

**ESSAYS ON IMPACT OF MICROFINANCE ON POVERTY
ALLEVIATION**

By

Laila, Ume

DISSERTATION

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

DOTOR OF PHILOSOPHY

IN PUBLIC POLICY

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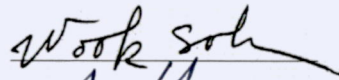
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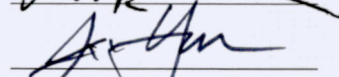
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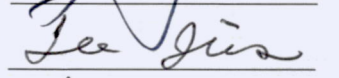
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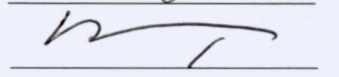
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ABSTRACT

ESSAYS ON IMPACT OF MICROFINANCE ON POVERTY ALLEVIATION

By

Laila, Ume

The three essays presented in this dissertation are aimed to examine the impact of microfinance on poverty alleviation. The first chapter analyzes the impact of microfinance on poverty alleviation at macro-level. The second chapter examines the impact of microfinance on poverty alleviation in Pakistan. The last chapter investigates the evidence of impact of microfinance on poverty alleviation in literature; the abstract of each chapter is as follows:

Chapter 1: Impact of Microfinance on Poverty Alleviation: A Global Analysis

Whether microfinance activities influence to alleviate poverty at macro-level? This paper investigates the impact of microfinance on poverty alleviation by using panel data which is gathered from 490 Microfinance Institutions (MFIs) at macro level in eighty eight (88) countries. We used panel and cross-country data on MFIs which are generated by microfinance information Exchange (MIX) data, the World Bank data and Human Development Initiative, Oxford Poverty and Global Multidimensional Poverty Index (MPI) Databank. This study provides empirical evidence for statistically significant impact of microfinance on poverty alleviation. Moreover, microfinance is an effective tool for economic social and financial development at macro-level. The results suggest that comparatively higher proportion of feminine recipients in microfinance institutes is likely to have low multidimensional poverty, poverty indices and depth.

Chapter 2: Impact of Microfinance in Raising the Household Income and Ownership of Household Assets in Pakistan

Microfinance has become very significant in providing financial services to poor people and enables them to improve their economic and social affairs. The main purpose of this paper is to evaluate the microfinance effect on household income and ownership of household assets in Pakistan. This paper is focused on the panel data which is based on district level. Hence, the study outcomes depend on econometric analysis, using empirical methods. Therefore, Panel Regression with Fixed Effect technique used to measure the microfinance effect and Multivariate analysis demonstrated statistically significant impact of microfinance on education, household income, ownership of household assets and expenditure. The econometric evidence discovered that microfinance is an efficient strategy for financial and social development. Microfinance has significant policy implications to improve welfare as well as poverty alleviation in Pakistan. Hence, this paper recommends Microfinance Institution needs more policy intervention to accomplish the wealth creation, fight against poverty and innovation which supports in asset accumulation for their potential clients.

Chapter 3: Microfinance and its influence on Poverty Alleviation; A survey of the Literature and Recent Development

Microfinance has established to be a very effective development tool because it deals with the poverty which is main target of developmental projects. This paper systematically reviewed the detailed literature of examining the impact of microfinance on poverty alleviation at micro and macro-level. We reviewed impacts of financial services and outcomes, non-financial services and outcomes as well, such as loan, savings, income, assets, expenditure, education, nutrition, health status, Consumption of food, expenditure on food-items, empowerment of women, numbers of job created and entrepreneurship. The evidence shows that microfinance services are important mechanism and has positive and significant impact on economic and social condition of poor people. This study reveals that mostly microfinance institutions are not sustainable so far but in near future they are likely to be sustainable and outreach to poorest.

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DEDICATED TO MY BELOVED BROTHER AND PARENTS

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First of all, I would like to thank ALLAH ALMIGHTY and to be grateful to him at the completion of my project because without HIS blessing and help, I am nothing. HE is one in Universe, in each and any kind of tension, pleasure and at the time when I need.

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Lastly, I would like to say that I find myself completely lost when I think of my Father's love, support for me and dedication to knowledge. I owe a great deal to the prayers of my beloved Mother and Sister whose hands were never down in my distress and anguish. I pay my deepest gratitude my whole family especially my brothers for sparing me for doing this research.

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Chapter 1 : Impact of Microfinance on Poverty Alleviation: A Global Analysis

1.1. Introduction

A high proportion of the population in third-world countries lives in rural areas, where agriculture is the major source of livelihood. Because of risks and higher costs associated with widespread population and weak infrastructure, formal financial institutions are often reluctant to extend credit facilities to the rural population. Rural areas remain underdeveloped because of poor financial facilities. But dedicated and committed financial institutions can facilitate economic development in rural areas.

Recent impact studies examining the impact of microfinance on income levels and poverty are based on micro-levels such as the household or company (Hulme and Mosley, 1996; Imai, Arun and Annim, 2010a, 2010b; Khandeker, 2005; Mosley, 2001). Some studies investigate the impact of microfinance performance on poverty at the macro-level (Ahli, Lin and Maio, 2011; Ahlin and Lin, 2006, and Kai and Hamori, 2009) but there are only a few studies that examine the impact of microfinance on poverty at the macro-level, because of limited data.

The financial sector can be a catalyst in the eradication or at least reduction of poverty through enhanced financial services for the poor in developing countries (Barboza, 2009). For sustainable economic growth, a complete package of economic activities should be introduced covering, for instance, small and medium enterprises

(SMEs) and micro-finance banks, because small and medium enterprises can play a role in economic development, creating goods, innovation and employment. On the other hand, it is essential for enterprises to have access to financial services to be sustainable (Cull R.D, 2007).

Conventional banks lend to clients who have collateral; the poor have no valuable assets to offer as collateral, so mainstream banks seldom take the risk and usually ignore the application. In any case, the mainstream banks normally operate in urban areas, whereas most poor live in rural areas, so the underprivileged are not facilitated. Microfinance Institutes (MFIs) aim to bridge the gap in remote areas (C. Ahlin, 2011), but studies show that MFIs offer financial facilities only to a very small fraction of the projected demand of the poor. Moreover it has been shown that these programs can improve the confidence and self-respect of borrowers. Nevertheless, microfinance is not a magic potion. Even the most innovative and participative programs can give undesirable negative impacts (Armendariz De Aghion, B., 2005). One obvious impact as shown by earlier studies of microfinance is increased income levels, but more recent studies reveal that the impact can vary per income group. The more wealthy segments benefit most from microcredit programs, as they have higher skill levels, good references and higher initial resource bases. Low income earners are more vulnerable, and so benefit more from micro savings and micro insurance.

Nonetheless, steps taken more recently by government and other agencies providing access to financial services to underprivileged sectors show positive effects. However, more still needs to be done; for instance, there needs to be a conducive economic environment created, a legal and regulatory framework is supposed to be in

place, and the most urgent current need is improvement of financial intermediates in both rural and urban regions. It is essential to establish a well-functional financial institute to support a favorable business environment for sustainable economic growth (Hermes, 2007; Hermes, 2011).

Various initiatives have been launched such as regulations in support of technological and institutional innovations, up-scaling and growth; improved industry infrastructure, and setting up credit enhancement facilities. The new framework emphasizes inclusive financial services to make stronger fundamentals by developing proper infrastructures needed for long-term growth (Kirkpatrick C. and 2002). A strategic framework, with the core objective of developing a growth-led and sound institution, would mainly focus on expanding outreach; promotion of branchless banking and alternative delivery channels; deposit mobilization; scaling-up of micro-enterprise development; improvement of governance; enhancement of human and institutional capacities; consumer protection and financial literacy; and MFI regulatory mechanisms (A. Deaton, O. D. 2011; Cull R. D. 2007; H. Kai 2009; Hartarska V. and 2007; Hermes N., 2011 and M. Zeller, M. S. 2006).

MF is deemed an effective development tool because it empowers clients better than charity. Normally, MF recipients are self-employed entrepreneurs who, because they lack capital, are unable to invest in business so cannot emerge from intense poverty (Rai A. 2011; Stewart F. 1998; Chris Elbers, 2003).

One remarkable MF characteristic is convenience. MFIs hire Local Credit Officers (LCOs) who visit every village and each house to collect or pay out funds. Most times an LCO will hold a group meeting to address various activities, enabling them to share views, offer suggestions and give feedback (Ahlin C. 2006; Aubert C. 2009).

Since commercial banks require a guarantee for loans while poor people are not able to provide the same therefore this segment cannot avail loans facility from conventional banks Apart from this reason there are many other reasons due to which these banks are not willing to facilitate poor i-e lack of experience / training of poor, high cost on the process of small loans illiteracy of poor and low profit margin. This situation raised the reason and idea of microcredit. Those have no guarantee or any assets to present as guarantee, for them microfinance is a way to access finance to run businesses, to alleviate their poverty level, get social benefits in a sustainable manner. Chemin, M. 2008; Fruttero and Gauri, 2005; & Howard, G. 2003).

MF has become a lasting approach for economic development of the poor, according to Ledgerwood (1999, pp.1). The ADB (2008) define it as “the extension of comprehensive financial services such as loans, money transfers, payment services, deposits and insurance to poor and low-income earning households and their microenterprises.” It further implies that MF purveys financial facilities sustainably to improve lives of the poor. Since the inception of MF, many hypotheses have been developed on market coverage and poverty-related issues.

Poverty is described as a situation wherein people cannot access the necessities of life; the poverty line is the number of poor in this situation. Poverty is a chronic issue in Pakistan, and is basically the root cause of many social and developmental issues such as lack of education, large family sizes, poor economic access, gender discrimination, vulnerability to dreadful environmental conditions and deterioration and exploitation of the natural resource base (Jamal H, 2009; Lok-Dessallien R, 2002; Morduch J, 1995; Ravallion M, 2011).

The poor face many risks which derive from miserable living conditions. A sluggish economy has far-reaching impacts on individual household economic stability, directly impacting livelihoods, incomes and food access. The division of poor is uneven within the country, especially in rural areas. Their dismaying life, particularly as regards unclean drinking water and poor ventilation and sanitation systems, constantly bring about chronic disease. Normally, the poor have no land, capital or ways to learn earning skills. More females than men are victims of poverty, because of their subordinate status in home and society.

According to Hulme and Mosley (1996), apart from material conditions, poverty is also a form of deprivation. It is important to understand poverty at the micro as well as the macro level to recognize MF as a weapon to fight poverty. Defining poverty as a lack of basic needs is insufficient; there are other major factors; so MFIs must include broad elements of economic development.

Under-nutrition is one more major feature of the current socio-economic landscape, as the poor have bad health, lack resistance to disease, and have vitiated development. Fewer poor live in urban areas; earn a living as rickshaw driver, prostitute, beggar or street hawker.

Indicators on the relationship between poverty and inequality can be measured in a number of ways. The International Development Community formulates signs to understand poverty in the broader prospective; equity measures and poverty indicators are used progressively to capture the broad picture of conditions (Lok-Dessallien, *Renata*, 2002). Equity is associated with population dispersion, so poverty takes various forms of deprivation, such as low income, lack of basic needs and human incapacity. Despite these obvious differences, poverty analysis usually uses equity indicators due to the inherent connection between both the above concepts. Current research concludes that in any country in these circumstances, poverty reduction is easier in unrestricted conditions (Lok-Dessallien, *Renata*, 2002).

Due to variation in human development and poverty, there are two assessment methods for analysis: the derivational and the conglomerate perspectives; the latter stresses community development.

Exclusion means degree of social connectivity (Khan 2005), so exclusion and inclusion are relative to the society in question. They are multi-dimensional, comprising income/ consumption, poverty and influence on productive activity, political participation and social contacts. Inclusion and exclusion are dynamic processes which happen over

time; they are multi-covered and operate at different levels: individual, household, neighborhood, community and institution (Khan, 2005).

Exclusion tends to work more against the weak and poor (Mahmood 2009), who have fewer resources, with very weak claims to social entitlement, who become irrelevant in the social environment. They become coiled in social exclusion, which deprives them of any opportunity to develop ethnically and economically. Lacking capital and entrepreneurial skills and with low community integration, they are denied even minor opportunity to move forward. Ever-increasing poverty, poor health, old age, diminishing livelihood and nominal shelter all lead to the extinction of these impoverished people (Mahmoud, 2009).

Howard and Obika (2003) verify the close relationship between household poverty and health. In most developed countries, medical bills and loss of wages are covered by social safety measures such as health insurance, employment insurance or social security. These are not available in most developing countries, so the impact of ill-health on a poor household is tragic or ruinous. The poor bear all such expenses and income loss, although financial sources are limited. Medical bills always lead to lower expenditure on other items, sometimes the most important ones like food, clothes and education. Ill-health not only increases expenditure but also reduces earning power, which may have further impact on poverty. Studies show that when earning members of a household are ill, they endure hardship (Howard and Obika, 2003).

Due to the importance of such issues, some developing countries target poverty reduction in the urban population, and must admit housing as a vital issue (Meng Bunnarith, 2004).

Jamal (2009) says that household assets and housing structures are an important aspect of poverty measurement. A household is thought relatively poor if the housing structure is unsatisfactory or inadequate; it is viewed as unsatisfactory if unbaked bricks, earth, wood or bamboo are mostly used in the walls and roof.

Housing is considered inadequate if it is congested (more than two persons per room, excluding those six years and below). Households are considered poor if they lack facilities such as electricity, potable water, kitchen, bathroom/toilet and telephone facility (landline or mobile).

To fully capture poverty in endowments, non-ownership of house and non-ownership of household assets can be added to a list of variables in measuring household multi-dimensional poverty (Anwar, 2005; Akhter et al. 2007; Jamal, 2009).

The significance of my study is to examine the effect of microfinance on poverty alleviation. We analyze the effectiveness of microfinance in terms of borrowers, gross loan portfolio, GDP per capita, borrower retention rate, percent of female borrowers, and number of microenterprises financed on poverty alleviation across regions. This is significant for the development of financial institutions from a policy perspective. This study will help them to reexamine the outreach and sustainability of microfinance activities.

The findings of this study would be very useful for the donors of microfinance institutions such as development communities, government, international organization and all other investors, as new vision into impact of potential microfinance on poverty alleviation may arise.

The main objective of this paper is to examine the microfinance effect on poverty alleviation at the macro-level. The secondary aim is to determine what percentage of female borrowers/ number of active borrowers affects multi-dimensional poverty and to determine empirically the relationship between MF and the incidence of poverty. This paper answers the question about the nature of the relationship between MF and multidimensional poverty from a macro perspective in incidence and depth.

Some studies show evidence that MF programs have a significant impact on poverty alleviation at the macro-level. This study assesses the MF impact on poverty alleviation at the regional level through empirical evidence. We have used panel and cross-sectional data at the country level, where we find that a country with more active borrowers and a higher percentage of female borrowers has a lower incidence and depth of multi-dimensional poverty.

This study seeks to contribute to the available literature. First, it offers an insight into MF evolution in light of the global development discourse and public policy choices made in this regard. It is also associated with studies that examine the MF impact on poverty alleviation at the macro-level, then uncovers how this evolution has played out in practice, on the ground, and its subsequent impact on the intervention's clients as against

those left behind. The econometric methodology (panel and cross-sectional analysis), control variables and dummy variables are similar to some extent.

The main difference is that Katsushi; Raghav; Ganesh and Samuel (2012) examine the impact of a gross loan portfolio on poverty incidence and depth. The aim of this paper to analyze the micro-finance effect of the number of active borrowers, the number of micro-enterprises financed and the percentage of female borrowers on the incidence and depth of multi-dimensional poverty. Secondly, the study offers an authoritative account of how institutional structure impacts MF effectiveness as a development intervention, especially as traditional NGO microfinance institutions (MFIs) transform into microfinance banks (MFBs).

Our study makes major contributions in terms of Scope and Coverage. Previous studies analyze the impact of microfinance on incidence and depth of poverty only. None examine the the impact of microfinance outreach on multidimensional poverty. We analyze the impact of microfinance on poverty head count ratio, poverty gap and multidimensional poverty index. WE also examine the microfinance effect on components of multidimensional poverty index. The components are education, health and living standard.

By coverage we cover 96 countries and sixteen years panel data to examine the microfinance effect of microfinance on multidimensional poverty. Our panel data is from the period 1998-2014.

The findings of our study provide significant policy implication for better structure and outreach of MFIs that help to alleviate the poverty at global level. These

policy implications and recommendations not only assist in development of microfinance and poverty alleviation but also support women empowerment issue at global level.

Some upper-middle income and lower-middle income nations and several African nations are currently drafting regulations to convert their MFIs into banking institutions to be regulated directly by the central bank, in the hope of expanding outreach and achieving financial sustainability. This study can serve as a source of lessons learned to these countries and others that may join later, for it provides insights into how development processes and outcomes, such as social mobilization, women's empowerment and other aspects of individual wellbeing, are affected when institutional structures are transformed. Finally, the study deepens our understanding of how a local social economy shapes and constrains development, even when the intervention is market-based and self-sustaining. The role of MF in conflict-affected areas is examined in detail. In addition, the impact of social and economic conditions, governance and culturally-persistent gender disparities is discussed with respect to microfinance (

Appendix 1-B).

Our paper is organized as follows. After this section, the study discusses econometric methodology. Section 3 presents a brief description of the study's data. Main findings and robustness checks are in Section 4. The final section of the paper presents concluding marks.

1.2. Econometric Model and Estimation

In order to analyze empirically the significant effect of microfinance on alleviation of poverty, we identified the dependent variable, explanatory variables and econometric model to measure the true effect of microfinance institution activities at macro-level. The unit of analysis is country for the empirical analysis of our study. Furthermore, we estimate our model through panel and cross-sectional regression.

1.2.1. Panel Regression

We used panel regression to estimate the number of active MFI borrowers with a significant impact on the poverty head-count ratio at the country level for 1998-2013.

We employ pooled OLS, Random Effect and Fixed Effect to estimate the actual effect of MF activity on poverty. To test our first hypothesis, we estimate the following pooled OLS equation.

$$Y_{it} = \beta_0 + \beta_1 \log NAB_{it} + \beta_2' \log EV_{it} + \beta_3' \log X_{it} + \beta_4' Z_{it \in S} + u_{it} \quad (1)$$

Where Y_{it} is the poverty head count ratio, poverty gap and multidimensional poverty for MFI i in year t ; NAB_{it} is the number of active borrowers per million of population (aged 15 to 64) of MFI; EV_{it} is a matrix of all other explanatory variables such as assets; gross loan portfolio (GLP); GDP per capita; percentage of female borrowers (PFB); number of micro-enterprises financed (NMF); borrower retention rate (BRR); average deposit balance per depositor/GNI per capita; loan loss rate; number of jobs created (NJC); and percentage of micro-enterprises financed at start-up (PMFS). X_{it} is a matrix of poverty control variables capturing the living standard, health status and education of the country; and Z_{it} is the matrix of dummy variables at regional level where the MFI is operating.

There is a number of econometrical problems in this type of estimation needing more consideration. Firstly, it is necessary that all predictor and control variables in our estimation should potentially affect poverty. If some variables are omitted that could affect poverty and which have a correlation with explanatory variables, then the Ordinary Least Square might be biased (Stock & Watson, 2007, p.186). So we also examine the real impact through Random Effect and Fixed Effect models.

The Random Effect model assumes that an error term has no correlation with predictor variables; it controls all unobserved heterogeneity effects which could reduce the omitted variable bias issue (Hartarska,2007; Lensink and Mersland, 2009). We also used the Fixed Effect model, as we have concerns about omitted variable bias in the Ordinary Least Square, so need to control the endogeneity problem. Fixed Effect has the beauty of eliminating the effect of time –invariant characteristics - so we can measure the net impact of explanatory variables on the explained variable. Hence, the estimated

coefficients of this fixed model can be unbiased due to omitted time invariant characteristics.

We estimate the following random and fixed effect model regression that controls unobserved specific effects of MFIs:

$$Y_{it} = \beta_0 + \beta_1 \log NAB_{it} + \beta_2' \log EV_{it} + \beta_3' \log X_{it} + \beta_4' Z_{it \in S} + \alpha_i + u_{it} \quad (2)$$

Where α_i is the unobserved specific fixed effect of MFI, we cluster the standard errors to deal with potential heteroscedasticity for this study. Broadly, the main objective is to analyze the effect of MFIs activity on multi-dimensional poverty at the country level. Macro-economic variables aim to capture the supply side of MFIs that can affect poor people's lives. Moreover, MFI borrowers increased rapidly in the 2000s, from which we analyze whether the number of active borrowers from all MFIs can affect poverty.

For hypothesis testing that random effect is better or fixed effect estimator we test the Hausman test.

$$H_0 = \text{Cov}(\mu_i, x'_{it}) = 0 \quad (\text{Random Effect})$$

$$H_1 = \text{Cov}(\mu_i, x'_{it}) \neq 0 \quad (\text{Fixed Effect})$$

Estimator	Random Effects $E[c_i \mathbf{X}_i] = 0$	Fixed Effects $E[c_i \mathbf{X}_i] \neq 0$
FGLS (Random Effects)	Consistent and Efficient	Inconsistent
LSDV (Fixed Effects)	Consistent Inefficient	Consistent Possibly Efficient

Random and Fixed effects estimator are consistent under null but random effect estimator is inconsistent under alternative hypothesis. Random effect estimator is efficient under null hypothesis. In null hypothesis the Standard error ($\widehat{\beta}_{RE}$) is less than standard error of ($\widehat{\beta}_{FE}$).

$$H = (\widehat{\beta}_{RE} - \widehat{\beta}_{FE})' [\text{Var}(\widehat{\beta}_{RE}) - \text{Var}(\widehat{\beta}_{FE})]^{-1} (\widehat{\beta}_{RE} - \widehat{\beta}_{FE})$$

$$\sim \chi^2(\# \widehat{\beta}_{FE}), \text{ provided } \# \widehat{\beta}_{FE} = \# \widehat{\beta}_{RE} \text{ (no intercept)}$$

We also examine the impact of the number of micro-enterprises financed and the percentage of female borrowers on multi-dimensional poverty by region, institution and income levels. Hence, the mission of micro-finance commercialization, i.e. MF banks, NGOs and non-bank financial institutions will make MFIs more profit-oriented, efficient and provide financial services through loans to the poor. These loans are to improve household conditions, and enterprise expenses. We expect that banks and non-bank financial institutions could be more effective than other institutions in reducing multi-dimensional poverty through the percentage of female borrowers and the number of

micro-enterprises financed. We run independent regressions for region, institution and national income levels to examine the MF impact on multi-dimensional poverty.

$$Y_{it} = \beta_0 + \beta_1 \log NMF_{it} + \beta_2 \log PFB_{it} + u_{it} \quad (3)$$

Here, Y_{it} is the multi-dimensional poverty index at regional, institutional and national levels; the national level is distributed by income. We expect that NMF and PFB more significantly affect multi-dimensional poverty in a low-income country than a lower-middle income country.

1.2.2. Cross-section Regression

We employ the Ordinary Least Square for all models to estimate the effect of MF on poverty alleviation. We conduct this analysis to check the robustness of our estimates. The purpose of a cross-sectional estimation is to provide the marginal effect of MF on poverty. We estimate the cross-section OLS model as follows:

$$Y_i = \beta_0 + \beta_1 \log NAB_i + \beta_2' \log EV_i + \beta_3' \log X_i + \beta_4' Z_{i \in S} + u_{it} \quad (4)$$

We use level-log variables for all models to estimate the impact on the percentage of female borrowers; for other MFI activities variables on poverty alleviation at the macro level, we used regional dummies. We run the above in a region to check the impact of MFI activity within or without a region on different poverty indicators.

One of the main restrictions in analyzing macro-level effect is whether the MFI target reaches poor people (Morduch, 1999). To examine the true effect, we analyze the MF impact on multi-dimensional poverty by capturing the complexity of poverty and poverty gap showing the “depth of poverty.”

1.3. Endogeneity Issue

We find a difficulty in endogeneity of a few explained variables. In point of fact, data is missing on legal origins and enforcing contract costs which indicate cross-country differences in financial development, since the cost of enforcing a contract, legal origin dummy variables and active borrowers are the main variables explaining the demand side of MF. Active borrowers are likely to be endogenous in the equation; non-inclusion of the cost of enforcing a contract and legal origin variables might generate a correlation between active borrowers and an error term. This can lead to an endogeneity problem - the omitted variable bias and bi-causal relationship between active borrowers and multi-dimensional poverty at a country level make the coefficient inconsistent. This reverse causality from multi-dimensional poverty to active borrowers can rise if government support or other development programs offer more support to MFIs working in those countries.

It is difficult to find a valid instrument to satisfy the “exclusion restriction” that correlates with the number of active borrowers when there is no direct relationship with, or effect on, poverty. In this study our unit of analysis is the district, where we employ three kinds of instrument: legal origin; cost of enforcing a contract; and one-year lag in the number of active borrowers averaged by the number of MFIs for each country.

We estimate the relationship between the number of active borrowers and poverty through structural and reduced form of least squares:

$$POV_i = \beta_0 + \beta_1 GLP_i + \beta_2 NAB_i + \beta_3 PFB_i + \beta_4 BRR_i + \beta_5 X_i + \beta_6 RD_i + \varepsilon_i$$

$$NAB_i = \pi_0 + \pi_1 LO_i + \pi_2 CEC_i + \pi_3 lag1yrsNAB_l + \pi_4 X_i + \mu_i$$

Where *POV* represents dimension of poverty (education, health, living standards, wealth, economic status and consumption); *GLP* indicates gross loan portfolio; *NAB* denotes number of active borrowers; *PFB* indicates percentage of female borrowers; *BRR* denotes borrower retention rates; *X* indicates all other explanatory variables; *RD* is a vector of regional dummy, with South Asia being the reference province.

To test the endogeneity presence and instrument suitability we estimate the reduced form, *LO* represents Legal Origin; *CEC* indicates the cost of contract enforcement at the country level; *lag1yrsNAB* is the one-year average lag of number of active borrowers averaged by the number of MFIs for each country; *X* is the vector by which all other independent variables are measured in the first equation; ε and μ indicate error terms.

Following Treisman, Daniel (2006), Beck and Demirgüç-Kun (2003) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997 and 1998), we used Legal Origin to measure the depth of financial development. Imai, Katsushu (2012) used cost of enforcement contract as an instrument variable. Legal Origin helps to define the cross-country differences in financial development. We used a dummy variable of legal origin in our model as an instrumental variable, to find the exogenous element of “state control over the judiciary and legal system adaptability” to examine how legal origin affects financial development.

Decisions of MF investors, specifically international organizations and donors, on investment depend on national institutions: which institution has a low cost of enforcing contracts that can smooth economic activities. In this case we can assume that the cost of enforcing a contract has a significant and negative correlation with the number of active borrowers, but the direct relation or effect on the cost of enforcing a contract with the poor may be weak as a higher enforcement cost could exclude low-income people from formal services and continue poverty in the short run. Hence we also used a weighted one-year lag of the average number of active borrowers as a third instrument.

1.4. Data and Methodology

There are some challenges in empirical analysis for macro data which includes (i) identifying a suitable measure for activities of microfinance by availability and intensity (ii) identify the influence of “performance” which is different from scale and outreach of microfinance on macro variables and its indicator; and (iii) robustness check of estimators related to microfinance.

We examine the impact of MF activity on poverty alleviation using panel and cross-sectional data. Our main focus is to analyze the impact of financial services rather than the performance of MFIs. Data for 490 MFIs from 88 countries have been created by MIX (the Microfinance Information Exchange, 2014), the Oxford Poverty and Human Development Initiative (2014), the Global Multi-dimensional Poverty Index (MPI) Databank, OPHI, Oxford University and the WDI (World Bank, 2014); (

Appendix 1-C).

