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Comparative Analysis on the Economic Impacts of Client's and Member based Microfinance Institutions in Pakistan

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This Paper shows the comparative study of two peer groups of Microfinance Institutions based on the data of Pakistan Microfinance Institutions. Microfinance is the provision of financial services for the poor. The financial services include savings, insurance, transfer of funds and credit facility. The performance has been measured through return on assets, return on equity and financial self-sufficiency being the dependent variables. Size, debt-equity, number of borrowers, number of women borrowers, risk coverage ratio has been employed as independent variables. Secondary data of 24 microfinance institutions and 11 microfinance banks from 2006 to 2017 has been analyzed by applying t-test, correlation, multiple regression analysis and Mann-Whitney U-test on the penal data. The hausman test has also been applied and resultantly fixed effect regression model performed. The results show that Clients based microfinance institutions (MFBs) has statistically significant economic impact on the performance. The R-square test has also supported the results. The Mann-Whitney U-test performance and economic impact of MFBs is higher than the MFIs.

Keywords: Microfinance institutions, risk management, Economic Impact, Performance, sustainability.

INTRODUCTION

"The key to ending extreme poverty is to enable the poorest of the poor to get their foot on the ladder of development." *Jeffrey d. Sachs.* Microfinance serves those who live around the poverty line but could not serve the destitute and very poor. Microfinance is the provision of financial services for the poor. The financial services include savings, insurance, transfer of funds and credit facility (Muharremi, Luci, Madani, and Pelari, 2018). Microfinance is an important catalyst for poverty reduction. Microfinance products are designed to the financial needs of the poor people. The areas for these products are women empowerment, financial services to poor, client participation and use of collateral substitutes. Microfinance builds a system that serves the poor.

Microfinance can be defined as, "Microfinance has been a powerful tool to fight poverty through the provision of basic financial services including credit, savings, insurance and transfer of funds. These services are tailored to be offered to low-income persons excluded from the traditional financial system and who need to have access to a variety of financial products and services, practical, flexible, and at a reasonable price" (Daher & Saout 2013). Another definition of microfinance is that, "Microfinance is essentially the provision of loans on the basis of a social collateral guarantee" (Ongore 2013). Microfinance Institutions has been defined in Microfinance Ordinance in 2001 as a company that accepts deposits from the public for the purpose of providing microfinance services. Nawaz (2010) defined Microfinance Institutions as an infrastructure made of a number of different operators reaching and serving in innovative ways the financially under-served people who are striving for poverty alleviation, social promotion, emancipation, and inclusion."

Provision of credit, branchless banking, micro-insurance are the services which microfinance institutions provide for the alleviation of poverty. Preference given to the women especially living in rural areas is for women empowerment. The products and services designed by these institutions are to promote economic condition of target area and also work for social uplift of poor by counseling and provide valuable advices for capacity building (Mersland and Urgeghe 2013). Women empowerment is a vital area for eradication of poverty. The women have been more motivated to provide opportunity for her children for career building and higher studies. The women empowerment is also important for the marriage of their daughters (Boehe and Cruz 2013).

Microfinance sector consists of three sections i) Microfinance Banks, ii) Microfinance Institutions, iii) Rural support programs, (Pakistan Microfinance Review, 2012). There are eight microfinance banks were working in Pakistan in 2012, offering wide variety of products for saving, credit facility and transfer of funds. Credit products are ranging from Rs. 10,000 to Rs. 150,000. The microfinance banks are regulated by the State Bank of Pakistan and Microfinance Ordinance was promulgated in 2002. These services are provided by many types of institutions, like, commercial banks, microfinance Banks, cooperative societies, NGOs and money lenders. The microfinance facility is used for smooth consumption and deal with emergencies, like, sickness, accidents and other natural hazards. Microfinance is helpful to seize opportunities to follow or to start a new business as well as an opportunity to expand the existing small business. The microfinance is also used to make large expenses on education, weddings, and funerals and on necessary household assets. Microfinance is

helpful for the poor to build assets, reducing vulnerability to shocks, raising more predictable household income.

