Role of Micro finance Institutions In Promoting Financial Inclusion and Economic Growth

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ABSTRACT

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Many of the developing and advanced economies are focusing on the improvement of Microfinance Institute Performance because most of the studies and empirical results support the existence of significant positive relationship between Microfinance Institute Performance and Index of Financial Inclusion and both have significant positive impact on Economic Growth and its one of the basic goal and objective of the economies to attain sustainable economic growth. Through the current study it is being tried to find the relationship between microfinance institute performance, financial inclusion and economic growth in South Asian economies using Panel data from 2009-2017 using Common Random Effect, Random and Fixed effect Model. The findings show that there is strong positive relationship between Microfinance Institute Performance, Financial Inclusion and Economic Growth. Therefore the developing economies specially Pakistan whose most of economic indicators are showing declining position can sustain their economic growth through proper utilization of Microfinance Institution Performance.

Keywords: Microfinance Institute, Index of Financial Inclusion, Economic Growth, South Asian Region

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SECTION I
INTRODUCTION

For building economies financial inclusion[3] is an important consideration. An inclusive financial system has virtuous effects both on the microeconomic and macroeconomic levels. Conroy (2006) propped that financial inclusion takes along economic efficiency and equity distribution as it enables large number of people to deposit money and provides fruits of economic growth that can be shared by everyone. Previously very limited academic studies have been done on the performance of the financial sector in terms of means of financial inclusion and its impact towards economic growth i.e. (Agnello 2012; Claessens et al., 2007; Ashta, 2010) concluded that financial sector play special role in promotion of growth in developing regions. As it is an open secret that there is a major role of formal sectors specially banks towards economic growth in developed markets. At the same time the role of informal sector cannot be undermine as (Schneider, 2010) stated that informal sector contributes around 40% to 50% towards the gross domestic product of developing countries. Thus it can be extracted that people working in informal sectors extensively playing their role towards economic development. This sector not only provides those opportunities in agriculture sector but also around out of total, roughly sixty percent of the force is engaged in non-agricultural activities in developing countries (Aghion & Morduch, 2005). So all these elements shown a positive and strong impact towards overall financial-economic development

This study has taken microfinance institutions as representatives of informal sector. The fact is that initially Microfinance was a simple idea—of serving excluded class of the society by providing them small loans. But it was the history of microfinance industry, today it is far ranging and dynamic sector that not only provides loaning facilities but also enhance its scale of operations through savings, remittance and insurance facilities. The sector is bound together by a focus on bringing financial services to the underserved, but the size of microfinance institutions varies in terms of customers they serve, their subsidy dependence, status, lending methodologies, regulations and governance structures etc. Although the main function of microfinance industry is still lending but over the time it has also enhanced its range of possibilities and models (Mersland & Strom, 2009). Therefore, it is the extreme need of time that in order to fully capture the mechanism of economic growth, there must be an enrollment of informal sector as well. So Financial inclusion whether it may be through banks (formal sectors) or through microfinance institutions (informal sector) is a crucial matter in development and growth of economy (Mersland & Strom, 2009).

For any economy, it is necessary to assess the integration of all sectors for growth and development purpose. In most of the countries specifically developing countries, the problem in focusing just on either informal or formal sector creates a clear divide between financial institutions that causes hindrances in development and growth process. Normally the role of informal financial intermediaries present in the market is not properly considered and

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[3] Financial Inclusion

acknowledged (Yunus, 2007; Schwab, 2014). There is another problem that in developing countries, mostly the proportion of financially excluded people is greater than those who have access to them. And in these countries the enrollment of people in financial inclusion process is through informal institutes. Because normally formal institutes largely cater a certain income and educated class, who can fulfill their formalities, so the target audience of both these sectors is very different from each other. The other difference is in terms of countries from where they belong. The other differences may be in terms of education, occupation and income, as to answer all these questions it is important to know what the financial inclusion process and its main determinants are, and then the impact of financial inclusion on economic growth (Woller & Woodworth, 1999). In order to present the real essence of financial inclusion, there is a need of integration of both sectors i.e. formal and informal. This study focuses that greater financial inclusion requires new strategies and plans on the part of financial service providers for saving mobilization, credit generations, financial innovation and other financial activates in both sectors. For building economies, economic growth can be achieved through the elevation of financial inclusion process which can possibly achieved through the up gradation of informal sector. The study investigates the role and determinants of financial inclusion process by incorporating the activities of informal micro finance institutions as a constructive tool. There are different ways by which financial inclusion stimulates economic growth in the economy. These comprises of savings mobilization through attractive instruments, efficient allocation of capital and lowering the cost of information and transaction (Sarma, 2008). The main characteristic of an efficient financial sector is that it transported surplus and limited credit resources towards the deficits units of the economy. In this way financial sector supports efficient allocation of resources. Therefore economies having well developed financial markets and systems grow quickly. As defined by finance directed growth assumption, a strong financial inclusion process in the economy leads to financial development leaving an inspiring impact on overall growth of economy and when we deeply analyze the historical trend of South Asian economies we can see that some of the economies initially started MFI's as compare to other economies of the world but they are still lack to contribute well enough in economic growth. Therefore through this study we will seek that either there exist any relationship among the variables in south Asian economies or not?