MIX Market data provides reliable and transparent information on funding sources, operational strategies, demand, stakeholders, performance, outreach and sustainability of MFIs. Formation of this database was recommended by the United Nations Conference on Trade and Development (UNCTD), which provides a complete database on MF financial indicators at regional, country and institutional levels.

It covers Africa; Eastern Europe and Central Asia (EECA); East Asia and the Pacific (EAP); Latin America and the Caribbean (LAC); Middle East North Africa (MENA); and South Asia (SA). MFIs are also categorized in terms of their network association, legal structure and financial services, including credit and savings for the poor by Micro-Finance Banks, Cooperatives/Credit Unions, Financial Institutions, Non-Governmental Organizations and Rural banks (Christen and Drake, 2002; Cull, Demirguc-Kunt and Morduch, 2009a).

MIX data provides MF institutional data for 17 years: descriptive statistics, financial indicators and outreach. Descriptive statistics regarding MFIs, including fiscal year of formation, regulation, vision and goals of institutions, developmental strategies, provision of products, sources of funding, operations, opportunities for investment and funds of MIX Market. Financial indicators explain MFI internal information data such as finance structure, equity return ratio; equity; assets; revenue; profit margins; portfolio risks; balances; and cost. Outreach data covers client-MFI communication, with information on loan per borrower; savings per saver; number of active borrowers; percentage of micro-enterprises financed; percentage of financed micro-enterprises that

are start-ups; and percentage of female borrowers. It also provides detailed information on borrowers below or above the poverty line.

The panel data is unbalanced as our analysis is based on the annual data between 1998 and 2013; by region there are 512 MFIs from LAC; 454 from EECA; 221 from EAP; 76 from MENA; 385 from SA; and 509 from Africa. Our cross section estimates are based on 490 MFIs in 88 countries: 98 from LAC; 75 from EECA; 42 from EAP; 40 from MENA; 175 from SA; and 60 from Africa.

Before estimation we need to check data reliability and validity, because MIX data might have issues regarding sample selection, complete information about MFIs and measurement errors, even though if MIX has cross-checked data (Ahlin et al., 2011). It is impossible to measure the extent of data errors, but MIX offers MF activity data at the large level (Cull, Deminor-Kunt and Morduch, 2011).

The present study uses different empirical methods with sub-samples to verify potential bias due to self-selection, based on measures like the extent of MFI data validity (Ahlin et al., 2011). We discovered consistent and similar results regardless of sub-samples. Moreover, we compared a dependent variable as a number of active MFI borrowers (from MIX data) with other independent variables: MFI branches, deposit and loan accounts at the country level. We found a positive and significant pair-wise correlation between variables and so assume that MIX data constitutes real MFI performance aggregated at the country level.

To examine the effect of MF activity on poverty, we used the number of active borrowers: the number of individuals who have current outstanding MFI loans in each

country. Other variables in our model are percentage of female borrowers; borrowings; assets; borrower retention rate; number of micro-enterprises financed; gross loan portfolio; GDP per capita; percentage of financed micro-enterprises that are start-ups; control variables; and regional dummies. However, a robust inverse relationship between gross loan portfolio and poverty has already been verified in the literature. Lastly, poverty is controlled through different unobservable regional factors like natural disasters and social and economic shocks; in this regard we used regional dummies.

The present study has an endogeneity issue, as the number of active borrowers is likely to be endogenous with poverty. There is a bi-causal relationship between the number of active MF borrowers and multidimensional poverty at the country level. To remove reverse causality we used three iv: legal origin; cost of enforcing a contract; and lag of one-year average of the number of active borrowers averaged by the number of MFIs for each country. For IV we collect data from the NYU global development network growth database, which provides information on all fixed factors, and complete data on macro and micro time series, social indicators, fixed factors and government finance. The “DRI (Development Research Institute) is devoted to rigorous, scholarly research into economic development and growth of poor countries. It is an independent and non-partisan body led by NYU Professors William Easterly and Yaw Nyarko, with a team of researchers and students”.

1.5. Results

We find empirical evidence that MF activity had a statistically significant impact on the poverty head count ratio, poverty gap and multi-dimensional poverty.

1.5.1. Panel Analysis

Table 1.1 reports the number of observations of our panel sample distribution. The data set comprises different types of MFI in different world regions; a total of 2218 MFIs.

That total South Asia (SA) (403); Banks (15); Credit Unions/Cooperatives (37); Non-Bank Financial Institutions (NBFI) (104); Non-Governmental Organizations (228); Rural Banks (11); and other institutions (8) (see [Source](#): Author's Compilation

Figure 1.1).

In Latin America and Caribbean (LAC) there are 531 MFIs, more than in any other world region: Banks (314); Credit Unions/Cooperatives (458); NBFIs (636); NGOs (607); Rural Banks (154); other institutions (49).

Table 1.2 table shows descriptive statistics for key variables in our study. It shows the mean, median, quartiles, standard deviation, minimum and maximum for interesting variables used in our data. N is the number of observation, Mean refers to the arithmetic average of explanatory and dependent variables. Q1 is first quartile, which is also 25th Percentile because it is larger than 25% of the observation. Q2 is second quartile which is also the median and Q3 is third quartile and also called 75th Percentile because it is larger than 75% of the observation, respectively.

Assets are total of all net accounts and measured in \$1000's. Borrower retention rate is $\text{Active borrowers at the end of the period} / (\text{active borrowers at the beginning of the period} + \text{new borrowers during the period})$ and measured in dollars. Gross Loan Portfolio is all outstanding loans for clients which does not include written off loans and measured in \$100,000. No. of Active Borrowers defined as the number of individuals who have currently outstanding loan with MFIs relative to million population (15-64).

No. of Job created is employment creation which indicates the social performance indicator. No. of microenterprises financed defined as entrepreneurship which indicates the social and financial performance indicator. Percentage of female borrowers is the female clients of MFIs. Percent of financed microenterprises that are start-ups are those enterprises which are new in enterprise.

Poverty Head Count Ratio is percentage of population living below the national poverty line. Poverty Gap is average of the ratio of the poverty gap at \$2 per day to the poverty line. Proportion of people who are deprived in education, health status and living standard which is assessed by years of school, school attendance, child mortality,

nutrition, Electricity, Improved Sanitation, Drinking water, Flooring, Cooking Fuel and Asset Ownership. The Multidimensional Poverty Index (MPI) is a "measure designed to capture the severe deprivations that each person faces at the same time".

The average and median of number of active MFI borrowers is 2.584, which is 13.51 per million population (aged 15-64). As far as poverty variables are concerned, poverty head count ratio on average equals 32.44321 "living below the national poverty line." Mean and median poverty gaps are 9.296271 and 6.8, and average multidimensional poverty is 16.48.

Table 1.3 represents the correlation matrix of the MF and poverty variables; we see a negative correlation between poverty head count ratio with all MF activity: Assets (-0.0345); BRR (-0.888); Borrowing (-0.0807); NJC (-0.0912); NMF (-0.0454); NAB (-0.01602); PFB (-0.7065); PFMS (-0.4026). This shows an increasing number of active borrowers with less poverty. The correlation between percentage of female borrower and poverty is negative, which indicates that women empowerment can also be affected by poverty.

Table 1.4 captures the impact of MF, measured by the number of micro-enterprises financed and percentage of female borrowers, on multi-dimensional poverty by different levels of country income. Our findings show that MF activity had a significant impact on multi-dimensional poverty. The result is negative and significant to at least 1% of significance. Generally speaking, the percentage of female borrowers has a larger impact on multi-dimensional poverty than the number of micro-enterprises financed, observed in lower-middle income country multi-dimensional poverty at 0.123%.

Table 1.5 measures the impact of MF on multidimensional poverty by institution. We divided the sample by MFI legal position lines; the estimated coefficients are negative and significant to a 5% level. The estimated coefficient shows that more micro-enterprises and a larger percentage of female borrowers can decrease multi-dimensional poverty by different channels of microfinance; meaning that MFIs with a different legal status have a significant impact on multi-dimensional poverty as noted by Banks, Credit Unions/Cooperatives, NBFIs, NGOs and Rural Banks.

The estimated results show that MF can be a vehicle to alleviate poverty. Therefore it seems that multi-dimensional poverty does not reflect changes in degree of MFI commercialization; but rural banks and NGOs show a highly significant impact on poverty multidimensional poverty of the number of micro-enterprises financed and percentage of female borrowers.

Table 1.6 estimates the impact of MF on multi-dimensional poverty, with the sample divided by region. In this model, the number of micro-enterprises financed and percentage of female borrowers have a significant impact on multi-dimensional poverty in all regions except Africa. The estimated results show that more female borrowers can have a negative and significant influence on multi-dimensional poverty. The more MF (measured by number of micro-enterprises financed), the more people can emerge from poverty.

In Table 1.7, for panel regression we use three types of estimation: Pooled OLS; RE; and FE. The evidence shows that MF had a significant influence on poverty incidence. In Table 1.7 to 오류! 참조 원본을 찾을 수 없습니다. we have repeated the dependent variable (poverty head count ratio) of our regression with poverty gap and multi-dimensional poverty.

1.5.1.1. Pooled OLS

In Table 1.7 the log of per capita GLP is negative and highly significant; the coefficient indicates that the poverty head count ratio and gap fell by 0.021% and 0.020%.

As all predictors are in log, we find that a 10% increase in MFI borrower retention rate reduces poverty by 0.041% in Pooled OLS (Column 1).

The estimated coefficient shows that more finance of micro-enterprises can decrease the poverty head count ratio and poverty gap by 0.048% and 0.022%. Moreover, the percentage of female borrowers has a larger impact on poverty head count ratio than other explanatory variables. The log of loan loss rate is positive and highly significant, and shows that if we increase the loan loss rate by 1%, the poverty incidence and gap will increase by 0.041% and 0.030%; meaning that MF has a positive impact on poverty. The estimated results showed that MF can be an effective tool to alleviate poverty.

1.5.1.2. Random Effect

We ascertain that the percentage of female borrowers is negatively correlated to the poverty head count ratio in both Random and Fixed Effect models. This negative association is statistically significant to 1% for Random Effect and 5% for Fixed Effect. The estimated coefficient shows that the marginal increase in percentage of female MFI borrowers lowers the poverty head count ratio by 0.060% for OLS, 0.061% for RE and 0.050% for FE. The coefficients are robust over the estimation (“corrected for heteroscedasticity”). The results have to be interpreted carefully as the estimation depends on unbalanced panel. We found the same pattern of findings: the number of micro-enterprises financed and percentage of female MFI borrowers is negatively

correlated with poverty after controlling other explanatory variables and unobserved heterogeneity.

Table 1.8 indicates that the number of active borrowers per million population (aged 15-64) had a statistically significant impact on multi-dimensional poverty via education, health status and living standard. Our interesting variable is that the average deposit balance per depositor/per capita GNI has a negative and highly significant impact on multi-dimensional poverty. If the average deposit balance per depositor/per capita GNI increases 1%, multi-dimensional poverty falls 0.045%.

Table 1.9 to 오류! 참조 원본을 찾을 수 없습니다. indicate the MF impact on poverty in terms of head count ratio, gap and multidimensional poverty. The columns represent the estimation of country effect and five-year average effect. All models are significant at a conventional 5% level of significance, while a few models are weakly significant at 10%. The large impact of average deposit balance per depositor/per capita GNI and percentage of female borrowers has been observed as a country effect, at 0.033% and 0.020%. One interesting feature is that if we estimate the same model to analyze the 5-year average effect, the impact is smaller but significant. The negative and relatively significant results can be interpreted as poor people having begun to benefit from the institutions to rise out of poverty, better their lives and improve business. Our estimation reports that more MFI finance for micro-enterprises can lower the poverty head count ratio and gap by 0.020% and 0.010%.

In all models the results shows a negative and significant impact on poverty of the percentage of female borrowers, number of active borrowers and number of micro-

enterprises financed by MFIs. Other predictor variables indicate expected signs too. Borrower retention rates show a negative and statistically significant impact on poverty.

We run a Hausman test to choose between Fixed and random effects estimator. Our P-value is less than 0.05, which is highly significant. In this case we conclude that we can reject the null hypothesis and we will use fixed effect estimator for our analysis. Random effect estimator is no more consistent. After running the Hausman test we choose Fixed Effect over Random Effect.

Table 1.8 and Table 1.10 shows the effect of Microfinance activity on multi-dimensional poverty. As to the MF effect on the poverty gap and multi-dimensional poverty gap, there are consistent findings of significance and coefficient signs for all key variables of this study, specifically the number of active borrowers, the number of micro-enterprises financed and the percentage of female borrowers. Where multi-dimensional poverty is a dependent variable, the Hausman test approves Fixed Effect.

Overall, our findings from panel regression indicate that MF has a statistically significant impact on poverty. To sum up, the percentage of female borrowers and the number of active borrowers are negatively correlated with the incidence, gap and multi-dimensional poverty.

1.5.2. Cross-Sectional Analysis

Findings from cross-section estimation imply strong evidence for the effect of MF on poverty alleviation at the macro-level. In all models (Table 1.11 and Table 1.12), we assess the relationship between the percentage of female borrowers, the number of active

borrowers and poverty. We run the Ordinary Least Square to examine the impact of the percentage of female borrowers with and without regional dummies on poverty.

Table 1.11 indicates that the number of active borrowers and percentage of female borrowers is negatively and significantly correlated with the poverty head count ratio at 0.041% and 0.141%, which is consistent with our hypothesis that the number of active MFI borrowers can affect the poverty head count ratio. The estimated coefficients are negative and significant at 5% and 1% levels. The estimated coefficient shows that more financed micro-enterprises can decrease the poverty head count ratio and gap; meaning that MF has a positive impact on poor people.

Table 1.12 estimates indicate the impact of MF on multi-dimensional poverty with and without a regional dummy. In all models we control living standards, health status and education. The estimated results showed that a higher number of active MF borrowers and micro-enterprises financed can have a negative and significant impact on multi-dimensional poverty (0.037% and 0.031%). The higher the utilization of MF (percentage of female borrowers), the more women will be able to make decisions in household financial matters; but the number of jobs created has an insignificant and negative impact on multi-dimensional poverty (0.00004%).

Table 1.11 and Table 1.12 investigate the potential effect of regional dummies on poverty head count ratio, gap and multi-dimensional poverty. We found that key analysis variables remain negative and statistically significant after including the regional dummy. Column 2's estimation of poverty head count ratio with regional dummies shows that EAP, EECA, LATC and MENA have negative and statistically significant coefficients

with reference to SA at a 5% level of significance. Africa shows a positive coefficient relative to SA, statistically significant at a 5% level of significance for multi-dimensional poverty, but an insignificant and positive coefficient for poverty head count ratio and poverty gap.

The larger impact of the percentage of female borrowers has been observed on multi-dimensional poverty (0.18%). The impacts of borrower retention rate and gross loan portfolio are much higher than other explanatory variables in the analysis. We can rely too much on these results because of the explanatory variables, but the results show some inherent pattern of MF on poverty head count ratio, poverty gap and multi-dimensional poverty.

The negative and relatively significant results can indicate that poor people have begun to benefit from the institutions at least to maintain their business. Table 1.12 shows that the value of R^2 for the model is 0.673, meaning that 67.3% of the variation in multi-dimensional poverty can be explained from the policy variables; R^2 always increases if you add independent variables in a multiple regression model.

The estimated coefficients of a short run showed that MF has a positive and significant impact on poverty, at 10%. The magnitude of coefficients shows that *ceteris paribus*, if the 10% average deposit balance per depositor/per capita GNI increases, it will raise output by over 0.041%. The statistical significance of its variable supports theoretical linkages between MF and multi-dimensional poverty. The positive relationship implies that society has begun to benefit from MF. The sign of micro-

enterprises financed at start-up is negative and significant at a conventional 5% level of significance.

Lastly, the cross-section estimation shows the positive impact of MF on poverty alleviation at the macro level. We emphasize the need to check the potential effect of our explanatory variables on poverty; our few variables, like the number of jobs created, show an insignificant impact on poverty, and Africa shows a significant but positively correlation with poverty beyond our expectation. This suggests that MFI in Africa needs more attention to alleviate poverty.

1.5.3. Instrumental Variable Analysis

Table 1.16 shows the instrumental variable used to remove the simultaneous equation problem from our model. The coefficients are robust, overcoming the heteroscedasticity and examining all explanatory variables with and without dummies at a regional level. The coefficient of the number of active borrowers is negatively and statistically significant at a 5% level. Our main objective with the instrumental variable estimation is to remove or solve the problem of endogeneity of the MF activity variable and poverty incidence and depth equation, that is, the number of active borrowers. In view of above discussion on endogeneity, this is because of a bi-causal relationship between MF activity and poverty.

Table 1.17 shows the validity of our instruments; if we use only one instrument - legal origin - we observe that poverty reduces the impact of the number of active MFI borrowers. However, our weak identification test is significant, and we determine the requirement to increase instrumentation.

Table 1.16 uses three instruments for a “much higher” Kleibergen-Paap rk Wald F-statistic (“weak identification test”). Sargan’s test for over-identification shows whether our instrument is over-identified or not. We observe from this test that we fail to reject the null hypothesis. Here our null hypothesis is that our instrument has no correlation with the error term and is valid. For the under-identification test our p-value shows that we can reject our null hypothesis that our instrument is under-identified.

From all these tests we can conclude that our instrumental variable is valid. The Hausman test shows that OLS is better than IV. In this case we can rely on OLS estimation.

1.6. Robustness Checks

We use a different test to investigate the robustness of our findings and examine our analysis in a detailed way. We run our regression to check whether our findings are robust for panel sample and cross-section sample when we include (i) different dependent variables: poverty head count, poverty gap and multi-dimensional poverty; (ii) level-level model for estimation (Table 1.13); (iii) interaction between percentage of female borrowers and legal MFI regional status (Table 1.15); (iv) interaction between legal MFI status and region (v) country effect (Table 1.9 and 오류! 참조 원본을 찾을 수 없습니다.); (vi) five-year average effect (Table 1.9 and 오류! 참조 원본을 찾을 수 없습니다.); (vii) remove the outliers (

Table 1.18); (viii) MFI effect on three different dimensions of poverty (Table 1.14).

We obtain robust findings for cross-sectional and panel analysis, as the percentage of female borrowers and the number of active borrowers are negative and significant in all estimations. The same holds through different specifications of country effect and five-year average effect of MFI on poverty. The results confirm that in Africa the effect of MFI activity on poverty is not appealing. The robust findings prove that our results are consistent, as in other regions there is a negative and significant impact in all models. We found robust results while changing poverty measures; borrower retention rate and number of microenterprises financed are significant for incidence, depth and multi-dimensional poverty. Again our main predictor, percentage of female borrowers, remains negative and significant with different specifications in all models. The coefficient estimates remain the same as well.

Finally we check robustness for cross-section analysis with interaction terms of legal status and region. Hence we can see from Table 1.15 that our explanatory variables show the same sign and significance level with similar coefficients for regional and legal status variations. These variations are robust if we change the specifications.

We found an instrumental variable to solve the problem of endogeneity, and used three instrumental variables from the supply side: legal origin; cost of enforcing an MFI contract at country level; and weighted one-year average lag of the number of active

borrowers. The same holds for instrumental variable results in Table 1.16; we always find a statistically significant relationship between MF outreach and poverty in Pakistan.

1.7. Conclusion

This paper examines MF effects on poverty alleviation by using a macro-level data set at large level, covering 490 MFIs in 88 countries. Poverty is examined through measures such as incidence, depth and multi-dimensional poverty. This study provides evidence that MFI activity can affect poverty at the macro level. We find that the percentage of female borrowers and the number of active MFI borrowers has a significant negative impact on incidence, depth and multi-dimensional poverty. By increasing the number of active borrowers, multi-dimensional poverty fell 0.0398%. The result is robust and economically significant by cross-sectional analysis. To test our claim, we used pooled OLS, Random Effect (country effect, 5-year average) and Fixed Effect for panel regression. A series of tests was also conducted to check result robustness.

Our results also suggest that a higher number of MFI-financed micro-enterprises lowers poverty incidence and depth. A dummy variable on whether MFI has a regional effect on poverty generates similar findings. Multi-dimensional poverty provides similar findings as an alternate response variable. The collective results provide convincing evidence that increasing the number of active borrowers and the number of financed micro-enterprises positively affects poverty alleviation after controlling for other factors influencing the macro-level.

The sign of the coefficient remains the same when we change specifications of our estimation, with and without dummy and replacing the predicted variable. Findings

from the panel estimation also support these results. Other aspects of MF or predictor influencing poverty alleviation include assets; borrower retention rate; and percentage of financed enterprises at start-up. The results also support the evidence that regional dummy effects are statistically significant. Interaction terms also show that the positive effect on poverty alleviation of the percentage of female borrowers with MFI legal status and region. The results reveal an MF impact on poverty alleviation worldwide; these findings have significant policy implications for both poverty and microfinance activities. This study verifies that female borrowers can play more significant role in alleviating poverty than male borrowers. This finding is interesting and suggests that an MFI focus on women might be useful for poverty alleviation.

Based on our empirical analysis, we conclude that MFIs have a positive impact on national development at the macro-level.

1.8. Policy Implication

Below mentioned approaches in MF programs may increase outreach as well as impact of microfinance;

Offering MF services valued by very poor: It includes consumption loans, providing alternatives for group guarantee, swift access to savings.

Tailored Services: This can raise positive effect and it may not force poor in particular, flexible schedules repayment of loans, offering access to renew the loan with enhancement.

In order to avoid forcing excising clients and omitting poorer, the objective of MF programs should be financially sustainable till a realistic time. Because the microfinance institute may not achieve financial sustainability due to rapid increase of inflation, or high cost for support due to isolated areas.

Introducing Integrated Programs: In general, integrated programs possess a higher impact over a disadvantageous and poor people as compare to providing only microfinance service. Minimalist programs attain large number of clients at nominal cost and these programs greater self-sustaining potential. Facilitating with proper approach may only be made in context. While additional services should be; a) Optional because acquiring mandatory services will be pressure on client b) should be offered to entire community because through this way poorest people can be facilitated also. c) Should be financed separately from MF program.

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Table 1.1: Panel Sample distribution- (Base line Regression) – Number of Observation

	SA	LAC	EECA	EAP	MENA	AFRICA	TOTAL
Bank	15	41	142	14	5	97	314
Credit Union / Cooperative	37	90	50	34	0	247	458
NBFI	104	175	229	47	11	70	636
NGO's	228	222	34	16	60	47	607
Rural	11	0	0	103	0	40	154
Other	8	3	8	18	4	8	49
Total	403	531	463	232	80	509	2218

Source: Author's Compilation

Figure 1.1: Trend and Patterns of MFI by Region

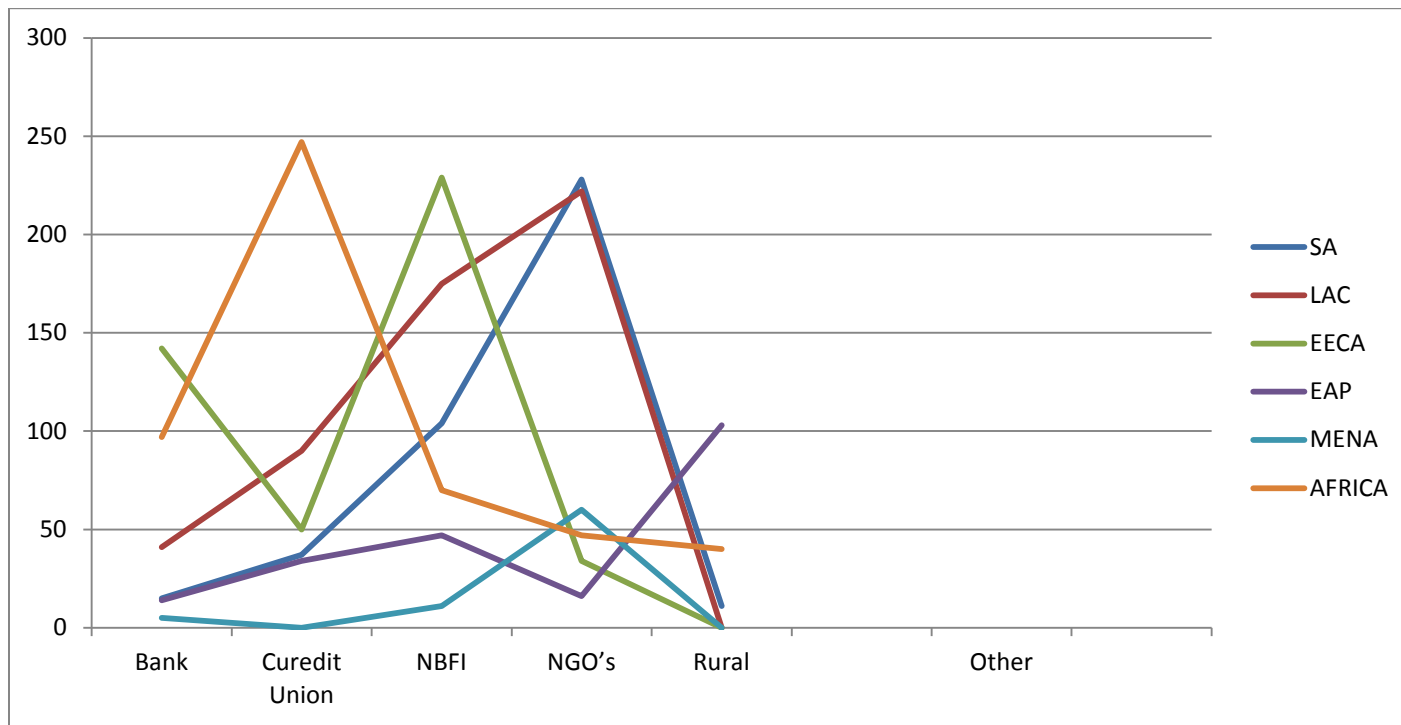


Table 1.2 : Descriptive Statistics

	N	Mean	Q1	Q2	Q3	St. dev.	Min.	Max.
Assets	1421	177833.3	1431.849	8978.679	39151.78	4013185	.0058	1.40e+08
Borrower retention rate	1279	1.4449	0	0	.6583	4.442278	0	60.4156
Borrowings	1234	75044.32	49.2869	1720.11	10555.73	2027002	0	6.83e+07
Gross Loan Portfolio	1226	145350.4	936.072	6407.204	29446.19	3298631	0	1.15e+07
No. of Active Borrowers	1188	2.5824	0.01289	0.0875	0.5553	13.5194	0	301.2202
No. of Job Created	1265	15631.03	0	0	0	134447.2	0	2934112
No. of Microenterprises Financed	1171	24559.24	0	0	0	141476.1	0	2367202
Percent of Female Borrowers	1187	6.3649	1.0227	3.1487	6.9266	12.38981	0	244.6742
Percent of Financed Microenterprises that are Start-Ups	1170	.2811847	0	0	0	2.227193	0	58.5126
Log of Average deposit balance per depositor / GNI per capita	1227	172.6008	0	0.41	3.24	814.53	0	9351.056
Loan loss rate	1163	.8668958	.0059	.0464	.1787	13.51049	-1.5881	445.2613
Living Standard	1109	-.4842537	-2.113351	-.4842537	1.972865	2.243486	-2.732122	4.397959
Education	1191	8.19e-10	-1.046961	-.4824323	.5271533	1.3517	-1.4050	3.608253
Health Status	1192	-1.42e-09	-1.146386	-.2963885	.9707918	1.3096	-1.6247	3.945128
Multidimensional Poverty Index	1195	16.48085	1.39	22.585	20.29271	.1722758	0	52.76
Health Expenditure	1226	6.138426	4.765522	5.818756	7.132639	2.089407	1.956876	18.41088

Source: Authors' compilation from MIX, Oxford Poverty and Human Development Initiative (2014), Global Multidimensional Poverty Index (MPI) Databank. OPHI, University of Oxford and WDI datasets.

