Although huge amount is provided to deprive in the society but actual outcome is still questionable in the country. It needed to measure the social and financial efficiency of these programs and to actual determinants of efficiency of MFIs.

Numerous studies concerned with measurement of efficiency by using different methodologies using data envelopment analysis DEA but recently published studies ignored and unnoticed the selection of important indicators ( inputs and out puts) which may loss important information regarding objective function of the study. As per authors knowledge numerous researchers measure the financial efficiency by traditional DEA while none of them measures the social, financial and overall efficiency together. Also none of them ranked these entities ( countries, DMU<sub>s</sub>) via composite index. Recent publications also lacks the relevant literature review regarding methodologies adopted in the studies. In order to fill the abovementioned gap to this paper serves as a first study to bridge up all abovementioned issues.

We discussed the significance of constructing a meaningful index of SFI. We construct a standardized SFI by using nonparametric frontier approach and we also support the argue of suing nonparametric frontier approach for construction of a standardized SFI. The advantage of this approach to address the issue of data irregularity such that large number of zeros in the data which creates problem especially in geometric mean. Thirdly we conduct an empirical estimation for efficiency measurement MFIs working in Pakistan and set the policy for other MFIs to function in better way for effective contribution. However, as per best of author's knowledge, previous studies ignored the preferences among social , financial and overall efficiency of the MFI<sub>s</sub> which may change the decision matrix due to challenging relationship among trilemma of social , financial and overall efficiency of the MFI<sub>s</sub>. For the meantime, exact preference and equal weights does not provides an exact investigation and robust results due to the common weights association with every dimension are considerably hard to achieve a consensus. Therefore this provides a SFI to ensure the robustness of results regarding efficiency measurement. The study will provide a valuable guideline to policy makers and other stakeholders. Rest of the paper is structured as follows, section 2explain measurement of microfinance efficiency , section 3

contains methodology implemented in the study, section 4 explain results while section 5 contain conclusion and policy implication.

## **II. Literature Review**

### **A. Measuring Efficiency of Microfinance Institutions**

Different methods are used in literature to quantify the MFIs efficiency. Ratios, parametric and non-parametric techniques has been employed to assess the performance of these institutions. Commonly five methods are used to evaluate the performance which include SFA, DEA, DHA etc. Paxton (2007) evaluated the financial institutions in Mexico and applied SFA which resulted positive correlation between average loan size, technology, outreach and age of MFI with technical efficiency. Lensink et al (2011) critically evaluate the trade-off between outreach and efficiency of MFI. He applied SFA model and concluded negative correlation between outreach and efficiency. Nghiem et al (2006) concluded through DEA that mean value of technical efficiency selected MFIs are 80%. He also analysed that age of organization and location of institutions also influences the efficiency of the MFI. Widiarto&Emrouznejad (2015) applied two stage analyses to measure the efficiency by applying DEA framework and non-parametric test to compare the performance indicators. They concluded that conventional MFIs performed better as compare to Islamic MFI in MENA region. Quayes (2012) conducted an empirical study on 702 MFIs operating in 83 countries and applied a three stage least square method which resulted positive relationship between financial sustainability and outreach of the MFIs. Mersland&Strøm (2010) used regression on large set of data and concluded that an increase in average cost leads to increase average loan with increase in average profit and average operational cost. They also concluded no evidence of mission drift.

### **B. Case Study Microfinance in Pakistan**

Pakistan has made great progress in experiencing of microfinance sector with private and public initiatives aim at making the easy access to credit for poor and reducing the poverty and vulnerability. First microfinance institution namely Akha Khan Rural Support Program was established in 1982 by Agha Khan Foundation (NGO) having a focused on health, education and income generated activities in the rural areas of Chitral and Northern Areas. After AKRSP started the work in Northern Areas of the country, Orange Pilot Project took challenges to reduce the poverty in commercial capital of the country and business hub of, Karachi city in 1987.