The economic impacts of microfinance institutions had been studied by Ashta & Fall (2012) in which they compared the performance of different institutions to know the economic impacts to microfinance institutions and the beneficiaries of these organizations. Microfinance has greater impact on empowering and educating women. The poverty reduction is possible by adopting the above narrated uses of microfinance. Research on impact on poverty is going on and different studies are available on every aspect of microfinance to eliminate poverty. Microfinance is considered a highly valued service; it helps hundreds of millions of poor people. It stabilizes consumption, finance major expenses, cope with shocks and help to avail opportunities to expand business and increase revenues even if incomes are low, irregular and unreliable. The role of microfinance can be elaborated in four dimensions, (1) microfinance services, (2) developing sustainable institutions, (3) savings mobilization, and (4) developing policy environment. Development of sustainable institutions has vital impact on the provision of microfinance services to the poor population of the country. The development of institution also improves the savings in the country by providing saving schemes according to need and education level of the operating area of the institution. The development of policy environment deals with the regulations and development of standard procedures for all the institutions for which State Bank of Pakistan and Securities and Exchange Commission of Pakistan is working and different rules and regulations are promulgated.

The problem statement in this study is that the estimation of economic impacts of client's and member microcredit institutions is of basic importance in the study of profitability, performance and sustainability of an organization. The factors affecting the economic impacts are taken as independent variables and performance as dependent variable which could be determined by returns on assets, returns on equity, and financial self-sufficiency. Some basic variables of performance may vary in different sectors of economy and in different types of economies which have varied economic impacts. This study would be helpful in calculating performance with respect to economic impacts in microfinance industry/sector.

This study is to determine the economic impact of microfinance sector at large and to determine most effectively performing institutions in the sector. The variable/factor which has larger impact on economic performance is also important to study so that the factor may get importance in decision making. The extent microfinance contributes to generate income, accumulate assets and hence enable the clients and members to meet their necessities. Microfinance services would able the poor by expanding financing opportunities and having economic impact on the clients and members.

The study is organized as follows; chapter II reviews the literature regarding economic impacts of clients and member-based microfinance institutions. Chapter III explains the methodology used for determining the relationship between dependent and independent variables and then comparing the results of clients and members-based institutions. Chapter IV illustrates the data analysis and their results. Finally, in chapter V conclusion and policy implications of this study are presented.

LITERATURE REVIEW

Microfinance is the provision of financial facility for the poor who have no access to the traditional sources of finance and other financial services. Microfinance has been defined in different ways, but the essence of the definition is the same as the provision of financial services to poor people having no collateral for traditional credit facility. The performance of microfinance banks and institutions has been measured based on varied variables keeping in view the varied nature of economies and cultural diversity in the world, performance can be tracked through many aspects. Lending to the poor involves high risk and transaction cost associated with information asymmetries and moral hazards. According to Bashir (2003) the capital and loan ratios play an important role in explaining the performance of Islamic banks. Greater success MFIs have to depend on long term debts this would develop the MFIs. An opening to list MFIs provides an opportunity to gather equity capital to enhance sustainability (Kyereboah-Colemen, 2007). Luzzi, & Weber (2006) have explained that operational self-sufficiency (OSS), ROA and ROE have been effective tools to measure relative performance in microfinance institutions. Bassem (2009) have emphasized that age and size of microfinance institutions have positive affect on performance and the inflation has negative impact on sustainability on microfinance institutions along with governance. Cost effectiveness improves performance, productivity and efficiency but more emphasis must be on the returns and sustainability to improve efficiency and outreach (Rauf & Mahmood, 2009). Productive loans from microfinance institutions determine the access to microfinance institutions in rural area have significant positive effect (Imai, Arun and Annim, 2010). Nawaz (2010) has emphasis that reduction in subsidy dependency is important factor in the sustainability and performance of microfinance institution. According to Hermes, Lensink & Meesters (2011) outreach and efficiency of microfinance institutions have been important factor to improve performance. Bi and Pandey (2011) compared the performance of microfinance institutions with commercial banks showed handsome improvement but due to lack of capital to diversify the sources of funding for microfinance institutions to increase efficiency and performance. Performance measures are needed to ascertain the profitability and sustainability (Waweru and Spraakman 2012). Operating expense ratio write off ratio and cost per borrower were significant predictor variables and determine return on equity (Dissanayake 2012). Financial reporting framework is essential to improve liquidity position, assets value, market share, financial sustainability as well as portfolio quality (Arthur et al 2013) Mersland, and Urgeghe, (2013) have emphasized that subsidized loans must follow a positive approach with professionals in operations. Management inefficiency has a negative and significant impact

