ROLE OF MICROFINANCE IN POVERTY ALLEVIATION IN RURAL AREAS OF DISTRICT SARGODHA, PAKISTAN

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Abstract

This study, calculate the headcount ratio and analyze the impact of microfinance issued by the Punjab Rural Support Programme (PRSP), using the Multiple Ordinary Least Squares (OLS) regression in rural areas of district Sargodha, Pakistan. The results depict that in pre-microfinancing activities the headcount ratio was 56.7 per cent, but after receiving the microfinance it reduced to 14.1 per cent. The results of OLS regression shows that microfinance plays an important role in poverty reduction, and that poverty is inversely related to a number of earners and the level of education; whereas it is positively associated with the household size. At policy level, it is suggested that microfinance should be provided to poor households at the least interest rate. The government should also manage maximum education and the job opportunities, especially for the poor class. It should also focus on family planning awareness to control households' size, especially among the poor.

Key Words: Microfinance, Poverty, Income, Household Size, Earner, Education, Sargodha, Pakistan.
JEL Classification: I132; G21; I25.

I. Introduction

Poverty is one of the main problems of developing countries like Pakistan. It is considered the most distressing economic and social issue since the birth of human civilization. Poverty affect individuals, as well as the society, in adverse manner as it can be said that poverty is the mother of all human rights violations. To secure basic rights and increase living standards of poor people the World Bank proposed a charter called as Millennium Development Goals (MDGs), in 2000; wherein eight goals were set to be achieved till 2015. One of the objectives of this charter was to half the poverty of the world till 2015. There are multiple dimensions of poverty which vary from nation to nations, region to

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region, and countries to country. In the world, generally, poverty can be defined as non-availability of basic necessities/needs of human being, to maintain a healthy life.

According to Muhammad Younas, the pioneer of Grameen bank, Bangladesh, poverty exist when someone is jobless, illiterate, homeless, or has a lack of capital and insufficient food. Furthermore, there are numerous indicators of poverty, consisting of low-income, homelessness, unawareness, helplessness, short-life expectancy, hunger, less production, unemployment, poor infrastructure, high maternal mortality rate, powerlessness, poor social services like poor health, non-education , poor financial services and lack of clean drinking water [ACOSS (2010)].

In addition, other factors which are identified as cause of poverty include, gender discrimination, large family size, vulnerability to environmental deficiency and decline of natural resource base; given that poor tends to be strongly dependent on common property resources.

Therefore, poverty alleviation has been one of the leading objectives of developing countries and the international organizations [IFAD (2001), ILO (2003)]. Poverty alleviation is the provision of basic needs, education and health facilities, and to remove other causes that make a person poor and deprived, such as ignorance, lack of infrastructure and financial resources, etc. Among the other factors, microfinance has been paid a special attention to reduction poverty. Microfinance is a provision of wide range of financial services like, credit savings, and insurance for rural population, micro-enterprises, small-farmers and agriculture processing units [Andrews (2006)]. In the view of Brooks (2013) microfinance refers to a collection of financial services, including money, credit, advance, and insurance cover, accessible by poverty stricken industrialists and small commercial proprietors who have no security and wouldn't otherwise meet the requirements for an average bank loan. The concept of microfinance was pioneered in 1970 by two modest entrepreneurs David Bassau, Co-founder of the Opportunity International; and Muhammad Younas of Grameen Bank, in Bangladesh. They both loaned their own money to poor people in Bali and Bangladesh. These tiny loans helped the poor to start small business or home-made/family involved manufacturing and marketing activities, and with income earned they were able to provide food to their families, shelter and other basic necessities [OIAL (2009)]. There are many more studies which give special attention towards microfinance for poverty alleviation.

A widely cited study by Pitt and Khandker (1998) on three Microfinance Institutions (MFIs), Bangladesh Rural Advancement Committee (BRAC), Grameen Bank and Rural Development project-12 (RD-12) run by the Bangladesh Rural Development Board (BRDB) established that up to 5 per cent of respondents are able to lift their families out of poverty every year by borrowing from one of these MFIs. In addition to this, there are a lot of studies about estimating the impact of microfinance on poverty, but they give diverse results. Some studies suggest that access to credit has the potential to significantly reduce poverty [Hossain (1988), Wahid (1993)], and others. According to some other studies, microfinance has minimal impact on poverty alleviation: [Morduch (1999), Chavan & Kumar

(2002)]; but there are some studies which shows that there is no impact of microfinance programs on poverty alleviation [Hulme and Mosley (1996) and Coleman (2006)].