<h2 style="text-align:center">SECTION II
LITERATURE REVIEW</h2>

The financial inclusion phenomenon has become a significant policy issue in many countries. New legislations and regulations regarding financial inclusiveness have been instigated in many economies of the world. In United States the (McClelland, 1997) prescribes banks from targeting only the rich localities instead enforce them to offer credit throughout their entire area. The bond between the financial markets and economic development is always considered as an important topic in the literature of finance and economics. This relationship has drawn more attention when the financial crisis of 2007 happened in the world. Regardless of the fact of financial crisis and

its major influence on the developed markets of the world, there is not yet a clear understanding among economist about the role of financial intermediation on economic development and growth and direction of causality between development-growth is still considered as a hot topic. Up till now there are two schools of thoughts regarding the relation between finance and growth. One group including (Levine, 2000) favor that when there is economic growth; it creates demand and in response to fulfill the demand, activities of financial system increase thus causes financial development. The other group including (Financial development and economic growth, 2001)found that the mechanism is other way round e.g. financial development causes economic growth. The questions that Does growth lead to financial development or financial development leads to economic growth? Likely can be answered by taking guidance from other studies who claimed that it is possible that the causality runs in both directions as well as extricating these effects is not an easy thing.

On the other hand, as a policy objective, financial inclusion has strong contribution towards poverty reduction, economic growth. Globally this agenda has unanimity and now considered as a most debated issue. According to (Hannig, 2010) quick and better availability of financial services has a strong positive impact on living standards of poor people. There are so many benefits of "inclusive financial system" as an inclusive financial system promotes effective apportionment of productive resources and a more efficient use of resources will probable reduces the cost of capital. The cost associated with financial inclusion is very important if it may be relatively higher than the reduction in cost associated with the inefficiencies of credit markets as stated by (Sarma, 2008).

Beck (2009) reported that some economists contend the practice of financial inclusion as it has allowed greater availability of financial resources and considered it a contributing factor of 2007-2008 financial crises. Some countries have also passed law regarding financial inclusion. In 1998 a law was passed that accentuates people's freedom for having a bank account in France whereas in United Kingdom Financial Inclusion Task Force was established in 2005 in order to monitor the development of financial inclusion. The financial inclusion process mainly focuses on the microfinance-growth nexus. The economic growth and financial literature signifies the relationship between financial development-growths most often. Economic theory envisages that well-active financial markets and intermediaries condense information asymmetries, mobilize savings and facilitate risk sharing that hints to a more efficient resource allocation thus may foster long-term Economic growth.

The informal sector (Microfinance Institutions) also provides buffers against economic uncertainty and underdevelopment in the economy as it can provide livelihood to many people. According to Frey et al. (2000) argued that the incomes generated in the informal sector would not have been generated otherwise. And this income when spent in the formal sector can provide a boost to the formal economy. There are two types of views about the informal sector. One view is that informal sector is a burden on financial and economic development process; the other favors the informal sector participation towards microfinance-economic nexuses. Whether one views the informal sector as a milestone or hindrance towards better economic development, it is

a clandestine that informal sector has far-reaching impact on developing countries. Therefore, when discussing Economic growth, one cannot ignore the share and potentials of informal economies and their activities towards financial development.

International Finance Corporation (2012) reported that around eighty percent of today's Cumulative micro, small and medium sized enterprises (MSMEs) are from informal sector and these firms face lots of challenges that adversely influence their activities and growth. These challenges can be related to lack of access to benefits associated with participation in the formal sector (access to credit, new technologies, and greater visibility of business through publicity) ,they can be related to public infrastructure (power, land and water) and may represent weak institutions (property rights, legal protection, and corruption).According to Informal Enterprise Surveys conducted by the World Bank firms in the informal sector find out that their biggest obstacle is lack of access to finance.

There are different indicators used in academics about financial Inclusion economic and growth. In a seminal paper on finance and growth (King, 1993) have taken liquid liabilities to GDP as a customary measure of financial depth. Liquid liabilities include currency plus demand and interest-bearing liabilities of banks and other financial intermediaries divided by GDP. This is a comprehensive indicator of financial intermediation it includes all the financial institutions (banks, bank-like and nonbank).In order to measure their activity, the ratio of credit to private enterprises to GDP and the ratio of assets of commercial banks to the sum of commercial banks assets plus assets of central banks are included. (Demetriades, 1996) in order to measure the financial development employed the ratio of bank deposit liabilities to GDP in sixteen countries. The ratio of broad money to GDP shows, uses of currency in circulation, normally it is recommended that the currency in circulation should be eliminated from the broad money stock in order to measure the financial development process as it only shows currency in circulation rather than increase in the stocks of banks.