on performance. The credit risk and lending behavior have significant impact in determine financial sustainability of microfinance institutions at large Tehulu (2013), Louis, Sert and Baesens (2013) and Daher & Saout (2013). Alimukhamedova (2013) is of the view that access to finance is the key to the success. Gwasi and Ngambi (2014) emphasized that training of staff increases the capacity of customers. Altasseb (2015) has compared and analyzed the economic impacts of client's and member-based microfinance institutions and found that the Clint based microcredit had substantial impact on standard of living of the microcredit beneficiaries. Support to microfinance institutions had associated to ensure efficiency through reduced operational costs (Ayele 2015). There was steep increase in commercial debt and significant decrease in funding cost by decrease in interest rate. Interest rate charged may need to control to attract more clients as it was a major barrier for client's loan repayment (Ahmad et al 2016). Babajide, et al. (2016) recommends that there should be an overhaul of the methodology and practice of microfinance institution in line with the best practices employed in international market. There was enough empirical evidence for the failure of microfinance institutions as compared to microfinance banks. Muriu (2016) had observed that sustainable development needs an appropriate regulatory policy which could enable to access long term debts and enhance profitability with sustainability. Efendic and Hadziahmetovic (2017) have viewed that higher financial efficiency may be compared to social efficiency to scale the overall efficiency of the Microfinance Institution and it was concluded that MFIs did not lose their social aims. The results may have limited implications and generalizations due to small data size. Liquidity risk and credit risk have no significant relationship with the financial performance of banks. In microfinance banks in Kenya have low credit risk (Ngumo, et al. 2017). Micro credit loans have positive impact on the poor borrowers as compared to data collected regarding income level of the borrowers with average socio-economic levels not poor people (Muharremi, et al. 2018). The current study investigates the performance of microfinance institutions and banks and then comparing the results to reach at the conclusion that which sector performed better than the other sector. For this purpose, the following hypotheses are formulated in the light of exiting empirical literature.

METHODOLOGY

The results can be evaluated by ratios like return on investment, return on assets, return on equity and firm value. These terms are also used as a general measure of a firm's overall economic impact over a given period and can be used to compare microfinance banks and microfinance institutions. Economic impact of an organization can be measured by ratio analysis. Mersland & Storm (2008) studied that performance measurement has an important role in identifying and tracking progress against objectives of the organization, identifying opportunities for improvement, comparing performance by economic impact on clients and members against set standards.

Sources of Data & Sampling

The secondary data is available on the website of Pakistan Microfinance Network. The panel data is based on the availability of data of MFB and MFI on the website of Pakistan Microfinance Network. The panel data from 2006 to 2017 would be used approximately. Most of the microfinance institutions in Pakistan do not provide data to PMN due to standards of PMN and the accounting practices used by the MFBs and MFIs in Pakistan.

Population

The total number of microfinance institutions and microfinance banks is the population of the study. At present 24 numbers of microfinance institutions and 11 microfinance banks are working in Pakistan as reported by the Pakistan microfinance network publication Pakistan Microfinance Review, 2017 on its website. With reference to the unit of analysis all microfinance institutions have been divided in two groups. Therefore, it is a group study and unit of analysis is group.

Unit of Analysis

It is group study, the microfinance institutions and microfinance banks; two groups has been created and the performance of both the groups been measured and compared with the Mann-Whitney U-test approach and then it would be deduced that which group has been more successful than the other to achieve the objective of microfinance and resultantly helpful to eliminate the poverty in the county.

Regression Model

Simple linier model would be applied to examine the economic impact of both client and member organizations, like Microfinance Banks and Microfinance Institutions (organizations), for these two models would be employed and the results would be compared to ascertain the economic impact of each group of institutions and then get the results.

The performance outcome variable has been created with the help of the ROA, ROE and FSS basis using as dependent variable against the independent variables, Hence the equation may be as follows

$$Y_{(\text{Performance outcome})} = \alpha + \beta_1 (\text{Age})_{i,t} + \beta_2 (\text{Size})_{i,t} + \beta_3 (\text{debt ratio})_{i,t} + \beta_4 (\text{number of active borrowers})_{i,t} + \beta_5(\text{number of women borrowers})_{i,t} + \beta_6(\text{Adj. cost per borrower})_{i,t} + \beta_7(\text{Adj. cost per loan})_{i,t} + \beta_8(\text{number of active loans})_{i,t} + \beta_9(\text{number of active loans})_{i,t} + \beta_{10} (\text{Risk Coverage Ratio})_{i,} + \mu_{i,t}$$

Hypothesis

H_1: there is positive relationship between age and economic impacts of client's and member-based microfinance Institutions.

