Influence of Microfinance on Poverty Reduction in Pakistan: An Analytical Approach

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Abstract

This study's goal is to empirically examine how microfinance tools have affected Pakistan's efforts to combat poverty. The panel data of Pakistani microfinance institutions—both deposit-taking and non-deposit-taking institutions—was selected from Microfinance Information Exchange (MIX) and the World Bank data resources between 2004 and 2018. Due to the presence of endogeneity and heteroskedasticity in the model we apply One Step Robust System GMM model. This paper's major objective is to determine how gross loan portfolio affects the country's efforts to combat poverty. The assertion made in the hypothesis that there is a negative association between them was disproved by our findings. The other macro level control variable unemployment rates is significant and accepting the hypothesis that unemployment is negative to poverty. When applied to the regression analysis, the other variables show that OSS and TA are negatively related to poverty. This suggests that loans should be distributed through large size microfinance institutions that are capable of sustaining themselves in such a way that it will increase employment, which will ultimately lead to a reduction in poverty.

Keywords: *MFIs, GLP, poverty, unemployment, OSS, TA, GMM model, panel data*

JEL code: G21

Introduction

Throughout our world, there are roughly 6 billion people, 2.8 billion of whom live on less than $2 per day, and 1.2 billion on less than $1. The estimations were highlighted in the World Bank, 2001 report to emphasise how widespread poverty has become. But on the other hand over the past ten years, Pakistan has experienced a continuing decline in the number of people living in poverty, and both the national and provincial levels of government may see this trend. Over the previous ten years, the proportion of persons living in poverty has considerably dropped, dropping from 50.4% in 2006 to 24.3% in 2016. In 2016, the number of individuals living in poverty in urban areas was 12.5%, compared to 30.7% in rural areas. This suggests that both urban and rural areas are experiencing a drop in poverty. Compared to rural areas, metropolitan areas show the most noticeable decrease in the proportion of individuals living in poverty (Pakistan Economic Survey, 2018)

Akanji, 2001 described the methods of curbing the poverty according to him, initially economic growth was considered as the factor to reduce the poverty. Morduch, 2000 and Morduch, 1999 developed and stressed the institutional approach as a means of reducing poverty; this approach proposed that, in order to improve the lives of the poor, commercial self-sustained institutions must be developed, government performance must be improved, and political structures and attitudes toward the poor must change. Akanji, 2001 is of the opinion that due to the government's failure, NGOs stepped up and gave funds to the needy so they could meet their fundamental needs. These funding programmes were replaced by microfinance programmes due to the risk factor as well as other factors, a business plan in the private sector that uses insurance and high interest rates to be risk-free and self-sustaining. Finally, he examined the relevance of the shift in emphasis toward encouraging saving among the poor.

Microfinance organisations are quickly becoming the most important institution in the battle against global poverty. The most effective approach was one that was based on the informal sector and had low prices and easy access. In the 1980s, the Aga Khan Rural Support Programme (AKRSP), a non-governmental organisation, was founded in the northern region to improve infrastructure and community-based organisations. This programme was part of the formal sector. The Pakistan Poverty Alleviation Fund (PPAF) was established in 1997 as a private

corporation that did not seek to make a profit. The Pakistani government served as the organization's sponsor, while the World Bank provided the funding. It was motivated by the achievements of Bangladesh's PKSF, an organisation that is primarily concerned with microfinance. In addition, the government encouraged the private sector to build microfinance institutions, which resulted in the development of nine such institutions between the years 2001 and 2018. (Q.compendium, 2020), (PMR, 2018)

Although the commercial and non-governmental organisation (NGO) sectors have been lending for many years, the government is relatively new to the microfinance industry. Women and other small business owners can obtain microcredit from non-governmental organisations. Microfinance provided by non-governmental organisations has been beneficial to around 300,000 people, the majority of whom are women. The nongovernmental organisations (NGOs) working in Pakistan's microfinance sector have gained national and international recognition for their efforts and have established the Pakistan Microfinance Network as a forum in which they can discuss and share their ideas. Microfinance has been recognised for its potential and effectiveness by the government, as well as the private and nongovernmental sectors, and some businesses in the private sector are mulling over whether or not to enter the microfinance industry for the sole purpose of making a profit. These businesses have realised that there is a very large demand for credit that must be satisfied, and that customers are willing to pay a high price for the use of financial capital. (S.Akbar et al., 2007).

Literature Review

Liabilities to society are supported by a microfinance subsidiary base funding, and from the early 1950s until the 1980s, several countries' development plans focused on reducing poverty by offering subsidised credit; nevertheless, in the perspective of Morduch, 1999, these experiences were nearly all failures. He went on to explain in his article **Morduch**, 2000 that in order to keep microfinance in even the breakeven position, the poor must pay higher interest rates. He contends that people who are unable to pay that much interest are destitute and deserve contributions rather than credit. According to Cull et al., 2007, microfinance promises to eradicate poverty by implementing profitable banking methods in underprivileged areas. Empirically, microfinance loans (gross loan portfolio) considerably lower poverty, as shown by K. Imai et al., 2010; Nadiya et al., 2012, Crombrugghe et al., 2008; Nadiya, 2013, Thanh et al.,

2020, K. S. Imai et al., 2012, Farah et al., 2019, Hossain & Khan, 2016. K. Imai et al., 2010 shown that a country tends to have lower poverty measures when the gross loan portfolio per capita of MFIs is higher. The population has a negative association with poverty, while unemployment and inflation both have a negative link with it, according to Meo et al., 2018, who analysed annual data from 1970 to 2016 to analyse influence of inflation and unemployment on poverty in Pakistan. By using the 2SLS technique, Miled & Rejeb, 2015 also shown how poverty, as defined by the head count ratio, significantly impacted by the total loan portfolio of microfinance. Khandker, 2005 Using panel data from Bangladesh, this paper explores how microfinance affects the overall and participant levels of poverty reduction. The findings suggested that having access to microfinance helps reduce poverty, notably for the female participants, as well as general poverty at the village level. Samer et al., 2015 carried out a survey in the form of a cross-section in which a total of 780 clients of the Amanah Ikhtiar Malaysia (AIM) microfinance institute were interviewed. The findings demonstrated that AIM had a favourable effect on the household income of its female borrowers, which, in turn, contributed to the reduction of poverty in the region. Inpaeng & Phouphet, 2015 also found that the village development fund contributes to the rise in household I ncome and lowering poverty in the area by collecting cross-sectional data from 361 households in 15 villages in the rural district of Sukhuma of Champasak province. The majority of recent research on the effects of microfinance on poverty or income, including those by (David & Mosley, 1996), (K. S. Imai et al., 2010), (Khandker, 2005), (Mosley, 2001), and K. S. Imai et al., 2012, have relied on micro-level evidence from household data or entrepreneurial data.