 In some studies, the activity of stock market is also analyzed in order to inspect the impact of developed stock market on growth process (Saci, 2008)by using the principal component analysis measured the financial development. They used ten indicators for measuring the role financial intermediaries towards financial development. For the role of banking sector to financial development, the ratio of commercial bank assets commercial plus central bank assets, the ratio of liquid liabilities to GDP, domestic credit to the private sector to GDP, and credit issued to private sector to liquid liabilities, are included.

In this study new evidence is explored that strengthens the notion that Microfinance and growth can co-move in a more complex way than previously thought. Though the close relation between microfinance and growth has been sufficiently discussed in previous studies. But the relationship between financial inclusion and its impact on economic growth has still in embryonic stage.

CHAPTER IIII
RESEARCH METHODOLOGY

3.1   Theoretical Framework

Based on previous literature, it has been clear that causal relationship exists between financial inclusion and economic growth can be traced way back to Schumpeter (1934) who has suggested that finance has the potential to spur the economic growth (supply-led hypothesis). Through this relationship it is cleared that it is supply-leading (on the supply side), as the activities of the microfinance institutions increase the volume of financial services which in turns speed up development and growth. Because the activities of the financial institutions are considered an important tool in increasing the productive capacity of the economy. Financial Inclusion Plays a vital role to spur Economic Growth through creation of Small businesses having positive spillover effects on enhancing Human Development Indicators i.e. good health, quality education, best nutrition and lessening inequality and poverty alleviation Agnello et al.(2012). In economics, mainstream neoclassical theory of production function shows output depends on capital and total factor productivity, similarly increase in financial inclusion could affect both capital accumulation and total factor productivity. The deepening of financial inclusion is likely to match between Savings, Investments which leads to an Increase in Total factor productivity (Claessens, 2007).

The neo-classical and endogenous growth theory suggests that economic growth is dependent on long run capital investment like FDI which channelizes required funds to productive sectors to help capital deficient sectors to enhance economic growth by increasing marginal productivity of capital. In same way we can extract extra funds/investment from rich people to poor to make them self-sufficient to participate actively in growth of economy. This study incorporates how microfinance sector indicators can be used for cross-country comparisons over time. The study provides a strong connection among financial inclusion and economic development.

There is a general deepening of financial markets and institutions over time, which is more pronounced in the high-income countries. Other income groups and regions of the world have made progress as well, although not to the same extent Aghion et al.(2005). This is also a reason for concern in this study, as cross-country comparisons will show that microfinance sector development also has a strong impact on growth of low- and middle-income countries over time and this development is merely through the financial inclusion process and incorporation of informal sector within it.

Figure 1: Conceptual framework of relationship between financial inclusion and economic growth
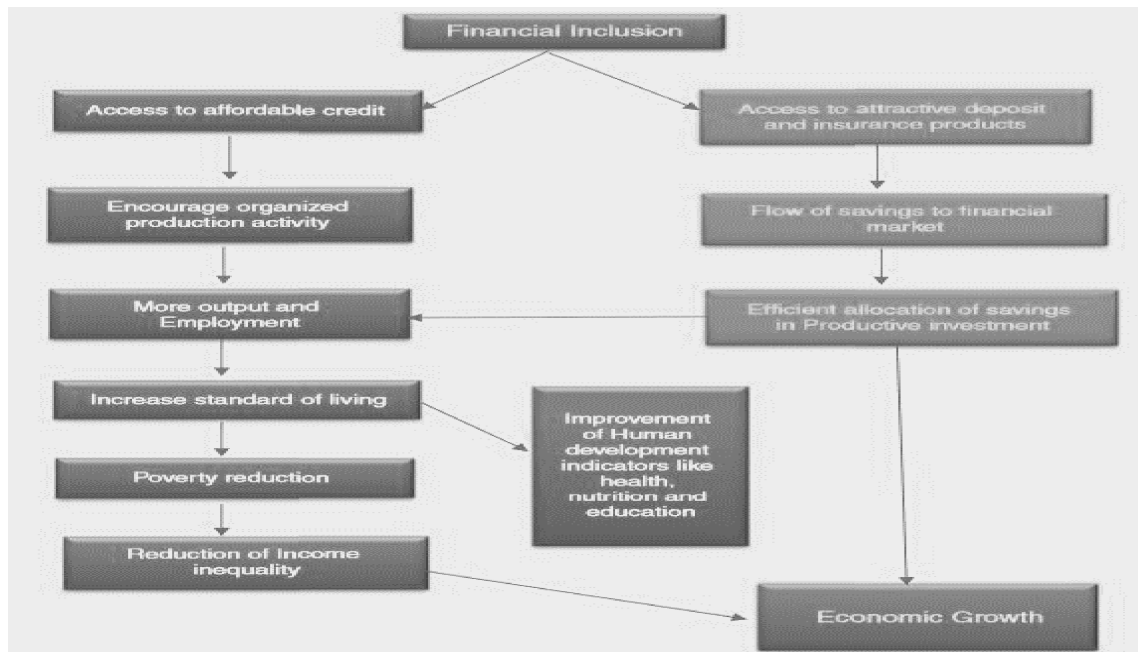
Source: (Claessens, 2006)