H_2: there is positive relationship between size and economic impacts of client's and member-based microfinance Institutions.

H_3: there is positive relationship between debt equity ratio and economic impacts of client's and member-based microfinance Institutions.

H_4: there is positive relationship between number of active borrowers and economic impacts of client's and member-based microfinance Institutions.

H_5: there is positive relationship between numbers of women borrowers and economic impacts of client's and member-based microfinance Institutions.

H_6: there is positive relationship between Adj. cost per borrower and economic impacts of client's and member-based microfinance Institutions.

H_7: there is positive relationship between Adj. cost per loan and economic impacts of client's and member-based microfinance Institutions.

H_8: there is positive relationship between number of active loans and economic impacts of client's and member-based microfinance Institutions.

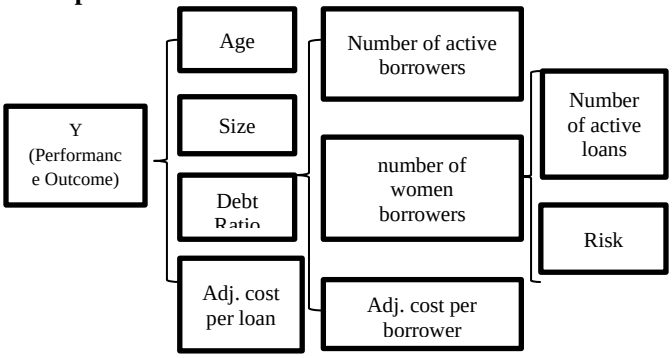
H_9: there is positive relationship between risk coverage ratio and economic impacts of client's and member-based microfinance Institutions.

H_{10}: there is a big difference between the economic impact of MFIs and MFBs.

Theoretical Framework

At the first stage the descriptive statistics would be applied on panel data. Being the panel data, it is important to apply the hausman test on the data first. Then Correlation and Regression will be used to measure the strength of the linear relationships between the economic impact of different operational activities and financial performance of the microfinance institutions and banks. Descriptive Statistics will be used to measure the average performance secure. The t-tests will also be used to determine if there will be a difference in the means of both peer groups to test performance between and within treatments. The comparison in MFB and MFI would be conducted to ascertain the economic impact of each type of organization by analyzing the panel data from 2006 to 2017. Percentage method will be used to compare the financial performance of microfinance institutions. The grounded theory would be followed in this study. The Discovery of Grounded Theory by Glaser and Strauss in 1967, the grounded theory method has undergone several revisions. Glaser and Strauss themselves suggested different ways in which grounded theory ought to be experienced. Grounded theory involves the progressive identification and integration of categories of meaning from data. It is the process of category identification and integration (as method) and its product (as theory). Grounded theory as method provides guidelines that how to identify categories, how to make links between categories and how to establish relationships between them. Grounded theory as theory is the product of the process; it provides with an explanatory framework with which to understand the phenomenon which is investigated. Grounded theory researchers use several key strategies, including constant comparative analysis, theoretical sampling and theoretical coding.

Conceptual Framework



Model Specifications

The performance would be measured by return on assets, return on equity, and financial self-sufficiency. The performance is a dependent variable and independent variables in MFIs may be age, size, branches, total debt and risk coverage. Age would be the actual age of the organization and size would be measured by the total assets of the organization. The risk coverage would be measured with the portfolio risk in 30 days. The number of branches and total debt explains the working of the organization and would be measured as it is available. Outreach is another dependent variable which helps to evaluate the performance of an organization.

The study would be conducted based on quantitative data, employing exploratory and quantitative research approaches. The exploratory approach is dealt with the individual beneficiaries with changing socio-economic features and living conditions. The quantitative research approach was sought to be the most useful approach to generate an in-depth quantitative data which would enable to draw impact analysis. A mix of methodological approaches will be employed to effectively generate evidence necessary to produce more conclusive results.