Like other developing countries, Pakistan is also experiencing the wave of poverty; especially the rural population is subsisting under poor conditions, due to lack of opportunities and devoid of basic facilities such as roads, water supplies, low literacy rate, education, health, sanitation, energy, communication and unemployment. Poverty level is unambiguously higher in rural areas than in urban, and in Pakistan rural areas are major reservoir of poverty [Cheema and Sial (2012)]. The incidence of rural poverty is more severe among those households who own no lands; it constitutes 70 per cent of total population of rural areas whereas, only 30 per cent own the land [Zaidi (2005)]. There are more curses in rural areas because of lack of job opportunities and other barriers. The above scenario emerges due to neglecting the rural sector or urban biased strategies of policy makers. Rural poverty report (2001) remarks that majority of the rural population is poor and may remain in this situation for many more decades.

In Pakistan, the microfinance has gained popularity as a major factor for reducing poverty. The history of microfinance activities started in 1980s in Karachi, with launching of the Orangi Pilot Project (OPP) for katchi aabadies. Microfinance is seen as an important instrument with regard to gender empowerment throughout Pakistan and many studies on it has been carried out to check its impact on poor people.Microfinance has an excellent impact on the economic life of poor peoples' poverty eradication, gender empowerment in rural areas of Pakistan, see [Malik and Nazli (1999), Ramzan (2002)], and others.

As rural areas are facing more poverty problems as compared to urban areas, among other projects, the PRSP was initiated in rural areas of the Punjab to address this issue. Microfinance programme of PRSP is under operation since June 1998. At present it is working in 28 districts of Punjab [PRSP (2007)]. The objective of the PRSP is to reduce poverty and improve quality of life of the rural poor. Microfinance provided by the PRSP has significant impact on poverty reduction in rural areas of different districts of the Punjab [Adil and Badar (2003), Alam, et al. (2014), and more.

After going through the literature, the study aims to calculate poverty in rural areas of Sargodha. The study also finds the role of microfinance in poverty alleviation. The paper is organized as follow. Section II explains the data and methodology. Section III discusses the results; while finally, Section IV concludes and suggests the policy implications.

II. Data and Methodology

A rational selection of sampling technique and sample size could be a necessary step for reliable information. Precise and consistent data was necessary condition to hold out a reliable analysis. Within the same approach a proper methodology was important for good research and to create policies for development of the existing knowledge.

This section includes techniques and methods utilized to examine the impact of microfinance on poverty. The current study consists of all borrowers of rural areas of Sargodha district of the province of Punjab, who received microfinance from the PRSP solely. The sample consists of individuals who had taken loan from PRSP and are all active borrowers and re-payers. The aim of the study also include the examining of impact of microfinance on societal and financial conditions of the rural poor. Samples of 312 beneficiaries of microfinance were taken into consideration. The questionnaire included the information, like impact on income generating activities, education, life style, housing, business extension, etc. The demographic information of the respondents were also collected.

1. Population

PRSP is working in four Tehsils of the Sargodha District since, 1998. The beneficiaries of this study include the actual microfinance borrowers of the Tehsils of Sargodha, Sahiwal, Sillanwali and Shahpur, who borrowed loan (January 2014 to April 2015) from the PRSP with an intent to start small business. Overall, there were 4,046 borrowers of PRSP in these Tehsils, who assimilated personal loans for different purposes during this period. PRSP advance loans to those respondents who belong to poor families. Respondents of this study had the related characteristics, such as, belonging to rural background, low level of education and agriculture as main occupation.

2. Sample

Due to the above mentioned characteristics of respondents, District Sargodha was chosen from Punjab. To get a representative sample, the researcher used simple random sampling technique to accumulate data from the Tehsils Sargodha, Sahiwal, Sillanwali, and Shahpur.