Table 1.3: Correlations between Poverty Head Count Ratio and Microfinance Activities

Variables	Poverty Head Count Ratio	Assets	Borrower Retention Rate	Borrowing	Number of Jobs created	No. of Microenterprises Financed	Number of Active Borrowers	Percent of Female Borrowers	Percent of Financed Microenterprises that are start-ups	Cost of contract Enforcement	Weighted 5-year lag of average NAB
Poverty Head Count Ratio	1										
Assets	-0.0345	1									
Borrower Retention Rate	-0.888	0.0363	1								
Borrowing	-0.0807	0.9984	0.0308	1							
Number of Jobs created	-0.0912	0.0713	0.3237	0.0433	1						
Number of Microenterprises Financed	-0.0454	0.3596	0.5998	0.3520	0.4137	1					
Number of Active Borrowers	-0.1602	0.2623	0.3208	0.2584	0.1844	0.3829	1				
Percent of Female Borrowers	-0.7065	0.6420	0.3122	0.0082	0.1766	0.2318	0.6893	1			
Percent of Financed Microenterprises that are start-ups	-0.4026	0.0210	0.5422	0.0600	0.1862	0.5469	0.3025	0.2513	1		
Cost of contract Enforcement	-0.3961	0.2153	0.2751	0.2274	0.1733	0.2861	0.5936	0.2814	0.3354	1	
Weighted 5-year lag of average NAB	-0.1423	0.1554	0.1145	0.1285	0.0952	0.1631	0.1738	0.1839	0.1601	0.1241	1

Source: Authors' compilation

Table 1.4: Panel Analysis by Income Level: Number of Microenterprises Financed and Female Borrowers Impact on Multidimensional Poverty

Dependent Variable: Multidimensional Poverty			
	Low Income (1)	Lower middle income (2)	Upper middle income (3)
Log of NMF	-13.15*** (0.001)	-3.23*** (0.000)	-0.02** (0.016)
Log of PFB	-12.33*** (0.002)	-14.85*** (0.021)	-1.79 (1.630)
Constant	22.19*** (0.002)	97.15*** (0.148)	14.35*** (0.047)
N	27	32	28
Adj. R ²	0.617	0.684	0.621

Robust Cluster Standard Errors at country level are in Parenthesis. ***p<0.01; **p<0.05; *p<0.10

Table 1.5: Panel Analysis by Institution: Number of Microenterprises Financed and Female Borrowers Impact on Multidimensional Poverty

Dependent Variable:	Multidimensional Poverty				
	Bank (1)	Credit Union / Cooperative (2)	NBFIs (3)	NGO's (4)	Rural (5)
Log of NMF	-1.33** (0.202)	-5.73* (2.614)	-2.14*** (0.0016)	-3.01*** (0.915)	-9.21*** (0.001)
Log of PFB	-4.28** (1.865)	-9.44** (4.001)	-5.12* (2.96)	-7.214*** (0.001)	-11.34 (6.001)
Constant	7.96*** (0.000)	3.47*** (0.000)	4.25*** (0.000)	5.36*** (0.000)	3.87*** (0.001)
N	301	442	631	600	148
Adj. R ²	0.284	0.290	0.313	0.301	0.162

Robust Cluster Standard Errors at country level are in Parenthesis. ***p<0.01; **p<0.05; *p<0.10

Table 1.6: Panel Analysis by Region: Number of Microenterprises Financed and Female Borrowers Impact on Multidimensional Poverty

Dependent Variable:	Multidimensional Poverty				
	LAC (2)	EECA (3)	EAP (4)	MENA (5)	AFRICA (6)
Log of NMF	-1.32* (0.732)	-1.98*** (0.000)	-1.22** (0.413)	-0.34* (0.190)	-0.09 (0.0000)
Log of PFB	-4.28** (1.865)	-3.00*** (0.000)	-2.78** (1.549)	-1.34* (0.702)	-1.02* (0.0001)
Constant	1.98*** (0.000)	0.14*** (0.000)	0.51*** (0.000)	0.32*** (0.000)	0.32* (0.177)
N	512	454	221	76	482
Adj. R ²	0.1964	0.2547	0.2178	0.1168	0.2145

Robust Cluster Standard Errors at country level are in Parenthesis. ***p<0.01; **p<0.05; *p<0.10

Table 1.7: Panel Regression

Dependent Variable	Poverty Head Count Ratio			Poverty Gap		
	Pooled OLS (1)	Random Effect (2)	Fixed Effect (3)	Pooled OLS (4)	Random Effect (5)	Fixed Effect (6)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-3.21** (1.2415)	-3.44** (1.571)	-4.00** (1.915)	-2.21** (1.075)	-2.12** (1.137)	-1.13** (0.598)
Log of Percent of Female Borrowers	-6.01*** (0.001)	-6.12*** (0.001)	-5.08*** (0.000)	-5.01** (2.400)	-4.11** (2.081)	-4.02*** (0.000)
Log of Borrower Retention Rate	-4.13*** (0.001)	-3.33** (1.612)	-3.52** (1.401)	-3.32** (1.501)	-2.21** (1.011)	-2.34** (1.002)
Log of Number of Microenterprises Financed	-4.84** (2.011)	-4.33** (1.958)	-3.89** (1.988)	-2.22** (1.052)	-2.12** (1.002)	-1.45* (0.792)
Log of Gross Loan Portfolio Per capita	-2.11*** (0.002)	-2.64** (1.212)	-1.21 (1.260)	-2.00** (1.001)	-1.88** (0.864)	-0.81** (0.302)
Log of GDP Per capita	-11.01*** (0.003)	-13.44** (6.512)	-11.92** (6.000)	-7.00*** (0.000)	-9.14* (4.42)	-9.12** (4.012)
Log of Assets	-3.25* (1.685)	-2.35** (1.001)	-3.48** (1.631)	-2.41** (1.113)	-1.85** (0.509)	-1.08** (0.330)
Log of Average deposit balance per depositor / GNI per capita	-4.04*** (0.005)	-4.26*** (0.001)	-4.33** (1.991)	-3.01* (1.611)	-2.34** (1.001)	-3.61** (1.621)
Log of Loan Loss Rate	4.12*** (0.001)	3.84** (1.632)	3.93** (1.411)	3.66** (1.512)	2.33** (1.010)	2.32** (1.003)
Log of Number of Job Created	-0.13 (0.141)	-0.01 (0.034)	-0.00 (0.008)	-0.00 (0.003)	-0.00 (0.004)	-0.00 (0.003)
Log of Percent of Financed Microenterprises at Start-up	-1.69** (0.704)	-1.59** (0.651)	-1.00** (0.302)	-0.86** (0.200)	-0.66** (0.203)	-0.13* (0.070)
Log of Living Standard	-3.11** (1.450)	-2.59** (1.200)	-2.00** (1.001)	-1.93** (0.630)	-1.41** (0.630)	-1.16* (0.630)
Log of Health Status	-2.00** (1.000)	-1.94** (0.839)	-1.44** (0.531)	-1.22** (0.600)	-1.00** (0.403)	-0.80** (0.311)
Log of Education	-5.11*** (0.000)	-4.70*** (0.000)	-4.30*** (0.000)	-3.00*** (0.000)	-2.131** (1.031)	-1.337** (0.691)

Africa	-0.00 (0.008)	-	-	-0.00* (0.001)	-	-
EAP	-0.02* (0.018)	-	-	-0.01* (0.009)	-	-
EECA	-13.11*** (0.000)	-	-	-7.31*** (0.001)	-	-
LATC	-4.41** (2.001)	-	-	-2.54** (1.401)	-	-
MENA	-13.44*** (0.012)	-	-	-8.11*** (0.000)	-	-
Constant	84.36*** (0.001)	101.25*** (0.001)	149.15*** (0.001)	42.35*** (0.000)	39.21*** (0.002)	51.29*** (0.000)
No. of Observation	905	905	905	905	905	905
Adj. R ²	0.791	0.713	0.693	0.725	0.695	0.603

Notes: This table analyzes the impact of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created, Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on poverty head count ratio and poverty Gap in terms of national level. All other variables are defined as in Table 1. Coefficients are obtained from Pooled OLS, Random Effect and Fixed Effect. Figures in parenthesis shows robust standard error clustered at country level. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. ***p<0.01; **p<0.05; *p<0.10

Table 1.8: Panel Regression

Dependent Variable:	Multidimensional Poverty		
	Pooled OLS (1)	Random Effect (2)	Fixed Effect (3)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-4.07** (1.890)	-4.12** (2.000)	-5.94** (2.312)
Log of Percent of Female Borrowers	-7.01*** (0.000)	-7.15*** (0.000)	-7.45*** (0.000)
Log of Borrower Retention Rate	-5.07** (2.013)	-5.02** (2.321)	-5.51** (2.250)
Log of Number of Microenterprises Financed	-4.39** (2.121)	-4.06** (1.812)	-4.12** (2.030)
Log of Gross Loan Portfolio Per capita	-2.11** (1.132)	-2.41** (1.321)	-1.76** (0.706)
Log of GDP Per capita	-10.02** (5.550)	-11.13** (5.055)	-14.00** (7.089)
Log of Assets	-3.31** (1.311)	-3.41** (1.397)	-3.44** (1.601)
Log of Average deposit balance per depositor / GNI per capita	-4.54*** (0.001)	-4.13*** (0.002)	-4.44** (1.981)
Log of Loan Loss Rate	4.07*** (0.002)	3.61** (1.591)	3.82** (1.399)
Log of Number of Job Created	-0.00 (0.008)	-0.00 (0.009)	-0.00 (0.009)
Log of Percent of Financed Microenterprises at Start-up	-1.11** (0.351)	-1.84** (0.069)	-1.07 (1.098)
Log of Living Standard	-4.12** (2.001)	-3.70** (1.214)	-3.00** (1.241)
Log of Health Status	-2.00** (1.045)	-2.00** (1.012)	-1.73** (0.690)

Log of Education	-6.77*** (0.000)	-5.40*** (0.000)	-4.05*** (0.000)
Africa	-0.00 (0.094)	-	-
EAP	-0.04** (0.020)	-	-
EECA	-14.04*** (0.000)	-	-
LATC	-4.22** (2.014)	-	-
MENA	-15.00*** (0.000)	-	-
Constant	103.69*** (0.0012)	121.33*** (0.0041)	101.49*** (0.0079)
No. of Observation	1011	1011	1011
Adj. R ²	0.691	0.647	0.612

Notes : This table analyzes the impact of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created , Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on Multidimensional Poverty. All other variables are defined as in Table 1. Coefficients are obtained from Polled OLS, Random Effect and Fixed Effect Figures in parenthesis shows robust standard error clustered at country level.. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. We include Regional dummies in our estimation. ***p<0.01; **p<0.05; *p<0.10

Table 1.9: Panel Regression Country and Five-Year Average Effect

Dependent Variable:	Poverty Head Count Ratio		Poverty Gap	
	Random Effect (Country Effect)	Random Effect (5-Year Average Effect)	Random Effect (Country Effect)	Random Effect (5-Year Average Effect)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-1.13** (0.000)	-2.14** (1.003)	-0.11** (0.031)	-1.17** (0.390)
Log of Percent of Female Borrowers	-2.00** (1.051)	-2.21*** (0.000)	-1.74** (0.732)	-1.01*** (0.000)
Log of Borrower Retention Rate	-1.49** (0.621)	-1.36** (0.495)	-1.21** (0.040)	-0.76** (0.041)
Log of Number of Microenterprises Financed	-2.00* (1.011)	-2.44** (1.541)	-1.00** (0.308)	-1.11** (0.326)
Log of Gross Loan Portfolio Per capita	-1.08** (0.244)	-1.16** (0.321)	-0.55*** (0.000)	-0.75*** (0.000)
Log of GDP Per capita	-17.11** (8.004)	-18.91** (9.577)	-13.00** (6.004)	-15.04** (7.003)
Log of Assets	-1.42** (0.541)	-1.36* (0.780)	-0.10** (0.000)	-0.12** (0.440)
Log of Average deposit balance per depositor / GNI per capita	-3.31*** (0.001)	-3.22*** (0.002)	-3.12** (1.089)	-3.02*** (0.003)
Log of Loan Loss Rate	3.18*** (0.003)	3.42** (1.487)	3.36** (1.214)	3.22** (1.412)
Log of Number of Job Created	-0.00 (0.011)	-0.00 (0.018)	-0.00 (0.035)	-0.00 (0.028)
Log of Percent of Financed Microenterprises at Start-up	-1.16** (0.301)	-1.45** (0.064)	-0.121** (0.063)	-0.74** (0.357)
Log of Living Standard	-1.00** (0.410)	-0.99** (0.401)	-0.82** (0.310)	-0.69** (0.269)
Log of Health Status	-0.90** (0.000)	-0.80** (0.405)	-0.60** (0.270)	-0.45** (0.206)
Log of Education	-1.65*** (0.000)	-1.40*** (0.000)	-1.11*** (0.000)	-1.00*** (0.000)

Africa	-	-	-	-
EAP	-	-	-	-
EECA	-	-	-	-
LATC	-	-	-	-
MENA	-	-	-	-
Constant	102.77*** (0.004)	93.15*** (0.000)	85.12*** (0.001)	35.65*** (0.002)
No. of Observation	1011	280	1011	280
Adj. R ²	0.691	0.642	0.653	0.611

Notes: This table analyzes the country and Five-Years average effect of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created , Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on Poverty Head Count ratio and Poverty Gap. All other variables are defined as in Table 1. Coefficients are obtained from Polled OLS, Random Effect and Fixed Effect. Figures in parenthesis shows robust standard error clustered at country level. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.10: Panel Regression Country and Five-Year Average Effect

Dependent Variable:	Multidimensional Poverty	
	Random Effect (Country Effect)	Random Effect (5-Year Average Effect)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-1.43** (0.892)	-2.43** (1.114)
Log of Percent of Female Borrowers	-2.33*** (0.000)	-2.72** (1.364)
Log of Borrower Retention Rate	-1.68** (0.941)	-1.71** (0.000)
Log of Number of Microenterprises Financed	-2.31* (1.184)	-3.01** (0.812)
Log of Gross Loan Portfolio Per capita	-1.49*** (0.000)	-1.67*** (0.000)
Log of GDP Per capita	-18.07** (9.000)	-21.11*** (0.000)
Log of Assets	-1.11** (0.600)	-1.63* (0.931)
Log of Average deposit balance per depositor / GNI per capita	-3.00*** (0.003)	-3.29*** (0.009)
Log of Loan Loss Rate	3.78*** (0.002)	3.12** (1.433)
Log of Number of Job Created	-0.00 (0.009)	-0.00 (0.007)
Log of Percent of Financed Microenterprises at Start-up	-0.95** (0.413)	-2.11** (1.005)
Log of Living Standard	-1.61** (0.810)	-1.40** (0.501)
Log of Health Status	-1.15** (0.561)	-1.00** (0.425)
Log of Education	-1.81*** (0.000)	-1.59*** (0.0000)

Africa	-	-
EAP	-	-
EECA	-	-
LATC	-	-
MENA	-	-
Constant	99.34*** (0.0021)	73.256*** (0.0034)
No. of Observation	1011	390
Adj.R ²	0.613	0.691

Notes: This table analyzes the country and Five-Years average effect of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created, Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on Multidimensional Poverty. All other variables are defined as in Table 1. Coefficients are obtained from Pooled OLS, Random Effect and Fixed Effect. Figures in parenthesis shows robust standard error clustered at country level.. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.11: Cross Sectional Regression

Dependent Variable:	Poverty head count-ratio		Poverty Gap	
	Without Regions	With Regions	Without Regions	With Regions
Log of Number of Active Borrowers/Total Population in Million(15-64)	-4.13** (2.057)	-2.02** (1.030)	-2.01** (1.013)	-1.15** (0.441)
Log of Percent of Female Borrowers	-14.15*** (0.000)	-12.59*** (0.000)	-10.17*** (0.000)	-7.20*** (0.000)
Log of Borrower Retention Rate	-9.01*** (0.000)	-5.74*** (0.000)	-7.41*** (0.000)	-4.37** (2.000)
Log of Number of Microenterprises Financed	-2.49** (1.001)	-1.44** (0.000)	-1.03** (0.442)	-0.17** (0.021)
Log of Gross Loan Portfolio Per capita	-3.01*** (0.000)	-2.00*** (0.000)	-1.45*** (0.000)	-0.58*** (0.000)
Log of GDP Per capita	-13.71** (6.321)	-10.77** (5.310)	-10.22** (5.100)	-7.37* (3.873)
Log of Assets	-3.43** (1.650)	-2.00** (1.039)	-1.17** (0.521)	-0.114* (0.050)
Log of Average deposit balance per depositor / GNI per capita	-4.22*** (0.000)	-3.27*** (0.008)	-3.21*** (0.000)	-3.01*** (0.009)
Log of Loan Loss Rate	5.12*** (0.000)	3.19** (1.489)	3.99*** (0.000)	3.14** (1.489)
Log of Number of Job Created	-1.04 (1.055)	-0.00 (0.663)	-0.00 (0.002)	-0.00 (0.007)
Log of Percent of Financed Microenterprises at Start-up	-1.33** (0.492)	-0.17** (0.062)	-0.11** (0.049)	-0.00** (0.000)
Log of Living Standard	-1.03** (0.471)	-1.00*** (0.000)	-0.79** (0.371)	-0.63** (0.299)
Log of Health Status	-0.91** (0.421)	-0.69** (0.342)	-0.56** (0.251)	-0.40** (0.199)
Log of Education	-1.97*** (0.000)	-1.30*** (0.000)	-1.46** (0.681)	-1.06** (0.504)

Africa	-	14.22 (15.336)	-	10.66 (10.391)
EAP	-	-1.11** (0.371)	-	-3.18** (1.491)
EECA	-	-12.09** (5.812)	-	-6.03** (3.141)
LATC	-	-16.99** (8.000)	-	-9.10* (4.530)
MENA	-	-11.35*** (0.000)	-	-3.17*** (0.000)
Constant	124.25*** (0.0041)	90.87*** (0.0054)	41.75*** (0.0025)	29.22*** (0.0012)
No. of Observation	384	384	384	384
Adj. R ²	0.641	0.693	0.542	0.587

Note: Dependent variables are the poverty head count ratio and poverty gap. Figures in parenthesis shows robust standard error clustered at country level. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regressions. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.12: Cross Sectional Regression

Dependent Variable:	Multidimensional Poverty	
	Without Regions	With Regions
Log of Number of Active Borrowers/Total Population in Million(15-64)	-3.77** (1.890)	-2.01** (0.994)
Log of Percent of Female Borrowers	-18.00*** (0.001)	-13.95*** (0.000)
Log of Borrower Retention Rate	-11.54*** (0.000)	-3.23*** (0.000)
Log of Number of Microenterprises Financed	-3.14** (1.579)	-1.60** (0.805)
Log of Gross Loan Portfolio Per capita	-4.64*** (0.000)	-1.84*** (0.000)
Log of GDP Per capita	-12.63** (6.021)	-7.20** (3.361)
Log of Assets	-2.07** (1.041)	-1.00** (0.402)
Log of Average deposit balance per depositor / GNI per capita	-4.12*** (0.000)	-3.16*** (0.008)
Log of Loan Loss Rate	4.77*** (0.000)	3.69** (1.342)
Log of Number of Job Created	-0.00 (0.004)	-0.00 (0.000)
Log of Percent of Financed Microenterprises at Start-up	-2.62** (1.301)	-0.00** (0.000)
Log of Living Standard	-1.89** (0.871)	-1.00** (0.451)
Log of Health Status	-1.10** (0.501)	-0.93** (0.411)
Log of Education	-2.31*** (0.000)	-2.01*** (0.000)
Africa	-	15.10** (7.0120)

EAP	-	-1.36**
		(0.521)
EECA	-	-13.01**
		(6.431)
LATC	-	-19.04**
		(9.331)
MENA	-	-9.77***
		(0.000)
Constant	84.14***	61.21***
	(0.0025)	(0.0016)
No. of Observation	390	390
Adj. R ²	0.614	0.673

Note: Dependent variable is the Multidimensional Poverty. Figures in parenthesis shows robust standard error clustered at country level. Few variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regression. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.13: Cross Sectional Regression

Dependent Variable:	Poverty head count-ratio		Poverty Gap	
	Without Regions	With Regions	Without Regions	With Regions
Number of Active Borrowers/Total Population in Million(15-64)	-0.08** (0.0371)	-0.01** (0.003)	-0.02** (0.010)	-0.00** (0.000)
Percent of Female Borrowers	-2.01*** (0.000)	-2.03*** (0.000)	-1.01*** (0.000)	-0.05*** (0.000)
Borrower Retention Rate	-1.00*** (0.000)	-0.13*** (0.000)	-1.00*** (0.000)	-0.013** (0.000)
Number of Microenterprises Financed	-0.34** (0.171)	-0.01** (0.005)	-0.00** (0.004)	-0.00** (0.000)
Gross Loan Portfolio Per capita	-0.02*** (0.000)	-0.00*** (0.000)	-0.00*** (0.000)	-0.00*** (0.000)
GDP Per capita	-2.00** (1.0001)	-1.07** (0.491)	-1.04*** (0.000)	-0.16** (0.066)
Assets	-0.07** (0.0310)	-0.01** (0.004)	-0.00** (0.000)	-0.00* (0.000)
Average deposit balance per depositor / GNI per capita	-0.04*** (0.000)	-0.03*** (0.000)	-0.03*** (0.000)	-0.03*** (0.000)
Loan Loss Rate	0.05*** (0.000)	0.03** (0.010)	0.03*** (0.000)	0.03** (0.011)
Number of Job Created	-0.00 (0.000)	-0.00 (0.000)	-0.00 (0.000)	-0.00 (0.000)
Percent of Financed Microenterprises at Start-up	-0.13** (0.049)	-0.00** (0.001)	-0.00** (0.000)	-0.00** (0.000)
Living Standard	-0.00** (0.003)	-0.00** (0.000)	-0.00** (0.000)	-0.00*** (0.000)
Health Status	-0.00** (0.001)	-0.00** (0.000)	-0.00** (0.000)	-0.00** (0.000)

Education	-0.19*** (0.000)	-0.01*** (0.000)	-0.00*** (0.000)	-0.00*** (0.000)
Africa	-	1.91 (1.901)	-	1.555 (1.389)
EAP	-	-0.01** (0.007)	-	-0.01** (0.003)
EECA	-	-0.10** (0.049)	-	-0.02** (0.011)
LATC	-	-1.06** (0.500)	-	-1.00* (0.500)
MENA	-	-1.94*** (0.000)	-	-1.00*** (0.000)
Constant	163.36*** (0.0021)	73.87** (0.0013)	39.42* (0.0011)	21.19* (0.0010)
No. of Observation	384	384	384	384
Adj. R ²	0.641	0.687	0.541	0.587

Note: Dependent variables are the poverty head count ratio and poverty gap. Figures in parenthesis shows robust standard error clustered at country level. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regressions. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.14: Cross Sectional Regression for three dimensions of Poverty

Dependent Variable:	Living Standard	Education	Health status
	(1)	(2)	(3)
Log of Number of Active Borrowers/Total Population in Million(15-64)	2.65*** (0.000)	2.09** (1.011)	1.91** (0.833)
Log of Percent of Female Borrowers	4.05* (2.136)	3.71** (1.832)	2.00** (0.845)
Log of Borrower Retention Rate	1.11** (0.445)	2.31** (1.102)	1.03** (0.356)
Log of Number of Microenterprises Financed	0.98* (0.523)	1.91** (0.943)	1.11** (0.439)
Log of Gross Loan Portfolio Per capita	1.03** (0.397)	0.94** (0.341)	0.63** (0.285)
Log of GDP Per capita	9.07* (4.483)	6.42** (3.112)	5.36** (2.471)
Log of Assets	1.45*** (0.005)	2.12** (1.018)	1.86** (0.671)
Log of Average deposit balance per depositor / GNI per capita	1.72* (0.912)	1.00* (0.571)	0.72 (0.822)
Log of Loan Loss Rate	-3.02** (1.326)	-4.13** (1.989)	-3.70** (1.652)
Log of Number of Job Created	0.17 (0.199)	0.14 (0.163)	0.00 (0.011)
Log of Percent of Financed Microenterprises at Start-up	1.03** (0.312)	0.51** (0.231)	0.76** (0.251)
Africa	-	-	-
EAP	-	-	-
EECA	-	-	-
LATC	-	-	-
MENA	-	-	-
Constant	79.99*** (0.0102)	41.01*** (0.0125)	101.32*** (0.0032)

No. of Observation	954	954	954
Adj. R ²	0.502	0.536	0.597

Notes : This table analyzes the impact of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created , Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on Multidimensional Poverty. All other variables are defined as in Table 1. Coefficients are obtained from Polled OLS, Random Effect and Fixed Effect. Robust standard errors clustered at the country level are provided in parentheses. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. Few variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Regional dummies are included in the estimation.*p<0.01; **p<0.05; ***p<0.10

Table 1.15: Cross Sectional Regression Interaction between poverty and legal status/region

Dependent Variable:	Poverty head count-ratio	
	(1)	(2)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-1.61** (0.782)	-2.02** (1.000)
Log of Percent of Female Borrowers	-11.14*** (0.001)	-12.38*** (0.001)
Log of Borrower Retention Rate	-4.13*** (0.001)	-5.81*** (0.000)
Log of Number of Microenterprises Financed	-0.84** (0.301)	-1.86** (0.811)
Log of Gross Loan Portfolio Per capita	-1.71** (0.821)	-1.91** (0.921)
Log of GDP Per capita	-10.01** (4.991)	-11.51** (5.651)
Log of Assets	-1.73** (0.841)	-2.19** (1.085)
Log of Average deposit balance per depositor / GNI per capita	-2.11*** (0.001)	-2.33*** (0.003)
Log of Loan Loss Rate	2.14** (0.901)	2.64** (1.021)
Log of Number of Job Created	-0.00 (0.322)	-0.00 (0.000)
Log of Percent of Financed Microenterprises at Start-up	-0.09** (0.031)	-0.27** (0.121)
Log of Living Standard	-0.87** (0.411)	-1.03** (0.499)
Log of Health Status	-0.41** (0.199)	-0.92** (0.381)
Log of Education	-1.01*** (0.000)	-1.41*** (0.000)
Africa	11.02* (5.599)	12.39** (5.992)
EAP	-1.01** (0.492)	-1.38** (0.572)
EECA	-10.01*** (0.000)	-10.31*** (0.001)

LATC	-15.33*** (0.001)	-15.79*** (0.001)
MENA	-9.51** (4.641)	-9.98** (4.793)
Bank	-0.15*** (0.000)	-0.12*** (0.000)
Credit Union	-0.66*** (0.001)	-0.45*** (0.000)
NBFI	-0.09* (0.049)	0.05* (0.0006)
NGO's	0.06* (0.0001)	0.04* (0.028)
PFB*Bank	-0.17** (0.006)	
PFB*Credit Union	-0.50** (0.019)	
PFB*NBFI	-0.09** (0.037)	
PFB*NGO's	0.08* (0.041)	
PFB*Africa		-0.21** (0.099)
PFB*EAP		-0.97** (0.462)
PFB*EECA		-0.13** (0.052)
PFB*LATC		-0.28*** (0.0002)
PFB*MENA		-0.229** (0.113)
Constant	45.25*** (0.0121)	43.66*** (0.0453)
No. of Observation	384	384
Adj. R ²	0.631	0.657