Analysis

The data for analysis is collected from the web site of Microfinance Network and it is a Panel Data from 2006 to 2017. The data is selected based on availability of data on the web site. The data is further divided into two groups for comparative analysis. The Microfinance Institutions are member-based institutions and Microfinance Banks are Client based. The two groups are compared to study that which group has greater economic impact on the members or clients of the microfinance institutions. The Hausman test has been performed using STATA software and the value is 0.020, which leads to apply the fixed effect model of regression analysis on panel data model. The standard value of hausman test is 0.05 if the value of hausman test is less than 0.05 then fixed effect model would be used for regression other vise the random effect model would be employed. The Mann-Whitney U-test has also been employed considering it a study specific test, comparing mean of all the variables. The Mann-Whitney U-test is a statistical comparison of means. It is a member of groups of dependency tests and compare means of independent variables. Considering a comparative study, the means of all the variables used was compared and correlation is calculated. At the end the regression of both the peer groups, for which comparison had been employed, was calculated. A composite variable is created named as performance outcome, by combining the three financial variables that can be used individually as a dependent variable.

Table 1: *Characteristics and Results of the T-Test Statistics*

Groups variables	Members (MFI)		Clients (MFB)		t-test	P
	Mean	SD	Mean	SD		
Age of Institution	16	6	9	4	8.14	<.001***
Size (Total Assets)	16871	27998	103072	125502	6.05	<.001***
Debt Equity Ratio	6	11	2	2	2.98	0.003**
No of active Borrowers	87032	13869	190429	174709	3.74	<.001***
No of women borrowers	63503	99531	58596	52320	0.32	0.752
Adj. cost per borrower	2091	1517	7547	5243	8.93	<.001***
Adj. cost per loan	2084	1521	5070	5756	4.50	<.001***
No. of active loans	90007	14346	186638	168943	3.49	0.001**
Risk coverage ratio	300	510	102	77	2.67	0.009**

*p<.05, **p<.01, ***p<.001

The results of the descriptive and t-test statistical analysis of microfinance and economic characteristics and associated outcome on the dependent variables are analyzed. The t-test explains about the level of significance of the mean variances across each variable between the two groups of members and clients. As per the results of the descriptive statistics reported in table 1, the mean of age of institution, size of institution, number of active borrowers, adjusted cost per borrower and adjusted cost per loan reveals 16 years, 1.6 million, 87032, 2091 and 2084 rupees per borrower respectively for the MFI. The respective results of MFB reveal 9 years, 10.3 million, 190429, 7547, and 5070 rupees per borrower. The differences of means for these variables have statistically been significant. The debt equity ratio, number of active loans and risk coverage ratio tells 6 percent, 0.9 million, and 300 respectively for MFIs. The respective results for MFBs these mean are 2 percent, 1.9 million and 102 respectively significant at 90% level of significance. The differences of means for these variables have statistically been significant. These results are consistent with the study of Altasseb (2015) and Babajide, et al. (2016). Both results have statistically been significant.

The results for t-test confirm that the mean differences for all the individualities of the beneficiaries are statistically significant meaning that the null hypothesis is rejected stating that there is difference in mean values of both the groups. The mean value of more variables of MFBs is higher than the MFIs. The result is that the economic impact of MFBs is greater than the economic impact of MFIs in the light of available results.

As per the table 2 the r value in MFIs for age of institution, adjusted cost per borrower and adjusted cost per loan have been statistically significant at 95% level of significance where as in MFBs Size of institution, number of active borrowers, number of women borrowers, adjusted cost per loan and number of active loans have been statistically significant at 95% level of significance. This discloses that the correlation between the MFIs and MFBs is high as well as highly statistically significant for both the peer groups.

Table 2: Multiple Regression Analysis: Effect of Independent variables on Performance outcome MFI

Independent variables	B	SE	B	t	P
Constant	-1.96	0.44		-4.46	<.001
Age of institution	0.09	0.02	0.47	4.15	<.001
Debt-Equity Ratio	0.00	0.00	0.04	0.09	0.931
Size (Total Assets)	0.00	0.01	0.33	0.53	0.597
No of active Borrowers	0.00	0.01	0.04	0.41	0.685
Number of Women Borrowers	0.00	0.00	-0.37	-0.26	0.792
Adj. cost per borrower	0.00	0.00	0.23	0.66	0.512
Adj. cost per loan	0.00	0.00	6.64	2.73	0.008*
No. of active Loans	0.00	0.00	-6.38	-2.63	0.010*
Risk Coverage Ratio	0.00	0.00	-0.08	-0.07	0.943

Table 3: Multiple Regression Analysis: Effect of Independent variables on Performance outcome MFB