Studies of the effect of microfinance on poverty at the macro level are very rare due to the lack of trustworthy macro statistics on microfinance. Ahlin et al., 2011, Ahlin & Lin, 2006, Kai & Hamori, 2009, Ahmad & Riaz, 2012 and Forgha, 2006 found the strong positive relationship between poverty and unemployment. On the other hand, there are a few publications that were published not too long ago that study the relationship between the macro economy and the activities and/or performance of microfinance. According to Osinubi, Simbowale, 2005, poverty and unemployment have a negative association despite the fact that poverty and unemployment are significantly associated. According to Gillani et al., 2009, poverty and GDP growth have a negative association.

Significance of this study

The studies as shown above revealed that we can analyse the macro-variable with the microfinance variables. On the basis of this when we analyse the impact of poverty on the microfinance variables like GLP, LTA, OSS and other macro-variable like GDPG and UNR. GLP result shows that loan of microfinance cannot contribute to the reduction in poverty. This suggested that those loan are not provided to the microenterprises, which contributing for the poverty reduction. The result of unemployment suggesting that unemployment is increasing in Pakistan but our poverty level is decreasing. The policies of the government should be to reduce the unemployment in the region which are more prone for poverty.   If loans of MFIs are distributing in such a way that it enhance the employment opportunity by reducing the poverty level in Pakistan. So instead of providing the loan for consumption should be given to enterprises that will generate the employment and ultimately reduce the poverty in Pakistan. So there in a need to have a comprehensive study to suggest the variables of microfinance that have influence the employment generation in Pakistan. The result also shows that more self-sustainable microfinance institutions are reducing the poverty in Pakistan. The self-sufficiency is through institutional approach that is through commercial banking as suggested by Morduch, 2000, Morduch, 1999, Cull et al., 2007, or the Welfarist approach suggested by Amir & Anam, 2019, Malkhaz, 2015, Roy & Pati, 2019 and Dichter & Harper, 2007 which emphasised the breadth of outreach. This hot debate circulating around the researchers worldwide should be addressed in Pakistan. Small size institutes are contributing for the poverty reduction in Pakistan is also an important finding that government and stake holders in microfinance industry should emphasise the small institution because their operation cost is low and they can reach the far flung areas of Pakistan easily.

Methodology

Data source and variables

All of the independent variables exhibit very little correlation, as displayed in table 2 of the correlation matrix. The macro-variables, such as unemployment rate, GDP growth rate, and poverty ratio, are sourced from the World Bank website and Pakistan Economic Survey Report, which is published by the Ministry of Finance. The variables that demonstrate the performance

of microfinance are taken from the microfinance information and exchange (MIX) source. Due to the fact that microfinance has grown over time and has been reported to MIX data source over a range of years, the unbalanced panel data has been gathered from 2003 to 2018 for this reason. Many scholars, including (Ahlin et al., 2011), (Cull et al., 2007)212, (Ehiabhi, Andrew, 2019), (Oluseye, 2017), 212 and (K. S. Imai et al., 2012) and others, have used MIX as a source for their analyses. Microfinance and macro-level variable are selected for analysis and their detail are shown as under

Table 1

VARIABLES	Unit	Obser vations	Mean	Std. dev	Minimum	Maximum
POV	ratio	392	34.75	9.22	24.3	51.7
OSS	ratio	421	1.0109	0 .4611	0. 0108	2.7871
LTA	log	420	20.43	1.89	15.612	24.97
GLP	value	421	2.21e+09	4.99e+09	763307	4.35e+10
GDPG	ratio	421	4.714	1.939	1.61	10.64
UNR	ratio	421	2.893	2.358	0 .4	8.45
TA	value	421	3.67e+09	8.18e+09	6029040	7.05e+10

POV= Poverty headcount ratio at national poverty lines (% of population). In this framework, poverty is a reliant variable. Poverty is calculated on a national scale using a ratio of population size. Table 1 shows that poverty rates in Pakistan ranged from 24.3% to 55.6%, on average, with a score of 34.53. The majority of the poor within the time frame (25-30%) remained in that bracket, as seen in Graph 1. Pakistan's poverty rate is falling, as shown in Graph 2, which backs up a finding from the 2018 Pakistan Economic Survey. This report suggested that the declining trend in Pakistan's poverty headcount is encouraging and reassuring, despite the 2010 floods, ongoing energy shortages, deteriorating security, and the government's limited capacity to mobilise and direct its own resources exclusively for social welfare and poverty eradication programmes.
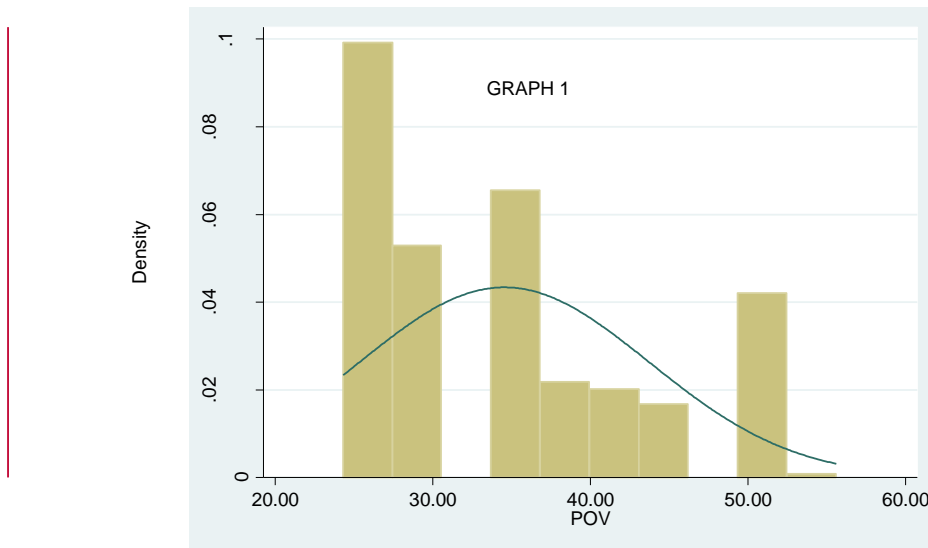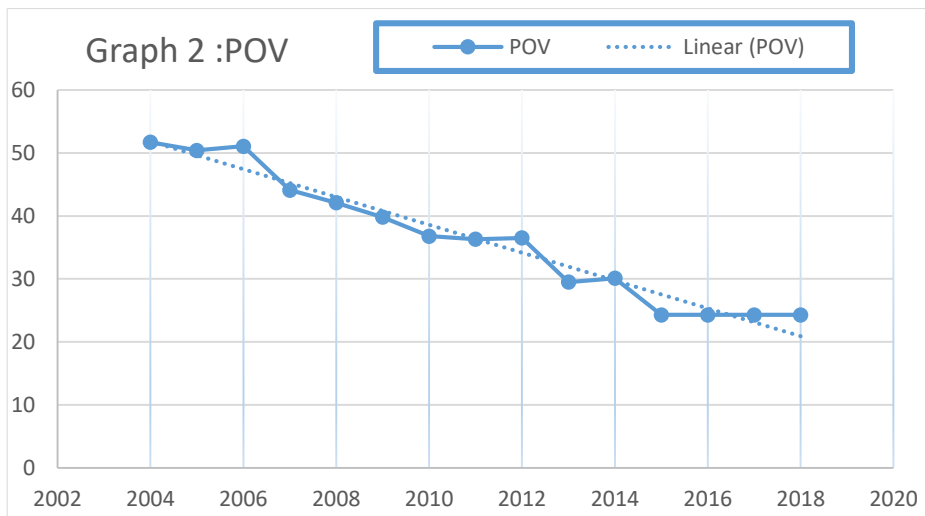
Figure 1