Note: Dependent variables are the poverty head count ratio and poverty gap. Robust Standard errors are in parenthesis. Few variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regression. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in the estimation***p<0.01; **p<0.05; *p<0.10

Table 1.16: Cross Sectional Regression for IV

Dependent Variable:	Poverty head count-ratio		Poverty Gap	
	IV		IV	
	Without Regions	With Regions	Without Regions	With Regions
Log of Number of Active Borrowers/Total Population in Million(15-64)	-5.91** (2.4324)	-5.22** (2.3302)	-5.22** (2.3302)	-2.73** (1.0205)
Log of Percent of Female Borrowers	-16.01*** (0.0012)	-15.31*** (0.0058)	-15.31*** (0.0058)	-13.51** (6.211)
Log of Borrower Retention Rate	-10.15*** (0.0075)	-10.02*** (0.0073)	-10.02*** (0.0073)	-6.72** (2.9133)
Log of Number of Microenterprises Financed	-4.19** (1.6324)	-3.39** (1.2075)	-3.39** (1.2075)	-1.786** (0.5229)
Log of Gross Loan Portfolio Per capita	-3.91** (1.6042)	-3.92** (1.6648)	-3.92** (1.6648)	-1.21** (0.3036)
Log of GDP Per capita	-14.26** (6.2221)	-14.35** (6.7731)	-14.35** (6.7731)	-11.98* (6.0622)
Log of Assets	-4.81** (1.9663)	-4.01** (1.7331)	-4.01** (1.7331)	-2.96* (1.5569)
Log of Average deposit balance per depositor / GNI per capita	-4.79*** (0.000)	-3.84*** (0.008)	-3.42*** (0.000)	-3.39*** (0.009)
Log of Loan Loss Rate	5.09*** (0.000)	3.73** (1.689)	4.01*** (0.000)	3.92** (1.812)
Log of Number of Job Created	-2.39 (2.5904)	-1.99* (0.6221)	-1.99* (0.6221)	-0.004 (0.009)
Log of Percent of Financed Microenterprises at Start-up	-2.97** (1.1003)	-2.01** (0.8226)	-2.01** (0.8226)	-1.24** (0.4452)
Log of Living Standard	-1.81** (0.7001)	-1.512** (0.5112)	-1.512** (0.5112)	-1.99** (0.4508)
Log of Health Status	-1.716** (0.6333)	-1.13** (0.3362)	-1.13** (0.3362)	-1.53** (0.3412)
Log of Education	-2.313** (1.0961)	-2.712** (0.9925)	-2.712** (0.9925)	-1.911** (0.6771)

Africa	-	-	-	14.00 (5.3312)
EAP	-	-	-	-2.72** (2.0202)
EECA	-	-	-	-13.18** (6.0445)
LATC	-	-	-	-18.19* (9.9152)
MENA	-	-	-	-13.36*** (0.425)
Constant	117.33*** (9.8005)	47.99*** (5.215)	47.99*** (5.215)	36.87*** (4.171)
No. of Observation	418	418	418	418
Adj. R ²	0.517	0.586	0.586	0.614
F-Statistic	8.13	16.85	16.85	25.22
Under Identification Test	9.63(0.012)	6.60(0.01)	6.60(0.01)	5.36(0.00)
Weak Identification Test	12.95(0.000)	11.96(0.00)	11.96(0.00)	13.52(0.00)
Over Identification Test	0.04(0.99)	0.17(0.91)	0.17(0.91)	0.44(0.89)
Hausman Test	7.63(0.24)	4.11(0.46)	4.11(0.46)	5.79(0.96)

Note: Dependent variables are the poverty head count ratio and Gap. Figures in parenthesis shows robust standard error clustered at country level. All variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regressions. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. We include Regional dummies in our estimation***p<0.01; **p<0.05; *p<0.10

Table 1.17: FIRST STAGE REGRESSION (DEPENDENT VARIABLE: NAB)

Dependent Variable:	Number of Active Borrowers
Legal British	-0.08* (0.050)
Legal French	-0.02*** (0.000)
Legal Socialist	-0.01** (0.003)
Legal German	-0.06** (0.011)
Legal Scandinavian	-0.05** (0.010)
Cost of Contract Enforcement	-0.94** (0.221)
Lag of weighted 1-year lag of average NAB	1.63** (0.512)
Log of Percent of Female Borrowers	-4.31** (1.891)
Log of Borrower Retention Rate	-3.69** (1.318)
Log of Number of Microenterprises Financed	-0.091** (0.031)
Log of Gross Loan Portfolio Per capita	-0.31** (0.072)
Log of GDP Per capita	-5.01** (2.011)
Log of Assets	-0.912** (0.212)
Log of Average deposit balance per depositor / GNI per capita	-0.42*** (0.000)
Log of Loan Loss Rate	0.39***

Log of Number of Job Created	(0.001) -0.000
Log of Percent of Financed Microenterprises at Start-up	(0.021) -0.009**
Log of Living Standard	(0.001) -0.712**
Log of Health Status	(0.216) -0.321**
Log of Education	(0.099) -0.114**
Africa	(0.029) 5.00
EAP	(4.991) -3.871**
EECA	(1.445) -7.229**
LATC	(3.003) -9.79*
MENA	(4.908) -4.925***
Constant	(0.025) 0.085***
No. of Observation	(0.006) 390
Adj. R2	0.663

Note: Dependent variables are the poverty head count ratio and poverty gap. Robust clustered standard errors at country level are in parenthesis. Few variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Coefficients are obtained from multiple linear regression. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in the estimation.*p<0.01; **p<0.05; ***p<0.10

Table 1.18: Robustness Check for Outliers

Dependent Variable:	Poverty Head Count-ratio	Poverty Gap	Multidimensional poverty index
	(1)	(2)	(3)
Log of Number of Active Borrowers/Total Population in Million(15-64)	-2.81** (1.351)	-2.18** (1.010)	-3.91** (1.894)
Log of Percent of Female Borrowers	-6.05* (3.036)	-4.71** (2.175)	-7.002** (3.410)
Log of Borrower Retention Rate	-4.11** (1.992)	-3.31** (1.451)	-4.87** (2.412)
Log of Number of Microenterprises Financed	-4.12* (2.170)	-1.921** (0.951)	-4.11** (2.025)
Log of Gross Loan Portfolio Per capita	-2.01** (1.002)	-1.85** (0.910)	-1.94** (0.951)
Log of GDP Per capita	-11.01* (5.322)	-6.91** (3.421)	-10.38** (5.110)
Log of Assets	-2.65** (1.305)	-2.24** (1.021)	-3.01** (1.410)
Log of Average deposit balance per depositor / GNI per capita	-3.11*** (0.008)	-3.39*** (0.009)	-3.19*** (0.008)
Log of Loan Loss Rate	3.73** (1.791)	3.24** (1.49)	3.19** (1.412)
Log of Number of Job Created	-0.100 (0.111)	-0.001 (0.1250)	-0.0009 (0.0115)
Log of Percent of Financed Microenterprises at Start-up	-1.14** (0.302)	-0.73** (0.345)	-1.01** (0.489)
Log of Living Standard	-2.81** (1.390)	-1.71** (0.832)	-4.00** (1.982)
Log of Health Status	-1.83** (0.891)	-1.00** (0.471)	-1.97** (0.956)
Log of Education	-4.47* (2.240)	-2.95* (1.480)	-6.21* (3.115)
Africa	-0.00** (0.003)	-0.00** (0.006)	-0.00* (0.004)
EAP	-0.01**	-0.00**	-0.03**

	(0.004)	(0.007)	(0.009)
EECA	-13.42*	-6.91*	-15.31*
	(6.791)	(3.502)	(7.670)
LATC	-3.83**	-2.17**	-4.11**
	(1.895)	(1.071)	(2.012)
MENA	-13.01*	-8.00*	-14.93**
	(6.512)	(4.101)	(7.421)
Constant	79.99***	41.01***	101.32***
	(0.0102)	(0.0125)	(0.0032)
No. of Observation	875	875	876
Adj. R ²	0.615	0.681	0.697

Notes : This table analyzes the impact of Number of Active Borrowers, Gross loan portfolio, GDP Per Capita, Percentage of Female Borrowers, Number of Microenterprises financed, Number of Job created , Average deposit balance per depositor / GNI per capita, Loan Loss rate, Total assets, Borrower retention rate and percent of Microenterprises financed that are start-ups on Multidimensional Poverty. All other variables are defined as in Table 1. Coefficients are obtained from Polled OLS, Random Effect and Fixed Effect. Robust standard errors clustered at the country level are provided in parentheses. Living standard, Health and Education which are measured by improved Sanitation, Provision of Electricity, Drinking Water, Asset Ownership, Child Mortality, Nutrition and Years of Schooling are used as Control variable. Regional dummies are included in all regressions. Few variables are in natural logarithm. Estimation is based on eighty eight countries six regions for the time period of 1998-2013. Assets, Gross loan Portfolio and number of active borrowers has been scaled by 1/1000 factor to make easy to read the coefficients. Regional dummies are included in the estimation. *p<0.01; **p<0.05; ***p<0.10

APPENDICES

Appendix 1-A : Variable Definitions

Variable		Definition	Rationale	Expected Sign	Data Source
Gross Loan Portfolio Per capita	GLP Per capita	All outstanding principals due for all outstanding client loans. This includes current, delinquent, and renegotiated loans, but not loans that have been written off. It does not include interest receivable.	Independent Variable; captures the micro-credit outreach	-	Mix Market: (2014)
GDP Per capita	GDP Per capita	A measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries.	measure the total output of the country	-	WDI (2014)
NAB	NAB	The number of individuals or entities who currently have an outstanding loan balance with the MFI or are primarily responsible for repaying any portion of the Loan Portfolio, Gross	Captures the microcredit outreach	-	Mix Market: (2014)

		relative to million population (15-64) Individuals who have multiple loans with an MFI should be counted as a single borrower			
Assets	Assets	Total of all net asset accounts	Captures the microcredit outreach	-	Mix Market: (2014)
Borrower Retention rate	BRR	end-of-period active borrowers / (beginning-of-period active borrowers / new borrowers during the period).	Captures the microcredit outreach	-	Mix Market: (2014)
Number of Microenterprises Financed	Log of NMF	Number of microenterprises financed by the institution.	Captures the microcredit outreach	-	Mix Market: (2014)
Number of start-up microenterprises financed	Log of NMEF	Number of microenterprises at an early stage in the life cycle of an enterprise.	Captures the microcredit outreach	-	Mix Market: (2014)
Number of Jobs Created	Log of NJC	Employment creation non-enterprises	Captures the microcredit outreach	-	Mix Market: (2014)
Percent of female borrowers	Log of PFB	Number of Active Borrowers who are women / Number of Active Borrowers	Captures the microcredit outreach	-	Mix Market: (2014)

Average Deposit Balance per Depositor / GNI per Capita	Log of ADBPDG PC	Average Deposit Balance per Depositor / GNI per capita	Captures the microcredit outreach	-	Mix Market: (2014)
Loan Loss Rate	Log LLR	(Write-offs - Value of Loans Recovered)/ Loan Portfolio, gross, average	Captures the microcredit outreach	-	Mix Market: (2014)
Living standard	Log of LS	It is measured by Improved Sanitation, Drinking Water, Flooring, Cooking Fuel and Asset Ownership.			OPHI (2014)
Heath Status	Log of HS	It is measured by mortality and nutrition			OPHI (2014)
Education	Log of Education	It is measured by years of schooling and School Attendance			OPHI (2014)
Legal origin		Identifies the legal origin of the company law or commercial code of each country(English, French, Socialist, German, Scandinavian).	Dummy variable as instrument variable		Source: La Porta, et al. (1999).
Cost of Contract Enforcement		It measures the efficiency of the judicial system in resolving a commercial dispute. Cost is recorded as a percentage of the claim, assumed to be equivalent	Instrument Variable		World Bank Group (2014)

		to 200% of income per capita. No bribes are recorded. Enforcement costs are all costs that Seller (plaintiff) must advance to enforce the judgment through a public sale of Buyer's movable assets, regardless of the final cost to Seller.			
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Appendix 1-B: List of Countries and Region by Income Level.

Low income		Lower middle income		Upper middle income	
Country	Region	Country	Region	Country	Region
Afghanistan	SA ^Ω	Armenia	EECA ^π	Albania	EECA
Benin	Africa	Cameroon	Africa	Azerbaijan	EECA
Burkina Faso	Africa	Congo, Rep.	Africa	Bosnia and Herzegovina	EECA
Burundi	Africa	Egypt, Arab Rep.	MENA ^ψ	Brazil	LAC
Cambodia	EAP ^ο	El Salvador	LAC	Bulgaria	EECA
Central African Republic	Africa	Georgia	EECA	China	EAP
Chad	Africa	Ghana	Africa	Colombia	LAC
Congo, Dem. Rep.	Africa	Guatemala	LAC	Costa Rica	LAC
Gambia, The	Africa	Guyana	LAC	Dominican Republic	LAC
Guinea	Africa	Honduras	LAC	Ecuador	LAC
Haiti	LAC	India	SA	Jordan	MENA
Kenya	Africa	Indonesia	EAP	Kazakhstan	EECA

Madagascar	Africa	Kosovo	EECA	Lebanon	MENA
Malawi	Africa	Kyrgyz Republic	EECA	Macedonia, FYR	EECA
Mali	Africa	Moldova	EECA	Mexico	LAC
Mozambique	Africa	Mongolia	EAP	Montenegro	EECA
Myanmar	EAP	Morocco	MENA	Namibia	Africa
Nepal	SA	Nicaragua	LAC	Panama	LAC
Niger	Africa	Nigeria	Africa	Peru	LAC
Rwanda	Africa	Pakistan	SA	Romania	EECA
Sierra Leone	Africa	Papua New Guinea	EAP	St. Lucia	LAC
Tajikistan	EECA	Paraguay	LAC	Serbia	EECA
Tanzania	Africa	Philippines	EAP	South Africa	Africa
Togo	Africa	Senegal	Africa	Thailand	EAP
Uganda	Africa	Sri Lanka	SA	Tunisia	MENA
Zimbabwe	Africa	Swaziland	Africa	Turkey	EECA
		Syrian Arab Republic	MENA	Venezuela, RB	LAC
		Ukraine	EECA		

		Uzbekistan	EECA		
		Vietnam	EAP		
		Yemen, Rep.	MENA		

Source: Authors' compilation from OPHI (2014) and WDI datasets.

ΩSA: South Asia.

∞EAP: East Asia and Pacific.

€LAC: Latin America and the Caribbean.

πEECA: Eastern Europe and Central Asia.

ψMENA: Middle East and North Africa.

Appendix 1-C: List of Countries for Panel Data

No.	Countries	No.	Countries
1	Afghanistan	46	Macedonia, FYR
2	Albania	47	Madagascar
3	Argentina	48	Malawi
4	Armenia	49	Mali
5	Azerbaijan	50	Mexico
6	Bangladesh	51	Moldova
7	Benin	52	Mongolia
8	Bolivia	53	Montenegro
9	Bosnia and Herzegovina	54	Morocco
10	Brazil	55	Mozambique
11	Brunei Darussalam	56	Myanmar
12	Bulgaria	57	Namibia
13	Burkina Faso	58	Nepal
14	Burundi	59	Nicaragua
15	Cambodia	60	Niger
16	Cameroon	61	Nigeria
17	Central African Republic	62	Pakistan

18	Chad	63	Palestine
19	China	64	Panama
20	Colombia	65	Papua New Guinea
21	Congo, Dem. Rep.	66	Paraguay
22	Congo, Rep.	67	Peru
23	Costa Rica	68	Philippines
24	Dominican Republic	69	Rwanda
25	East Timor	70	Saint Lucia
26	Ecuador	71	Samoa
27	Egypt, Arab Rep.	72	Senegal
28	El Salvador	73	Serbia
29	Ethiopia	74	Sierra Leone
30	Gambia, The	75	South Africa
31	Georgia	76	Sri Lanka
32	Ghana	77	Swaziland
33	Guatemala	78	Syrian Arab Republic
34	Guinea	79	Tajikistan
35	Guyana	80	Tanzania
36	Haiti	81	Thailand

37	Honduras	82	Togo
38	India	83	Tunisia
39	Indonesia	84	Turkey
40	Jordan	85	Uganda
41	Kazakhstan	86	Ukraine
42	Kenya	87	Uzbekistan
43	Kosovo	88	Venezuela, RB
44	Kyrgyz Republic	89	Vietnam
45	Lebanon	90	Yemen, Rep.
		91	Zimbabwe

Appendix 1-D: The dimension, indicators, deprivation thresholds and weights of MPI

Dimension	Indicators	Deprived if	Related to	Relative Weight
Education	Years of Schooling	No household members has completed five years of schooling	MDG2	1/6
	Child School Attendance	Any school-aged child is not attending school up to class 8.	MDG2	1/6
Health	Child Mortality	Any child has died in the family	MDG4	1/6
	Nutrition	Any adult or child for whom there is nutritional information is malnourished.	MDG1	1/6
Living Standard	Electricity	The household has no electricity.		1/18
	Improved Sanitation	The household's sanitation facility is not improved (according to MDG guidelines), or it is improved but shared with other households.	MDG7	1/18
	Safe drinking water	The household does not have access to safe drinking water (according to MDG guidelines) or safe drinking water is more than a 30-minute walk from home, sound trip.	MDG7	1/18
	Flooring	The household has a dirt, sand or dung floor.		1/18
	Cooking Fuel	The household cooks with dung, wood or charcoal.	MDG7	1/18
	Assets Ownership	The household does not own more than one radio, TV, telephone, bike, motorbike or refrigerator and does not own a car or truck.	MDG7	1/18

Source: OPHI (2014)

Chapter 2 : Impact of Microfinance on Poverty Alleviation in Pakistan

2.1. Introduction

Poverty in Pakistan has been constantly increasing independence in 1947, except for the period 1980-1988, when poverty in Pakistan declined in both urban and rural areas. Multiple factors contributed to this reduction; two major factors helping to reduce extreme poverty were the Green Revolution in the agricultural sector, and an increase in employment from a boom in housing and construction sectors. Past experience shows that that the sector most able to stimulate growth while reducing poverty is that of housing and urban development. Microfinance is fundamentally a unique development tool helping to reduce poverty and helping self-sustainability (Soulama, 2005).

Recent studies examined the impact of microfinance on poverty alleviation at the micro-level, using household survey data (Hulme & Mosley, 1996; Imai, Arun and Annim, 2010a, 2010b; Khandker, 2005; Mosley, 2001). Jamal (2009) says that household assets and housing structures are an important aspect of poverty measurement: a household is classed as relatively poor if the housing structure is unsatisfactory or inadequate. Housing structure is viewed as unsatisfactory if unbaked bricks, earth materials, wood or bamboo are mostly used for walls and roof. A housing unit is considered inadequate if it is over-congested (number of persons per room) e.g. more than two persons per room (excluding minors, six years and under). Households that lack essential facilities such as electricity, potable water, kitchen, bathroom/toilet and

telephone facility (landline or mobile) are regarded as poor. The World Bank said in their 2001 report that “vulnerability measures.... the likelihood that a shock will result in a decline in well-being.” It is not easy to reach poor people

Microfinance (MF) is a development approach for the poor. It gives access to small monetary services such as credit, small savings and insurance, which people are unable to access from formal banking and other financial systems (Morduch, 1999, p.1570).

A prospective client can apply for a small loan to start, for example, their own small business such as a small grocery store, agriculture, micro-enterprise or fishery, and helps them exercise entrepreneurship skills (Mosley & Arun, 2003). In Pakistan’s rural areas, there may be only a rudimentary financial system, which does not service poor people. A microfinance institution (MFI) allows local people to benefit from financial services, allowing them to save money and expand a business. MF is a recent and unique development tool which is very helpful in alleviating poverty, maintaining self-sustainability, empowering women (Pitt, Khandker and Cartwright, 2006; Khandker, 1998) and facilitating poor people by group lending to increase community development (Osmani, 2007).

In group lending, credit is provided to a group comprising a minimum of five people, maximum about twenty, for which every member is jointly responsible for repayment of a loan. Group members are usually family members, friends and neighbors (Gine and Karlan, 2007). This is considered a strong program for empowerment of women (Rankin, 2002):

In Bangladesh, Central America and in Bolivia, MF programs have a positive and significant impact on poor households by increasing incomes and household conditions (Lalitha, 2008). Studies have found a positive impact of MF programs for poor people at the macro-level. MF schemes have been very efficacious in developing the local economy by offering financial services to low-income households and individuals (Miller and Martinez, 2006; Stephens and Tazi, 2006).

MF helps the economic and social development of a household or individual, enabling income and living standard improvement (Khandker, 2005). There are some mixed findings for overall MF program impact on poverty alleviation. The main matter for review in this research is the effectiveness and challenges of the MF program in poverty alleviation (Khandker, 2005, Morris and Barnes, 2005; Kan, Olds and Kah, 2005; Goetz and Gupta, 1996).

MFIs offer financial services, authorizing and empowering women instead of charity. Usually, MFI clients do not have the resources to start their own business even if they are self-employed entrepreneurs; so they are unable to overcome the poverty trap. MF is a very effective development tool, providing small loans without collateral (Soulama, 2005; Brau and Woller, 2004).

For decades MF has been seen as a powerful tool in the fight against poverty around the globe. MFIs not only help the poor by offering capital, but also help to increase their business, which successively improves personal income, family health, nutrition and education (Colman, 2005; Morduch, 2000).

However, there are also studies that are negative about the economic fruits of MF (Hoque, 2004; Coleman, 2006). A study on Bangladesh by Hossain (1988) says that MF has positive effects for some social aspects like empowerment and self-confidence. Khandker and Pitt (1998) state that MFI programs encourage the poor to invest in human capital by giving a choice of schooling (public vs private). But other studies argue that MF's effect on social indicants is questionable (Kabeer and Neoponen 2005).

Studies by Mayoux (1999) and Keyane and Wydick (2001), inter alia, say that women's access to credit, the loan repayment rate and the total amount loaned to women are the most attractive factors for policy architects and donor agencies. However these factors are very restrictive. For instance, the rate of repayment cannot be used as a tool to measure efficient loan use, because revenue is not necessarily earned through fruitful investment. It is possible - and evident from various researches - that poor people (particularly women) borrow money from one MFI to adjust due debts to another MFI (Burra, 2005; Goldin Institute, 2007). Further, Goetz and Gupta (1996) report that when a loan is approved for a woman, in a number of cases the male associated with that woman takes the loan in breach of conditions, which raises questions about the reliability of an assessment of how many women, are served.

Development of human capital plays a vital role in the alleviation of poverty, which is a major concern of this century (Krueger and Lindahl, 2000; Bils and Klenow, 2000). However, according to Barro and Jong-Wha (2000), in rural areas of developing countries, education facilities are inadequate, with poor or unavailable infrastructure and services such as furniture, buildings, teachers, course material etc. Besides the low

education levels, budget constraints and the demand for children's time for other activities also affects education. These factors may be affected by MF access.

Financial services such as loans, deposits, remittances etc enable a household to benefit from productive avenues, ease lifestyles where income is seasonal, and help mitigate risk (Sharma & Zeller, 1997). Conning and Udry (2007) say that, in general, poor households have only limited access to the formal financial market, with problems of lack of information, incentive and contract enforcement. Furthermore, since in a default the human capital can neither be seized nor used as security, a poor person can only finance education from savings or the household budget rather than with a loan. Deficiencies of financial markets emphasize a combined causation of human capital development and revenue creation. While there are eventual investment returns from education, these problems generate poverty traps (Bardhan and Udry, 1999). With alternative lending technologies, MFIs help a rural population through loans and sometimes deposits (Armendariz de Aghaion and Morduch, 2005; Maldonado and Gonzalez-Vega, 2003).

Such innovations enable the poor to guarantee their position in society and enable them to earn an income.

The primary objective of this paper is to evaluate the effect of an MF program in improving household conditions and living standards in Pakistan. The secondary objectives are to ascertain whether MF helps to raise income and improve a woman's role in entrepreneurship and decision-making.

We aim to determine empirically the relationship between MF and a family's living standards and to formulate recommendations for MF and poverty alleviation; to evaluate the extent to which MF can be a tool for education, health and social status improvement; to distinguish specific ways in which MFIs have helped basic survival needs of the poor people; and to understand if and how MF enables poor people to use assets to cross a minimum economic threshold.

This study offers answers to the questions: how does MF help improve education and health? How beneficial are MFI programs for poor people?

One of the features of MF is the joint liability approach, which is different from more conventional financial services. In joint liability, a group of people, especially women, together apply for a loan; the whole group has a mutual responsibility for repayment. The aim of MFI financial services is to offer small loans to clients who have low income, helping them to improve their living conditions, and giving them funds to improve their education and health. Furthermore, MF is a distinctive tool for development and poverty alleviation (Business Week, 2005).

Many studies have found positive and significant impacts of MF on the world's poor. Such programs can be successful strategies to improve financial services (Miller and Martinez, 2006; Stephens and Tazi, 2006). Implementation of these programs helps the poor in development and betterment of their living standards. It also helps raise their income and boost the local economy (Khandker, 2005).

Most qualitative studies or case studies show that MFI developmental programs are effective tools to alleviate poverty, helping increase individual and household

incomes; this leads to better nutrition and health, education levels, empowerment of women and ownership of household assets. Khandker (2005) says that MFI programs improve living standards by helping to alleviate hunger.

Such programs perk up health access for the poor and permit better health precautionary measures; this has been shown in some research. Further, these programs have a positive impact on school enrollment (Morduch, 2008) and it has been shown that these programs improve the confidence and self-respect of borrowers. MF programs mainly involve female leadership; it is claimed that it helps to reduce gender inequity issues and empower women in society by providing chances to women in every field (Goetz and Gupta, 1995).

Studies show mixed results on the influence of MFI programs on poverty alleviation. The primary research question of this study is: “What is the effectiveness and ineffectiveness of microfinance programs in alleviating poverty”? A few studies have shown that MF programs reduce overall poverty and especially decrease extreme poverty levels (Khandker, 2005), while a few studies offer contradictory conclusions (Morris and Barnes, 2005; Kan, Olds and Kah, 2005; Goetz and Gupta, 1996) and some researchers have various findings (Copestake, Bhalotra and Johnson, 2001; Morduch, 1998).

Other studies have focused on the influence of MFI programs on poverty alleviation at district levels through descriptive analysis. In this paper, the effect of MF is measured on raising household income and living standards in Pakistan of 94 district consumers, using empirical evidence. In comparing our empirical analysis with the

literature, results are also described from the fixed effect panel regression, where poverty alleviation is the dependent variable. In this study, a district level data set is used. The following hypotheses have been formulated for the objectives of the study through district level data: that there is a significant relationship between MF and living standards; that MF leads to increases in household productive assets; that MF reduces the vulnerability of poor people; that MFI finance reduces household poverty; that MF finance provides opportunities to poor people to develop effective and significant links with society; and that MF create employment opportunities for poor people.

This study focuses on the impact of MF on Pakistan's multi-dimensional poverty. Specifically, we look into MF influences on family living standards, household conditions, economic security and primary health care.

A focus on extreme poverty and the world's poorest has sharpened to an unprecedented level since the 1990s (Morduch and Haley, 2002). Global development institutions such as the United Nations Development Programme (UNDP) and international financial institutions (IFIs), particularly the World Bank, have elevated poverty alleviation to the policy forefront (World Bank, 2013). The Millennium Development Goals (MDGs), ratified at the Millennium Summit by all 189 United Nations member countries, have been influential in translating the lofty goal of poverty eradication into measurable targets that can be monitored at country and regional levels.