Independent variables	B	SE	B	t	P
Constant	-1.65	0.297		-5.58	<.001
Age of institution	0.147	0.031	0.753	4.731	<.001
Debt-Equity Ratio	0.000	0.000	-0.17	-0.80	0.426
Size (Total Assets)	-0.00	0.003	-0.15	-0.88	0.383
No of active Borrowers	0.015	0.043	0.041	0.360	0.721
Number of Women Borrowers	0.000	0.000	-2.41	-2.90	0.006*
Adj. cost per borrower	0.000	0.000	0.896	3.050	0.004*
Adj. cost per loan	0.000	0.000	0.370	2.265	0.029*
No. of active Loans	0.000	0.000	-0.18	-1.22	0.228
Risk Coverage Ratio	0.000	0.000	1.958	2.600	0.013*

Table 3 & 4 above is the multiple regression analysis showing the effect of independent variables on performance outcome of MFIs and MFBs respectively. In MFIs the adjusted cost per loan and number of active loans have been statistically significant, and in MFBs, number of women borrowers, adjusted cost per borrower, adjusted cost per loan and risk coverage ratio have been statistically significant. The four independent variables in MFB are significant as compared to MFIs where two independent variables are significant. This reveals that the MFB has more economic impact on the beneficiaries of the microfinance institutions. It is also important to state that the R square values for MFIs and MFBs have been 0.346 and 0.665 respectively revealing that the economic impact of client-based institutions is more than the member-based institutions in the light of the available data and the variables employed in the study.

Mann-Whitney Test

Table 4: Ranks

	Type	N	Mean Rank	Sum of Ranks
Size (Total Assets)	1.00	84	49.35	4145.00
	2.00	48	96.52	4633.00
	Total	132		
Age	1.00	84	83.64	7026.00
	2.00	48	36.50	1752.00
	Total	132		
Debt-Equity Ratio	1.00	84	81.14	6816.00
	2.00	48	40.88	1962.00
	Total	132		
No of active Borrowers	1.00	84	58.85	4943.00
	2.00	48	79.90	3835.00
	Total	132		
Number of Women Borrowers	1.00	84	63.25	5313.00
	2.00	48	72.19	3465.00
	Total	132		
Adj. cost per borrower	1.00	84	46.67	3920.50
	2.00	48	101.20	4857.50
	Total	132		
Adj. cost per loan	1.00	84	58.92	4949.00
	2.00	48	79.77	3829.00
	Total	132		
No. of active Loans	1.00	84	59.10	4964.00
	2.00	48	79.46	3814.00
	Total	132		
Risk Coverage Ratio	1.00	84	71.46	6002.50
	2.00	48	57.82	2775.50
	Total	132		
Performance Outcome	1.00	84	67.74	5690.00
	2.00	48	64.33	3088.00
	Total	132		

The type1 represent the MFIs and the type2 represent the MFBs. There are 132 observations at all, in which 84 observations are for MFIs and the 48 observations are for MFBs. The results of Mann-Whitney U-test show that the mean of six variables out of ten is higher which is for the type2 group represents the MFBs. Hence it is clear that the performance and economic impact of MFBs is higher than the MFIs which are consistent with the results of Altasseb, (2015) and Babajide, et al. (2016).

Table 5: Test Statistics

	Age	Size (Total Assets)	Debt-Equity Ratio	No of active Borrowers	Number of Women Borrowers	Adj. cost per borrower	Adj. cost per loan	No. of active Loans	Risk Coverage Ratio	Performance outcome
Mann-Whitney U	576.0	575.0	786.0	1373.0	1743.0	350.5	1379.0	1394.0	1599.5	1912.0
Wilcoxon W	1752.0	4145.0	1962.0	4943.0	5313.0	3920.5	4949.0	4964.0	2775.5	3088.0
Z	-6.820	-6.817	-5.821	-3.042	-1.291	-7.880	-3.014	-2.942	-1.970	-.492
Asymp. Sig. (2-tailed)	.0	.0	.0	.0	.197	.000	.003	.003	.049	.623

The table 6 test statistics explains that seven variables have been significant at 99% level of significance. This verify that the results of the Mann-Whitney U-test has shown that the data has been significant and the mean values in Mann-Whitney U-test has been less than the results values of Wilcoxon W test at 99% level of significance. Therefore, it is apparent that the performance of MFBs is more than the MFIs and hence the economic impact of MFBs is higher than the MFIs, which is consistent with the results of Altasseb, (2015) and Babajide, et al. (2016).