Figure 2

GDPG= GDP growth rate at constant factor cost (Base Year 2005-06) is independent variable. The data is extracted from Pakistan Economic survey. From table 3 for the time period 2003 to 2018 minimum GDP growth was 2.6 percent and maximum was 7.5 percent and from graph 4 mostly the values lies around 4 percent.
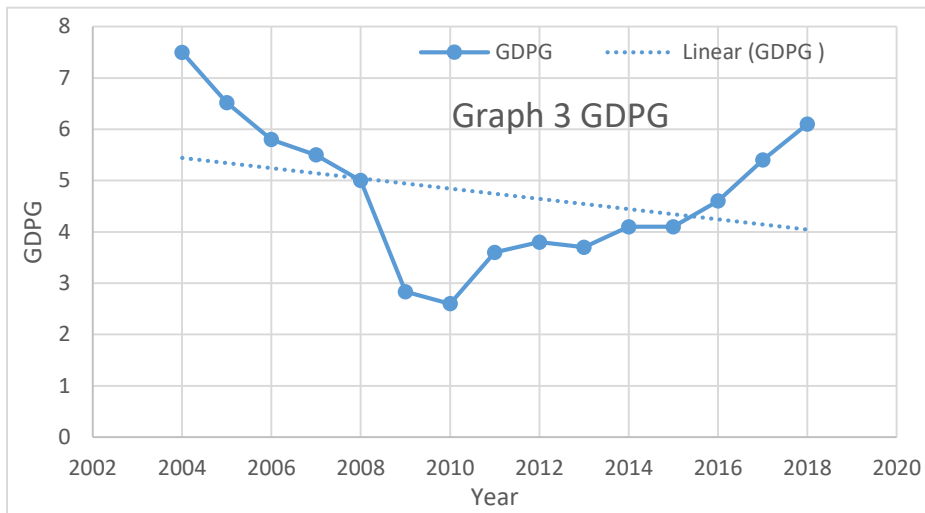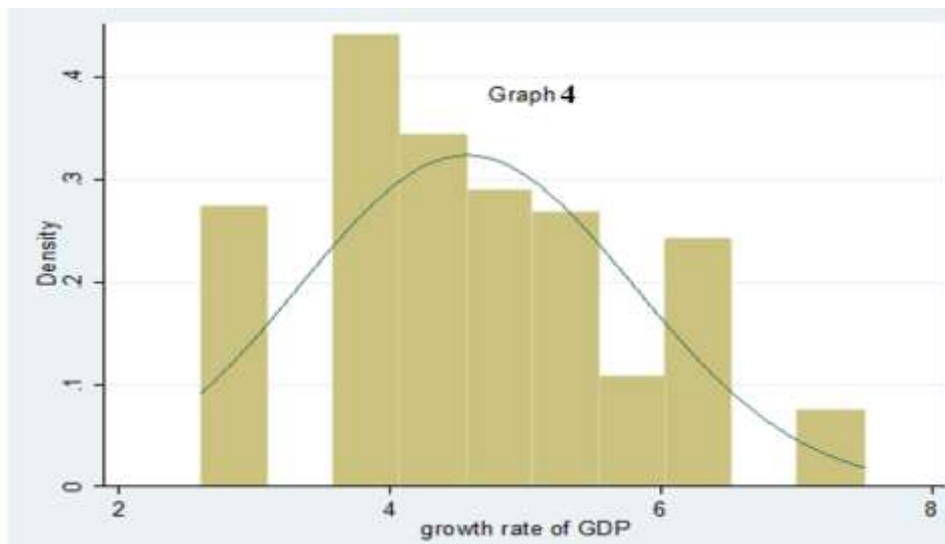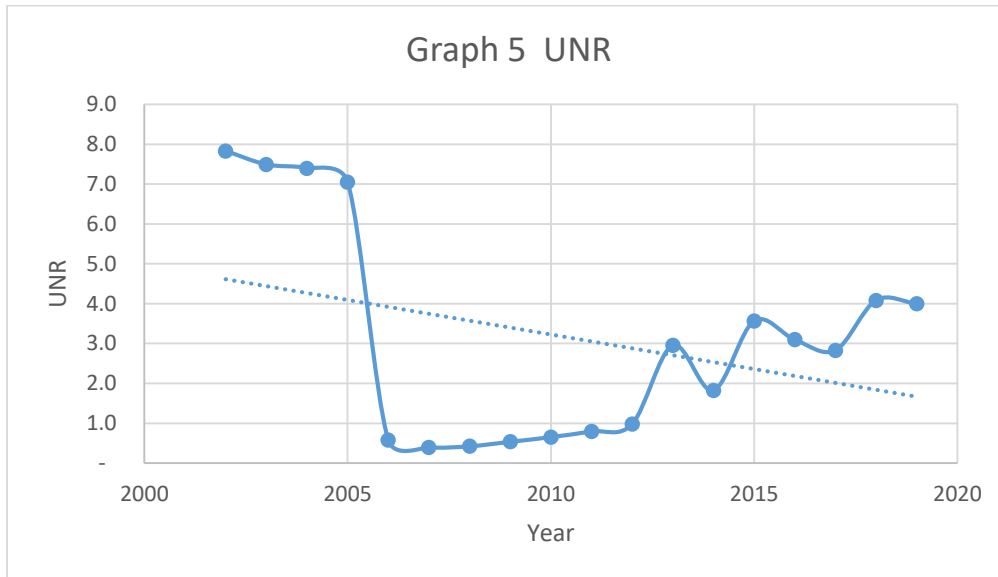
Figure 3

Figure 4

UNR= the unemployment rate overall, expressed as a percentage of the entire labor force (national estimate). The percentage of a labour force that does not have paid employment despite being available for and looking for work is referred to as the unemployment rate. The terms labour force and unemployment are defined differently in each country. As in graph 5 unemployment rate is highest in 2004 7.4 then it declined sharply in 2006 to 0.58 and now increasing and reached to 4.08 in 2018. Which is also depicted in table 1. The histogram graph 7 shows that most of the values are around 1 percent.