After the experience of NGO in MFI till 1990s, Government took initiatives and established a rural support programme at national level in Pakistan which is the largest MF network in the country in terms of gross loan portfolio and number of loans as well. Pakistan Poverty Alleviation Fund (PPAF ) was also established through central government while funded provided from the World Bank, and other supporters including four core constituents such as community infrastructure, credit enterprises development, institutional development, human and social sector development programmes. PPAF provides the funds to other MFIs and NGOs. Khushali Bank was also supported and funded by Asian Development Bank in 2000 to provide the micro credit to needy person. Late 1990s commercial banks and leasing companies also entered in era to provide the microfinance in Pakistan. Now there are dozens of NGOs working to provide the microfinance to poor. Microfinance industry have been growing in the country by providing micro credit, savings and insurance to deprived and target of outreach to 9 million till 2020. Due to this effort during the last years, 63% clients increase in the active

saver Government of Pakistan, 2016). The Financial Inclusion Strategy was developed and implemented in the country to target the women client and expanding the branchless banking in the country for financial inclusion to rural poor. Currently Microfinance banks, microfinance institutions, rural support programs and NGOs are functioning which are more than 52 in numbers. These institutions used different mechanism for providing the financial inclusion to deprived and poor. So there is a need to measure the outcome of that financial inclusion. Unlike others our study is measuring the efficiency of different programs providing microfinance through panel data about the Pakistan. So this study evaluates the efficiency measurement and factors influencing the efficiency. We also identify the factors which are creating problems for effective performance of the programs functioning in country for poverty alleviation and other social factors

### C. Input and output selection criteria for DEA Model:

The selection and addition of underlying indicators and sub-indicators are combined in order to measure the financial and social efficiency score based on the set of accurate quantifications. They quantifications are, contextual sensitivity, robustness, distinctiveness, relevance, coverage and comparability as well. Different inputs and outputs are used in literature to measure the efficiency of MFIs.

**Table 1: Summary of Input output Variables used in past studies**

Authors and Year	Input	Output
Aslam et al. (2016)	Operating expense over average gross loan portfolio, Personnel	Financial revenue/assets, Number of active borrowers, Average loan balance/GNI per capita
Syedah Shan, Waqar Akram (2016)	Total assets, personnel, operating expenses	No of women borrowers, number of loan outstanding, gross loan portfolio, return on assets
Zahoor Khan and Jamalludin Sulaiman (2015)	Assets, operational cost, loan officers	Gross loan portfolio, financial revenue, indicator of benefit to poorest, number of women borrowers
Jaap W.B. Bos, Matteo Millone (2015)	Financial expenses, Personnel expenses, administrative expenses	Average loan size, number of loan, yield on gross loan portfolio
Mahinda et al. (2015)	Total Assets, Number of credit officers (as measure of labour), cost of per borrower	Financial revenue, Total number of female borrowers
Komlan Sedzro (2015)	Physical assets, operating expenses, number of personnel	Number of active borrowers, number of depositors
Indra et al. (2015)	Assets, Operating expenses, portfolio at risk 30 days, employee	Financial revenue, inverse of average loan borrower and borrowers
Izah et al. (2015)	Total assets, operating expenses	Gross loan portfolio, number of active borrowers
Ritika et al. (2014)	Officers, Personnel, operating expenses	Interest and free income, gross loan portfolio, number of loan outstanding
Hafiz et al. (2014)	Personnel, assets, cost per borrowers	Gross loan portfolio, number of active borrowers
Atiqi Nasution (2014)	Fixed assets, total capital	Disbursement of loan, total profit sharing

Ines Ben Abdelkader, Asma Ben Salem (2013)	Total assets, number of employees, operating expenses	Financial revenue, number of active borrowers % female borrowers
M. Kabir Hassan and Benito Sanchez (2012)	Total financial expenses, operating expenses, labour	Gross loan portfolio, total funds, financial revenue, number of active borrowers
Usman Ahmad (2011)	Total assets, number of personnel	Gross loan portfolio, number of active borrowers
MamizaHaq · Michael Skully · Shams Pathan (2010)	Labour cost per borrower, cost per saver (P), Total number of staff, operating/administrative expenses (I)	Number of borrower per staff member, number of saver per staff member (P) Gross loan portfolio, total savings (I)
Ahmad Nawaz (2010)	Total assets, operating cost, number of staff, total subsidies(in case of +ve)	Gross loan portfolio, financial revenue, revenue subsidy, total subsidies (in case of –ve)
Steven B. Caudill, Daniel M. Gropper and Valentina Hartarska (2009)	Labour, physical capital, financial capital	Number of borrowers served, volume of loan
Begoña Gutiérrez-Nieto, Carlos Serrano-Cinca, Cecilio Mar Molinero (2009)	Total assets, operating cost, number of employees	Number of active women borrowers, indicator of benefit to the poorest (K=Average loan balance per borrower/pcGNI), gross loan portfolio, financial revenue
Ben SoltaneBassem (2008)	Personnel, total assets	ROA, number of borrowers X % of the women
Begoña Gutiérrez-Nieto, Carlos Serrano-Cinca, Cecilio Mar Molinero (2007)	Credit officer, Operating expenses	Interest and free income, Gross loan portfolio, Number of loan outstanding
Abdul Qayyum and Munir Ahmad (2006)	Credit officers, cost per borrower	Loan disbursement