3.2　Data Methodology

The database for this study is one of many efforts of the World Bank to provide as being the source. As the study investigates the relationship of financial inclusion and economic growth, taking data for microfinance institutions in south Asian countries of the world for the period of 2009-2017.For microfinance industry, those countries will be selected for which financial inclusion data is also available. Following section provides complete information regarding the different indicators of financial inclusion and economic growth, the control and dummy variables, their sources and time duration.

3.3　Indicators for Financial Inclusion for Microfinance Institutions

World Bank conducted different studies on the topic of financial inclusion. In which most of the determinants of financial inclusion are taken from the index of financial inclusion developed by (Sarma, 2008). In his study on financial inclusion index, (Sarma, 2008) has taken and considered as one of the most important variable. The financial inclusion index not just only measures the level of inclusiveness of financial systems but also highlights its grounds and determinants. To show the contributing factor that is vigorously related to financial development, this study involves cross-country data of different financial development indicators from the period of 2009-2017.

VARIABLE FOR MICROFINANCING ISTITUTE

FINANCIAL INCLUSION

VARIABLES	DISCRIPTION	SOURCE
Financial inclusion	Financial Inclusion Index	Sarma.Mandira (2008)
No of Active borrowers	Total no of borrowers of MFI.	Microfinance information exchange
No of savers	Total no of savers deposited money with MFI.	Microfinance information exchange
Microfinance Bank Loans	Total loan issued to MFI borrowers	Microfinance information exchange
Savings	Total deposited money in MFI	Microfinance information exchange
Total assets	Total assets of MFI	Microfinance information exchange
Portfolio at risk (PAR>90 DAYS)	Amount of loan 90 days past due	Microfinance information exchange
Domestic Investment	Total amount of domestic Investment in MFI	Microfinance information exchange
Inflation Rate		

ECONOMIC GROWTH

GDP GROWTH RATE	Annual percentage of GDP per capita	WDI, World Bank

3.5   Estimation Technique

There are many econometric tools and techniques which are use to find the coefficient values of the variables to check their impacts on certain variables and each estimations techniques have its own drawbacks for example when if from true population from where the control variables been drawn like the problems of supposing inverse data mining describing some sort of data error in all data because of single variable (Martin, 1994). Therefore the current study rely on three different panel regressions to find the impact of MFI's on Financial Inclusion and Economic Growth i.e. Regression of Common Effect, Fixed Effect and Random Effect where the adjusted standard errors will estimate to control the problems of hetero in the error terms. In Common effect Model its being followed likely to have existence of omitted variables which may be time or country specific and during the analysis their effects are unobserved that may cause the possibility of biased and inconsistent estimates (Watson & Stocks, 2007).   The second specification model is fixed effect which has one intercept for each country that will generate different intercepts where variables are unobserved and captured by intercepts vary from cross section to cross section but remain same over time and the slope will remain same for all countries. Third model used in the study is random effects and to choose this technique is unlike fixed effects, the variations across error terms are assumed to uncorrelated and random with independent variables or predictors included in the model. Martin (1994); Watson & Stocks (2007) both agreed that random effect assumed that entities error terms are not correlated with the independent variables and that allow for time invariant variables to play key role with explanatory variables.

3.6   Econometric Modeling
Impact of Microfinance Institutions on Index of Financial Inclusion

$$IFI_{it} = \beta_o + \beta_1 T.A_{it} + \beta_2 MFBL_{it} + \beta_3 SAVINGS_{it} + \beta_4 SAVERS_{it} + \beta_5 PAR_{it} + e_{it}$$

Eq I

where IFI denotes Index of Financial Inclusion, T.A is Total Assets of microfinance Institute, MFBL is microfinance bank loans, Savings are Total Savings in Microfinance, Savers denotes total number of savers in Microfinance and PAR shows Portfolio Risk > 90 days and e denotes the error term and finally i.t shows cross section and time series respectively. The equation one measures impact of Microfinance institutions on financial Inclusion by considering both demand-side and supply-side indicators as it would be misleading if we incorporate only single dimensional variables.