Figure 5

Graph 6 shows the relationship between UNR, GDPG and POV, which quit significant that poverty in Pakistan is declining, but on the other hand unemployment and GDP growth is increasing marginally or slightly.
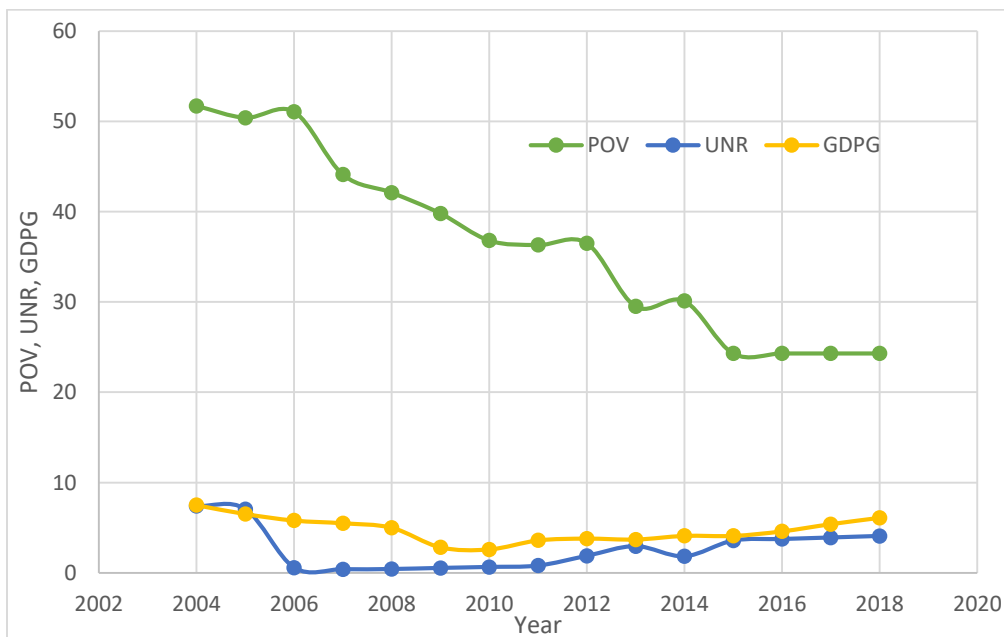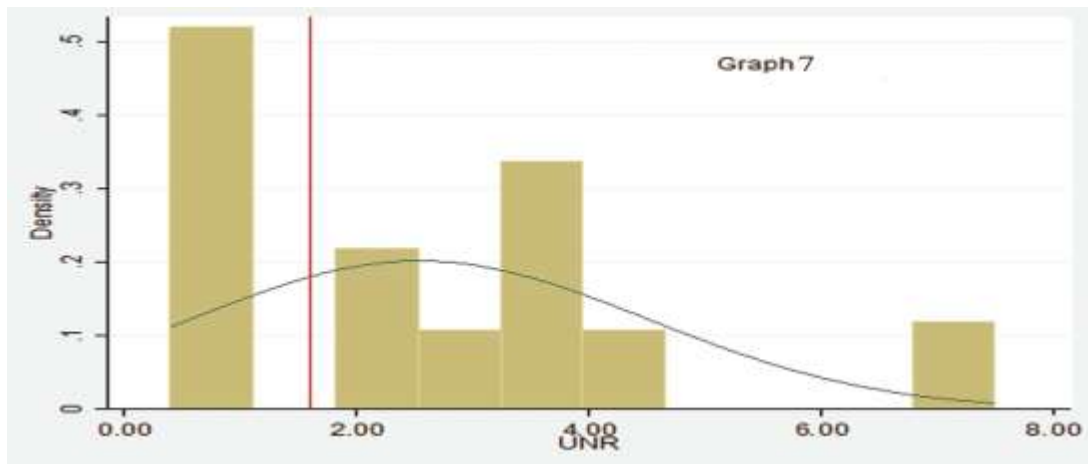
Figure 6

Figure 7

OSS = Operational self-sufficiency (OSS) is a ratio used by Microfinance Institutions (MFIs) to assess their ability to cover operating expenses with operating revenues. Operational revenues include interest from loans and fees and commissions. Total cost includes operating, financial, and loan-loss impairment costs. Financial and impairment expenses are factored in because they can be substantial. OSS ratio highlights the company's primary revenues and costs. 100% indicates break-even in OSS. The MFI is doing well if its ratio is above 100% or 1. If it's less than 100%, MFI is losing money. The MFI may need to increase operating income or reduce overall expenses to raise the ratio. Table 1 shows that the OSS is above one, and the histogram graph 8 shows that most values are on the right.
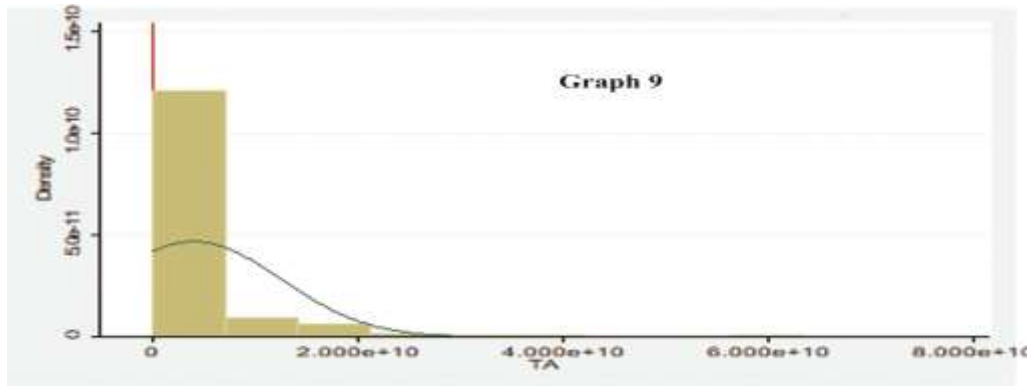
Figure 8
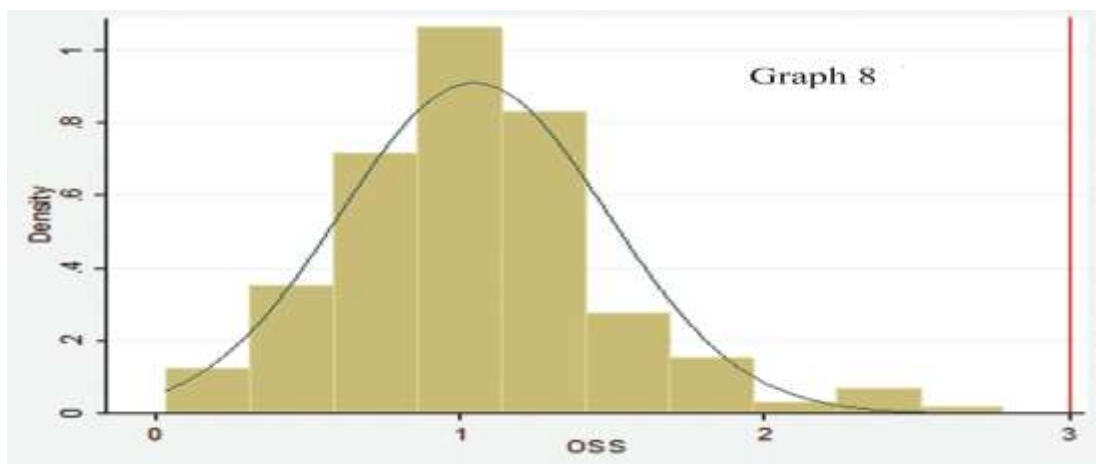
LTA = Log value of total asset. Total asset shows the size of MFIs, the table 1 suggesting that the TA on average during 2003 to 2018 was Rs. 3.99 billion. The smallest size of MFI in this

data worth Rs.1.94 billion and the largest one is worth of Rs. 70.5 billion. The graph 9 shows that mostly the MFIs size is less than Rs 10 billion.