But progress on the MDGs has been uneven. While the first MDG, which calls for a halving of extreme poverty by 2015, has been achieved, 1.2 billion people continue to live in extreme poverty. Similarly, while there have been dramatic improvements in

access to healthcare, primary education and basic housing facilities such as sanitation and potable water, wide disparities remain between and within countries. It is therefore unlikely that most MDGs will be achieved by the 2015 deadline (United Nations, 2013).

Consequently, debate on the best interventions to alleviate poverty has heated up. At the same time, the development narrative seems to have converged on the idea that development should be about poverty reduction, but also be mindful of “the voices of the poor” (Narayan-Parker, 2000). This last is a reference to the bottom-up participatory processes that allow for beneficiary involvement in the design, implementation and monitoring of interventions that affect them (Rankin, 2002). In other words, successful interventions must reduce poverty *and* reduce inequality by empowering the marginalized, especially poor women.

In the 1990s, as this development concept began to gain currency, Bangladeshi economist Muhammad Yunus was able to popularize a rural development scheme that involved lending small amounts of money to some of the poorest women and men in a village near Dhaka, Bangladesh. Although Yunus’s scheme was not the first of its kind (Roodman, 2012), he soon became the iconic face of what became known as micro-credit.

The actual purpose of micro-credit was to help the poor run a small business; however loans carried a comparatively high market interest rate. Despite the high cost of funds, the reported repayment rate was 96% (Younus and Jolie, 1998).

Micro-credit was then renamed micro-finance (MF) with the addition of services such savings, insurance and lately mobile banking. MF was soon deemed to be an ideal tool for development and poverty alleviation. However, its popularity soon became a

challenge and for a long time MFIs have been under pressure to ensure financial sustainability, ending subsidies and establishing commercial viability. These purposes have created confusion regarding an MFI's legitimate mission. The target of attaining financial strength dilutes the core purpose of poverty alleviation and empowerment (Cull et al, 2008).

Although microfinance supports poor by, improving their living standard, health, education, boost up their earnings. Nevertheless, other reports argue that there is insignificant role of microfinance in poverty alleviation. However, other studies have shown that microfinance has no significant role towards poverty reduction. Hence these diverse arguments compelled researchers to address below mentioned questions

How Microfinance intervention is effective for poverty alleviation globally?

What is the difference between poverty reduction and repayment of loan?

What is status of women after microfinance?

How MF satisfy what it claims?

How MF works as a tool for poverty reduction?

Addressing above and other similar questions have motivated author to conduct research. It is widely observed that women sustain an imbalanced weight of poverty. In most of the economies women are normally employed in informal sectors on very nominal wage (Cheston and Kuhn, 2002). Feminist contend that there would be no efficient and effective development if the role of women is neglected in the process of development (Islam, 2006). Hence, gender equality can be essential factor for effective development (World Bank - WB, 2002). According to report of WB (2002) and Beijing Platform for Action BPFA, 1995 the access of women for financial resources is effective strategy for alleviation of poverty, therefore in order to encourage productivity the donor

agencies are focusing women for providing MF services. Surely, women's ratio seems high for taking part in MF programs. This study would examine its impact on Poverty Alleviation.

The main aim or concept of this study is to examine the impact of microfinance on poverty alleviation. We used different measures for poverty which are head count ratio, gap and multidimensional poverty in terms of education, health and living standard.

The conceptual framework is a linkage of microfinance Institution intervention to alleviate poverty from society. We present vicious circle of poverty alleviation how financial product and services can effect on multidimensional poverty like education, health and livings standard. We have also highlighted the indicators of microfinance products and services which are credit, savings, investment and transfer of payments. We applied all these indicators for measuring the microfinance activities in different way in our analysis to examine the cause and effect of microfinance and poverty. These are illustrated in Figure 2.5

We also identified the problem of monetary services of MFIs and how it effects on outcomes. The problems are high interest rate, insufficient loan, hard repayment policy and misuse of loan which can negatively effect on poverty alleviation. In this regard we recommend some policy implication in our study which can very useful for MFIs to overcome these problems and develop their product and services strategies. In this study our research questions are based on this conceptual framework that how these interventions of MFIs can alleviate poverty across all regions? Our aim is to study the

how microfinance activities could enhance the mechanisms and lead towards improved living standard, health, social well-being and improved educational status.

This study uses various research methods and employs a multi-disciplinary conceptual framework to address these issues by analyzing Pakistan's MFI sector. There are a numbers of reasons for choosing Pakistan as a case study.

First, Pakistan's MFIs offer two dominant institutional models: Microfinance Banks (MFBs), which are more commercially oriented, and Non-Governmental Organizations (NGOs). It is notable that presently in the MF sector the market is almost equally divided. This gives an ideal opportunity for a comparative study between MFBs and MFIs (NGOs), and this type of study may offer a source for reliable inquiry into trade-offs between two MF objectives: development and financial sustainability.

Second, while Pakistan is a fresh entrant in this sector as compared to India and Bangladesh, but is usually referred to as a "*regional leader*" in establishing the latest MFI version. The Economist Intelligence Unit, in its annual sector review, says that Pakistan is among the very few economies that have formulated a Microfinance Regulatory Framework for MFBs and that Pakistan has the most favorable conditions for MF (EIU, 2012: 31). Similarly, the Consultative Group to Assist the Poor (a research Centre at the World Bank) stated in 2011 that Pakistan's MFI sector is a "Laboratory for Innovation."

In view of the above, one question arises: does all this indicate better results for Pakistan's poor, with prospective access to financial services, empowerment and poverty alleviation? The present study attempts to answer this by comparing commercialized MFBs with the traditional NGO model in terms of practice, outreach, mission and client experience.

Third, since Pakistan is currently experiencing serious economic and political crises with external and domestic security issues, development has been sluggish while poverty is increasing. So it is widely believed that MF, as a market-based intervention, is less susceptible to these political and economy barriers to development (Swain and Floro, 2008). Extensive research on MF and conflict asserts that by supporting reconstruction/establishment of local business, MF as micro-credit can jump-start a country's economy during and after conflict (Doyle, 1998; Nagarajan and McNulty, 2004; Manalo, 2003; and Nagarajan, 2002). In this study we include a short case study on the experience of MF in Karachi (a city is nominated as Pakistan's financial hub).

This paper progresses as follows: Section II reviews the econometric model that we use to analyze the effect of MFIs on education levels, incomes and living standards. Data and methodology are explained in Section III and empirical analysis results are presented in Section IV. The study ends with discussion and concluding remarks.

2.2. Econometric Model

In this study, our main purpose is to identify the different forms of the MF effect on poverty, which is Pakistan's major problem, especially in rural areas. One principal reason for poverty is the absence of job opportunity. A poor person needs financial support for self-employment and poverty alleviation. MFIs provide monetary services like loans and savings to people with low income, people who are excluded from conventional commercial financial services. Enabling access to these services is a way to allow poor people to grow the local economy by developing entrepreneurship and

social empowerment for their community, supplying them with incomes and bargaining power.

So-called multi-dimensional poverty has four dimensions: education, health, living standards and wealth. In looking at Pakistan's multi-dimensional poverty at the district level, for education we examine the MF effect on years of schooling, using indicators of enrollment rates and school attendance; health consultation is the only indicator for health because there are only limited data; household materials and electricity show living standards, and asset ownership is used as a wealth indicator.

There are two dimensions of monetary poverty: income and consumption. Consumption is the more important; with limited variables, we used only two indicators for consumption: food consumption and the number of daily meals at the district level.

The main purpose of this study is to explain empirically the correlation between the predicted variable, poverty, and predictor variables - number of active borrowers, number of active savers, value of savings and gross loan portfolio. We check if a predictor variable has any effect on response variable; if so, we look for size and direction of the effect. For validity and for an unbiased estimate, we control both observable confounding and unobservable confounding variables. "The General Linear Model is commonly estimated using the ordinary least square, and has become one of the most widely used analytic techniques in social sciences." (Cleary P. D. and Angel R., 1984) To envisage a function that connects the predicted variable (Y) with predictor variables ($X_1, X_2, X_3, \dots, X_n$) is OLS. We used multiple linear regression models to

control the observable confounding variables. Further, we estimate our model through panel and cross-sectional regression.

2.2.1. Panel Regression

In our panel analysis we test the impact of microfinance on monetary and multidimensional poverty at a district level in Pakistan.

We estimate the following pooled OLS for the period 2006-2014:

$$Y_{it} = X'_{it}\beta + P\alpha + T\gamma + \varepsilon_{it} \quad (1)$$

Here Y_{it} represents indicators of multidimensional poverty, measured by the number attending school; higher education completed; gross enrollment rate at the primary level; net enrollment rate at the primary level; gross enrollment rate at the primary level (Katchi Abadis); net enrollment rate at the primary level (Katchi Abadis); household roofing material (wood/bamboo); health consultations. It also indicates the monetary dimension of poverty, measured by consumption and income indicators; number of meals taken daily; food consumption; and household income. All variables are in log; X' are explanatory variables in this paper, representing MF indicators:

Act boro = active borrower of microfinance.

Act sav = number of active savers.

Val saving = value of saving of borrowers.

GLP= Gross loan portfolio.

Adult literacy population = adult literacy population 15 years and older.

Dist. of household electricity = % distribution of households by electricity used for lighting.

Distribution material = % distribution of households by roofing material by RCC/RBC.

P = Provincial dummy.

T = Time dummy.

ε_{it} = Error term assumed to be white noise.

To overcome estimation problems such as omitted variables bias which can arise in Pooled OLS estimation, we should estimate the random and fixed effect model. We employed a fixed effect regression model to control the unobservable variables that are constant over time but different across units. In our data we have 94 districts for 8 years (2006-2014). The districts are the same in each year.

Therefore, by using Panel Regression with a Fixed Effect technique, the estimation model for this study can be shown:

$$Y_{it} = X'_{it}\beta + \mu_{it} \quad \text{for } i = 1, 2, \dots, N \text{ and } t = 1, 2, \dots, T \quad (2)$$

Where Y_{it} indicates the dependent variable for i district for the t time period, X'_{it} is the vector of control variable and μ_{it} represents the stochastic error term.

$$Y_{it} = X'_{it}\beta + v_i + \gamma_t + \varepsilon_{it} \quad (3)$$

We decomposed the error term into three components, $\mu_{it} = v_i + \gamma_t + \varepsilon_{it}$ where v_i shows the unobserved components that change across districts but over time are

constant; γ_t shows unobserved factors that vary over time but are constant across districts; ε_{it} indicates all unobserved aspects or factors that change across units of our study and time. We deal with potential heteroscedasticity by using clustered standard errors.

2.2.2. Cross-section Regression

We use OLS for our cross-sectional estimation to examine the MF effect on multi-dimensional and monetary poverty. The purpose of this estimation is to capture the marginal effect of the number of active borrowers, active savers and savings value on education, health, living standards and consumption. We carried this estimation for robustness check and our regression model for cross sectional analysis is

$$Y_i = X' \beta + P \alpha + \varepsilon_i$$

Here, Y_i is multi-dimensional poverty and monetary poverty; X' indicates all explanatory variables which represents the microfinance indicators and P represents the provincial dummy.

We applied log-log for all estimations to analyze the long-term impact of the number of active borrowers on multi-dimensional and monetary poverty at district levels in Pakistan.

2.3. Data and Methodology

In social research, methodological techniques and ways of analysis are important. The place of secondary research is very high in the social sciences and this research technique is most often used to analyze correlation between variables and impact evaluation. This paper involves econometric analysis of the MF program or scheme outreach at district levels to alleviate poverty in Pakistan. We estimate the impact of MF programs on income, living standards and asset ownership. The study emphasizes the secondary “numerical data” and presents different statistical methods for hypothesis testing. Hence, analysis in this paper depends totally on empirical estimation. The various tools and techniques of data collection for this study are described in this section.

Our data set is organized at a district level for econometric investigation. We used micro-level data for the study, from the Pakistan Microfinance Network (PMN), the Pakistan Bureau of Statistics (PBS), the Pakistan Social and Living Standards Measurement Survey (PSLM) and the Human Development Index (HDI). Our panel estimates are based on annual data for 94 districts in four Pakistani provinces, including both urban and rural areas, in 2006-2014. Some policy variables are taken from Pakistan’s four provinces Development Report (PDR).

The unit of research is the district; the people are clients of the MF Institution or bank; the data covers MF outreach at the institutional level; and socio-economic indicators show people’s welfare. The Pakistan Microfinance Network (PMN) provided complete information on 12 MF providers, which include the largest MFI. PMN has strong association with CGAP, the Microfinance Information Exchange (MIX) and the

micro-banking bulletin. It provides data on the scale of MF, outreach, insurance, target, financial performance and sustainability of MF Banks and MFIs. The data is available on a quarterly basis covering MFI outreach since 2006.

The Federal Bureau of Statics, a department of the Ministry of Finance, provides the Pakistan Social and Living Standards Measurement Survey (PSLM). This gives social and economic indicators, population – based estimates, through which it is easy to measure social welfare at provincial and district levels. PSLM surveys poverty and development issues at a district level but also examines Millennium Development Goals indicators; it offers indicators like income, health, education, living standards, household assets, welfare, sanitation and physical environment. PSLM gathers data from the Household Integrated Economic Survey (HIES) on food consumption, savings levels, employment status and sources of income.

MF is the main predictor variable, and MFI outreach at a district level is measured by the number of active borrowers, savings values, active savers and gross loan portfolio. Income, household condition, education and household assets are dependent variables in this study, which captures the poverty level. Education, health and living standards are used to measure multi-dimensional poverty. Years of schooling and attendance are indicators for education; health condition is the indicator for health; electricity, sanitation, potable water, cooking fuel and household assets are living standards indicators (Bourguignon and Chakravarty, 2003). Two household conditions have been used as a proxy to control for household living standards.

There are some data limitations on our study. First, our panel is based on district levels, and data on some very important variables measuring the incidence and depth of poverty are unavailable at the district level. PMN offers data from MFIs about MFI outreach, which might be of a lesser quality compared to other large datasets, although PMN check data quality and reduce measurement errors from a data set. To remove error from the dataset, we run the trends of institutional data set and remove the outlier from our data. PMN does not providing data on client poverty levels, which is very big limitation to our study. PSLM data is reliable, but the main problem is availability. There are many significant variables which are good measures of poverty, but they are not available at district levels in the PSLM dataset.

Our data is gathered from the PMN, which provides quarterly district level data, and from the PSLM, which provides bi-yearly data at a district level. In this case, our data is mismatched by period; to remove this issue we filled missing values through linear interpolation. This technique is not suitable for PSLM data because of a large variation in data. PSLM data contradicts the linear interpolation assumption that it moves in a linear line. We used stochastic regression to deal with missing values; this imputation helps to reduce the bias. In stochastic regression we assume that both imputed and observed values are same.

We run the regression to create the missing values.

$$Y = \beta_0 + \beta_1 \text{district} + \beta_2 \text{time} + \mu$$

Here Y is the three dimensions of poverty (education, health and living standards), indicators of household social and economic status. β_0 is intercept, β_1 and β_2 are the

parameters of the explanatory variables. District and time are explanatory variables in the model. We used mean values for imputation of missing values in the model which may cause a large significance level and low standard errors which state over-fitting data.

2.4. Econometric Results

Table 2.4 captures the impact of MF as measured by gross loan portfolio, active borrowers and savings value for different levels of education. In all models the results are positive and significant to at least a 5% level. Some models are significant at a conventional level of significance of 5%, while the others have weak significance at 10%. Generally speaking, gross loan portfolio and active borrowers have relatively larger impact on education levels than savings value, varying from 0.011% to 0.036%.

In Table 2.5 larger impact of active borrowers has been observed on net enrollment rates at primary level (including Katchi Abbadis), 0.036%. Interestingly, if we include Katchi Abbadi, the impact is relatively larger than not including Katchi Abbadi in our analysis. Not surprisingly, the impact of parent education proxied by adult literacy rates for different education levels is much higher than any other explanatory variable in the analysis. Two household conditions have been used as a proxy to control for household living standards. The impact of these conditions is noted as positive and significant. While we cannot rely too much on these results because of proxies, they do show some inherent pattern of MF on educational levels. The positive and relatively significant results can be interpreted as showing that households have started to get benefit from these institutions, at least in improved educational levels.

Table 2.6 measures the impact of MF on housing conditions. The estimated coefficients are negative and significant at a 5% level. The estimated coefficient shows that higher savings values can lower the proportion of households who use wood/bamboo for roofs. This means that MF has a positive impact on household living standards. The estimated results showed that MFIs can be a vehicle for improving household living conditions.

Table 2.6 estimates the impact of MF on health. In this model, health is proxied by the proportion of households who have consulted a physician. In rural areas, because of the meager income of most households, most do not consult qualified physicians. In an emergency they usually use informal consultants such as Hakeem or Jarrah. The estimated results showed that improvement of household income can have a positive and significant impact on health. The more MF is used (measured as savings value), the more people will consult a qualified physician. However, active borrowing has an insignificant positive impact on health.

Table 2.7 shows the impact of MF, measured by active borrowers and savings value, on economic status and the number of daily meals. The results are positive on household income and the number of meals per day in both models. The results are positive and significant to at least a 1% level of significance.

Mostly models are significant at a conventional level of significance (5%). while the others are highly significant at a 1% level. This clearly shows that active borrowers have a relatively larger impact on household income, daily meal numbers and expenditure on house repairs than savings value; the impact varies from 0.011% to 0.039%.

In Table 2.8 larger impact of active borrowers has been observed on loan repayments, at 0.039%. The impact of livestock ownership on household income and number of daily meal is much higher than other explanatory variables in the analysis.

The variables of home ownership and household assets (furniture, transport and appliances) are noted as positive and significant. Although we cannot rely too much on

these results because of explanatory variables, they do show some inherent pattern of MF on household income and number of meals taken daily.

The positive and relatively significant results can be interpreted as showing that households have started to benefit from these institutions, at least with improved incomes. Table 2.8 demonstrates that the value of R^2 for the model is 0.642. This means that 64.2 % of the variation in improved home ownership can be explained from policy variables. R^2 always increases if you add independent variables in a multiple regression model.

The estimated coefficients of a short run showed that MF has a positive and significant impact on home ownership at a 1% level. The magnitude of its coefficients shows *ceteris paribus*, that if the 1% of active borrowers increases, that would raise output by more than 0.014%. The statistical significance of its variable supports theoretical linkages between MF and home ownership. This positive relationship implies that society has started to benefit from MF. The sign of the value of saving is positive and significant at a conventional 1% level of significance.

Table 2.7 evaluates the impact of MF on livestock ownership. The estimated coefficients are positive and significant at a 1% level of significance. Estimated coefficients are positive and highly significant at a 1% level of significance. The estimated coefficients assess that more savings value can increase livestock ownership rates. This clearly shows that the MF program has a significant and positive influence on household asset ownership. The estimated results show that MF can be a vehicle for improving household asset ownership.

Table 2.7 estimates the influence of the MFI programs on diet. Here, food is proxied by the proportion of households that spend money on cereal, milk, eggs, meat and fruit. Most rural households with a meager income cannot afford three meals a day, but are restricted to two daily meals and cannot afford fruit. The estimated results showed that improvement in household income may have a positive and significant dietary influence.

With higher use of MF (as measured by savings value), more people will be able to have three meals a day. Active borrowing has a significant positive impact on consumption of food.

2.5. Robustness Checks

We carried out a number of tests on the robustness of our analysis. We ran regression by panel sample and reran the estimation through cross-sectional sampling to check on robustness of our results Table 2.9 and Table 2.10. We ran the long-term MF effect on poverty alleviation in Pakistan at a district level. The outliers can be statistical analysis-driven. In our study we have already omitted all obvious outliers from our data; we want to examine whether results will remain consistent after using different methods for treating outliers. The table shows the robustness check for outliers, where we rerun a regression with the 6th to 94th percentiles; this sample and observations differ as we drop below the 5th and above the 95th percentile for poverty variables. We see that the coefficients are similar to the cross sectional analysis.

We got robust results for our analysis as we reran our estimations with level-level model for panel analysis; active borrower numbers and savings values are statistically

significant. We repeated our analysis cross-sectional and found the same result, that there is a positive MF impact on Pakistan's poverty alleviation at a district level Table 2.9 and Table 2.10 .

2.6. Concluding Remarks

It can be concluded that the relationship between microfinance and poverty alleviation is substantial and positive for Pakistan. We have examined a number of factors which are obstacles in the way of the MF role in poverty eradication, such as misconceptions about the place of women in Pakistan's economy, high interest rates, lack of approach to the poor by MFIs, lack of awareness and corruption.

In this paper the analytical framework identifies major factors influencing MF effectiveness. The regression approach is chosen for analysis of effects, being best suited to resources, available information and timeline of study. The focal point of the study is to analyze MF impacts specific to Pakistani household conditions and living standards. Secondly, data is used to compare living standards and conditions of household who are MF clients with the conditions of non-client households whose other characteristics are similar.

The generalized Hausman Test shows that the order of reception of MF by eligible villagers may not be random in data. So a Village Fixed effect model is adopted, providing regular and consistent estimates without considering the order for reception of service. MF's effect on living standards and household conditions is shown.

The main reason for high rural poverty is few job opportunities. MFI's focus on the agriculture sector creates job opportunities and helps to lower rural poverty.

A constructive and positive change is found in the lives of those who receive MFI funding, which has improved living standards, given access to clean water, improved sanitation and increased home ownership.

The study shows that in the livestock and enterprise sector, more women receive MF than men. This is a positive indicator that MFIs focus on a considerable part of the needy population for loan disbursement, helping women to become independent and increasing the employed labor force, so eradicating poverty.

One measurement of poverty involves sanitation systems. Rural sanitation is usually unhygienic and unhealthy. We know that MFIs focus on the rural agriculture sector, but there has been no apparent improvement found in rural sanitation systems.

Agriculture loans are usually dispersed to land owners in rural areas, where farmers are usually tenants who need access to MFI services to improve living standards. Overall, disbursement in the agriculture sector is satisfactory. The discussion above shows that generally, MFI facilities are efficiently serving the poor, helping improved education access and living standards for borrowers.

To sum up, our analysis clarifies that the relationship of MFI services with family living standards is significant and positive, The relationship between MFIs and the family has become remarkably clear and apparent, having been neglected when only conventional banking systems existed.

If MFIs provide financial services, the poor can raise themselves out of poverty, which implies not only individual change but also social change. There seems no doubt that the aim of achieving an educated and healthy society can be realised, a society without bias and discrimination. The objectives that nobody should go to bed hungry, no one should die because of improper or no medication, that all children should be taught to read and write and become mainstays of society, can be achieved.

This study concludes that the MFIs are efficient users of limited resources in disbursement and there is a significant positive relationship between MFI programs and alleviating poverty in Pakistan.

Moreover, this study offers recommendations for MFIs to improve their schemes for borrowers; for example, the size of a loan should be increased to satisfy necessities.

MFIs should guide borrowers towards better business operations and proper loan usage; they should take measures to reduce interest rates so that a poor borrower can more easily repay a loan.

There are certain limitations to this study, because of data restrictions, but examination is recommended of institutional impacts as well as observing the contribution of both commercial banks and MFIs to poverty alleviation. It is strongly recommended that both government and non-government MFIs should formulate concrete policies for operational improvement and program impact in both urban and rural areas of Pakistan. Such programs will improve living standards and household conditions.

2.7. Policy Implication

There is confirmed demand of Credit in poor household of Pakistan. But currently MFIs are not able to meet it because present arrangements are neither flexible nor designed according to needs of poor. Thus poor turns to informal sources of finance despite higher cost of funds and lesser reliability, because these sources satisfy their needs better than MFIs. Therefore in order to meet demand of poor by MFIs it necessary for MFIs to be flexible and redesign their model according to the needs of poor.

With regard to commercialization even the access to finance agenda has not been served by commercial entities because a concern for profit- making has resulted in moving the market upstream, away from the poorest, those living in rural and remote areas, and women. Commercialization has in fact weakened the microfinance sector's original emphasis on the poor and women by taking resources and focus away from traditional microfinance institutions, that is, the MFIs towards MFBs, which openly admit to placing profits before people. This implies that the existing policy of promoting commercialization in the sector is misplaced and needs serious reexamination.

For the Pakistani microfinance sector this will be a difficult path to take since the current thrust is promoting commercialization in the sector. There needs to be a systematic assessment of the benefits and costs of commercialization. For instance, allowing gold backed loans to take over MFB microcredit portfolios is a marked departure from the very idea of microcredit. The use of this product has serious implications from both a gendered and non-gendered perspective. Increasing the debt levels of already vulnerable households while taking gold as collateral, which has a high emotive and

financial value in Pakistan, is highly problematic as discussed above and the policy needs careful reconsideration

The introduction of micro-savings, micro-insurance and branchless banking has expanded the product lines of microfinance institutions considerably. But these products have not been designed with the needs of the poor in mind and have been unable to either expand the opportunities of the poor or reduce their constraints.

For instance, MFBs are allowed to take deposits from the public at large, which often means that they prefer to attract a higher-end clientele for their deposits, neglecting the needs of the poor in the process. MFIs, on the other hand, are unable to use deposits to fund their operations and use client savings mainly as a precaution against default, which means that the savings they collect are for the most part involuntary. Similarly, credit life insurance offered to microcredit borrowers is primarily a risk reduction strategy for the institutions.

In cases where health insurance is offered borrowers are unclear about the conditions of use and at present health insurance does not include outpatient services. Weather-indexed insurance in rural areas is still in a pilot phase and needs to be expanded after a careful examination of its impact on rural households. But the main policy implication here is that there needs to be a serious reassessment of the existing microfinance product line keeping the needs of the borrowers as the central focus rather than institutional risk-return profiles.

Finally, the violent conflict, the economic collapse, frequent power breakdowns, and the increased incidence of natural disasters have reduced business margins at the

bottom of the economic pyramid and in the words of the poor “credit is no longer a choice but a necessity”. At the same time, as since economic prospects become worse over time, access to credit is no longer an opportunity to build bigger and better businesses but rather just a temporary Band-Aid for the poor.