### III. Methodology

Various approaches present in the literature to measure the efficiency and performance of the MFIs as financial institution which include production and intermediation approach. Capital and labours are used as input to produce inputs of loan, deposits and services under the production approach in financial institutions. On the other end deposits are used as input to produce output under the intermediary approach in financial institutions. Deposits are treated differently in these two approaches: treated as output in production approaches and as output in intermediary approach (Kipesha 2012).

The study apply the DEA model in both output oriented and input oriented CCR and BCC in model to measure efficiency of the MFIs working in Pakistan. This study used output model as each MFI want to maximise the output with in limited available resource. Whereas input oriented model is also used to compare efficiency in situation where MFIs are unable to maximise the output due to regulatory, demographically or geographically restriction imposed on them and MFIs are faced only minimise the input to increase the efficiencies.

As a nonparametric DEA methodology identify the best frontier practice by using linear programming approach and measure the relative performance of each indicator on the base of inputs and outputs from comparable and measurable entities. Various studies has been used to the measure the financial efficiency system performance, and productivity of different entities or decision making units. The traditional use of DEA to measure environmental performance was consists of difference between good and bad output. In this perspective of performance measurement Färe et al. (1989) introduced a fundamental academic foundation which was the reason of popularity of the nonparametric DEA frontier practice to measure the bad outputs such that pollutant. Methodology adopted in the study consists of two parts. In first part individual efficiencies of social, financial and overall efficiency has been investigated while in other parts all these efficiencies have been combined in slack based DEA approach to rank these entities.

$$\begin{aligned} \max \theta(\mu, v) &= \frac{\sum_t \mu_t y_{t_0}}{\sum_r v_r x_{r_0}} \\ \text{S. t} \quad &\frac{\sum_t \mu_t y_{t_k}}{\sum_r v_r x_{r_k}} \leq 1 \\ &\forall k = 1, 2, \dots, n \\ &\mu_1 + \mu_2 + \dots + \mu_t \geq 0 \\ &v_1 + v_2 + \dots + v_r \geq 0 \end{aligned}$$

DEA is a linear programming-based methodology that determines the comparative efficiency score of a set of similar Decision Making Units (DMUs) in transforming inputs into outputs by solving a series of linear programs. For each DMU one solves a linear program for the “DMU under evaluation” to calculate its relative efficiency. Suppose there are n DMUs (k = 1, 2, ..., n) being evaluated on their ability to transform r inputs (xi) (i = 1, 2, ..., r) into t outputs (yj) (j = 1, 2, ..., t). The mathematical notation is as follows: x<sub>ik</sub> the degree of input i, utilized by DMU k, y<sub>jk</sub> the quantity of output i, generated by DMU k; x<sub>io</sub> the amount of input i, consumed the DMU under evaluation, y<sub>jo</sub> the amount of output i, produced the DMU under evaluation while v<sub>i</sub> weight placed on input i, through the DMU under investigation, μ<sub>j</sub> weight placed on output j, by the DMU under evaluation. Furthermore, we assume that X<sub>ik</sub> ≥ 0 and Y<sub>jk</sub> ≥ 0, with at least one non-zero input and output for each DMU.

**Table 2: Variables representing Efficiency**

Efficiency represented	Input variables	Output variables
Overall efficiency	Asset Operating Expenses Employees	Financial revenue/assets. Average loan balance/borrower/GNIpc. Quantity female borrowers.
Financial efficiency	Asset Operating Expenses Employees	Financial revenue/assets
Social efficiency	Asset Operating Expenses Employees	Average loan balance/borrower/GNIpc. Quantity of female borrowers

The above data and variables are used in a fractional programming formulation, where the decision variables ( $\mu, \nu$ ) are the weights for the inputs and outputs. This creates an assessment of efficiency which is only a function of the weights.