Table No. 6: Hausman Test

```
. hausman fe re

                 ---- Coefficients ----
                 (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                  fe           re         Difference          S.E.
-------------------------------------------------------------------------------
SizeTotalA~s    3.84e-08     2.76e-08       1.08e-08        4.76e-09
-------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          5.15
                Prob>chi2 =        0.0232
```

As per table 7 the hausman test is performed using STATA. The value of Chi2 is 0.0232 which is less than 0.05 and leads that fixed effect model of regression in panel data model. Hence the fixed effect model of regression has been applied and the get the results using STATA.

Table No. 8: Fixed Effect Model of Regression

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Fixed-effects (within) regression               Number of obs      =       132
Group variable: Type0                           Number of groups   =         2

R-sq:  within  = 0.3291                         Obs per group: min =        48
       between = 1.0000                                        avg =      66.0
       overall = 0.3198                                        max =        84

                                                F(9,121)           =      6.59
corr(u_i, Xb)  = -0.2552                        Prob > F           =    0.0000

------------------------------------------------------------------------------
Performanceoutcome |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------------+----------------------------------------------------------------
               Age |    .089049   .0157937     5.64   0.000     .0577813    .1203167
   SizeTotalAssets |   2.01e-08   1.69e-08     1.19   0.238    -1.34e-08    5.36e-08
   DebtEquityRatio |   .0121665   .0086074     1.41   0.160    -.0048741    .0292071
 NoofactiveBorrowers |  -5.53e-06   4.67e-06    -1.19   0.238    -.0000148    3.70e-06
NumberofWomenBorrowers |   4.44e-07   1.80e-06     0.25   0.805    -3.11e-06    4.00e-06
 Adjcostperborrower |   .000058   .0000357     1.63   0.107    -.0000126    .0001286
      Adjcostperloan |   1.95e-07   .0000319     0.01   0.995    -.000063     .0000634
 NoofactiveLoans |   5.51e-06   4.57e-06     1.21   0.230    -3.54e-06    .0000146
  RiskCoverageRatio |   .0001308   .0001934     0.68   0.500    -.0002521    .0005138
              _cons |  -1.656882   .2593215    -6.39   0.000    -2.170277   -1.143487
-------------------+----------------------------------------------------------------
            sigma_u |  .15586559
            sigma_e |  .85141819
                rho |  .03242639   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(1, 121) =      0.55                 Prob > F = 0.4607
```

In table 8 it is found that the age is significant at 99% level of significance. Six variable, size of institution, debt equity ratio, number of active borrowers, adjusted cost per borrower, number of active loans and risk coverage ratio have been significant at 95% level of significance. This depicts that the panel data variables employed in this study have been significant and which is consistent with Altasseb, (2015) and Babajide, et al. (2016).

Conclusion

The present study attempts to investigate the economic impact of Microfinance Banks and Microfinance Institutions of Pakistan. The results of the study reveal that the performance and economic impact of client-based microfinance institutions (MFBs) is more than the member-based institutions (MFIs) working in microfinance sector in Pakistan. The four independent variables, number of women borrowers, adjusted cost per borrower, adjusted cost per loan and risk coverage ratio have been significant in Client based institutions, signifying that the client-based institutions i.e. Microfinance Banks have more economic impact than that of member-based institutions.

This study initially presents comparison of means of selected variables of microfinance member-based institutions and client-based microfinance institutions of Pakistan. On average all variables have been highly significant over twelve years at 99% level of significance. In addition, Mann-Whitney U-test, a study specific test, is applied and compared the mean values of each independent variable of two peer groups. It is found that six variables have higher mean value out of ten in MFBs than the MFIs and shows that the performance and economic impact of MFBs is more than the MFIs in the selected time period. It is also important to note that the age and adjusted cost per loan are significant in both the peer groups. Furthermore, on average microfinance banks based on clients has shown better performance than the other growing over the twelve years. On the other hand, correlation matrix has reported that the variable adjusted cost per loan is strongly and significantly associated with performance outcome in both client based and member based microfinance institutions in Pakistan than other explanatory variables whereas significant and strong association is also found between the adjusted cost per loan and performance outcome in entire microfinance sector in Pakistan.

Limitations of the study

The limitation of the study is the data availability constrain. There is greater need to emphasize that data have to be organized and published on appropriate forums so that more research may become possible. The penal data employed in this study is collected from the web site of Pakistan Microfinance Connect. It is need of time is that every Microfinance Institution must made available all data and the results of their operation for poor people of Pakistan.

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