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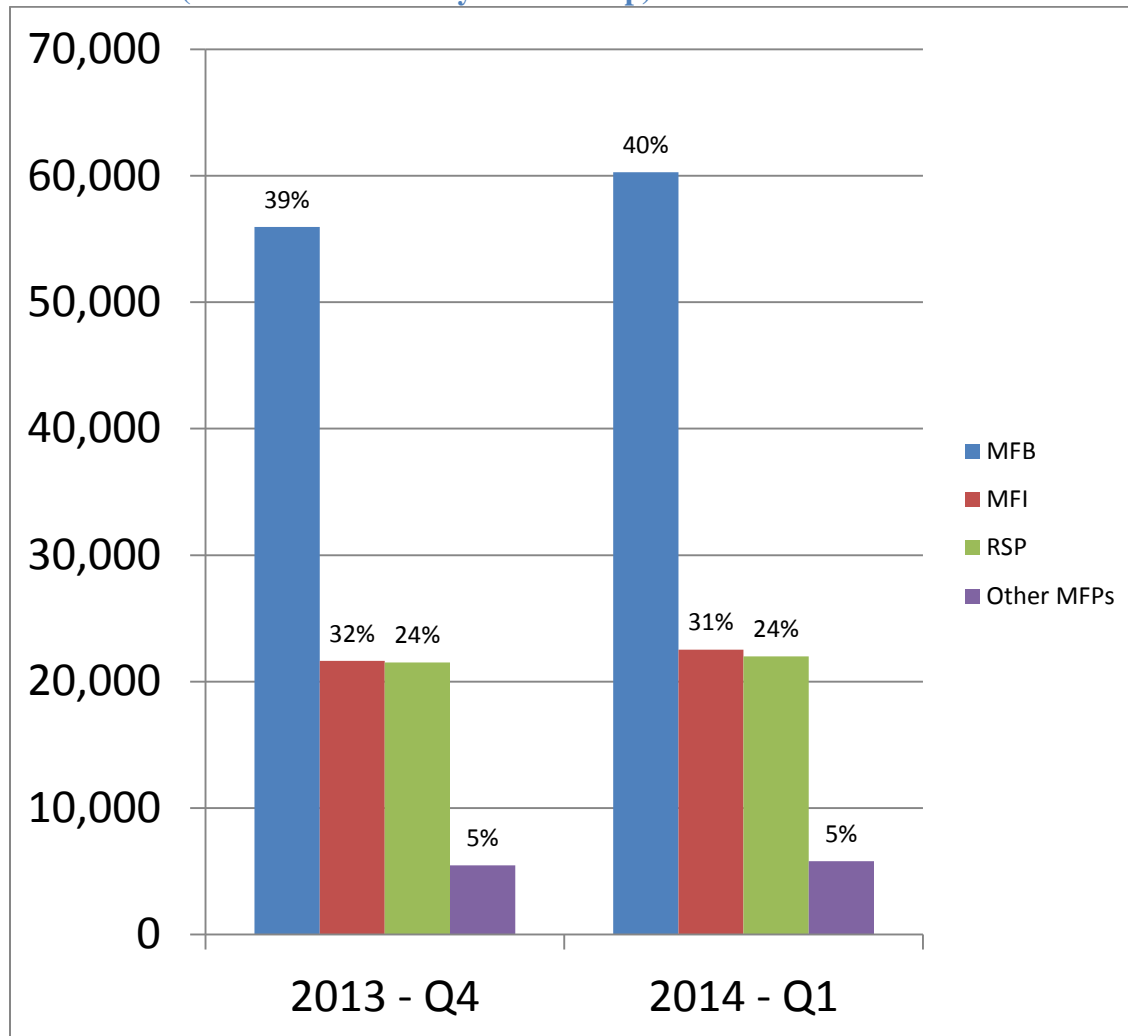
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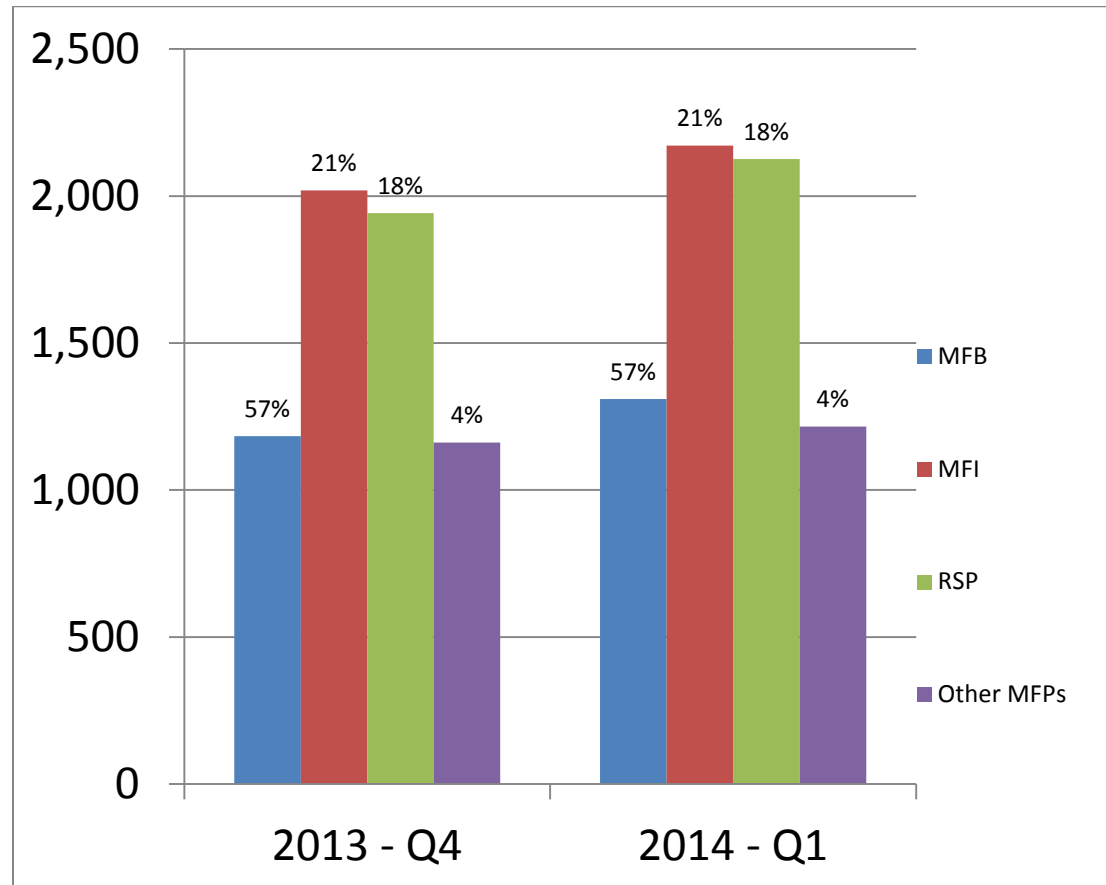
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Figure 2.1: Microcredit Provision (Active Borrowers by Peer Group)



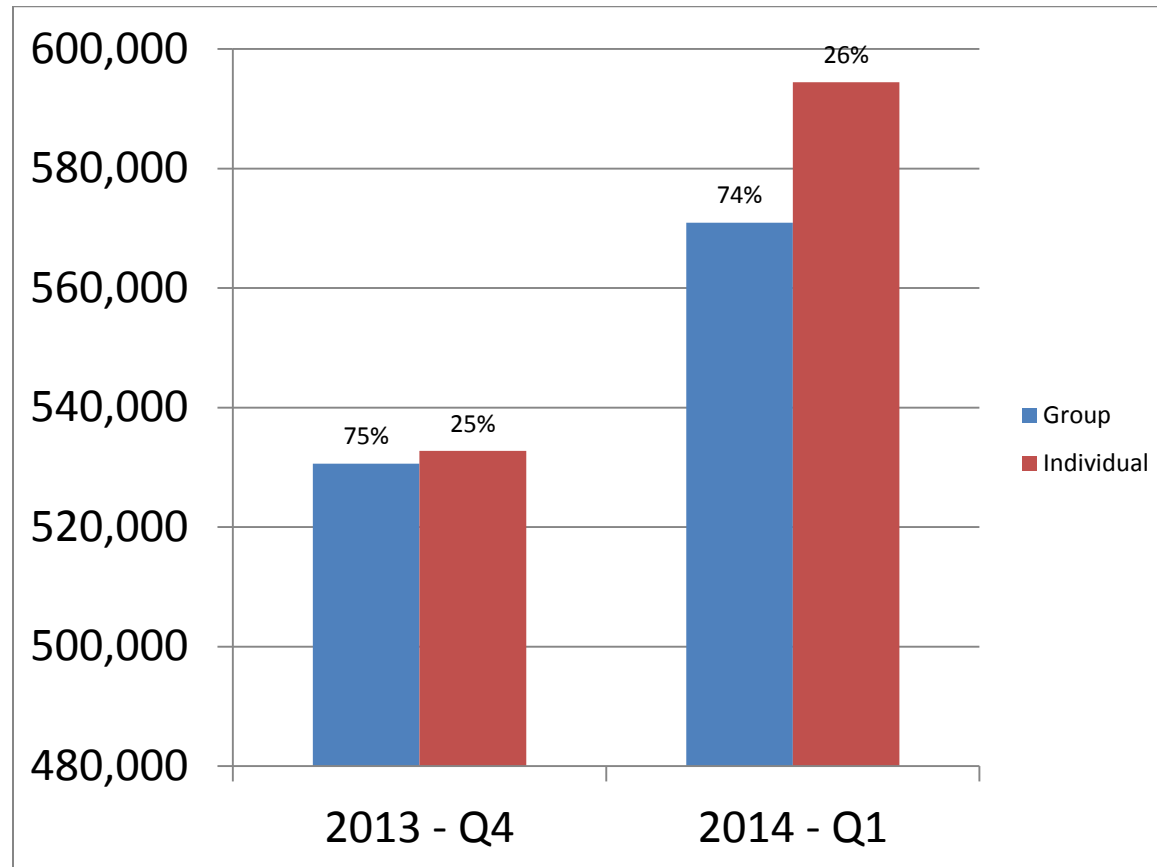
Source : Pakistan Microfinance Connect (Jan-March 2014)

Figure 2.2: Microcredit Provision (Gross Loan Portfolio)



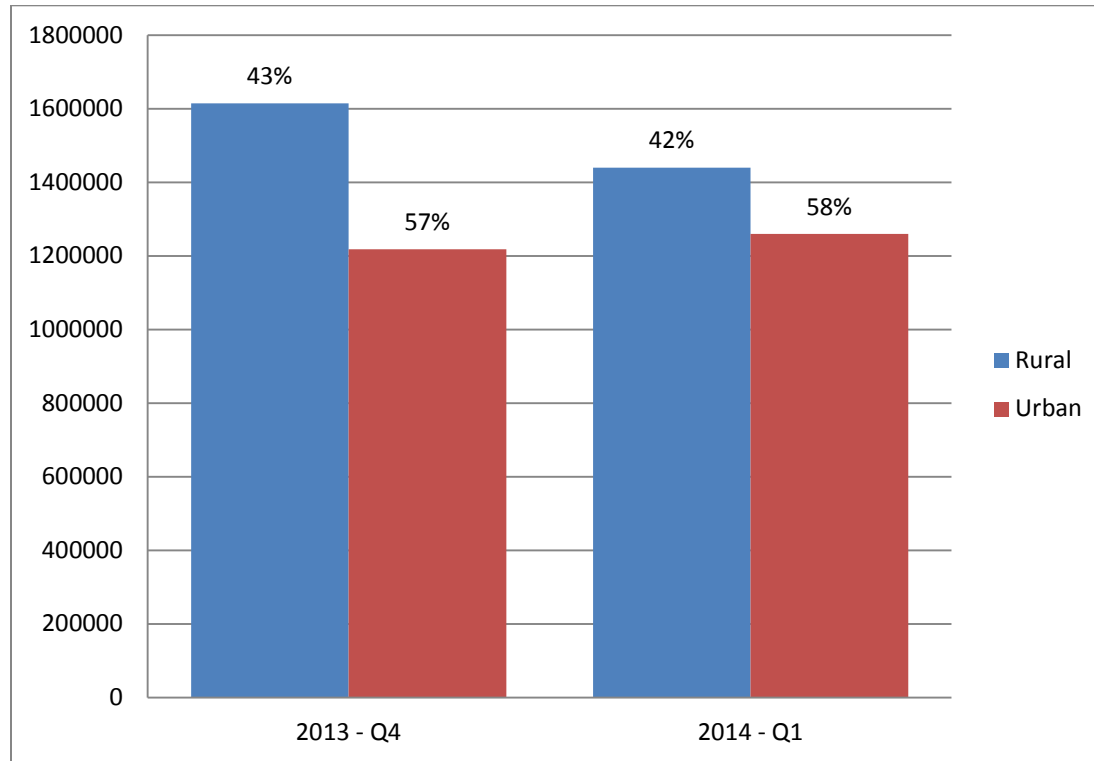
Source : Pakistan Microfinance Connect (Jan-March 2014)

Figure 2.3: Microcredit Provision (Active Borrowers by Lending Methodology)



Source : Pakistan Microfinance Connect (Jan-March 2014)

Figure 2.4: Microcredit Provision (Active Borrowers by Rural/Urban)



Source : Pakistan Microfinance Connect (Jan-March 2014)

Figure 2.5: Conceptual Framework

Vicious circle of Poverty Alleviation		Monetary Requirements	MFI Program Intervention	Outcomes	Output	
No Income		Monetary Intermediation	Microcredit	Income Creation	Women's Empowerment	
No Savings		Donor Grants	Micro-savings	Household Maintaining		
No Investment		Interest Earning	Micro-Insurance	Loan Repayment	Improved Standard	Living Standard
No Income		Member's Saving	Money transfer	Savings & Insurance	Social Well-Being	
Poor Education, Health and living standard.		Government Grant	Microcredit			
	Social Innovation					
Indebtedness		Problems			NO POVERTY	
High Population		No Training		Proper loan Use		
Microfinance		Loan Misuse		Low interest		
Loan Misuse		High Interest Rate	?????	Profit and loss sharing		
No Investment		Insufficient Loan		Easy loan Repayment		
No Income		Hard Repayment Policy		Loan in Kind		
No Saving			Research Questions			

Source: Authors' compilation

Table 2.1: Microcredit Outreach

	Quarter		Change	
	2014 Q1	2013Q4	Units	%
Number of Branches/ Units	2313	2157	156	7.23
Number of Districts covered	94	94	0	0.00
Penetration Rate (%)	10.94	10.34		0.61
Active Borrowers	2999,186	2832,715	166,471	5.88
Gross Loan Portfolio (PKR Millions)	57,068	52,092	4,976	9.55
Number of Loans Disbursed	766,942	892,013	-125,071	-14.02
Disbursements (PKR Millions)	18,841	23,940	-5099	-21.30
Average Loan Size (PKR)	24,566	26,838	-2,272	-8.47
Number of Savers	5,854,688	5,977,426	-122,738	-2.05
Value of Savings (PKR Millions)	34,450	34,784	-334	-0.96
Average Saving Balance (PKR)	5884	5819	65	1.12
Number of Policy Holders	3,179,341	3,031,202	148,139	4.89
Sum Insured (PKR Millions)	42,344	40,271	2,073	5.15

Source: Pakistan Microfinance Connect (Jan-March 2014)

Table 2.2: Classification of Microfinance Providers

Classification of MFPs	Characteristics	Examples
Formal	Full service, Broad Spectrum	Bank of Khyber
	Full Service MF specialists	First Microfinance Bank
	Restricted service MF Broad Spectrum	NRSP
	Restricted Service MF specialist	Kashf Foundation
	Apex Institutions	PPAF
Informal	Community-based services	ROSCAs, Accumulating Savings and Credit Associations(ASCAs)
	Commercial Services	Money lenders, Stores
	Family & friends	Mr.&Mrs. Hassan of Mingora

Source: Poverty and Social Impact Assessment

Table 2.3 Descriptive Statistics

Variable	Unit	Obs	Mean	Std. Dev.	Min	Max
Number of active borrower	Ratio	466	18433.44	27124.83	8	222800
Gross loan portfolio		468	2.34E+08	3.51E+08	652	2.52E+09
Active savers	Number	401	48686.44	308232.1	0	5982607
Value of saving	Pak. Rupees	400	1.12E+08	4.95E+08	0	8.31E+09
Education	Number	311	103.0708	22.71491	20	128
Health	Number	301	6.049231	2.90E+00	0	18
Wealth	Number	319	12.26154	13.10013	0	68
Drinking water	Number	332	18.81695	1.86E+01	0	79

Source: Pakistan Microfinance Connect and Pakistan Bureau of Statistics

Table 2.4: Panel Fixed Effect regression of active borrowers and value of savings by Educational Status

	EDUCATIONAL DIMENSION					
	log (AS)		log(HSEC)		log(ERPL)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log GLP	0.022*** (0.009)		0.033** (0.012)		0.021** (0.009)	
Log Act Borr/Total Population	0.012** (0.006)		0.021** (0.008)		0.013** (0.008)	
Log Val Sav		0.011** (0.005)		0.014** (0.005)		0.0155** (0.006)
log ALP15	0.684** (0.038)	0.649** (0.045)	0.794** (0.053)	0.812** (0.051)	0.394** (0.055)	0.360** (0.061)
log HBEL	0.035** (0.010)	0.040** (0.012)	0.028** (0.014)	0.033** (0.014)	0.063** (0.015)	0.060** (0.016)
log HBMR	0.022** (0.008)	0.022** (0.009)	0.028** (0.010)	0.025** (0.010)	0.021** (0.011)	0.022** (0.010)
Dummy Variables						
Provincial Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.144** (0.135)	1.194** (0.157)	0.395*** (0.189)	0.283** (0.179)	2.716** (0.197)	2.716** (0.220)
No. Of Observation	254	238	254	238	254	238
Adj R ²	0.772	0.753	0.772	0.753	0.772	0.753

Note: Dependent variables are the Number of students attended the school (AS), enrollment rate of primary school level (ERPL) and Completion of High School Education (HSEC). Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation. ***p<0.01; **p<0.05; *p<0.10

Table 2.5: Panel Fixed Effect regression of active borrowers and value of saving by Educational status of slum area

	EDUCATIONAL DIMENSION					
	log(NEPL)		log(GERPLKA)		log (NERPLKA)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log GLP	0.019** (0.009)		0.026** (0.011)		0.039** (0.016)	
Log Act Borr/Total Population	0.014** (0.006)		0.022** (0.008)		0.036** (0.008)	
log(Value of Saving)		0.016** (0.005)		0.018** (0.006)		0.019** (0.007)
log(Adult Literacy Population 15 years and older)	0.401** (0.051)	0.355** (0.057)	0.440** (0.058)	0.417** (0.069)	0.452** (0.059)	0.449** (0.071)
log(Distribution of Households By Electricity for Lighting)	0.070** (0.014)	0.062** (0.015)	0.087** (0.016)	0.082** (0.018)	0.081** (0.016)	0.084** (0.019)
log(Distribution of Households By Material used for Roof By RCC/RBC)	0.019*** (0.010)	0.013 (0.009)	0.028** (0.011)	0.026** (0.011)	0.034** (0.011)	0.028** (0.012)
Provincial Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.680** (0.179)	2.721** (0.206)	2.372** (0.207)	2.360** (0.247)	1.781** (0.211)	1.827** (0.254)
No. Of Observation	254	238	254	238	254	238
Adj R ²	0.612	0.604	0.612	0.604	0.612	0.604

Note: Dependent variables are the Net enroll rate at Primary Level (NEPL), Gross Enroll rate Primary Level Katchi Abadis (GERPLKA) and Net enroll rate at Primary Level katchi Abadis (NERPLKA). Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation.***p<0.01; **p<0.05;*p<0.10

Table 2.6: Panel Fixed Effect regression of Active Borrowers and Value of savings by health condition, household condition, Economic Status and Number of meals taking per day

	log(HC)		log(HMUFR)	log(ES)		log(MTPD)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log GLP	0.012** (0.009)		-0.022 (0.0356)	0.017** (0.011)		0.014** (0.005)	
Log Act Borr/Total Population	0.01053** (0.0051)			0.012** (0.006)		0.021** (0.008)	
log(Value of Saving)		0.014** (0.005371)	-0.099** (0.02081)		0.011** (0.005)		0.014*** (0.005)
log(Higher School Education Completed)	0.1010 (0.0511)	0.125** (0.05000)					
log(Households By Other for Lighting)	0.0044* (0.0036)	0.0040* (0.0038)					
log(1 Room in Household)			-0.037** (0.0178)				
log(livestock ownership)				0.684*** (0.038)	0.649*** (0.045)	0.794*** (0.053)	0.812*** (0.051)
log(ownership of house)				0.035*** (0.010)	0.040*** (0.012)	0.028*** (0.014)	0.033*** (0.014)
log(ownership of household assets)				0.022*** (0.001)	0.022** (0.018)	0.028*** (0.005)	0.025*** (0.012)
Dummy Variables							
Provincial Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant		3.038** (1.21771)	5.273** (0.3451)	1.144*** (0.135)	1.194*** (0.157)	0.395*** (0.189)	0.283** (0.179)
No. Of Observation	253	237	209	254	238	254	238
Adj R ²	0.618	0.593	0.513	0.628	0.609	0.628	0.609

Note: Dependent variables are the Health consultation (HC) which shows the health status and distribution of household material used for roof by Wood / Bamboo (HMFUR) which represents the household condition, Economic Status (ES) and Number of meals taking per day (MTPD) which represents the living status / food consumption of people. Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation.***p<0.01; **p<0.05;*p<0.10

Table 2.7: Panel Fixed Effect regression of active borrowers and value of savings by Economic Status and food consumption, Food Consumption and ownership of livestock

	log(ES)		log(MTPD)		log(FIC)		Log(LO)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log GLP	0.094*** (0.0301)		0.058** (0.0263)		0.0610** (0.0267)		0.0567** (0.0255)
Log Act Borr/Total Population	0.012** (0.006)		0.021** (0.008)		0.01053*** (0.0051)		0.037*** (0.0178)
log(Value of Saving)		0.011** (0.005)		0.014*** (0.005)		0.014*** (0.005371)	0.099*** (0.02081)
log(livestock ownership)	0.684*** (0.038)	0.649*** (0.045)	0.794*** (0.053)	0.812*** (0.051)	0.01043** (0.0049)	0.022** (0.009)	
log(ownership of house)	0.035*** (0.010)	0.040*** (0.012)	0.028*** (0.014)	0.033*** (0.014)	0.1010** (0.0511)	0.125** (0.05000)	0.028** (0.014)
log(ownership of household assets)	0.022*** (0.008)	0.022*** (0.009)	0.028*** (0.010)	0.025*** (0.010)			
log(household income)					0.00449*** (0.0036)	0.0040*** (0.00387)	
Dummy Variables							
Provincial Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	1.144*** (0.135)	1.194*** (0.157)	0.395*** (0.189)	0.283*** (0.179)		3.038*** (1.21771)	5.273*** (0.3451)
No. Of Observation	254	238	254	238	253	237	209
Adj R ²	0.628	0.609	0.628	0.609	0.618	0.593	0.513

Note: Dependent variables are the Economic Status (ES), Number of meals taking per day (MTPD) which represents the living status / food consumption of people, consumption of Food (FIC) and Ownership of Livestock (LO). Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation. ***p<0.01; **p<0.05; *p<0.10

Table 2.8: Panel Fixed Effect regression of active borrowers and value of savings by ownership of house, attendance of primary school and repayment of existing loans

	log(HO)		log(APS)		Log(REL)	
	(1)	(2)	(3)	(4)	(5)	(6)
Log GLP	0.532*** (0.155)		0.0639** (0.0266)		0.0665** (0.0265)	
Log Act Borr/Total Population	0.014** (0.007)		0.022*** (0.008)		0.039*** (0.008)	
log(Value of Saving)		0.016*** (0.005)		0.018*** (0.006)		0.019*** (0.007)
log(monthly wage)	0.401*** (0.051)	0.355*** (0.057)	0.440*** (0.058)	0.417*** (0.069)	0.452*** (0.059)	0.449*** (0.071)
Provincial Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Time Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.680*** (0.179)	2.721*** (0.206)	2.372*** (0.207)	2.360*** (0.247)	1.78** (0.211)	1.827*** (0.254)
No. Of Observation	254	238	254	238	254	238
Adj R ²	0.642	0.640	0.688	0.669	0.715	0.672

Note: Dependent variables are the Ownership of House (HO), Attendance of Primary School (APS) and repayment of existing loans (REL). Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation.***p<0.01; **p<0.05; *p<0.10

Table 2.9: Cross Sectional Regression

Dependent Variable:	Educational Dimension					
	Log AS	log(HSEC)	log(ERPL)	log(NEPL)	Log (GERPLKA)	log (NERPLKA)
	(1)	(2)	(3)	(4)	(5)	(6)
Log of GLP Per capita	0.0192** (0.0089)	0.0121** (0.0052)	0.0272** (0.0122)	0.0136** (0.0059)	0.0142** (0.0064)	0.018*** (0.0030)
Log Act Borr/Total Population	0.0256** (0.0119)	0.0191** (0.0087)	0.0147** (0.0069)	0.0159* (0.0085)	0.0214** (0.0101)	0.0314* (0.0161)
Log of VS	0.0177** (0.0081)	0.0256** (0.0121)	0.0296** (0.0141)	0.0131** (0.0059)	0.0256* (0.0132)	0.0125** (0.0061)
log(1 Room in Household)	-0.0156*** (0.0001)	-0.0315*** (0.0002)	-0.0278* (0.0131)	-0.0368** (0.0179)	-0.0159** (0.0071)	-0.0102** (0.0048)
log(livestock ownership)	0.5123** (0.2492)	0.486** (0.2130)	0.493** (0.2310)	0.265** (0.1291)	0.198** (0.0910)	0.315** (0.1498)
log ALP15	0.323** (0.1521)	0.351*** (0.0004)	0.440** (0.2002)	0.178** (0.0810)	0.342** (0.1693)	0.436** (0.1972)
log(ownership of house)	0.0256*** (0.0007)	0.0412*** (0.0018)	0.0514*** (0.0001)	0.0314*** (0.0017)	0.0146*** (0.0004)	0.0241*** (0.0007)
log(monthly wage)	0.4171*** (0.0007)	0.3795*** (0.0021)	0.2167*** (0.0031)	0.1163*** (0.0107)	0.2516*** (0.0015)	0.3165** (0.1399)
log(Households By Other for Lighting)	0.0871*** (0.0003)	0.0741** (0.0299)	0.0612*** (0.0028)	0.0359** (0.0161)	0.0161*** (0.0072)	0.0214** (0.0092)
Provincial Dummy	-	-	-	-	-	-
Constant	2.112*** (0.0147)	2.116** (0.8206)	3.165** (1.1012)	2.998** (1.1059)	4.065** (1.9175)	3.698** (1.639)
No. of Observation	86	84	81	86	88	83
Adj R ²	0.411	0.331	0.421	0.355	0.246	0.316

Note: Dependent variables are the Number of students attended the school (AS), enrollment rate of primary school level (ERPL), Completion of High School Education (HSEC), Net enroll rate at Primary Level (NEPL), Gross Enroll rate Primary Level Katchi Abadis (GERPLKA) and Net enroll rate at Primary Level katchi Abadis (NERPLKA). Robust clustered Standard errors at district level are in parenthesis. . All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation. ***p<0.01; **p<0.05; *p<0.10

Table 2.10: Cross Sectional Regression for Multidimensional poverty and monetary poverty

Dependent Variable:	Health and Living standard				Income and Food Consumption		
	log(HC)	log(HMUFUR)	Log(LO)	log(HO)	log(ES)	log(MTPD)	log(FIC)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log of GLP Per capita	0.0121*** (0.0005)	0.0133** (0.0057)	0.0141** (0.0063)	0.014** (0.0062)	0.023** (0.0099)	0.016** (0.0068)	0.0325** (0.0157)
Log Act Borr/Total Population	0.0114** (0.0049)	0.0353** (0.01657)	0.0123** (0.0052)	0.0245** (0.0101)	0.0142** (0.0052)	0.0315** (0.0091)	0.0136*** (0.0004)
Log of AS	0.0101** (0.0042)	0.0133** (0.0054)	0.0100** (0.0030)	0.0163*** (0.0006)	0.0201** (0.0091)	0.0123** (0.0052)	0.0221*** (0.0006)
log(1 Room in Household)	-0.0125*** (0.0002)	-0.0225*** (0.0015)	-0.0315*** (0.0012)	-0.0258** (0.0091)	-0.0412*** (0.0001)	-0.0321*** (0.0003)	-0.0365** (0.01423)
log(livestock ownership)	0.5327** (0.2436)	0.4195** (0.1952)	0.3961** (0.1823)	0.4720** (0.1922)	0.2953** (0.1021)	0.6321** (0.2921)	0.4023** (0.1825)
log ALP15	0.3127** (0.1398)	0.1776** (0.07139)	0.1581** (0.06122)	0.2420** (0.0980)	0.1943** (0.0811)	0.2611** (0.1219)	0.1856** (0.0813)
log(ownership of house)	0.0154** (0.0061)	0.0213** (0.0891)	0.0134** (0.0051)	0.0314** (0.0131)	0.0215** (0.0083)	0.0156** (0.0053)	0.0221*** (0.0100)
log(monthly wage)	0.4136*** (0.0001)	0.3321*** (0.0002)	0.4224*** (0.0011)	0.4196** (0.1932)	0.3321*** (0.0001)	0.3169*** (0.0011)	0.4013** (0.1958)
log(Households By Other for Lighting)	0.0014** (0.0005)	0.0042** (0.0016)	0.0051** (0.0017)	0.0011** (0.0002)	0.0116** (0.0043)	0.0214** (0.0101)	0.0314** (0.0131)
Provincial Dummy	-	-	-	-	-	-	-
Constant	1.256* (0.6580)	4.215** (2.007)	3.695* (1.9925)	5.364* (2.7883)	2.787** (1.2013)	6.325* (3.5321)	2.325* (1.1988)
No. of Observation	77	81	73	89	81	81	81
Adj R ²	0.451	0.464	0.343	0.445	0.454	0.531	0.455