3. Sample Size

To obtain the acurate and reliable data, information survey method was used. Face to face interviews are one of the traditional methods that can be used to conduct a survey. To obtain reliable results, Ogunlade and Adebayo (2009) method is especially utilized in such survey studies; and best results can be achieved by using all the needed information. Achieving objectives of the study needs complete information for reliable analysis typically. To determine appropriate sample size, there are several approaches. These approaches include various techniques like a census for small population, imitating a sample size of comparable studies and applying formulas to calculate the sample size. To obtain a representative sample size, a well-known formula of Yamane (1967) is considered appropriate. The formula is:

$$n = \frac{N}{(1 + N \times e^2)}$$

where, n = sample size; N = population size; e = level of precision

The current study uses the above formula to calculate sample size. The sampling frame of study is the four tehsils of district Sargodha and;

Sampling Frame = 4,046, e = 5 per cent,

$$n = \frac{4046}{(1 + 4046 \times 0.05^2)} = 364$$

where, sample Size = n = 364 respondents.

By applying the formula, a sample of 364 respondents was taken but due to lack of funds and shortage of time, the study worked on a sample of 312 respondents. The survey provided detailed information on 312 respondents who had availed the facility of microfinance from PRSP. To get detail information, interview type meetings were arranged for respondents of rural areas of the four tehsils of Sargodha district.

4. Technique of Data Collection

Sample size should be chosen carefully and in accordance with the data collected from the population. Keeping in view the sample size and scope of this study, the survey technique was considered to be suitable to collect.

5. Types of Study

There are only two basic types of survey studies, i.e., qualitative and quantitative. This study is purely conducted on qualitative method via quantitative strategies and procedures. The study has a deep analysis of verification of hypothesis, for the completion of data. As the quantitative analysis is predicted on specific to general approach, thus the present study also intends to look at precise objectives by generalizing results over population, through creating inferences for the sample. Therefore, the survey was conducted to calculate the effect of microfinance service provided by the PRSP for poverty alleviation in rural areas of four tehsils of district Sargodha.

6. *Questionnaire: Tool of Data Collection*

For the current study, a well-organized close ended questionnaire was formed for the collection of data. To refill the questionnaires the researcher conducted face to face interviews with all respondents, which increased not only the quality of given information but conjointly assured the response rate, which was very high. Besides, demographic substance of questions were also asked from respondents regarding the impact of microfinance on poverty reduction in the study area.

7. *Aspects related to Contents*

The language chosen for questionnaire was simple and was understood by a common man. Close ended questions were asked, so that the respondents do not worsen concentration of the topic.

8. *Aspects related to Layout*

Parts of questionnaire are appended below:

i.   General summary of respondents.
ii. Information about the financial impact of microfinance on respondents.
iii. Information regarding the effect of microfinance on poverty mitigation in study area.

9. *Pre-Testing and Validity of the Questionnaire*

Pre-testing is a technique to examine whether the instrument for collection of data is consistent and valid to fulfill the objectives of research. It is only useful for small component of the sample. Before conducting the particular field work and data collection, the instruments of data collection were tested in this survey to check the exactness. Pre-testing was completed on 20 respondents of the sample. Imprecise communication was completed with respondents in pre-testing period to formulate the questionnaire consistency and applicability, according to the objectives of the learning. Additionally slight changes were made after meeting the supervisor, District Manager of PRSP, and with seniors in the field of research under consideration. Then the questionnaire was finalized.

10. *Field Experiences and Data Collection*

Initially, the researcher contacted the District Officer, PRSP, for data collection. Before beginning the process of data assortment in the region, consent of the officer was

arrogated. The officer assigned the community organizers of each tehsil for assisting researcher in this process. The researcher visited all respondent and crammed up the form through play to grapple the interviews with them. In the introductory spot, respondents were familiar and reacted. Then, they were briefed regarding the intent and impersonal of the study; and finally, the data was composed in three months.

The researcher faced several problems throughout the process of data assortment. The inhabitants were quite sporadic, as aim of the study was toward the district level; and therefore it was quite agitative and time consuming method. Secondly, sometime the respondents were not accessible on the spot and therefore the researcher had to contact them again. Thirdly, it was quite tough to induce data from female respondents, because they were tentative and reluctant to provide information.