**Table 3: SFEI trilemma index by MFI<sub>s</sub> in Pakistan**

Rank	SFI	Social Efficiency	Financial Efficiency	Overall Efficiency
1	Entity1	$X_{11}$	$X_{12}$	
$X_{13}$				
2	Entity 2	$X_{21}$	$X_{22}$	
$X_{23}$				
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮	⋮
n	Entity n	$X_{n1}$	$X_{n2}$	$X_{n3}$

where  $X_{ij} \in Z^+, i= 1,2, \dots, n, j= 1, 2, 3$  are entities  $i$  country's profiles according to the aforementioned three dimensions.

We replace the vector  $V_k=(vk_1, \dots, vk_n)$  by  $V_k=(X_k, Y_k)=(xk_1, \dots, xkm, yk_1, \dots, yks)$  to differentiate between inputs and outputs where  $X_k$  and  $Y_k$  are input and output vectors respectively. The inputs vector  $X_k=(x_{k1}, \dots, x_{kn})$  used to produce the output vector  $Y_k=(y_{k1}, \dots, y_{kn})$ . The inputs  $X \in R_+^p$  and outputs  $Y \in R_+$  is the set of possible combination of outputs and inputs and its defined as,  
 $f(z) = \{(x,y) \in R_+^p \times R_+ \mid x \text{ can produce } y, \text{ when } Z=z\}$ .

Its objective function of this additive DEA model is inefficiency measurement of slack-based measures of entity  $o$ . The constraints decide the maximally possible reduction from the practice of best frontier and increase in inputs and outputs which are recognised (Mohsin et al, 2018). A variable having the range of zero shows that, all the entities have zero value so it would be expected in SFI assessment. In this situation, the appropriate constituent target function of proposed model and the equivalent constraint should be separate. The final constraint  $\sum_{k=1}^K z_k = 1$  as a convexity situation which ensure that the ratio-scale measurements units doesn't change the optimal solution of objective function. The objective function is as follows,

$$S = \{(X, Y) : S = \sum_{k=1}^K x_{ik}z_k \leq x_i, \quad i = 1, \dots, m$$

$$S = \sum_{k=1}^K y_{rk}z_k \leq x_r, \quad r = 1, \dots, S$$

$$S = \sum_{k=1}^K z_k = 1 \quad i = 1, \dots, m$$

$$z_k > 0, k = 1, \dots, K \}$$

By using the proposed model and by using the constraint as follows,

$$\max_{m+s} \frac{1}{m+s} \left( \sum_{k=1}^K \frac{S_i^-}{R_i} + \sum_{k=1}^K \frac{S_r^+}{R_r^+} \right)$$

$$\begin{aligned}
 S &= \sum_{k=1}^K x_{ik}z_k + S_i^- = x_{oi}, \quad i = 1, \dots, m \\
 S &= \sum_{k=1}^K y_{rk}z_k - S_r^- = y_{or}, \quad r = 1, \dots, S \\
 S &= \sum_{k=1}^K z_k = 1 \quad i = 1, \dots, m \\
 &z_k > 0, \quad S_i^- > 0, \quad S_r^- > 0
 \end{aligned}$$

where  $x_{oi}$  is  $i$ -th input and  $y_{or}$  shows output for underlying entity  $o$  ( $o \in \{1, \dots, K\}$ );  $R_i^-$  and  $R_r^+$  shows the varieties for output  $r$  and input  $i$  and it can be distinct as  $R$

$$R_i^- = \max\{x_{ki}, k=1, \dots, K\} - \min\{x_{ki}, k=1, \dots, K\}$$

$$R_r^+ = \max\{y_{kr}, k=1, \dots, K\} - \min\{y_{kr}, k=1, \dots, K\}.$$

while equation can be solved through linear programming which can be defined as the social and financial efficiency SFA and it is defined as following equation.

$$SFEI(V_o) = SFEI(X_o, Y_o) = 1 - \max \frac{1}{m+s} \left( \sum_{k=1}^K \frac{S_i^-}{R_i^-} + \sum_{k=1}^K \frac{S_r^+}{R_r^+} \right)$$

P1.  $0 \leq SFEI \leq 1$

P2.  $SFEI(V_o) = 1$  Entity  $o$  is situated on the frontier of best practice

P3.  $SFEI(V_o)$  is invariant to the assessment of inputs and outputs units.