Impact of Microfinance Institutions and Financial Inclusion on Economic Growth (GDP)

$$RGDP_{it} = \beta_o + \beta_1 MFBL_{it} + \beta_2 NV_{it} + \beta_3 INFL_{it} + \beta_4 FI_{it} + e_{it} \qquad \text{Eq II}$$

Where RGDP shows Rate of Growth in GDP, MFBL denotes total Microfinance Bank Loan, INV denotes Microfinance Bank Investment, INFL is inflation rate in the economy and IFI denotes the Index of Financial Inclusion and e denotes the error term i.t shows cross section and time series respectively. The purpose of proposed study is to find a meaningful relationship between Financial

inclusion and Economic growth mediating through the Role of Microfinance Institutions in south Asian Region. The Schumpeter Growth Model is suggested where output (Economic Growth) is expressed as Linear function of Microfinance and financial inclusion Index. Solow (1956) has presented Economic Growth study by incorporating Neoclassical Production function with increasing returns to Capital whereas he took rate of savings and growth of population as exogenous variables. In this study (MFBL,INV, INFL & IFI are taken as Independent Variables whereas RGDP is used proxy to Economic Growth as dependent variable.

CHAPTER 4
ECONOMETRIC ESTIMATIONS

5.1 Descriptive Analysis

Table 5 tell us about the descriptive features of the variables. In descriptive statistics focused has been made on mean, median, standard deviations, skewness, kurtosis and Jerqua Bera test of normality. The results indicates that on average 209 thousand people in south Asian region are engaged with MFI with a PAR value of 6.95% from 2009-2018, with a maximum PAR of 94.62% and 0.00% as minimum. On average South Asian regions have savings from 2009-2018 61.3 Million $ with a saving number of 229,000 people. The standard deviation indicates that there is little variation exists in the data set. Skewness of the variables shows that most of the variables are normally skewed have values near to zero only GDP have negatively skewness features while Total savings shows Positively skewed nature. The kurtoses of the variables shows most of the variables are mesokurtic have values near to three. Loan Outsourcing is the variable which has Lepto Kurtic features while Total number of savers and Total amount of savings has features of Platikurtic. The Jerqua Bera confirms that all of the variables are normally distributed because the probabilities of Jerqua Bera of all variables are less than 10% that confronts no problem of normality.

Tables 6 tell us about the correlation between focused variables. We can see that only few of the variables are normally correlated with each other which is not a severe problem to be worry about the data. Being have time series features the variable shows this slight correlation with each other. Only the variable gross loan provided by average loan are highly correlated and this is in fact the reality that both should be positively correlate because when the gross loan increases average loan also get increases and vice versa. Since both are important in prospective to meet the desired objectives and hypothesis estimation, but they are not in same equation. Therefore we will ignore this small rising issue of multi-collinearity otherwise we have to convert these variables into an index which represent the share of both variables but for current study we will let these variable to keep as they are. Now we check the panel data features and econometric estimations of the variables.

Table 1: Descriptive Summary of the Focused Variables

Stat	Borrowers	Firm Size	GDP*	Gross Loans (000)	Inflation*	Liabilities (000)	Total Number of Loans	Loan Outsourcing	PAR	Savers	Savings (000)
Mean	209.70	15.85	10.76	2913	7.002	3486	345549	209	0.069	229	6132
Median	153.50	15.99	10.78	689	6.764	726	90930	118	0.035	173	6025
Maximum	1093.00	20.62	11.17	92351	22.38	68523	5795028	11939	0.946	1123	32132
Minimum	0.000	10.18	9.39	4	-2.10	0.00	441	50	0.000	0.000	3791
Std.	1.371	1.77	0.377	8.950	4.97	1.01	7.448	87.14	0.12	164.80	4.397
Skewness	0.256	0.089	-1.73	0.266	0.08	0.081	0.48	0.096	0.016	0.256	1.509
Kurtosis	3.25	3.084	2.84	5.04	2.71	3.0	2.309	1.17	3.720	4.252	7.99
Jarque-Bera	132.87	20.46	234.26	4736	321.01	971.9	270.5	1679	580.3	132.8	37.9
Probability	0.00	0.005	0.002	0.002	0.091	0.0002	0.09	0.002	0.034	0.012	0.030

Source: Microfinance Information Exchange (* denotes variables have been extracted from WDI)

Table 2: Correlation Matrix among Variables

	No of Borrowers	Firm Size	GDP	Gross Loan	Inflation	Liabilities	Average Loan	Average Out-Sourcing	PAR	Total No of Savers	Total Savings
No of Borrowers	1										
Firm Size	0.5566	1									
GDP	0.0979	0.0173	1								
Gross Loan	0.0681	0.5188	0.0937	1							
Inflation	0.0059	0.0512	-0.1964	0.0132	1						
Liabilities	0.3872	0.3622	0.0864	0.707	0.0275	1					
Average Loan	0.785	0.3653	0.1049	0.7696	0.0363	0.5399	1				
Average out-sourcing	-0.021	-0.0681	0.0114	-0.0171	0.0078	-0.0217	-0.0453	1			
PAR	0.1232	0.048	0.0819	0.1802	-0.0168	0.0623	0.1533	-0.0481	1		
Total No of Saver	0.1776	0.1214	0.0014	0.2099	0.0186	0.2308	0.0841	0.0045	0.142	1	
Total Savings	-0.039	0.0355	0.2763	-0.0526	-0.0262	-0.0972	-0.0044	0.0375	0.0127	-0.263	1