11. Descriptive Statistics

The information for the current study were collected from rural areas of four tehsils of the Sargodha district. The study collected detailed information of 312 beneficiaries of microfinance, provided by the PRSP. A general descriptive statistics of demographic and economic activities, such as education, family size, microfinance, earners and per capita income are presented in Table 1.

12. Method of Data Analysis

Data was analysed by using Statistical Package for Social Sciences (SPSS) software version 19 and Stata software. Inferential and descriptive statistics were used to find relationship between the independent and dependent variables.

TABLE 1

Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Dev.
Education level	0.00	14.00	5.30	4.32
Household size	2.00	22.00	7.28	3.48
Monthly family income after M.F.	4000.00	80000.00	24892.62	13705.28
Monthly family income before M.F.	3000.00	75000.00	20141.02	12124.46
How much loan has been taken	15000.00	40000.00	26201.92	9050.46
Per capita income before M.F.	400.00	14285.71	3155.26	2127.12
Per capita income after M.F.	571.43	13333.33	3851.28	2291.53
Earner	1	7	2.11	1.23

Source: Authors' calculations.

13. Poverty Measures

This study uses headcount ratio to measure poverty in district Sargodha, which is one of the FGT class of poverty measures. Before estimating poverty, it is obligatory to take some careful and essential steps to measure poverty, presented by Ravallion (1998).

a) Declare welfare indicator.
b) Selection of poverty line nationally or internationally.
c) Estimation of welfare indicator.

In the current study, the per capita income is taken as a welfare indicator. The poverty line estimated by the Planning Commission, Government of Pakistan (2014) was Rs.1,745/- which was used to measure headcount ratio. If income is less than the poverty line; the individuals are regarded poor; Ootherwise the individual is non-poor.

a) *Headcount Index*

Headcount ratio is a proportion of poor population divided by the total population. The formula is:

$$HCR = \frac{M}{N}$$

where, M = No. of poor population and N = Total population. Its estimation is simple and the understanding is easy; therefore, it is most widely utilized in the literature.

b) *Estimating the Role of Microfinance in Poverty Alleviations*

Review of the literature reveals that to find the role of microfinance in poverty alleviation, Multiple Ordinary least Square (OLS) regression was extensively used [Asghar (2012), Park and Ren (2001)], and others. Following these studies, the present study estimates the following:

$$ln\,Y = \beta_0 + \beta_1\,lnMF + \beta_2\,lnHS + \beta_3\,lnEARNER + \beta_4\,EDU8 + \beta_5\,EDU9H + \mu_i$$

where, Y = per capita income after microfinance, MF = microfinance, EARNER = No. of earner, and HS = household size. EDU was used as a categorical variable. Reference category has never attended the school. EDU8 = years of education from 1 to 8, EDU9H = years of education greater and equal to 9.

$$\mu_i = \text{Error Term}$$

14. Hypotheses of the Study

Hypothesis 1
H_0 :   There is no association between poverty and microfinance.
H_1 :   There is an association between poverty and microfinance.

Hypothesis 2
H_0 :   There is no association between poverty and family size.
H_1 :   There is an association between poverty and family size.

Hypothesis 3
H_0 :   There is no association between poverty and number of earner.
H_1 :   There is an association between poverty and number of earner.

Hypothesis 4
H_0 :   There is no difference in poverty between households with heads having never attended school and households with heads having education up to middle class.
H_1 :   Households with heads having education with middle have less poverty as compared to those households with heads who have never attended school.

Hypothesis 5
H_0 :   There is no difference in poverty between households with heads having never attended school and households with heads having education greater than and equal to 9 classes.
H_1 :   Households with heads with education of 9 classes and above have less poverty than those households with heads who have never attended school.

III. Results and Discussion

Main objectives of the current study are to calculate poverty in the rural areas of District Sargodha and to find the impact of microfinance provided by the PRSP towards poverty mitigation in the rural areas of District Sargodha. The results are given below.

1.   Results of Poverty Incidence

Table 2 provides estimates of poverty, before and after getting microfinance by using HCR, in rural areas of the Sargodha District.