Figure 9

GLP= Use the term "gross loan portfolio" when discussing the total outstanding principle balance of all outstanding client loans, including current, late, and restricted client loans. This includes all outstanding client loans. However, this does not take into account any interest or customer loans that have already been paid off. As can be seen in table 1, microfinance institutions in Pakistan distribute an average of Rs 2.4 billion in loans each year. During the period covered by this report, the loans ranged from a minimum of Rs. 7.6 lacks to a maximum of Rs. 43 billion. According to the histogram depicted in graph 10, the vast majority of MFIs had annual distributions of less than Rs. 5 billion.
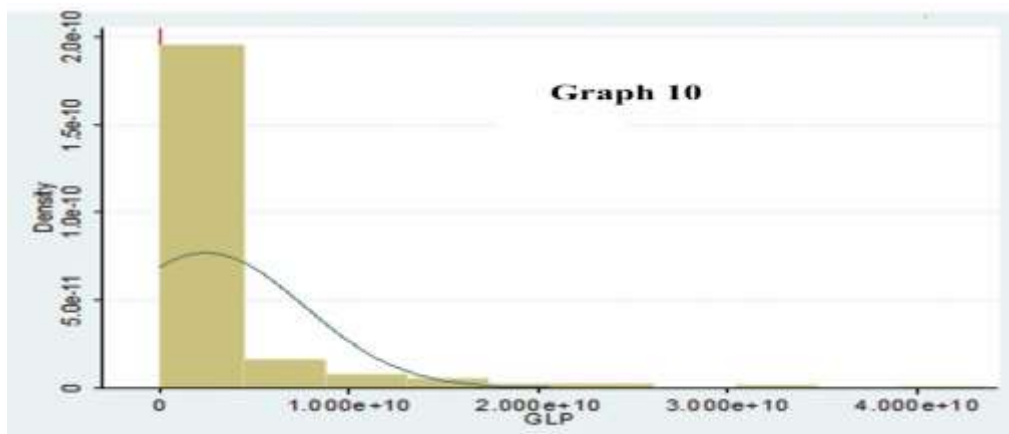
Figure 9

Table 2

Table 2	OSS	LTA	GLP	GDPG	UNR	cons.
OSS	1.0					
LTA	-0.1855	1.00				
GLP	0.0010	-0.6575	1.0			
GDPG	-0.0961	0.0183	-0.0697	1.0000		
UNR	0.0359	0.0224	-0.0439	-0.7696	1.0000	
cons	0.0531	-0.9681	0.6530	-0.1905	0.0655	1.0000

Model specification and Hypothesis

The purpose of this paper is to investigate the impact of microfinance on the rise of poverty in Pakistan. The majority of recent studies on the impact of microfinance on poverty or income have relied on micro-level data from households or businesses, such as Hulme & Mosley, 1996 research, K. S. Imai et al., 2010, Khandker, 2005 , and K. S. Imai et al., 2010. For example, K. S. Imai et al., 2012, Hulme & Mosley, 1996 , K. S. Imai et al., 2010 were of the opinion that the availability of trustworthy macro data on microfinance is quite limited, which means that studies on the effect that microfinance has on poverty at a macro level are rather restricted. On the other hand, there have been several recent studies that study the relationship between the macro economy and the operations and/or performance of microfinance institutions. These studies consist of, among others, the ones done by Ahlin et al., 2011, Ahlin & Lin, 2006, and Kai & Hamori, 2009, amongst others. For this we use poverty as a dependent variable which is a macro level variable and its impact on micro finance variables as describe above. Using the panel data of 34 microfinance institutions during 2002 to 2018. When using panel data it is recommended by different researchers like Cull et al., 2007, Naz et al., 2019, Beg, 2016 and Rahman & Mazlan, 2014 to apply the pool OLS, random model, fixed effect model. If found endogeneity we will apply the Arellano– Bond's GMM model as recommended by Chikalipah, 2017, Banto & Monsia, 2021 and Ullah et al., 2017. Breusch-Pagan/Cook-Weisberg and White's tests are applied to check the heteroskedasticity, to check the endogeneity we applied Durbin (score) and Wu-Hausman tests, VIF test was applied to check the autocorrelation and to select between random and fixed effect we apply Hausman test suggested by the above mentioned researchers

and others Breusch & Pagan, 1979, Bassett & Koenker, 1978, WHITE, 1978. Gujarati, 2013 pp385-388. These regression and diagnostic tools are applied by using STATA software. The hypothesis which we developed from review of literature is that Gross loan portfolio as the indicator of the performance of MFIs is negatively related to poverty as suggested by Miled & Rejeb, 2015, K. S. Imai et al., 2012, Hulme & Mosley, 1996; Pitt et al., 2003; Copestake et al., 2001and Khandker, 2005.

The hypothesis we develop from the review of literature is summarize in table 3 which shows that

1. H0: GLP has a negative impact on poverty
2. H1: OSS can impact poverty positively and will reduce the poverty
3. H2: Showed the negative relationship between TA and POV
4. H3: UNR shows positive relationship with poverty

Table 3

Result and hypothesis with references

Variables	Definition	Hypothesis	Result	Rejection/acceptance of hypothesis
GLP	Gross loan portfolio	H0: GLP has a negative impact on poverty. Accepted H0: by (Nadiya et al., 2012), (Crombrugghe et al. 2008); Nadiya (2014), (Thanh et al., 2020), (K. S. Imai et al., 2012), (Farah et al., 2019), (Hossain & Khan, 2016), Reject H0: by (Miled & Rejeb, 2015)	Significant and negative	Accept the hypothesis under OLS, random effect, fixed effect models Reject the hypothesis in GMM system model
OSS	Operational self-sufficiency OSS= operation revenue / (Financial expenses+ operation	Financial sustainability indirectly effect the poverty according to these studies (Morduch, 2000), (Morduch, 1999), (Cull et al., 2007) H1: OSS can impact poverty positively and will reduce the poverty	Significant and negative	Accept the hypothesis under OLS, random effect, fixed effect and one system GMM models

		expenses + impairment expenses)		
TA	Total Asset	Number studies showed the indirect impact of TA on poverty. (Khan, Ahmad et al., 2017), (Beg, 2016), (Farah et al., 2019), (Hossain & Khan, 2016) H2: showed the positive relationship between financial sustainability and TA which ultimately reduce poverty	Significant and negative	Accept the hypothesis under OLS, random effect, fixed effect and one system GMM models.
GDPG	Growth of Gross domestic product	H3: negative relationship with poverty (Gillani et al., 2009),	Significant and positive relationship	Reject the hypothesis under OLS, random effect, fixed effect and one system GMM models.
UNR	Unemploymen t rate	H4: positive/ negative relationship with poverty (Meo et al., 2018), (Ahmad & Riaz, 2012), (Forgha, 2006), (Gillani et al., 2009) -ve ralation (Osinubi, Simbowale, 2005),	Significant and negative	Accepting the hypothesis under OLS, random effect, fixed effect and one system GMM models by (Osinubi, Simbowale, 2005),

Results

Table 3 displays the findings of the OLS, random, and fixed effect models. Table 10 displays the results of the GMM system model, and Tables 4, 5, 6, 7, and 8 display the results of their diagnostic tests. When using the polled OLS model, all the variables are significant. However, when using the random and fixed effect robust models, OSS is insignificant, GLP is insignificant under the fixed robust effect model, and GDPG is insignificant when using the one system GMM model. Except for GDPG, all the other variables are inversely associated to poverty, and the GMM result indicates that GLP is inversely related to poverty. Table 3 displays the outcomes of models that accept the null hypothesis when OLS, random effect, fixed effect, and GMM system models are used. However, GLP rejects the hypothesis under the GMM system model while accepting it under the OLS, random effect, and fixed effect models. In table 3 the GDPG results suggest the rejection of hypothesis and UNR result shows the mix of acceptance and rejection.