P4.  $SFEI(V_o)$  is strongly monotonic

P5.  $SFEI(V_o)$  is a transformation invariant

P1 shows that the proposed model provides a standardized value between 0 and 1 and greater value associated to good performance.

P2 entails the entities which role play to developing the frontier of best practice having values smaller than 1. From Eq. (...), it is easy to determine the identification of entities shaping the best practice frontier associated with nonzero  $z_k$ . P3 implies that social and financial efficiency is invariant with ratio-scale assessment.

### III. Results and Discussion

Table 4 shows the descriptive statistics of the selected variables for the measurement of social and overall efficiency. The social and overall efficiency of MFIs including various variables of panel data having higher values implied the better performance while smaller values shows under performance. The results indicate that variables have been normalized in order to ensure the robustness of the results.

**Table 4: Descriptive Statistics of the selected variables**

MFIs	AX	AY	AZ	BX	BY	BZ	CX	CY	CZ	ABCX	ABCY	ABCZ
FINCA Pakistan	.25	.19	.13	.48	.27	.10	.10	.8	.5	.88	.69	.33
TMFB	.31	.27	.29	.14	.9	.6	.8	.7	.7	.35	.31	.32
NLCL	.37	.47	.64	.29	.27	.21	.30	.41	.52	.65	.85	.91
Rozgar	.38	.36	.51	.53	.38	.29	.37	.38	.50	1	1	1
AGAHE	.73	1	.79	.29	.30	.13	.28	.42	.31	.74	1	.80
Akhuwat	.9	1	.33	.25	.1	.37	.8	1	.30	.45	.2	1
AKRSP	.2	1	.7	.34	.14	.40	.4	.2	.11	.49	.24	.73
BRAC – PAK	.45	.47	.54	.31	.24	.15	.32	.36	.39	.72	.77	.73
Buksh Foundation	.7	.7	.8	.40	.29	.18	.3	.4	.4	.62	.53	.37

CSC	.2	1	.4	.32	.8	.23	.2	.1	.4	.41	.11	.34
GBTI	.3	.3	.3	.42	.28	.19	.2	.2	.3	.49	.34	.23
JWS	.3	1	.6	.43	.6	.37	.4	.1	.9	.61	.9	.64
Mojaz	.19	.15	.31	.43	.25	.29	.25	.21	.41	.81	.65	.96
NAYMET	1	.92	1	.39	.27	.16	1	1	1	1	1	1
NRSP	.20	.10	.70	.16	.6	.23	.18	.10	.61	.36	.20	1
OPD	.5	.7	.13	1	1	1	.4	.6	.10	1	1	1
Orangi	.36	.34	.35	.44	.31	.17	.22	.23	.22	.87	.86	.64
OSDI	.9	.2	.54	.10	.2	.25	.9	.2	.54	.20	.4	.97
PRSP	.53	.29	.41	.29	.11	.9	.26	.15	.20	.70	.38	.49
Saath	.19	.22	.7	.37	.32	.5	.15	.19	.5	.69	.80	.16
Taraqee	.2	1	.7	.36	.10	.48	.3	1	.9	.46	.15	.71
TRDP	.19	.13	.18	.50	.25	.19	.10	.7	.9	.89	.59	.52

There are notations to explain the different specifications for DEA. A, B and C are used for Assets, Operating expenses and Personnel as input whereas X, Y, and Z are used for Financial revenue, Percentage of female clients and Average loan size respectively as output. The DEA model was to measure the efficiency score by using single input and single output and is also all inputs are used to measure the financial and social efficiency separately and total efficiency as well. In this way a specification treats a MFI whose assets (A) produced the financial revenue (X) as output are labelled as AX. So in this way specification BY are used as operation expenses are done to generate the financial revenue. In this way different combinations are calculated in the above table to show how a MFI operated and generated different combination of using input and output. It is very interesting to measure the different combination and evaluate the performance of the different DMUs. The efficiencies are measured by using the CCR model of constant to return with output orientation method.