It has been observed that poverty in the targeted area of the study which was significantly reduced after provision of the microfinance. The results (Table 2) shows that the headcount ratio was 56.7 per cent before providing microfinance, whereas, it reduced to 14.1 per cent after providing microfinance. Decline in poor households has been of 42.6

TABLE 2

Poverty before and after Microfinance in Rural Areas of District Sargodha
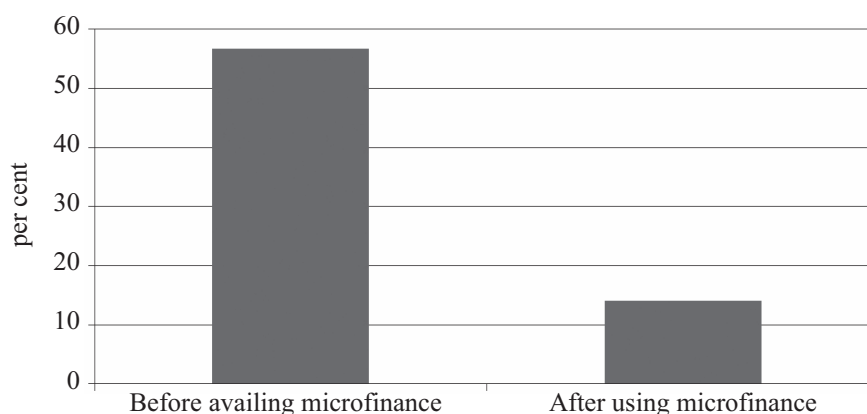
Respondents	Before availing Microfinance		After using Microfinance	
	Frequencies	Per cent	Frequencies	Per cent
Non-poor	135	43.3	268	85.9
Poor	177	56.7*	44	14.1*
Total	312	100	312	100

*Headcount ratio.
Source: Authors' own calculations.

percentage points or alternatively, we can say that poverty declined by 75.13 per cent. Numbers speak for themselves as the impact evaluation of microfinance in this study proved that microfinance is the most vital weapon against deprivation. The declining trend in poverty is visible from Figure 1.

In order to find the role of microfinance towards poverty alleviation the study estimates the Multiple Ordinary Least Squares (OLS) regression and the results are presented in the Table 3 given above. The results show that Dependent variable is the log of per capita income after microfinance and that sign of MF coefficient is positive and highly statistically significant. It also shows that 1 per cent increase in microfinance results in a 0.20 per cent increase in borrowers' income, other things remaining same. Further, it indicates that microfinance has positive impact of income of respondents and consequently

FIGURE 1

Headcount Ratio before availing and after using
Microfinance in Rural Areas of District Sargodha

is useful for poverty reduction because it increases the level of income. This result is similar to earlier studies like Jagged, et al. (2011), Noreen, et al. (2011), Park and Ren (2001), and others.

Co-efficient of household size is -1.00 which shows that with 1 per cent increase in HS, it decreases income of respondents by 1per cent, other things remaining the same. It has negative sign, meaning that there is negative relationship between the income of respondents and household size, while t-statistic value is -16.55 and its p-value is 0.000; and, it is concluded that co-efficient of HS of borrowers is highly statistically significant. It implies that poverty is positively related to the household size. This result is similar to earlier studies, like [Asghar (2012), Waheed (2009)].

The variable of earner has significant and positive impact on per capita income. Co-efficient of earner shows that if there is one per cent increase in the number of earners in a family, there will be 0.62 per cent increase in per capita income. Therefore, it can be said that there is inverse relationship between poverty and the number of earners. The coefficients of education are also positive showing individuals with middle and higher education (9th classes and higher) have more income as compared to those who have never attended school. This result is similar to the earlier study like [Asghar (2012), Cheema and Sial (2012), (2014)].

In the present study $R^2 = 0.50$, showing that 50 per cent variations in income of borrowers is due to explanatory variables while 50 per cent is error term which is not captured in the model. Due to increase in number of independent variables, R^2 increase to manipulate this result, and the degrees of freedom is correct in R^2 and the resultant is Adjusted-R^2. In the present study the Adjusted -$R^2 = 0.49$, which shows that 49 per cent variation in income of borrowers is due to the oriented fluctuations in all independent variables integrated in the model. F-statistic shows the overall significance of regression model. In this model the value of F-statistic is 61.51 which is highly significant showing that the model is best fit.