Table 4 displays the results of the VIF test, which suggest that there is no multicollinearity because VIF values for all variables are less than 5. The Breusch-Pagan/Cook-Weisberg/White tests for heteroskedasticity in tables 5 and table 6 indicate that the model contains heteroskedasticity. Table 8 Hausman test state that a fixed effect model would be more suited for this research; nonetheless, a GMM model should be suggested due to endogeneity present in one of the variables, GDPG, among the independent variables shows in table 7. Finally we use a robust system GMM model to prevent heteroskedasticity and endogeneity in the model.

Table 4

Multicollinearity VIF test**:**

VARIABLES	VIF
OSS	1.08
LTA	1.89
GLP	1.88
GDPG	2.57
UNR	2.54
Mean VIF	**1.99**

VIF of all variables are less than 5 indicate no multicollinearity

Table 5

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Homoskedasticity   Ha: heteroskedasticity

Tests	Result
F-stat	4.55
Prob > F-stat	0.0330
We reject Ho and accept Ha heteroskedasticity present	

Table 6
White's test of Heteroskedasticity
Ho: Homoskedasticity   Ha: heteroskedasticity

Tests	Result
chi2(20)	242.98
Prob > chi2	0.00000
We reject Ho and accept Ha heteroskedasticity present	

Table 7
Post-estimations

Endogenous Variables	Tests of endogeneity		First-stage regression the strength of instruments			Tests of over-identifying restrictions	
	Durbin (score) chi^2 (p-value)	Wu-Hausman F-stat(P-value)	Endogenous variable F-stat	2SL Wald test (10%)	LIML Wald test (10%)	Sargan (score) chi2	Basmann chi2
OSS	5.693 *** (p = 0.017)	5.68865 (p = 0.0176)	146.496	26.87	4.84	0.000	0.000
LTA	0.005p = 0.939	0.0057 p = 0.93	1104.45	26.87	4.84	0.000	0.000
GLP	.03114(p = .85)	0.015 p = .902	1158.77	26.87	4.84	0.000	0.000
GDPG	3.3716*** p = 0.066	3.34577 p = 0.068	68.2303	26.87	4.84	0.000	0.000
UNR	1.96097 p = .1614	1.93794 p = 0.1648	26.78***	26.87	4.84	0.000	0.000
H0	variable is exogenous		Instrument is strong			Instrument is over-estimated	
Reject Ho *** Instrument is weak *** Instrument is over estimated ***							

Table 8

Hausman Test	Chi-Sq. Statistic	Chi- Sq Prob.
	341.31	0.0000
Ho: Accept random effect Ha: Accept fixed effect		
Result : Accept Fixed effect and reject Ho		

The system GMM result

$$POV = 0.81674 POV(-1) - 0.14109\ LTA - 1.4145\ OSS + 4.91e\text{-}11\ GLP + 0.79663\ GDPG -$$

$$(0,000) \qquad (0.089) \qquad (0.036) \qquad (0.097) \qquad (0.000)$$

$$0.3820\ UNR \qquad\qquad \text{----------------------------------- 1}$$

$$(0.043)$$

According to Eq. 1's interpretation of the system GMM model's results, the poverty rate increased by 0.8167 units for every unit that the leg value of poverty increased. The operational self-sustainability (OSS) or self-sustaining MFIs increased by one unit in Pakistan decreased poverty by 1.4145 units. Self-sufficient and sustainable microfinance institutions are able to reduce the poverty level in Pakistan. As shown in the table3 this result signifies the hypothesis and results of (Morduch, 2000), (Morduch, 1999) and (Cull et al., 2007). One unit increase in LTA, which measures the MFI's size, reduced poverty by 0.14109 units indicating that small MFIs are better suited to reducing poverty. As given in table 3 this result is according to the results of (Khan, Ahmad et al., 2017), (Beg, 2016), (Farah et al., 2019), (Hossain & Khan, 2016), therefore we accept the hypothesis. The GLP results indicate that microfinance loans in Pakistan are not helping the poor to reduce poverty. This significant result do not verifies the findings of (Nadiya et al., 2012), Crombrugghe et al. (2008); Nadiya (2014), (Thanh et al., 2020), (K. S. Imai et al., 2012), (Farah et al., 2019) and (Hossain & Khan, 2016), therefore reject the hypothesis.

Since GDP growth's is an instrumental variable therefore we do not interoperate the results. The poverty level in Pakistan rose by 0.3820 units for every unit decrease in unemployment. The rise in poverty in Pakistan is being exacerbated by unemployment. One unit increase in unemployment rate (UNR), decreases the poverty level by 40%, which is in accordance with the study of (Osinubi, Simbowale, 2005).

Table 9

Table9 Variables	Pooled OLS regression model	Fixed effect regression model	Random effects regression	Fixed effect Robust regression model
Dependent	POV	POV	POV	POV
C	(68.311)***	(147.339)***	(126.881) ***	(147.339) ***
	{0.000}	{0.000}	{0.000 }	{0.000}
	[11.33]	[22.93]	[19.84]	[10.09]
OSS	(-5.52)***	(-2.6313)	(-3.6561) ***	(-2.6313)
	{0.000}	{-2.93}	{0.000}	{ 0.152}
	[-5.97]	[-0.04]	[-3.99]	[-1.46]
LTA	(-1.48)***	(-5.5125)***	(-4.544) ***	(-5.5125) ***
	{0.000}	{0.000}	{0.000}	{0.000}
	[-4.97]	[-16.88]	[-14.08]	[-7.55]
GLP	(-1.86e-10)***	(-1.11e-10)***	(-1.60e-10) ***	(-1.11e-10)
	{0.082}	{0.170}	{ 0.059}	{ 0.357 }
	[-1.74]	[-1.37]	[-1.89]	[-0.93]
GDPG	(1.298)***	(1.3489)***	(1.360) ***	(1.34893) ***
	{0.001}	{0.000}	{0.000}	{0.000}
	[3.24]	[5.06]	[4.77]	[5.85]
UNR	(-1.051)***	(-.86607)**	(-0.8930) ***	(-0.8660) **
	{0.001}	{0.000}	{0.000}	{0.000}
	[-3.31]	[-4.15]	[-4.00]	[-6.56]
R^2	0.2764	within= 0.6469	within = 0.6429	within = 0.6469
Adj. R^2	0.2670			
F- statistics	29.42	127.85	sigma_u= 5.6855 sigma_e = 5.118	Sigma u = 10.31 sigma_e = 5.11
P-value (F)	0.0000	0.0000		
No. of observations	391	391	391	391
Values in parentheses () are coefficient, values in bracket {} are P>|t|, and values in bracket [] are t-statistics. *** significant at 5% ** significant at 10%				