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5.2   Unit Root Analysis

There are different techniques use to check problem of stationary i.e. ADF, DF, Philips Peron, Partial Autocorrelation etc are used for time series data stationary problem. Since we are relying on Panel data and in panel data the time series methods become inefficient and we can't use them to detect problem of unit root. In panel data analysis as we have large sample size and there are more chances of heterogeneity, problem Endogenity, autocorrelation and normality of data make it powerful to detect the problem of unit root. Therefore for Panel data analysis we focused on Levin Lin & Chu Test, Im Pearson &Shin W-stat, ADF-Fisher Chi Square and PP-Fisher Chi-Square because these methods usually deals with different power characteristics test. Many of the researchers only rely on one test of stationary that make it doubtful about the power of test (Cunniingham, 1993). Therefore we relied on all four test of Panel data stationary problem.

The below table give quick summary of stationary of variables. We have checked all the variables in their first difference because most of the variables give insignificant results in level and to take their first difference make the variables under consideration to reduce the insignificant power of test. The results of the below table indicates that all of the focused variables in the study are stationary at level with high significant t-statistics and low probability values. The focus been given to probability value of the variables and since all the variables are stationary at level therefore its being assumed that the stationary level of the variable will be 5%.

Table 3: Unit Root Analysis:

	Levin, Lin & Chu Test			Im, Pearson % Shin W-Stat			ADF- Fisher Chi-Square			PP-Fisher Chi-Square			Conclusion
	t-stat	p	Obs	t-stat	p	Obs	t-stat	p	Obs	t-stat	p	Obs	
Index of Financial Inclusion	2.341	0.057	279	3.769	0.002	279	10.879	0.0000	279	9.684	0.000	279	I(1)
Number of active borrowers	-5.278	0.000	279	-2.148	0.056	279	13.901	0.0000	279	11.640	0.000	279	I(1)
Number of loans outstanding	-19.98	0.000	279	-18.90	0.000	279	11.73	0.0000	279	13.442	0.000	279	I(1)
Gross loan portfolio	-21.19	0.000	279	-18.47	0.0000	279	9.8310	0.0000	279	19.2570	0.000	279	I(1)
Average outstanding balance	-15.85	0.000	279	-16.53	0.0000	279	5.2690	0.0000	279	6.8784	0.000	279	I(1)
Portfolio at risk > 90 days	-19.55	0.000	279	-17.17	0.0000	279	3.3890	0.0000	279	8.8314	0.000	279	I(1)
GDP	47.557	0.000	279	-14.14	0.0000	279	8.1530	0.0000	279	3.8414	0.000	279	I(1)
INF	62.604	0.000	279	-14.47	0.0000	279	2.186	0.0000	279	6.3214	0.000	279	I(1)
log GDP	-12.49	0.000	279	-22.46	0.0000	279	9.518	0.0000	279	5.8894	0.000	279	I(1)
Total liabilities	1.677	0.055	279	-22.77	0.0000	279	4.873	0.0000	279	7.2314	0.000	279	I(1)
No of Savers	-2.714	0.003	279	-3.346	0.0004	279	2.3728	0.0403	279	2.5659	0.000	279	I(1)
FIRM SIZE	-3.724	0.001	279	-2.871	0.0020	279	5.7142	0.0344	279	6.7681	0.000	279	I(1)
log Savings	-8.588	0.000	279	-14.03	0.0000	279	12.754	0.0000	279	6.7465	0.000	279	I(1)

(Note: The inclusion of intercept has been made on the basis of nature of variable i.e. Level or Ratio variable and trend been chosen on the basis of graphical representation

5.3   Econometric Estimations

The current study rely on three different panel regressions to find the impact of MFI's on financial inclusion and economic growth i.e. Regression of Common Effect, Fixed Effect and Random Effect where the adjusted standard errors estimate to control the problems of hetero in the error terms. In Common effect Model its being followed likely to have existence of omitted variables which may be time or country specific and during the analysis their effects are unobserved that may cause the possibility of biased and inconsistent estimates (Watson & Stocks, 2007). The second specification model is fixed effect which has one intercept for each country generate different intercepts where variables are unobserved and captured by intercepts vary from cross section to cross section but remain same over time and the slope remain same for all countries. Third model used in the study is random effects and to choose this technique is unlike fixed effects, the variations across error terms are assumed to uncorrelated and random with independent variables or predictors included in the model. Martin (1994); Watson & Stocks (2007) both agreed that random effect assumed that entities error terms are not correlated with the independent variables and that allow for time invariant variables to play key role with explanatory varaibles.