TABLE 3

Estimated Results of the Model by using OLS

Variables	Coefficient	Std. Error	t-statistic	Probability
Constant	7.63	0.69	11.04	0.000
LMF	0.20	0.07	2.89	0.004
LHS	-1.00	0.06	-16.55	0.000
LEAR	0.62	0.05	12.56	0.000
EDU8	0.01	0.05	0.25	0.799
EDU9	0.04	0.06	0.74	0.461

Note: $R^2 = 0.50$, Adjusted - $R^2 = 0.49$, F-statistic = 61.51, Probability = 0.000
Source: Authors' own calculations.

The study, apply the diagnostic test to support the results which are reliable. To check the normality of residuals the kernel density function, standardized normal probability plot and Shapiro-Wilk W test are applied. Its results (Appendix 1) show that residuals satisfy all these tests of normality. To find the multi-collinearity among variables, Variance Inflating Factor (VIF) and Tolerance are estimated. The results are presented in Appendix 2. The value of variance inflating factor (VIF) is less than 10 which shows that there is no problem of multi-collinearity. Similarly, tolerance values also support this.

To check the problem of heteroscedasticity Breusch-Pagan/Cook-Weisberg test is applied. The results are given in Appendix 3, depicts that there is no problem of heteroscedasticity. For model specification a link test is estimated and the results given in the Appendix 4, reveals that the model is well specified. Similarly, another test for omitted variable regression specification error test (RESET) is applied. These results are presented in Appendix 4. The results show that the model satisfies this test also.

IV. Conclusion and Policy Recommendations

The study estimates the role of microfinance towards poverty alleviation in rural areas of the four tehsils of district Sargodha. The results of HCI shows that there were 56.73 per cent respondents who were poor, before obtaining the microfinance loan; and 14.1 per cent were poor after utilizing the microfinance loan. Therefore it is concluded that poverty in targeted area was significantly reduced by 42.6 percentage points after granting the microfinance loan. Results of the study also show that microfinance is useful for poverty mitigation. These results are consistent with Abbas, et al. (2005), Asghar (2012), and others. The other important determinant of poverty is household size and there is a positive relationship between poverty and the household size. These results are similar to the earlier studies like [Waheed (2009), Asghar (2012), Cheema and Sial (2012), (2014)]. Number of earners are also an important factor to affect poverty favorably, and there is an inverse relationship between poverty and the number of earner. Households with heads having middle and higher education (9th and higher classes) earn more than those who have never attended school (though it is not statistically) significant; and it is perhaps due to small sample size. Therefore, it can be said there is a negative relationship between poverty and education. These results are consistent with Asghar (2012), Cheema and Sial (2012), (2014).

Keeping in view the results of this study following recommendations are made for Government of Pakistan and PRSP.

1. Recommendations for Government

• The range of MFI should be increased.
• The government should pay special attention towards education, especially for poor and rural areas.

- Savings schemes should be introduced.
- Family planning should be endorsed, particularly among the poor.
- The government should create job opportunities for the people.
- Interest rate should be minimized to encourage respondents to get microfinance services at cheaper rates.

2. Recommendations for PRSP

- PRSP should provide more learning, skill development trainings and health facilities to create employment in rural areas.
- PRSP should also appoint proficient persons from other organizations and universities for conducting the training sessions.
- Purpose of poverty mitigation can only be achieved by focusing on the gross root level as they are the most useful to utilize microfinance.
  While considering the limitations of small sample-size of this study, it is suggested to the upcoming researcher to increase the sample size, and also, judge the contribution of commercial banks along with the microfinance institutions to reduce poverty in rural areas.