Table 10

Variables	0ne step System GMM regression model Small, robust, collapse
Dependent	POV
POV(-1)	(0 .81674)***
	{0.000}
	[25.07]
OSS	(-1.4145)***
	{0.036}
	[-2.18]
LTA	(-0.14109)**
	{ 0.089 }
	[-1.75]
GLP	(4.91e-11)**
	{ 0.097}
	[1.71]
GDPG	(0 .79663)***
	{ 0.000}
	[5.82]
UNR	(-0.3820)***
	{ 0.043 }
	[-2.10]
SNumber of obs	317
Number of groups	36
Number of instruments	18
F(8, 337)	
Prob > F	
Arellano-Bond test for AR(2) in first differences:	z = 4.90 Pr > z = 0.000
Arellano-Bond test for AR(1) in first differences:	z = -5.11 Pr > z = 0.000

Conclusion

In this study, we make use of the unbalanced panel data of 34 different MFIs operating in Pakistan between the years 2003 and 2018. When doing the empirical research, we use models such as polled OLS, fixed effect, random effect, robust fixed effect, and robust one step system GMM. According to the results of the diagnostic tests, the GMM model is the most appropriate one for the analysis. As a result, we make use of the System GMM model with poverty functioning as the dependent variable; GLP, LTA, OSS, and GDPG function as independent

variables; and the leg value of each of the independent variables function as instrumental variables. Based on the findings, it appears that loans (GLP) from microfinance are not being distributed to the poor in a manner that may lead to a reduction in poverty in Pakistan. As a result of unemployment, it is suggested that loans should be provided in a way that makes employment opportunities improved. Microfinance loans of a modest amount are making a contribution to the fight against poverty. Institutions that can support themselves without outside assistance are preferable for alleviating poverty in Pakistan. Because of these results, we are able to draw the conclusion that if loans from MFIs are distributed through small size microfinance institutions that are self-sufficient and that can boost employment opportunities, then it will result in a reduction in the level of poverty in Pakistan.

References

Ahlin, C., & Lin, J. (2006). Luck or Skill? MFI Performance in Macroeconomic Context. *October*, *132*, 1–37.

Ahlin, C., Lin, J., & Maio, M. (2011). Where does microfinance flourish? Microfinance institution performance in macroeconomic context. *Journal of Development Economics*, *95*(2), 105–120. https://doi.org/10.1016/j.jdeveco.2010.04.004

Ahmad, K., & Riaz, A. (2012). An Econometric Model of Poverty in Pakistan: ARDL Approach to Co-Integration. *Asian Journal of Business and Management Sciences*, *1*(3), 75–84. www.ajbms.org

Akanji, O. o. (2001). Micro-finance as a strategy for poverty reduction by o.o. akanji. *CBN ECONOMIC & FINANCIAL REVIEW*, *39*(4), 111-134.

Amir, S., & Anam, T. (2019). Microfinance as a Vehicle of Liberal Political Ideals and Pakistani State. *PUTAJ – Humanities and Social Sciences*, *26*(1), 67–90.

Banto, J. M., & Monsia, A. F. (2021). Microfinance institutions, banking, growth and transmission channel: A GMM panel data analysis from developing countries. *Quarterly Review of Economics and Finance*, *79*, 126–150. https://doi.org/10.1016/j.qref.2020.06.004

Bassett, G., & Koenker, R. (1978). Asymptotic theory of least absolute error regression. *Journal of the American Statistical Association*, *73*(363), 618–622. https://doi.org/10.1080/01621459.1978.10480065

Beg, K. (2016). Determinants of Financial Self Sufficiency of Andhra Pradesh Microfinance Institutions. *Journal of Business & Financial Affairs*, *5*(3), 1–9. https://doi.org/10.4172/2167-0234.1000209

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica*, *47*(5), 1287–1294.

Chikalipah, S. (2017). Financial sustainability of microfinance institutions in sub-Saharan Africa: Evidence from GMM estimates. *Enterprise Development and Microfinance*, *28*(3), 182–199. https://doi.org/10.3362/1755-1986.16-00023

Copestake, J., Bhalotra, S., & Johnson, S. (2001). Assessing the impact of microcredit: A Zambian case study. *Journal of Development Studies*, *37*(4), 81–100. https://doi.org/10.1080/00220380412331322051

Crombrugghe, D., Michel, T., & Julie, S. (2008). Performance analysis for a sample of microfinance institutions in India. *Annals of Public and Cooperative Economics*, *79*(3), 269–299.

Cull, R., Demirgüc-Kunt, A., & Morduch, J. (2007). FINANCIAL PERFORMANCE AND OUTREACH: A GLOBAL ANALYSIS OF LEADING MICROBANKS. *The Economic Journal*, *117*(2001), F107-133. http://www.mixmarket.org

David, H., & Mosley, P. (1996). *Finance against poverty vol 1*. Routledge.

Dichter, T., & Harper, M. (2007). *What's wrong with microfinance?* (T. Dichter & M. Harper (eds.); 1st ed.). Practical Action Publishing Ltd Schumacher. www.practicalactionpublishing.org%0A

Ehiabhi, Andrew, T. (2019). Analysis of the Effect of Microfinance Institutions on Poverty Reduction in Nigeria. *Academic Journal of Economic Studies*, *2*, 114–119.

Farah, N., Sarah, S., Ramiz ur, R., Muhammad, Ishfaq, A., & Rizwan, A. (2019). Determinants of financial sustainability of microfinance institutions in Pakistan. *Upravlenets*, *10*(4), 51–64. https://doi.org/10.29141/2218-5003-2019-10-4-5

Forgha, N. G. (2006). Econometric model of Poverty in Cameroon: A System Estimation Approach. *International Review and Business Research*, *2*(2), 30–46.

Gillani, S. Y. M., Rehman, H. U., & Gill, A. rasheed. (2009). Unemployment, Poverty, Inflation and Crime Nexus: Cointegration and Causality Analysis of Pakistan. *Pakistan Economic and Social Review*, *47*(1), 79–98. https://www.jstor.org/stable/25825343

Gujarati, D. N. (2013). Basic Econometrics. In *McGraw-Hill* (5th ed.). Douglas Reiner.

Hossain, S., & Khan, M. A. (2016). Developing Country Studies Financial Sustainability of Microfinance Institutions (MFIs) of Bangladesh Related papers. *Developing Country Studies*, *6*(6), 69–78.