The below tables give the findings of the relationship between index of financial inclusion with micro finance institute through common random effect, fixed effect and random effect model.

Table 4: Relationship between MFI's and IFI

Dependent Variable IFI	Common Random Effect Model	Random Effect Model	Fixed Effect Model
Constant	2.912	11.7850	0.1921
	(0.980)	(0.912)	(1.921)
Total Assets	0.158*	0.142*	-0.031***
	(0. 006)	(0. 002)	(0.135)
Micro Finance Bank Loan	0.967**	1.023	0.633***
	(0.065)	(5.062)	(0.692)
Savings	0.098	1.098**	0.0945*
	(2.678)	(0. 089)	(0. 008)
Savers	0.021**	0.89*	2.12***
	(11.90)	(0. 009)	(0.890)
PAR	0.45*	0.09*	0.250**
	(0. 0090)	(0. 00967)	(0. 0090)
R^2	0.25	0.290	0.6721
SER	5.9807	6.0980	4.9870
F-test	2.0989	2.4523	6.765
F-Probability	0.029**	0.020**	0.037**
Hausman P-Value			0.067

Note: Standard Errors are given in Parenthesis while *,**,*** denotes significant value at 10%, 5% and 1% respectively

The findings of the study suggest that the co-efficient values of total assets, Microfinance Bank Loan, Total Number of Savers and PAR values are positively significant mostly in 5% and 10% showing that increase in the given data set of variables can improve the Index of Financial

Index by 0.158, 0.967, 0.021 and 0.45 respectively. The value of r^2 in Common Effect Model indicates satisfactory results regarding the effect and variations in the dependent variable because of variations in Independent variables. The F-test and its probability shows significant results even 5%, denoting the significance of the model. The results of the above table confronts findings of Rhyme (1998) ; Kai (2009) ; Lewis (2008) ;Schreiner (1997) ;Zarutskie (2003) who have confronted that its very important to promote MFI's Loan, increase their assets, encourage more people to save with MFI's and to reduce the PAR values to facilitate and improve the Index of Financial Inclusion.

We can see that except Total MFI's loan other all indicators of Microfinance are significant at 5% and 10% with low standard error denoting the high significant and consistent values of the variables. The SER test makes it necessary changes and acceptance is made on the decision making of choosing Random effect Model as compare to that of Common Effect Model. The value r^2 denotes that 29% variations in Index of Financial Inclusion come due to the variations in independent variables. Here in Random Effect Model the findings regarding Total Loan of MFI's insignificant is a The values of F-statistics and Probability of F-Statistics show that overall Model is significant because the Null Hypothesis of insignificance is rejected at 5%.

The fourth section of the given above table shows the findings of Fixed Effect Model that describe how Index of Financial Index is been affected by MFI's indicators in short run without time variance. We can see that all of the indicators of MFI i.e. Total Assets, Total Loan, Total Savings, Total Number of Savers and PAR co-efficient values are positively significant values at 5% and 1% with a highest value of R^2 and high significant F-statistics denoting that 67.21% variation comes from MFI's indicators in IFI.

Table 5: Relationship between Microfinance Institute Performance, Index of Financial Inclusion and Economic Growth

Dependent Variable Economic Growth	Common Effect Model	Random Effect Model	Fixed Effect Model
Constant	1.9032**	2.3257***	0.7952***
	(0.98)	(0.7634)	(0.00215)
Microfinance Loan	0.7698**	0.9386	0.5297***
	(0.098)	(2.0317)	(0.00728)
Microfinance Investment	0.213***	0.3923***	0..682***
	(0.0419)	(0.0021)	(0.0032)
Inflation Rate in Economy	0.907*	0.6286	0. 06318**
	(0.531)	(2.0976)	(0.00195)
Index of Financial Inclusion	0.1287**	0.213***	0.2946
	(0.0076)	(0.098)	(3.2165)
R^2	0.523	0.723	0.642
SER	7.324	6.9856	6.6854
F-Stat	8.9490***	5.4321***	5.6531***
F- Probability	0.0000	0.0000	0.0000
Hausman P-Value			0.321

Note: Standard Errors are given in Parenthesis while *,**,*** denotes significant value at 10%, 5% and 1% respectively

The above tables give the relationship between Microfinance Institute Performance, Index of Financial Inclusion and Economic Growth using three different Panel Regression approaches i.e. Common Random Effect, Random Effect Model and Fixed Effect Model. The finding suggests that overall three models are significant even at 1% because the probability of F-statistics of the model reject the null hypothesis of model insignificance. The r^2 confirms that 52.3%, 72.3% and 64.2% variations in the respective model's dependent variables come from the variations in independent variables of the respective models. The SER findings make it confirm that Common Effect model instruments are more valid than Random Effect and Random Effect model instruments are more valid than fixed effect model. The Hausman P-Value accept the null hypothesis of non-systematic differences in co-efficient saying that the coefficient are not systematically differs. Hence Random Effect model is most suitable to see the casual relationship between MFI's performance, Index of Financial Inclusion and Economic Growth.

