Is the Micro-Finance Program a Panacea for Household Welfare? An Empirical Analysis from Pakistan

Mudassar Hussain[1], Usman Shakoor[2], Muhammad Usman[3], Mudassar Rashid[2*], Muhammad Irfan[2], Muhammad Abeer Farooq[4]

[1] *Allama Iqbal Open University, Islamabad, PAKISTAN.*

[2] *Department of Economics, COMSATS University Islamabad, PAKISTAN.*

[3] *Department of Management Sciences, Foundation University, Islamabad, PAKISTAN.*

[4] *Sustainable Development Policy Institute, Islamabad, PAKISTAN.*

Corresponding Author (Email: Mudassar.rashid@comsats.edu.pk).

Abstract

This study evaluated the impact of microfinance programs Benazir Income Support Programme (BISP) and National Rural Support Programme (NRSP) on the welfare of the household. Primary data was collected through a questionnaire from 130 microfinance beneficiaries of BISP and NRSP from Islamabad/Rawalpindi. Purposive Sampling Technique and Bivariate Probit Regression Model were used for empirical results. The results showed that if being a member of the microfinance program, household welfare had improved. Respondents experienced a rise in household income, household savings, enabled to pay medical bills and schooling expenditure, improved household consumption pattern, and after availing the microloan/cash grant. The improvement in welfare indicators depicts progression in the welfare of the beneficiary population that showed a trend of poverty reduction through these microfinance programs.

Disciplinary: Welfare Economics & Econometrics, Poverty Alleviation and Welfare Studies, Social Engineering.

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1 Introduction

Poverty is one of the most emerging and challenging problems for the whole world. But it is a brutal dilemma of developing and third world countries. Many organizations are working for the eradication of poverty. The main limitation for poverty mitigation and for the welfare of poor

people is the shortage of financial resources to establish an income-earning activity, so they may earn income and enable to take benefits of economic opportunity to grapple with poor economic conditions (Yusuf *et al.*, 2013). The foremost constraint to escape from poor economic conditions is the non-availability of the funds. If the capital is available for the poor people then they may come out of poverty and may change their poor living standard to better living standard (Shirazi and Khan 2009).

Every year Government of Pakistan allocates about 4.5% of GDP for poverty alleviation and social welfare-related expenditure. These expenditures remained 7.4% of GDP in 2008-09, 13.4% of GDP in 2009-10, in 2010-11 12 remained 1% of GDP, in 2011-12 remained 10.4% of GDP, in 2012-13 remained 12% of GDP (GoP, 2015). Many governmental and non-governmental organizations are working for poverty alleviation, the wellbeing of poor people, and for the availability of better living standard such as the Benazir Income Support Programme (BISP), Pakistan Poverty Alleviation Fund (PPAF), National Rural Support Programme (NRSP), Taraqee Foundation, Khushali Bank, Kashaf Foundation, Agha Khan Rural Support Program and Microfinance bank, etc.

In Pakistan, BISP was started in 2008 with a goal to prevent poor people from the shocks of increasing food and fuel prices and provide relief to the poor people. BISP is aiming to make Pakistan a well-being state through poverty elimination and women empowerment. BISP had distributed almost Rs. 209.45 billion to 4.7 million poor people between 2008 to 2013-14 including bomb blasts and flood victims across the country. Along with cash transfer, BISP started different programs for the welfare of poor people such as Waseela-e- Rozgar, Waseela-e-Sehat, Waseela-e-Taleem, Waseela-e-Haq, Waseela-e-Haq Training, and Microfinance.NRSP was established in 1991 and currently working in 56 Is for poverty elimination and rural development. NRSP had provided micro-loans to more than 2.4 million poor households for micro-enterprise and enabled their beneficiaries to start their own micro-business or enterprise.

The questions arise that either these microfinance programs contribute positively toward the welfare of households welfare indicators like income, saving, clothing, consumption pattern, health, education, housing, and business activities or they succeed to make a better living standard for poor people while strengthening them financially and economically. Based on research, questions raised above the current study will evaluate the impact of micro-loan on household income and savings and will also visualize how micro-loans will affect household consumption pattern and clothing along with household health and education.