Note: Dependent variables are the Health consultation (HC) which shows the health status and distribution of household material used for roof by Wood / Bamboo (HMFUR) which represents the household condition, Economic Status (ES) , Number of meals taking per day (MTPD) which represents the living status / food consumption of people, consumption of Food (FIC) and Ownership of Livestock (LO). Robust clustered Standard errors at district level are in parenthesis. All variables are in natural logarithm. Estimation is based on ninety four districts for the time period of 2006-2013. Coefficients are obtained from fixed effect panel approach. Time dummy and district dummy are included in the estimation. ***p<0.01; **p<0.05; *p<0.10

APPENDICES

Appendix 2-A: Variable Definitions

Variable		Definition	Rationale	Expected Sign	Data Source
Active Borrowers	ACTB	The numbers of individuals who currently have an outstanding loan balance with a microfinance institution (MFI), or are responsible for repaying any portion of the gross loan portfolio divided by the total population of district	Independent Variable; captures the micro-credit outreach	+	PMN ; Micro Watch & PBS (2014)
Active Savers	AS	The number of individuals who currently have placed funds with an MFI. This number applies only to savings held by an MFI, not to those savings held in other institutions by the MFI's clients.	measure the microcredit outreach	+	PMN ; Micro Watch (2014)
Value of Savings	VOS	The total value of funds placed in an account with an MFI that are payable to a saver.	Captures the microcredit outreach	+	PMN ; Micro Watch (2014)
Gross Loan Portfolio	FLP	All outstanding principal for all outstanding client loans, including current, delinquent, and restructured loans, but not loans that	Measure the microcredit activity	+	PMN ; Micro Watch

		have been written-off. It does not include interest receivable. It does not include employee loans.			(2014)
monthly wage	MW	Percentage Distribution Of Monthly Household Income	Dependent Variable; widely accepted as good proxy for Poverty		PSLM (2014)
Economic Status	ES	Percent distribution of households by the perception of the economic Situation of the household	Dependent Variable; widely accepted as good proxy for Poverty		PSLM (2014)
Adult Literacy Population 15 years and older	ALP	Population aged 15years and older that is literate expressed as percentage of the population aged 15years and older.	Measure the educational population		PSLM (2014)
Higher School Education Completed	HSEC	Percentage distribution of population that has completed higher level education	Captures the education status		PSLM (2014)
Attendance of Primary School	(APS)	Population that has ever attended primary school	Measure the educational level		PSLM (2014)
Net enroll rate at Primary Level (age 6-10)	(NEPL),	Net enrolment rate at the primary level (age 6-10)	Measure the educational level		PSLM (2014)
Gross Enroll rate Primary Level Katchi Abadis	(GERPLK A	Number of children attending primary level (classes 1-5) divided by number of children aged 6 – 10 years multiplied by 100.	Measure the educational level at slum area		PSLM (2014)

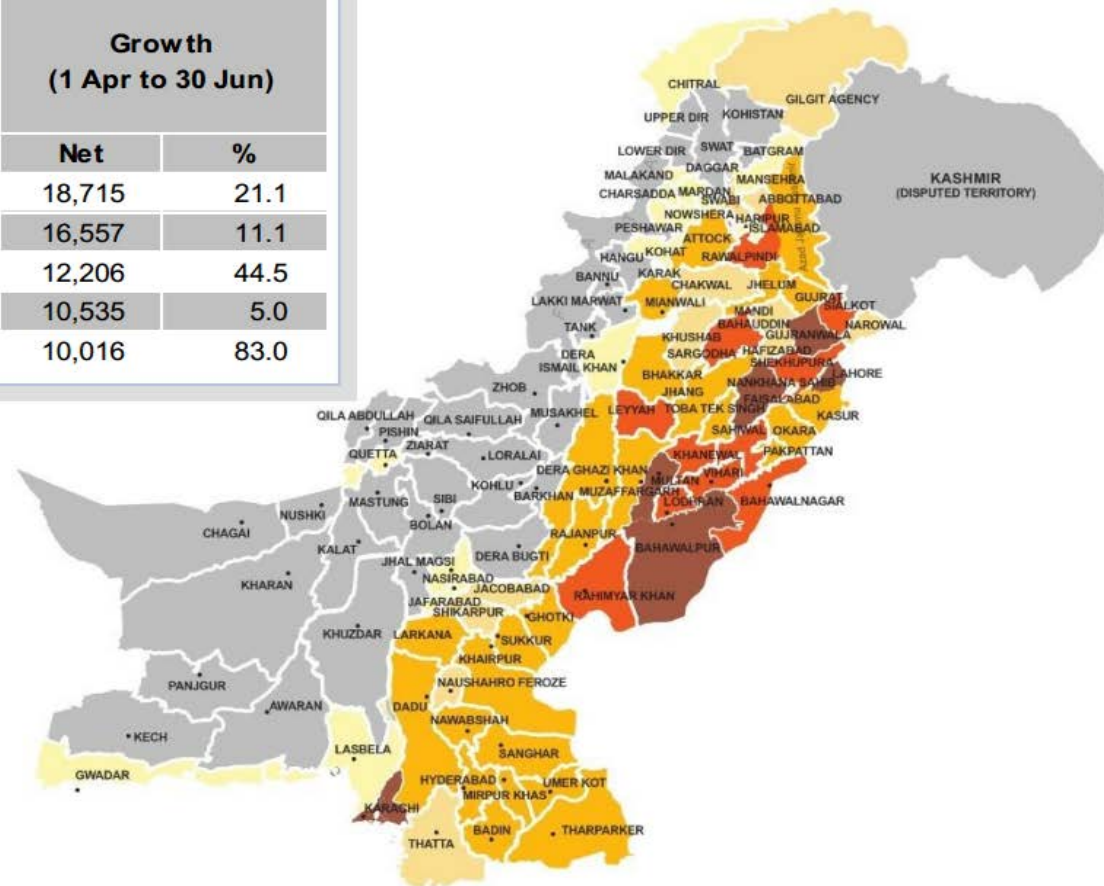
		Enrolment in katchi Abadis is included.			
Net enroll rate at Primary Level katchi Abadis	(NERPLK A)	Net enrolment rate at the primary level (age 6-10) Enrolment in katchi Abadis is included.	Measure the educational level at slum area		PSLM (2014)
Number of students attended the school	AS	Population that has ever attended the school	Capture the school attendance		PSLM (2014)
Gross enrollment rate of primary school level	(GERPL)	Number of children attending primary level (classes 1-5) divided by number of children aged 6 – 10 years multiplied by 100.	Capture the educational level		PSLM (2014)
Completion of High School Education	(HSEC).	Percentage distribution of population that has completed High School Education	Measure the level of education		PSLM (2014)
Households By Material used for Roof By RCC/RBC	HBMUR	Percent Distribution Of Households By Material Used For Roof by RCC/RBC	Capture the household condition		PSLM (2014)
1 Room in Household	1RH	Percentage Distribution Of Households By Number Of Rooms- By one Room	Measure the size of house		PSLM (2014)
Health Consultation	HC	Percentage distribution of population under 5years fallen sick Or injured	Capture the health status		PSLM (2014)
Consumption of Food	FC	Monthly per capita consumption of expenditure on	Measure the consumption		PSLM (2014)

		major food items			
Number of meals talking per day	(MTPD)		measure the food consumption		PSLM (2014)
livestock ownership	OL	Percent Distribution Of Households By Livestock Ownership	Measure the wealth status		PSLM (2014)
ownership of house	OH	Percent Distribution Of Households By Housing Ownership	Capture the wealth		PSLM (2014)
ownership of household assets	OHA	Percent Distribution Of Households By Household Asset Ownership	Capture the wealth status		PSLM (2014)
distribution of household material used for roof by Wood / Bamboo	(HMFUR)	Percent Distribution Of Households By Material Used For Roof by Wood/ Bamboo	Capture the household condition		PSLM (2014)
Households By Other for Lighting	HBOFL	Percent Distribution Of Households By other than Electricity, Gas/Oil and Candle Fuel Used For Lighting	Capture the household condition		PSLM (2014)

Appendix 2-B: Map of Microfinance Outreach

Top 5 Districts: Greatest Increase in Microcredit Outreach

	District	Active Borrowers (30 Jun)	Growth (1 Apr to 30 Jun)	
			Net	%
1	Rahimyar Khan	107,380	18,715	21.1
2	Faisalabad	166,389	16,557	11.1
3	Larkana	39,650	12,206	44.5
4	Lahore	222,050	10,535	5.0
5	Shehdad Kot	22,084	10,016	83.0



Source: Pakistan Microfinance Network (2014)

Chapter 3 : Microfinance and its influence on Poverty Alleviation; A survey of the Literature and Recent Development

3.1. Introduction

Microfinance (MF) aims to facilitate low-income and self-employed people through financial assistance. These financial services generally include credit, savings, insurance and payment services. MF seeks to enable the access to small-sized loans and deposits for the poor, neglected by the banks; therefore it facilitates financial services in both rural and urban solidities where there is an inability to access financial services for their welfare from the conventional systems of the financial sector.

There is a big debate about the impact on poverty alleviation of microfinance programs and their activities. Poverty is a social and economic issue, and is not just about a lack of income; but there is a noteworthy difference between a rise in income and a reduction in poverty. The main aim of MF is to provide a variety of financial services to poor people through credit, savings and insurance, to sustain well-being and to improve incomes and living standards. These financial services can also be beneficial in strengthening health status, food consumption, education, women empowerment, and entrepreneurship.

Despite the doubts of some commentator about the effect of MF on poverty, a number of studies have proved that MF is working successfully in many situations. Those who argue that MFI performance does not fully meet expectations must nevertheless admit the positive effects. Studies into various microfinance institutions (MFIs) demonstrate that the most common effects of these financial services are the evening of consumption levels and wealth redistribution for

households. Microfinance experts have begun to look at the development of economic security instead of income growth as a first step towards poverty reduction because it decreases the overall vulnerability of beneficiaries.

MF does not only enable the poor to deal with the necessities of life and safeguard against risks, but it also empowers women by helping their economic participation, so MF actually works towards gender equity. MF's objective is not only to support the poor on an individual level, but also it plays a fundamental role on the institutional level. Generally, the poor are excluded from the financial sector, so to bridge this gap in a financially sustainable way, MFIs can be an integrated component of any country's financial system, reaching capital markets to finance lending portfolios and enabling them to considerably expand their reach to a maximum number of poor people.

In general, savings are highly demanded by the poor, playing a vital role in protecting the individual from a cash flow shortage as well as fulfilling an insurance function. So facilitating savings is imperative. Further, increasing deposits (in the shape of customer savings) strengthens client financial discipline and eventually serves as a financial support for MFIs. However, savings alone have a relatively minor impact on development: savings may protect against unforeseen distress or provide "shelter for a rainy day" but savings do not themselves create significant wealth if credit is not available.

There is clear evidence of a potential synergy between MF and other programs for basic needs for clients. Benefits resulting from basic education, health and microfinance are interlinked; it is found that if all these factors are delivered together, the effect of each will be amplified. All marginal costs relating to health and education could be significantly lessened if MF

infrastructure is already present. Basic client health is possibly a crucial intervention, but to reinforce the impact on the poor, it should be associated with MF. Expanding primary education has a wide range of impacts on poverty alleviation targets (fertility, health, nutrition and income).

In recent years MF has attracted noteworthy attention from academic circles and policy makers. However, there are many still unanswered questions (see *The Economic Journal*, Hermes and Lensink, 2007). Two major issues have drawn attention.

First, how does an MF program affect the social and economic condition of the poor in developing countries? These programs play a significant role as they operate in developing countries and MF is an effective tool to alleviate poverty.

Secondly, in what ways are MFIs sustainable in the long run and what is the relationship between outreach and sustainability? This is also a major and relevant issue because emphasis on poverty alleviation is costly, and those costs may decrease the capacity for financial suitability and vice versa.

There are ten contributions towards new empirical verification regarding these two issues; five of the ten deal with the first issue, the other five address the relationship between financial sustainability and outreach and poverty alleviation strategies. Can MFIs keep funding their own operations without impact on their objective of helping the poor?

In the theory context there are many circumstances relating to MF that involve how microfinance affects social and economic outcomes: for example, use of various poverty measures; impact on the less poor versus the poorest; female borrowers versus male borrowers; group lending versus individual lending; diverse impacts on different economies and different

loan purposes. This study observes whether the MF impact on outcome variables is affected by the above variations or not. In particular, this study offers the following contributions.

First: addressing the question of heterogeneity and providing general conclusions on empirical grounds for the effect of MF interventions.

Second: based on our meta-analysis outcome, a guide for future studies examining the area having particular importance is proposed. For example, further study is essential for hypothesis formulation and development of the validity of empirical studies. The research should identify the necessity for further primary studies of MF implications, applying different metrics for MF apart from microcredit.

Third: furnishing proof of the literal impact of MF beyond publication selection bias. The selection bias of publications occurs due to the inclination of editors, reviewers and researchers to select studies with specific outcomes (for instance, statistically significant outcomes coherent with theoretical predictions). It is viewed as a threat for empirical economics (Stanly, 2008). In point of fact, without rectification of publication bias, literature that shows a significant empirical impact may be misleading. For MF, this prejudice can actually tend to degrade results that negatively report on the effect of MF implications. Hence, amid discrepancies regarding MF impacts, this study presents a dependable solution in response to heterogeneity in the literature. In conclusion, this research is a vital step in dealing with the existing deadlock over MF effects (positive, negative or non-existent). It also clarifies the impact of inconsistent literature over the quality of reported effects of MF.

Our paper is formed as follows: the next section shows the microfinance impact on poverty alleviation as evidenced in the extant literature. Section 3 offers a brief review of sustainability and outreach in the literature. Assessment through a methodological approach is offered in Section 4, and the paper ends with concluding observations.

3.2. Assessment of Impact of Microfinance

3.2.1. Positive Impact

MF advocates argue that poverty reduction can take place with the help of access to finance (Dunford, 2006; Littlefield, Morduch, & Hashemi, 2003). Financial services help achieve a continual increase in revenue through increased business investment, a rise in accumulated assets, evening consumption, fewer illnesses, less vulnerability and reduced crop failure and drought; but access to finance is more important and plays a significant role in poverty reduction.

Further, this can contribute to improved health, education and housing for the poor. Access to finance may also help the betterment of female economic and social conditions and support women's empowerment. Because of MF's positive and vital role in poverty reduction, many governments, individuals and NGOs support MFIs.

Generally, the core poor do not want to take risks and borrow money for investment, so they receive only limited benefits from microfinance schemes. The core poor are usually not included by other group members in group lending programs because of the assumption that the core poor increase credit risks (Hulme and Mosley, 1996; Marr, 2004).

These programs are also usually structured in ways that tend to exclude the core poor. For instance, it may be necessary to demonstrate savings prior to disbursement of a loan; a minimum loan amount must be agreed; there must be a covenant of registration of a firm prior to loan approval (Kirkpatrick and Maimbo, 2002; Mosley, 2001).

In addition, MFI staff tend not to include the core poor because they assume a higher chance that the loan may not be repaid (Hulme and Mosley, 1996).

Finally, MF critics doubt the claims of positive effects on women. A number of MF programs are focal points for women; various research reports confirm that female borrowers have a higher pay-back ratio than male borrowers. Women also use most of a loan on improvement of their children's education and health (Pitt and Khandker, 1998). It is clear that females play a vital role in poverty alleviation. However, MF critics observe that women are often compelled to give the loan funds to their men; the men misuse the loan, which increases the burden upon women, leading to defaults and nonpayment of the loan (Goetz & Gupta, 1996).

3.2.2. Microfinance and Health

We argue likely positive impacts of microfinance on psychological well-being, economic development and empowerment, while also eventually giving health benefits. Analysis of the relationship between MF and health is quite tricky, with many complicating factors. So to comprehend and demonstrate the relationship between MF and health, evidence is assessed below.

One study reveals a positive MF effect on welfare, food consumption and health, particularly for women customers of the Wisdom MFI in Ethiopia (Doocy, Teferra et al, 2005).

Similarly findings from another study conducted in Kerala, India, suggest that microcredit helped empower women by improving health status, encouraging their decision-making and raising confidence to start a new business which uses their skills.

However, there is no evidence of a correlation between health risk exposure and participation in MF programs that deal with health (Mohindra, Haddad et al, 2008). No correlation was observed between self-assessed health or exposure to health risks and participation in MF health schemes (Mohindra, Haddad et al, 2008). A study conducted in the Dominican Republic showed that customers did not show any significant improvement assessed against eleven health indicators (Dohn, Chavez et al, 2004).

The above evidence demonstrates a blend of impacts of microfinance on health, partly attributed to the limited amount of available data on the impact of MF on health. Also, most interventions are designed towards financial development and are less concerned with social and health development. Another reason might be the timeframe of the assessment, as health outcomes are better assessed in the longer term, and surveys conducted immediately after an intervention give very little information on health outcomes. Whatever the reasons are, it is plain that it is very difficult to assess the impact of MF on health. For instance, it is not enough to conclude simply that MF intervention leads to economic development, empowerment and increased social capital for all participants. Rather, it depends to a great extent on other factors as well as MF programs and participants.

Assessing client benefits also depends on how the client aims to use that loan; different studies show varying findings. For instance, one study shows that MF resulted in a 67% income rise of clients while they also built household assets (CRECER Bolivia); another shows that

some customers earned profits of \$150-225, while one quarter's profits were under \$10 (McNelly and Dunford, 1999). So it can be safely assumed that health benefits are also highly variable. Similarly, social empowerment is not always linked with MF: a study in Kerala noticed no improvement in participant decision-making (Mohindra, Haddad et al, 2008). The association between income, social wealth, women's empowerment and health status is also unstable. A HOPE study shows that a higher income does not guarantee improved health spending in Ecuador and Honduras (Smith 2002).

An IMAGE study shows a correlation between MF training schemes on HIV and social mobilization in South Africa. The study had a sound baseline as well as a follow-up assessment methodology, with random clinical testing during the baseline. After two years, the study found a reduction in intimate partner violence among clients, with nominal evidence on the use of contraceptives (condom), HIV incidence and sexual behavior.

3.2.3. Criticism on Microfinance Programs

MF has also received strong criticism, with critics particularly claiming that access to finance does not significantly reduce poverty; that MF does not reach the poorest (Scully, 2004); and that poor people are ignored by MF schemes (Simanowitz, 2002). The reasons given are that the poorest usually do not want a loan because they usually lack confidence in themselves or believe that these loans are too risky (Ciravegna, 2005).

MF Institutes which focus more on savings than credit affect a minority of the poor. These MFIs have an insignificant impact on poverty alleviation, and so are less favored to achieve millennium goals within target dates.

3.3. Issues of Microfinance

The above disagreements about MF's significance in poverty reduction have sparked many empirical assessments. In this context, much research has addressed following issues.

Does MF serve the core poor or does it only develop the well-being of the better-off poor?

What factors are most important (empowerment of women, increase in income, increase in assets etc)?

Is the payback more than the cost of MF programs (Chemin, 2008; Dunford 2006): how subsidized should MFIs be?

However these considerations can be problematic. First, it is not essential that any change in economic/social condition of MF recipients be due to MF access. Better-off agents can be more stimulated to apply for MF, while poorer agents may not apply for MF, so there may be self-selection prejudice: in income comparison for both groups, between income before an MF loan and income after an MF loan, can lead to the possibly misleading conclusion that MF finance was responsible for improved income.

Secondly, MFIs may expand into comparatively well-off regions for better opportunities for MF growth. Certainly, this can create a biased comparison between Treatment and Control Group (Armendáriz de Aghion and Morduch, 2005; Karlan 2001).

The above studies into the impact of MF on poverty and complications in measuring the impact show that arguments are far from final and we need further research into the issue.

Dalla Pellegrina (2011) suggests two major innovations in assessment of the impact of MF. First, Dalla Pellegrina indicates that most impact research focuses on MF loans without comparison with the impact of credit from other financial sources. He says that comparison between MF loans and credit from other financial sources is in fact important because it provides evidence of the net impact by MF. This paper also examines the effects of micro-credit on investment, unlike some research that analyzes consumption, education, income, health etc.

Dalla Pellgrina claims that to improve living standards long-term, borrowers need to invest in development of productive activity. Using data from a large World Bank survey of approximately 1,800 households in rural Bangladesh (1991-92), Pellgrina claims that MF loans are generally for working capital (usually for non-agricultural activity), while bank borrowings help finance the purchase of fixed assets (mainly related to agricultural activity). Bank loans are vital in engendering long-standing productive operations. Pellgrina points out that MF may have a lesser impact than bank loans as regards the effect on long-term investment; he states that MF may not encourage the establishment of a fixed assets group lending system. Such characteristics may lead the poor to invest in those projects which can yield a short-term income.

Becchetti and Castriota (2011) view the effect of MF as a healing device after natural disaster. Their study aimed to assess the role of MF loans in supporting the victims of the 2004 tsunami in Sri Lanka. Researchers collected data from 305 randomly selected MF borrowers. The tsunami tragedy led to a typical “quasi-natural experiment” to investigate the effect of MF by dividing borrowers into a treatment and a control group, randomly selected. The treatment group comprised people affected by the tsunami; the control group comprised those not affected.

With a rich dataset of before and after the tsunami, researchers found that MF availability was a major rationale for income convergence between recipients. However this process was badly interrupted by the tsunami, until people were again offered MF to help bridge the income gap between the tsunami-affected and the unaffected. Both researchers claim that there was a very fast recovery process. Becchetti and Castriota also found no positive role of MF loans over donations or governmental subsidies to improve real income.

The research offers strong evidence for MF as a recovery tool. This research is highly comprehensive in its coverage of post-disaster conditions, so its outcomes may help governments and NGOs involved in such situations.

The final contribution in the literature review on MF impact portrays the latest methodology for measurement of MF impacts on recipient well-being. A research paper by McIntosh, Villaran, and Wydick (2011) includes a retrospective analysis of the correlation between MF and household improvement.

The authors claim that the methodology gauges changes in welfare after, for instance, getting microfinance; cross-sectional methodological questions and analysis identify past borrowing events that were unforgettable, important, distinct and extraordinary in household welfare. The observers develop a retrospective panel dataset to determine the influence on the treatment group. The method suggested by McIntosh, Villaran, and Wydick in the study of events is widely employed in finance literature. McIntosh et al applied their methodology in Guatemala to study 218 households which received MF in different years.

The research tests the impact of a loan on dwelling enhancement. The outcomes suggest that MF raises the likelihood of dwelling enhancement, even though they are relatively modest

impacts. This paper has contributed notably in terms of its new methodology which may help researchers in assessing MF impact, as it does not involve huge costs and time for the more usual multiple cross-sectional surveys which are generally required.

The literature review demonstrates specific conclusions about the effect of MF on poverty alleviation. The results show a positive MF impact on poverty alleviation in Pakistan. There is overwhelming evidence to validate a productive impact of MF financial services on health status, nutritional conditions, diminution in vulnerability, improved education and income increases. Normally, the impact of MF programs can be assessed by an analysis of changes in income or well-being of the treated group. However getting accurate information and determining all income sources may be difficult, as the respondent may provide false statements; this makes it difficult to establish a casual effect of what might happen if a loan is not disbursed. Nevertheless, the economic analysis can more precisely assess the impact.

Assessment of social impact is also essential for an organization's internal learning process, as an MFI should be fully attentive about the full range of changes relating directly or indirectly to MFI work, and use those changes to increase overall performance. Social impact is associated with human capital: health, nutrition, social network and education. Analysis and assessment of all of these issues is essential to arrive at a factual image of MF impact. Sustainability and Outreach of Microfinance

As discussed, the poor are generally neglected by the banking sector, while MFIs claim a social mission in providing financial services to the poor. Conventional banks lend to those with collateral, whereas the poor have no valuable asset for collateral, so mainstream banks refuse the risk. Also, banks usually operate in urban areas, while most poor are rural, so the underprivileged

are not facilitated. MFIs aim to bridge the gap by working in remote areas; but studies show that MF provides financial facilities to only a tiny fraction of the projected demands of the poor.

MFIs cannot offer a deep outreach as required to meet the demands of the rural poor. Running a rural MF project is expensive. The high transaction costs and small client base are why conventional banks operate in comparatively densely-populated areas.

Some studies show that the poorest can perk up their socio-economic conditions, and these studies recognize numerous common issues for MF work for the poorest. Even a well-designed program can fail positively to affect the poorest unless it has exact targeting and a good relevant product design. Experience shows that without a targeting tool, the poor may feel that the programs are not for them, or they do not have the correct clothing etc; so they may exclude themselves or be missed. So MFIs must design their programs to meet the needs of the poorest.

Microfinance institutes fail if the design of their projects is solely to satisfy those who demand MF for saving. The key 2015 objective of the Microcredit Summit is to reach out to 175 million poor, but MF seems not on target. So it is important that MFIs have breadth and depth of outreach. Products must be cost effective and designed appropriately for the needs of poor people. As stated above, MF provision is very expensive in information and transaction costs. Many current MF programs are financially unsustainable, operating on subsidies from donor agencies. The problem of MFI financial sustainability generated an important dispute between the approaches of the financial system and poverty lending in the 1990s (Robinson, 2001).

Financial systems focus on the financial strength of MF programs, stressing that MFIs should be financially sound enough to bear the cost of funds from interest on outstanding loans and cost cutting of operational activities. The poverty lending approach mainly stresses poverty

reduction by offering subsidized credit. Proponents of the latter argue that since MF beneficiaries are very poor, they cannot afford high-priced funds, so the financial sustainability approach defeats the goal of helping the poor.

Advocates of the financial services approach argue that there is no empirical evidence that recipients cannot pay high interest rates and no evidence of a negative correlation between MFI financial sustainability and client poverty levels. Their view is mainly supported by the argument that if MFIs are financially unsustainable, then large-scale long-term outreach to the deprived cannot be assured.

It appears that the contest leaders are supporters of financial sustainability, and most parties in the MF debate have accepted this approach. As a result, policy architects, donors and other fund injectors recently shifted the focus to financial sustainability. The emphasis on effectiveness and financial sustainability is augmented because of factors such as MF technological advances; government policies on MF; increased competition between MFIs; and increased interest from investors and banks due to the commercialization of MF (Rhyne and Otero, 2006).

There is presently an enormous range of financial sustainable MFIs (Deutsche Bank, 2007). One estimate is of about 150 financially sustainable MFIs in the world (only 1-2% of all MFIs), most of them well known, relatively large and organized; about 8% of all MFIs are near profitability. These MFIs emphasize profitability/sustainability and are viewed as profit-making organizations. Almost 20% of MFIs, including Non-Government Organizations, are not financially sustainable so far but are approaching sustainability in the near future. The other 70%

of MFIs are small start-up ventures, rather than financial sustainability mainly operate on subsidies.