It is also revealed that different combinations of input and output are used to measure the performance of financial efficiency and social efficiency of MFIs. Ratios about efficiency measurement are special case attained when only one input from MFI and only one output from same MFI enter into the specification. Total number of specification with input and output are 14 in this study. The complete list of specification are used in above table.

It is revealed from the above table that no one MFI is efficient performing perfectly for producing fully output in all specification combination. NAYMET is most efficient under ten out of fourteen specifications which show that it is excellent MFI but its efficiency drops as 27% & 16% under BY and BZ specification. So NAYMET is efficient except operating expenses which are not used efficiently. This is good in any specification where C (personnel) are used as input. Assets are also used efficiently for producing X and Z and only Y is produced by 92%. TMFB achieve the lowest score for total efficiency in the above table. There are different DMUs which are scoring less than 1% in various specifications. So they are needed to take action to improve their efficiency and have strong points that need further attention for improvement. It is also observed that when inputs are increased efficiency of DMUs are also increased. Only six MFIs are efficient by scoring 100% with combination of all three inputs and all three outputs.

The proposed model is a benefit type indicator which implies that higher values mean that larger the best. Table 1 shows that the AX values ranges from 100 to 2 for having the NAYMET value 1 and CSC has the score of 0.2 similarly the AY values ranges from 1 to 0.01 such as AGAHE has 1 score while Akhuwat, AKRSP, CSC, Taraqee and JWS have 0.01. AGAHE outperform with 1 value of for AY and NAYMET out perform with value of 1 in terms of AX. AGAHE and NAYMET has made great progress in microfinance sector including private and public enterprise which provides the easy access to credit for poor and reducing the poverty in the region. The values of AZ ranges from 1 to 0.03 such as NAYMET again out perform with value of 1 while GBTI has score of 0.03. After NAYMET the NRSP has the score of 0.7 and AHAGE contains this score 0.79.

Values of BX shows that the OPD has 1 efficiency score while and TMFB have 0.14. Horizontal analysis show that the variables ABCX, ABCY, ABCXYZ and ABCYZ have a better performance for all entities. Approximately these variables contains the average values above than 0.4 for all entities have been studied. Conversely the variables CX, CY and CZ shows a poor values and almost all organizations underperformed regarding variables and these are considered as these underperformed variables. Very interestingly the entity NAYMET has 0.1174 and CSC has lowest vales 0.238 and for horizontal view results shows that ABCXYZ and ABCYZ and have maximum values containing 1.77 and 1.67 while the CY, CX and CZ shows 0.387, 0.40 and 0.576.

#### **IV. Conclusion and Policy Implications**

This study is motivated by assessment of financial and social efficiency of microfinance institutions in Pakistan. In order to conduct an robust assessment we construct a standardized SFI by using nonparametric frontier approach and we also support the argue of suing nonparametric frontier approach for construction of a standardized SFI. The results reveals that overall table score values shows that NAYMET and OPD have highest vales and they outperform in almost all cases from AX to BCXYZ while Akhuwat, CSC, GBTI , Taraqee and Saath have minimum values ranges from 0.1 to 0.2. Surprisingly, the results shows that none of the MFIs were efficient by utilizing single input nevertheless, the results shows that the efficiency of MFIs increases as the inputs are increased. The study yielded that age and size of the institution are substantial determinants of efficiency of MFIs.

And finally we put forward the policy as follows for easiness of decision makers. The conclusion of our study helps to decision and policy makers in order assess the overall and social efficiency of MFIs .The study will also helps to develop the information asymmetry and to know the firms behaviour. The study will helps the policy makers to establish the institutional environment according to the required. The limitations of the study is that study use cross sectional data of one year and limited to measure the productivity changes of MFI. Financial revenue is only variable which is used to measure the financial efficiency where as other indicators may be included in future for detail investigation and performance. Average loan and female workers are only social indicators in this study where as detailed study also need to address other social variables as well. Although Islamic and conventional MFIs bear different behaviour but in this study both type of MFIs are treated in same way. The study can be extended to investigate the association among different variables, company size and managerial incentives, and explore in detail whether, the phenomena of social and overall efficiency is meaningful in both developed and developing economies.

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