Hulme, D., & Mosley, P. (1996). *Finance against poverty* (2nd ed.). Routledge.

Imai, K., GAIHA, R., THAPA, G., & ANNIM, S. (2010). Analysis of Poverty Reducing Effects of Microfinance from a Macro Perspective: Evidence from Cross-Country Data. *Research Institute for Economics and Business Administration*, *January*. http://www.rieb.kobe-u.ac.jp/academic/ra/dp/English/DP2010-25.pdf

Imai, K. S., Arun, T., & Annim, S. K. (2010). Microfinance and Household Poverty Reduction: New Evidence from India. *World Development*, *38*(12), 1760–1774. https://doi.org/10.1016/j.worlddev.2010.04.006

Imai, K. S., Gaiha, R., Thapa, G., & Annim, S. K. (2012). Microfinance and Poverty-A Macro Perspective. *World Development*, *40*(8), 1675–1689. https://doi.org/10.1016/j.worlddev.2012.04.013

Inpaeng, S., & Phouphet, K. (2015). Does microfinance reduce poverty in Lao PDR ? *International Journal of Development Issues*, *14*(3), 215–230. https://doi.org/10.1108/IJDI-10-2014-0072

Kai, H., & Hamori, S. (2009). Globalization, financial depth, and inequality in Sub-Saharan Africa. *Economics Bulletin*, *29*(3), 2025–2037.

Khan, Ahmad, Z., Butt, S., & Khan, Azim, A. (2017). Determinants of Financial Self Sufficiency in Microfinance Institutions: A study of Pakistan, India and Bangladesh. *European Online Journal of Natural and Social Sciences*, *6*(2), 296–301. https://doi.org/10.4172/2167-0234.1000209

Khandker, S. R. (2005). Microfinance and poverty: Evidence using panel data from Bangladesh. *World Bank Economic Review*, *19*(2), 263–286. https://doi.org/10.1093/wber/lhi008

Malkhaz, D. (2015). History of Microfinance. *WordPress*, *December*. http://finance.mapsofworld.com/banks/microfinance/history.html

Meo, M. S., Khan, V. J., Ibrahim, T. O., Khan, S., Ali, S., & Noor, K. (2018). Asymmetric impact of inflation and unemployment on poverty in Pakistan: new evidence from asymmetric ARDL cointegration. *Asia Pacific Journal of Social Work and Development*, *28*(4), 295–310. https://doi.org/10.1080/02185385.2018.1523745

Miled, K. B. H., & Rejeb, J.-E. Ben. (2015). Microfinance and Poverty Reduction: A Review and Synthesis of Empirical Evidence. *Procedia - Social and Behavioral Sciences*, *195*, 705–712. https://doi.org/10.1016/j.sbspro.2015.06.339

Morduch, J. (1999). The microfinance promise. *Journal of Economic Literature*, *37*(4), 1569–1614. https://doi.org/10.1257/jel.37.4.1569

Morduch, J. (2000). The microfinance schism. *World Development*, *28*(4), 617–629. https://doi.org/10.1016/S0305-750X(99)00151-5

Mosley, P. (2001). Microfinance and poverty in Bolivia. *Journal of Development Studies*, *37*(4), 101–132. https://doi.org/10.1080/00220380412331322061

Nadiya, M. (2013). *Sustainability of Indian Microfinance Institutions: A Mixed Methods Approach*.

Nadiya, M., Polanco, F. O., & Ramanan, T. R. (2012). Dangers in Mismanaging the Factors Affecting the Operational Self-Sustainability (OSS) of Indian Microfinance Institutions (MFIs)—An Exploration into Indian Microfinance Crisis. *Asian Economic and Financial Review*, *2*(3), 448–462. file:///C:/Users/Younus Qadri/Downloads/Aefr+pp.+448-462.pdf

Naz, F., Salim, S., ur Rehman, R., Ishfaq Ahmad, M., & Ali, R. (2019). Determinants of financial sustainability of microfinance institutions in Pakistan. *Upravlenets*, *10*(4), 51–64. https://doi.org/10.29141/2218-5003-2019-10-4-5

Oluseye, J. (2017). Microfinance Banks : Antidote To Poverty Alleviation In Nigeria : Case Study Of Ekiti State , Nigeria. *European Journal of Economic and Financial Research*, *2*(6), 24–34. https://doi.org/10.5281/zenodo.1248939

Osinubi, Simbowale, T. (2005). Macroeconometric Analysis of Growth, Unemployment and Poverty In Nigeria. *Pakistan Economic and Social Review*, *XLIII*(2), 249–269. http://www.jstor.org/stable/25825276%5Cnhttp://www.jstor.org/page/info/about/policies/terms.jsp%5Cnhttp://www.jstor.org

Pakistan Economic Survey. (2018). *Poverty*. https://www.finance.gov.pk/survey/chapters_18/Annex_III_Poverty.pdf

Pitt, M. M., Khandker, S. R., Chowdhury, O. H., & Millimet, D. L. (2003). Credit programs for the poor and the health status of children in rural Bangladesh. *In- Ternational Economic Review*, *44*(1), 87–118.

PMR. (2018). *Pakistan Microfinance Review*.

Q.compendium. (2020). *Quarterly Compendium : Statistics of the Banking System State Bank of Pakistan*. *September*.

Rahman, M. A., & Mazlan, A. R. (2014). Determinants of Financial Sustainability of Microfinance Institutions in Bangladesh. *International Journal of Economics and Finance*, *6*(9), 107–116. https://doi.org/10.5539/ijef.v6n9p107

Roy, P., & Pati, A. P. (2019). Double bottom line commitments of microfinance: evidence from Indian institutions. *International Journal of Social Economics*, *46*(1), 116–131. https://doi.org/10.1108/IJSE-08-2016-0240

S.Akbar, Z., Haroon, J., Sarah, J., & Sarah.Zaka. (2007). *Social Impact Assessment of Microfinance Programmes* (Issue October).

Samer, S., Majid, I., Rizal, S., Muhamad, M. R., Sarah-Halim, & Rashid, N. (2015). The Impact of Microfinance on Poverty Reduction: Empirical Evidence from Malaysian Perspective. *Procedia - Social and Behavioral Sciences*, *195*, 721–728. https://doi.org/10.1016/j.sbspro.2015.06.343

Thanh, T. L., Lan, P. D., Ngoc, M. D., Thi, Hoai, L. T., Thi, Thuy, D. N., & TRAN6, C. T. (2020). Determinants of Operational Self-Sustainability of Microfinance Institutions in Vietnam. *Journal of International Affairs*, *7*(10), 183–192. https://doi.org/10.13106/jafeb.2020.vol7.no10.183

Ullah, S., Akhtar, P., & Zaefarian, G. (2017). Dealing with endogeneity bias : The generalized method of moments (GMM) for panel data. *Industrial Marketing Management*, *November*, 1–10. https://doi.org/10.1016/j.indmarman.2017.11.010

WHITE, K. J. (1978). A General Computer for Econometric Models--Shazam. *Econometrica*, *46*(1), 239–240.

World Bank. (2001). *World Attacking Development* (Issue September).