With the focus shift to financial sustainability, certain reservations have arisen for the reach of microfinance in breadth (the number of MF recipients) and depth (socio-economic status of MF recipients). As mentioned above, exponents of the other approach (poverty lending) contend that emphasizing financial sustainability incurs client costs. Loans to the poor can be expensive, so missing the goals of sustainability and outreach. This has not been studied much and available literature is largely unreliable.

An academically authentic study (Cull et al, 2007) looks at outreach and financial performance. This paper is based on macro data on 124 MFIs in 49 countries. The researchers used econometric methods to examine any trade-off between profitability and outreach depth of MFIs. The outcomes show that MFIs which focus on individual rather than group loans have better profitability but a lower proportion of female and poor clients in the total lending portfolio as compared with MFIs which mainly focus on group loans. The results also show that, unlike group-based MFIs, individual-based MFIs progressively focus on richer clients, so Cull et al. claim a significant relationship between MF program outreach and sustainability.

Research underlines that institutional design is important in determining size and existence of this trade-off, and the same is important from a policy prospective. Keeping in view that there is no strong evidence for the existence of a trade-off between outreach and sustainability, a deep and extensive study on this issue is greatly recommended. Hermes et al (2011) used data of 435 MFIs between 1997 and 2007, and claims the existence of a trade-off. More specifically they used MFI cost-effectiveness to estimate sustainability through a stochastic

frontier analysis, with an average loan balance and percentage of women borrowers to measure the outreach dept.

MFIs do not only have a social mission of enabling the poor to maintain their lives well; they also aim to be profitable and so offer financial services in a financial feasible way. MFIs work on a melding of commercial and social objectives. With more focus on institutional and financial performance, the prospects for maximizing poverty impact and for outreach depth are compromised.

Studies call for equilibrium between financial and social missions, because the extant focus on financial objectives means only the few having a high need for MF services are targeted. For a better balance, there is a need for services to maintain poverty impact as well as economic and financial performance.

Some studies calculate that only 5% of MFIs around the world are financially sound and sustainable; IMF (2005) claims only 1%; this is a big issue for the MF sector.

For financial sustainability, MFIs need to control operating and funds costs, reduce non-performing loans and write-offs, and curb the inflation from income earned in the shape of fees and markups. The 2005 IMF report says that self-sustainable MFIs are likely to be efficient in performance when larger. Further, MFIs do not focus on the very poor, because targeting the less-poor increases efficiency indicators and loan sizes; MFIs targeting the very poor are more likely to be dependent on donation. This is where there is a compromise: if MFIs aim to achieve sustainability and also reach the poorest, MF programs must be managed professionally, subsidies eliminated, and intensive credit control systems and proper monitoring must be in place.

MFI sustainability is also important from the client perspective, because clients may reduce or even cut off their regular loan repayments if they doubt that the MFI will survive.

Factors contributing sustainability include proper identification of client need, regular repayment ability, realistic forecast of business cash inflow, realistic interest rates, proper loan amounts according to genuine client need, and considering savings as a prerequisite. Putting these in place along with a focus on the poorest will enable to achievement of financial and social objectives. When assessing MFI performance, it is essential to assess social and financial performance, as both are needed for successful operation of MFIs.

Barboza, G. and Trejos, S. (2009) observed that Micro Credit (MC) programs offer finance to the poor with innovative mechanisms, such as group lending with joint liability, effectively accounting for the existence of asymmetric information in less developed financial markets. MC programs have successfully achieved objectives such as positive impact on poverty alleviation and impressive recovery rates of loans to the poor; these are what government agencies and conventional financial institutes have failed to achieve. Socially-responsible donors or lenders play a vital role in helping poverty reduction and funding Micro Credit Programs.

3.4. Assessments through Methodological Approach

3.4.1. Non-Randomized Approach

Most studies investigate MF impact on the above first three issues. Although there have been a number of assessments of MF impact on Poverty alleviation, there is yet surprisingly small empirical evidence concerning this issue. One key problem in the assessment of MF impact is how to gauge its share of poverty alleviation. Many studies compare an MF treatment

group with access to an MF facility against a control group without this facility. In most cases, the assessments use non-randomized approaches.

Published studies offer mixed evidence for non-randomized MF program effect on poverty. Pitt and Khandker (1998) study the effect of MF in Bangladesh from 1991-92 data in a household survey. This is one of the most influential studies in this area. The results reveal that MF access leads to an increase in expenditures and consumption, particularly if the microfinance is borrowed by women. A follow-up study (Khandker, 2005) uses 1991–92 and 1999 panel data, showing that the extremely poor are more benefited than the moderately poor. But the outcomes of both reports are rejected by Roodman and Morduch (2009), whose report shows that the instrument variable may not produce the required results and that the outcome can be triggered by an endogeneity problem (‘simultaneous equation and omitted variable bias’). Chemin (2008) worked on same Bangladesh survey and applied the “propensity score matching technique.” He argues a positive impact of MF on spending, school enrollment and labor supply.

However, a study by Copestake, Dawson, Fanning, McKay, and Wright-Revollo (2005) doubts the impact of MF. This study is grounded on data from a survey in Peru into a 2002 village banking program, applying a mix of evaluation techniques (includes in-depth qualitative interviews and difference-in-difference method); the research concludes that the poor are “better off” than the poorest, gaining more from MF.

3.4.2. Randomized Approach

Studies regarding MF impact have now shifted to Randomized Approaches with randomized controlled tests, because of a number of methodological defects in Non-Randomized Approaches. In Randomized Approaches the Control Group and Treatment Group are identical in all dimensions and every aspect, bar one difference: the Treatment Group has MF facilitation, while the Control Group does not.

Both groups comprise a random allocation of individuals. The treatment is randomized deliberately, that is by MF program, which opens new branches randomly in big city slums (unexploited in the past). This can also be because of natural phenomena such as volcanic disruption, which harms a few MF recipients. Variations in response variables like health, education, consumption and investment can be associated with treatment 2. The findings were also mixed from randomized experiments, with some evidence suggesting a strong impact for those groups which are generally not focused on by MFIs.

Banerjee et al (2009) base their study on the first randomized assessment of the impact of a launch of MC in a new market. Research was conducted in Hyderabad (India's fifth largest city); of 104 neighborhood slum areas, 52 were selected randomly for an MF branch. A survey showed that this intervention boosted MFI borrowings, increased the establishment of profitable small business and increased consumption and investment. However, after fifteen-eighteen months of the program, while the MC enabled households to start new ventures, there was no impact on overall expenditures, but substantial effects on durable goods and significant reductions in "temptation goods" were observed. The impacts are heterogeneous: Households already running a durable goods business during the program increased their earnings.

Meanwhile clients who tended to be business owners reported reductions in consumption of nondurables, and they consistently bore fixed cost for entrepreneurship, whereas clients with a low propensity for business ownership reported an increase in spending on non-durables. Researchers found no effect on education, health and women's decision-making.

Armendáriz and Morduch (2005) report that, through MF, households may be richer, and yielding "income effect" this should raise consumption levels while holding constant all other factors, enhancing demand for leisure, education and child health. However, the study adds that operating a microenterprise may require time by yielding "substitution effects" which may offset the impact of better earnings. For instance, should a borrower need more time for a micro-business, they may prefer to keep children at home rather than school, to help the business.

3.4.3. Criticism over the Randomized Approach

Many other studies are in process (Roodman & Morduch, 2009). There is also criticism of the exercise of randomized controlled tests so far (Deaton, 2009; Rodrik, 2008). Moreover, it might be that barely generalized highly imperative remarks elicit the outcome of an experiment. Hence the findings of this study show that the operation of a specific MF program where people are extremely poor, such as an African slum, results do not demonstrate that this program would be effective elsewhere or have any effect on poor people from other parts of sub-Saharan Africa.

Context matters. In this regard, advocates of randomized techniques offer a solution, a repetition of trials in various different contexts, to examine whether it works. However the number of repetitions of any specific experiment is still undefined. Also, repeated experiments incur costs and take time; there may be no financial support for rerunning trials, because

generally important journals do not publish repeat research (Rodrik, 2008; Easterly, 2009; Roodman & Morduch, 2009).

Roodman and Morduch (2009) conclude that both “randomized and non-randomized” techniques could be used to assess the impact of MF, as both have strengths and weaknesses.

3.5. Conclusion

In this paper we have examined present significant MFI challenges affecting the role of MF in poverty alleviation, such as an over-emphasis on financial stability and failure of a number of MFIs to facilitate the poorest of society. Hence it is necessary that MFIs must properly understand the requirements of the poor, and design services and schemes to meet those needs (Morduch, 2004). To achieve development goals, MFIs must ensure financial sustainability as well as outreach to the poorest. We have observed that “impact of MF on poverty alleviation” is discussed a lot and it has not been easy to reach any final conclusion (Hulme & Mosley, 1996).

Nevertheless, if an MF program is designed in consideration of the needs of the poor, then implemented and monitored closely, it will produce positive impacts not only on borrowers but also their family and the whole community. Zohir and Matin (2004) recommend a deep assessment of societal impacts in order to understand the exact role of MF in development. An analysis of livelihood security is one such tool to gauge the wider impact, measuring how the program affects the livelihoods of recipients and beneficiaries.

3.6. Policy Implication & Recommendations

Poverty Alleviation is the duty of not only the society as well as Government; but it is primary responsibility of Poor themselves to get rid of from this malady. Governments are responsible for removing economic and social barriers to eradicate poverty and hunger but the result may be fragile if poor does not put active efforts to fight against poverty and improve living standards. Thus the driving force from poor is essential ingredient in all countries to achieve the goal of eliminating poverty.

The state is responsible to help in arrangements of those tools that enable poor for learning to avoid risks of falling in poverty. State also provide them resources and direction to do business and earn enough amount for improvement of living standard

It is worth mentioning that the core objective of MF is not to make poor dependent but independent that enable them to create an income generator for consistent inflow of income to feed their family. The objective of poverty alleviation must be visionary and consistent: The goal of Poverty reduction should not be limited for improving standard of livelihood only but it also produce prospects for improving educational level of poor as well as sense of law abidance so that they can play constructive role in nation.

The situation demands the introduction of a novel and pioneering micro-credit product or service. Following policy recommendations can be useful for improving for improvement of MF services as well as outreach and were deduced from the findings of this paper.

Despite increasing demand, the remote areas are immensely underprivileged. Therefore it is essential for organizations that are enough capable for resource mobilization to come in

frontward and actively work on the mission of poverty eradication as well as facilitate poor people. However Government has to perform as conductor for private and public sector collaboration and do the legislation in this regard. Most of the organizations, who are implementing micro credit program, are providing credit through one while the huge demand is still there for other products also like consumption loans and emergency loans that can be addressed through micro credit program. The organizations need to have multiple loan products, provide choice to the poor to select one of them according to their needs.

This will help the organization in minimizing loan repayment delinquencies and also benefit of the programs will be very fruitful.

Financial Transparency must be adhered by collecting and disseminating correct and accurate information. The sequence may be like; Step 1) Verification; Step 2) Analyzation; Step3) Judging and Comparison of Performance according to provided information. MFIs may extend their services to commercial mode on permanent basis, only if these institutes are working with proper infrastructure for instance, training facilities and Management Information System.

In order to reduce operating cost of MFIs, appropriate technology consorting with systems and procedures must be introduced. One of the most crucial issues is monitoring of loan. MFIs should confirm effective monitoring system in institute. Such systems keep record and monitor proper utilization of loan as well as its optimum result.

There must be diversified or broad range of products and services for development of microfinance. MFIs need to focalize the complete cycle of Business Development Services

instead of focusing on loans and recoveries only. In rural area major portion of loans of Micro Credit is to Agriculture sector which is usually vulnerable due to natural disasters such as floods, droughts therefore it requires proper attention and appropriate measures should be in place to manage the risk. Existing products of MF should essentially target poor in bottom. There is acute need of regulatory body that facilitates and support MF organizations for achieving their goal. Pakistan requires prominent regulatory institute that provide not only the plate form to all MFIs but support them for learning by sharing experience and make effective decisions for improvement of services. In Pakistan there is huge potential for female entrepreneurs while they contributing a nominal share in development of Pakistan's Economy. Our female population is skilled and enriched with diversified skills such as, textile designing, stitching, manufacturing of small articles, handy crafts like embroidery, animal husbandry, honey farming etc. However this population requires market linkage. In order to take benefit from the skills of female entrepreneurs and let them to improve thie livelihood, Pakistan Government as well as private institutes should intervene and take necessary steps to support them for accessing markets.

The clients should not only be given the loans but also be guided through with business plan ideas and basic education of business. MFI's need to understand that every client just like a commercial client has different needs, and henceforth, the needs should be catered to differently with different packages for the customers. To confirm the repayments, the MFIs should provide borrowers with the security in the form guarantees. The gaps between the borrower and the market should be lessened. To do so, the system should be upgraded regularly to ensure timely lapses. For the staff to be able to come down to the level where they communicate through to the

customers, they should be given incentives to be able to move the work further with enthusiasm. MFIs should build a database of borrowers. This is very important because, the MFIs should base their decisions on the solid economic basis.

Micro-financing is made to help poor people, but in our country rates of interest on micro loans are decrease rate of interest. PRSP is not a serious effort at poverty alleviation political will of the government is translated in allocations, which appear far too in adequate. Government and micro-finance Institute should give the awareness to poor people that how micro-financing can improve their economic conditions. Government should improve the implementation of a regulatory framework. Government should try to empower a woman by giving them micro loans. Loan size should be increased enough to meet the requirements of borrowers. The people should be given more opportunities for loan attainment. Knowledge should be provided by MFIs to interested borrowers for the better utilization of credit. Interest rate should be decreased so that more and more applicants can avail micro finance facilities. The Government should assist the micro finance industry like the other industry it will increase the interest of people in micro finance banks. The state bank should revise the investment policy – 15% capital ratio and the lack of Competencies to increase in the capital are an impediment in the objective of the banks.

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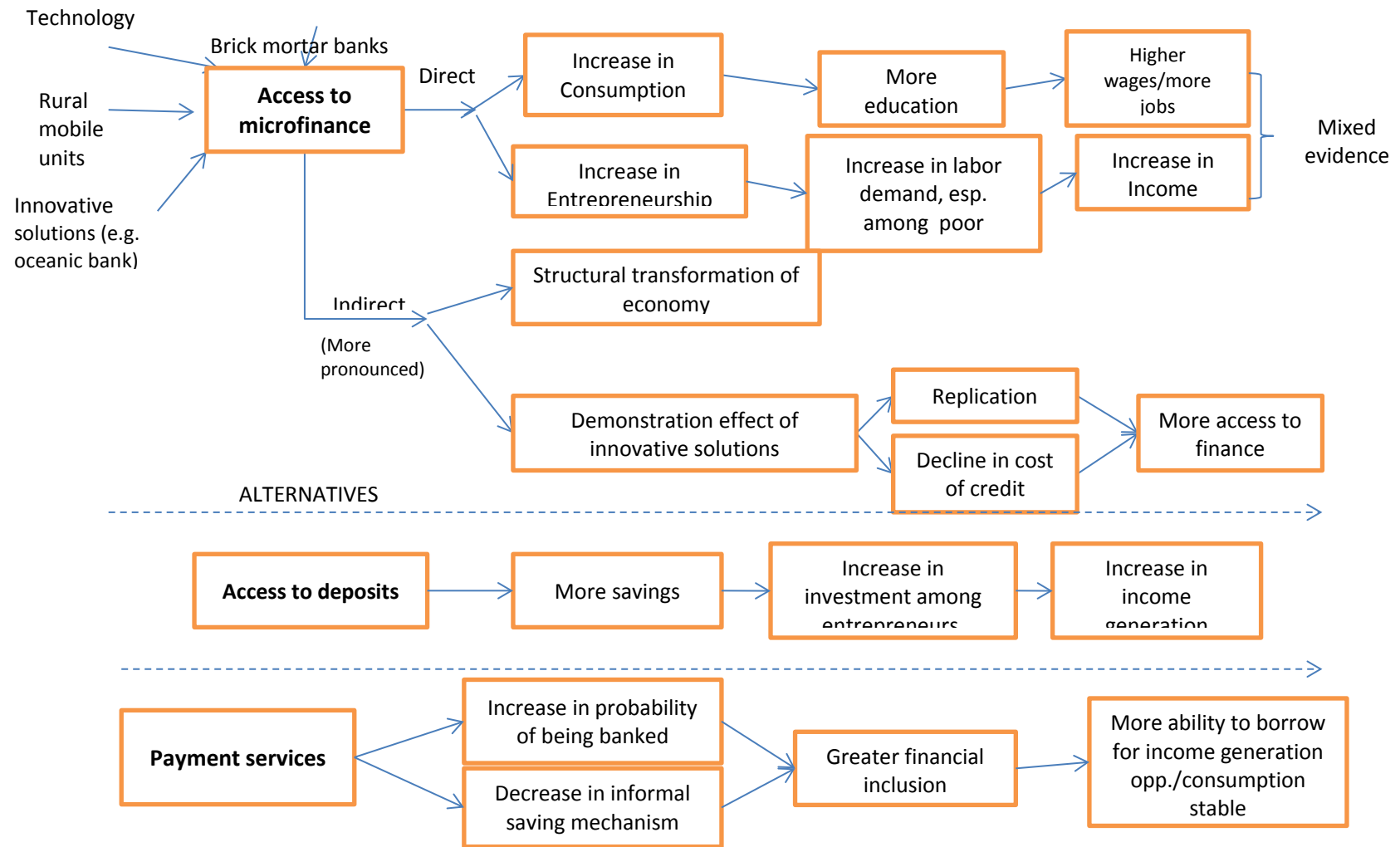
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Figure 3.1 : Direct and Indirect Relation between Microfinance and Poverty



Source : IFC by Thorston Beck, Chairman of European Banking Center and Professor of Economics at Tilburg University and CEPR fellow: available at <http://ifcnet.ifc.org/ifcint/deveffectiveness.nsf/Content/home>

Table 3.1: Problems and Solutions of Microfinance Program Services

Problem	Causes	Possible Solutions
<p>Criteria for Participation of Poor People in Microfinance Programs</p>	<p>Those people who are not able to repay are eliminated from the loan borrowing and savings services, means they cannot participate in microfinance programs.</p> <p>Most of the time poor people eliminate themselves from these services as they are worried because they assume that they are unable to repay the loans and will make problems for other group members.</p> <p>Sometimes the conditions for financial services of the microfinance programs are unacceptable for poor people. These conditions include:</p> <ul style="list-style-type: none"> – They have some limitation to use the loan – Time consumption as they have regular meetings – Repayment time is very short – Restriction on saving access 	<p>Guide poor people about the programs through different activities.</p> <p>Microfinance programs (MFP) should encourage their participants to add poor people in their groups to make the program strong and to reduce the poverty.</p> <p>Targeting poor people is very important, in this case MFP should make some strategies to target poor people and boost their confidence to participate in the program.</p> <p>Arrange training programs and asset building for poor people on providing them proper knowledge about new business, skills enhancement techniques, techniques to save money and decision making power.</p>

		<p>Guarantee system for group lending and individual loans should not be complicated. It should be simple for poor people to increase the participation in microfinance program.</p> <p>Staff training programs and workshops are very significant to overcome the problem.</p> <p>As microfinance has female borrowers and they have to manage the time, hence meetings should be infrequent at least once a month.</p> <p>There should be less restriction on loan use, it should be flexible and depends on borrower.</p> <p>Time for repayment must be flexible and it should depend on the condition of borrowers, either he is able to repay in that time period or not as MFP has main objective to reduce poverty.</p> <p>MFP should provide easy access to credit and savings.</p>
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Problem	Causes	Possible Solutions
<p>Poor people cannot be better off.</p>	<p>Deficiency in skills and Knowledge of entrepreneurship.</p> <p>Lack of social networking for new business.</p> <p>Lack of information about the market conditions.</p> <p>Not proper capital, as loan size of loans restricts your investment and scope.</p> <p>Sometimes markets have too many suppliers but demand is very low for that product.</p>	<p>Training Programs are playing very vital role to improve the skills and knowledge of client to increase social networking.</p> <p>These training workshops enable the clients to enter in new market and compete with other. They train their client that how to sustain and improve their business.</p> <p>Microfinance Program needs to arrange workshops on asset building.</p> <p>Microfinance schemes need to increase the flexibility in size of loan and repayment strategy.</p>

Problem	Causes	Possible Solutions
Unsuccessful entrepreneur	<p>Inadequate suggestions to clients for their new business.</p> <p>Incomplete or misleading information about market.</p> <p>Strict repayment penalties which can cause discouragement of clients.</p>	<p>Risk always exists in establishing a new business and it's really impossible to be removed.</p> <p>Although we can reduce the level of risk through different logical strategies.</p> <p>MFP should give proper and adequate suggestion about finding new prospects.</p> <p>MFP should assist them according to their budget and market condition.</p> <p>They should encourage them through flexible repayment system. They can give them some benefit on timely repayment which can encourage the clients to improve their strategies.</p>
Inequality	<p>Loan distribution</p> <p>Better off are getting more benefit than poor people</p>	<p>As above</p> <p>The main eligibility criteria for MFP is the client should meet certain criteria, it means he should be poor. The financial services should serve only to poor people.</p> <p>MFP should give more priority to those who are really eligible for the loan. It means they should give more incentive to poor people.</p>

Problem	Causes	Possible Solutions
Gender Biased	<p>Provision of loans to men is not enough, although men have more opportunities for income generation.</p> <p>Decision making Power</p> <p>Men's feel uncomfortable by female's involvement in financial activities of home.</p>	<p>Give equal chance to both of them in getting the loans from MFP.</p> <p>Arrange training session especially for female clients to enhance their social, economic and financial skills and their status.</p> <p>Improve their decision making power, boost their confidence and standard.</p> <p>Aware them about the market situations.</p> <p>Counseling for men to convince or motivate them to accept the women's success in financial matters.</p>

Table 3.2: Positive Impact studies of Microfinance on poverty Alleviation

Author	Study Design	Description	Microfinance Intervention	Microfinance Model	Recommendation
Jonas Helth Lonborg & Ole Dahl Rasmussen (2014)	Comparison of treatment and control group	“Can Microfinance Reach the Poorest: Evidence from a Community-Managed Microfinance Intervention”	Income level	Group and Individual Based Lending	To find the reason for drop outs from the program.
Olaf Weber & Adnan Ahmed (2014)	Propensity score matching to determine control and treatment group	“Empowerment through Microfinance: The Relation between Loan Cycle and Level of Empowerment”	Microfinance has significant effect on decision making which empowers the women.	Group and Individual Based Lending	Increase the number of loan cycles
Derin Kent & M.Tina Dacin (2013)	Institutional Theory	“Role of institutional logics in shaping the efficacy of microfinance”	Microfinance helps to improve the enterprise development.	Group and Individual Based Lending	-
Katshushi S. Imai, Ganesh Thapa, Raghav Gaiha & Samuel Kobina Annim (2012)	Panel and Cross sectional Analysis(Pooled OLS , Fixed Effect and Random Effect)	A macro Perspective- Microfinance and Poverty	Microfinance (Gross Loan Portfolio) significantly impact on poverty at macro- level.	Group and Individual Based Lending	Providing more funds to MFI of developing countries instead of government and developed financed institutions

Author	Study Design	Description	Microfinance Intervention	Microfinance Model	Recommendation
Robert J. Kauffman & Frederick J. Riggins (2012)	Review the existing literature	“Information and communication technology and the sustainability of microfinance”	Outreach and Sustainability	Group and Individual Based Lending	-
Tamgid Ahmed Chowdhury & Pundarik Mukhopadhaya (2012)	Comparative Analysis between Non-Governmental organization and Microfinance-driven governmental Organization Projects	Analyze the efficiency of Non-Governmental organization and Microfinance-driven governmental Organization Projects to improve the economic status	Governmental Organization (GO) project positively effect on living standards than NGO’s.	Group Lending	Governmental Organization (GO) project need more focus on social well-being.
C.Van Rooyen. R. Stewart & T.de Wet (2012)	Summarize and evaluate the existing literature	“The Impact of Microfinance in Sub-Saharan Africa: A Systematic Review of the Evidence”	Microfinance positively influence on income, assets, expenditure, education, health, living standard and saving. At the same time some studies shows no impact or negative impact.	Group and Individual Based Lending	-
Wisdom Akpalu, Samuel	Regression Analysis	“Access to microfinance and intra	Enhance the enterprise, women involvement in	Group and Individual Based Lending	-

Erasmus Alnaa & Peter B. Aglobitse (2012)	(Ordinary Least Square with Instrumental Variable)	household business decision making: Implication for efficiency of female owned enterprises in Ghana”	business and decision making process		
Stephen B. Deloach & Ericka Lamanna (2011)	Instrumental Variable Estimation	“Measuring the Impact of Microfinance on Child Health Outcomes in Indonesia”	Microfinance positively effect on child health care, social capital, increase the knowledge about the nutrition	Group and Individual Based Lending	No further recommendations
Muhammad Amjad Saleem, Bakhtiar Khan, Muhammad Imran & Khair us Zaman (2010)	Stratified Sampling (Regression Analysis)	Microfinance has positively influence on living standard of D.I. Khan.	Effect on educational level, health status and financial stability.	Group and Individual Based Lending	Microfinance program should target poor people of the society.

Author	Study Design	Description	Microfinance Intervention	Microfinance Model	Recommendation
Adrian Gonzalez (2010)	Panel data analysis	“Is Microfinance Growing Too Fast?”	Growth policy has significant impact on gross loan portfolio.	Group and Individual Based Lending	
Dean Karlan & Jonathan (2009)	Treatment and Control group (Difference in Difference)	“Expanding Microenterprise Credit Access: Using Randomized Supply Decisions to Estimate the Impacts in Manila”	Expand the access to borrow the loan and expand their business	Group and Individual Based Lending	
Dean Karlan & Jonathan (2008)		“Credit elasticities in less-developed Economies: Implications for microfinance”	Size of loan is more reactive to make adjustment in loan maturity than interest rates.	Group and Individual Based Lending	
Shon R. Hiatt & Warner P. Woodworth (2006)	“Using Kruskal Wallis one-way analysis of variance test”	“Alleviating poverty through microfinance: Village banking outcomes in Central America”	Increased the economic and social status of Microfinance clients	Group and Individual Based Lending	-
Brett E. Coleman (206)	Treatment and Control Group (Difference in Difference)	“Microfinance in Northeast Thailand: Who benefits and how much?”	Microfinance services have significant impact of welfare of household.	Group and Individual Based Lending	Microfinance program has to set eligibility criteria and they have to

					prefer poorer people of the area. The main objective should be outreach and sustainability.
Judith Shaw (2004)	Household Survey data (Control and Treatment Group)	“Microenterprise Occupation and Poverty Reduction in Microfinance Programs: Evidence from Sri Lanka”	Microfinance Program effect on their occupational status. It effect positively on microenterprise occupation.	Group and Individual Based Lending	-

Table 3.3: Impact of Microfinance on Poverty Alleviation (A Critical Assessment)

Author	Study Design	Description	Microfinance Intervention	Microfinance Model	Recommendation
Anis Chowdhury (2009)	Working Paper (review the literature)	“Microfinance as a Poverty Reduction Tool— A Critical Assessment”	Microfinance Program modern strategies for entrepreneur which can influence on poverty is still a big question. But it gives small loans which can effect on their consumption and expenditure. Somehow the clients of microfinance are improving their social and economic condition.	Group and Individual Based Lending	Microfinance should concentrate on poor and follow the policies of government which can help to enhance the socio and economic status of poor people.