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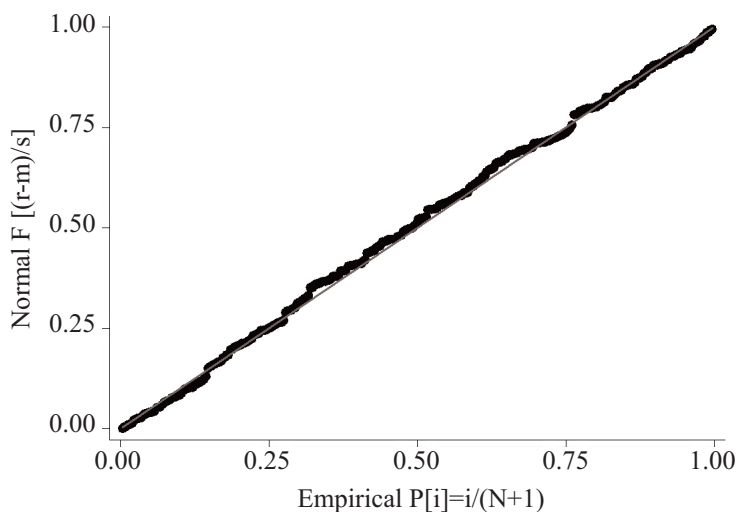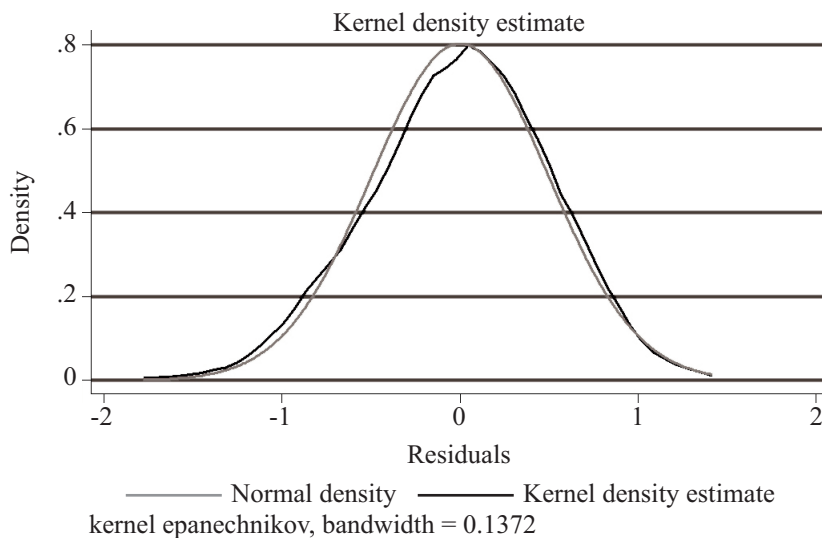
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APPENDIX 1

Tests of Normality of Residual

Kernel density estimate

Normal density ——— Kernel density estimate
kernel epanechnikov, bandwidth = 0.1372

Shapiro-Wilk W test for Normal Data

Variable	Obs.	W	V	z	Prob>z
r	312	0.99474	1.161	0.351	0.36262

Source: Authors' own calculations.

APPENDIX 2

Variables	VIF	1/VIF
LEARNER	1.43	0.698902
LHS	1.41	0.710224
edu8	1.34	0.747942
edu9	1.33	0.754375
LMF	1.02	0.977732
Mean VIF	1.30	

Source: Authors' own calculations.

APPENDIX 3:

Tests of Heteroscedasticity:
Breusch-Pagan/Cook-Weisberg test for Heteroskedasticity

Ho	:	Constant variance
Variables	:	fitted values of lpcincomeamf
chi2(1)	=	2.20
Prob>chi2	=	0.1376

Source: Authors' own calculations.

APPENDIX 4

Model Specification Tests

Ramsey RESET Test using Powers of the Fitted Values of lpcincomeamf
Ho: Model has no Omitted Variables

$F(3, 303)$ = 1.42
Prob> F   = 0.2379

Source: Authors' own calculations.

```
. linktest
```

Source	SS	df	MS			
				Number of obs	=	312
				F(2, 309)	=	155.28
Model	50.9401699	2	25.470085	Prob > F	=	0.0000
Residual	50.6838698	309	.164025469	R-squared	=	0.5013
				Adj R-squared	=	0.4980
Total	101.62404	311	.326765401	Root MSE	=	.405

lpcincomeamf	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
_hat	.9103016	1.658788	0.55	0.584	-2.353647	4.174251
_hatsq	.0055176	.1019776	0.05	0.957	-.1951407	.206176
_cons	.363643	6.736625	0.05	0.957	-12.89182	13.6191

Source: Authors' own calculations.