The coefficient values of Common Random Effect Model show highly significant values at 1% and 5% confirming the findings of Chang, 2009; Easterly, 1997; Conroy, 2006; Henning, 2010 who have argued that there is significant positive relationship exists between Economic Growth and Financial Inclusion because Financial Inclusion is an indicator of people trust and make them hopeful to lend and borrow from MFI's that will automatically promote investment in the economy and income level of the beneficiary goes up and promote sustain growth in the economy. The results of Random Effect is almost same as that of Common Random Effect but in Random effect the variable Microfinance loan give insignificant results with a higher Standard error this may be because of the population and loan size differs in south Asian Regions and also the economic growth sharply fluctuated in the study time period one possible reason may be because of Global Financial Crises of 2007-08 make the export and economy of region more vulnerable. Chowdhury (2001); Easterly (1999); Geiger (1990) argued that highly dependence on limited diversified economy and small ratio of saving as compare to borrowing make economies foreign aid and debt dependent that discourage local investment and people hardly consult back to financial institutions specially MFI's and in South Asian region people mostly went to MFI to meet only for basic needs rather than any productive purpose. Other all variables of Random Effect Model give positive significant results at 10%, 5% and 1%. In random effect model the variable financial Inclusion index give insignificant results (Conroy, 2006) argued that many developing nation in short run tend to borrow from MFI because of low interest rate but for long run they need larger amount and MFI usually provide limited loan that may cause people to tend limited attachment with MFI and being a pillar of Economic Growth, IFI play insignificant role in the long run.

CHAPTER 5
CONCLUSION AND POLICY RECOMMENDATION
5.1   Conclusion
Two different model has been used to explore the relationship where Index for Financial Inclusion being considered as dependent variable for first model considering Active

Microfinance Borrowers, Total Assets of Microfinance, Total Loan issued by MFI, Total Number of Savers and PAR>90 days as indicators of Microfinance being treated as independent variables while in second equation Rate of GDP growth is taken as dependent variable while Number of Active Microfinance Borrowers, Microfinance Investment, Inflation Rate in the economy and Index of Financial Inclusion taken as independent variables. SER and Hausman test being applied to check the validity of model selection, according to the results of SER and Hausman Test, for first model Random Effect is best suitable because the null hypothesis of non-systematic difference of coefficient is rejected at 5% while in second model the fixed effect model's null hypothesis is accepted at 5%. Therefore the comparison could be made on the basis of model's validity.

The findings of Random Effect Model consolidate that the independent variables Total Assets, No of Active borrowers, No of savers, Total Savings and PAR>90 days give positive significant results with Index of Financial Inclusion denoting that increase in the dependent variable cause to increase the index and vice versa. The total variations observed in dependent variable are 29% showing the significant F-Statistics with probability less than 5%. The null hypothesis of non-systematic difference of coefficient is rejected at 5% that allow us to rely on the validity of Random Effect Model.

The second model is based on Fixed Effect criterion which concentrate on the impact of Microfinance institution performance indicators, Total Investment made by Microfinance Institutions, Inflation rate in the economy and Index of Financial Inclusion on Economic Growth where Rate of Growth in GDP being taken as proxy to explain the Economic Growth. The findings suggests that the indicators of Microfinance Institute are positively related with economic growth showing significant positive results at 10%, 5% and 1% significance level. The Financial Inclusion Index is also positively significant at 0%, 5% and 10% in the respective models i.e. Common Random Effect, Random Effect and Fixed Effect Respectively. SER and Hausman test of model validity supports Fixed Effect Model because the null hypothesis of non-systematic differences of Coefficients is being accepted.

5.2   Policy Recommendations

The study suggests there is strong positive relationship between MFI's performance, Index of Financial Inclusion and Economic Growth. Hence the following Policy recommendations are made do improve the Microfinance Institute which is directly linked with index of Financial Inclusion and Economic Growth.

1. Index of Financial Inclusion play significant role in economic growth which comes from different micro and macro indicators and Microfinance Institute is one of the important indicator to calculate Index of Financial Inclusion. Therefore the microfinance performance improvement can make plausible contribution in the improvement of Index of Financial Inclusion which is directly associated with Economic Growth.

2. One of the important indicator of microfinance institution that give significant result is saving and total number of savers, therefore through encouraging savings in micro level can help to promote investment for that awareness of the importance of Savings and benefits provision to saver can work faster to facilitate the lower class of society.

3. When we come to Pakistan through the performance of Microfinance we can see that we are much far behind even from Nepal and Bangladesh, almost all of the indicators used in the study shows that how worsen Pakistan's MFI are performing. Therefore we need to improve the Microfinance performance of Pakistan through proper check and balance of Institutional sector.

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