2 Literature Review

Improvement in the living standards of poor people can be achieved through enhancing the income and purchasing power of poor people. For the last two decades, microfinance has played an influential role in the welfare of poor people (Akram and Hussain, 2011). The policies to exterminate poverty and perk up the living standard of poor people through these microcredit programs are not key to alleviate poverty. Poverty could be eliminated by lowering down the household size and dependency ratio, through education, women contribution in household

income, and managing raw labor force to income generating and productive activities can assist to lower down the poverty level and make better the living standard of poor people (Chaudhry, 2009).

Microfinance service is a road map for those poor people who do not have the finance to start a small-scale enterprise/shop. With the help of these services, they can earn income and support their families. Microfinance schemes are evident that the income of beneficiaries of these schemes is higher as compared to non-beneficiaries (Hulme and Mosley, 1996; Li *et al.*, 2013; Khan and Qutub, 2010). Microloan programs had positive impacts to endorse human capital through education and better health facilities. Coleman (1999) experienced that in the study area the expenditures made on education did not bring an overall significant result. Weiss and Montgomery (2005) examined not a uniform impact on education and found that the microfinance program assists their beneficiaries to meet schooling expense. Bebczuk and Haimovich (2007) found that loaning from Microfinance institutions increased the enrollment rate in primary and secondary education. About 45 percent of beneficiaries enrolled their children in schools. Pitt and Khandker (1998) found that after joining the microfinance program the enrollment rate of both girls and boys increased significantly. Maldonado (2005) examined a negative but statistically significant relationship between the education gap and length of membership in microfinance. Microcredit programs enabled borrowers to set up their own micro ventures and gradually created employment for other family members/other people (Coleman, 2006). In many developing countries microloan programs generated employment in many fields such as agriculture, craft services, food processing, sales, and petty trading" (Mamun *et al.*, 2010).

3 Method

Data were collected by using the purposive sampling technique from Islamabad/ Rawalpindi. The data were collected in April/May 2014 and 130 microcredit beneficiaries of BISP and NRSP were directly interviewed through the questionnaire. In this study Household income, savings, health status, meeting schooling expenditure, consumption pattern, and clothing were taken as dependent variables while the Loan Cycles (loan cycle one indicates the first year of loaning facility and loan cycle two indicates the second year of loaning facility and onward to loan cycle six) were taken as independent variables; Household Head Age, total family member, family member earning income, total dependents family member and household head education were taken as control explanatory variables. The reason to categorized independent variables as explanatory variables and control explanatory variables is that household welfare is not only affected by micro-loan but also affected by household characteristics stated above.

The current study employed "the bivariate probit model" for evaluating the impact of microfinance loans on household welfare. The bivariate probit regression model is used when there are two dichotomous or combinations of two dichotomous dependent variables and model them as a function of independent variables. In such kind of econometric technique, the combination and correlation between two binary dependent variables are checked by using the probability value rho

that follows chi-square distribution. Greene (2007); Li *et al.* (2013), and Kochar (1997) used the bivariate probit model in their studies for empirical estimations.

The dichotomous dependent variable takes two values 0 or 1 showing the choice between two alternatives. The bi-probit model uses two equations to examine the impact of independent variables on two dichotomous dependent variables. The independent variables may be the same or different in two equations of the bi-probit model (Greene, 2007).

Model is given as

$$Y_i = \alpha + \beta_i \sum X_i + \mu_i \tag{1}$$

$$Y_j = \gamma + \beta_i^* \sum X_i^* + \mu_j$$

where

Y_i & Y_j	= Vector of dichotomous dependent variables
X_i & X_i^*	= Vector of same explanatory variables
μ_i & μ_j	= Error terms

While

$Y_i = 1, if\ Y_i > 0\ ;$	Improvement in household welfare indicator
$Y_i = 0, Otherwise$	The same?? - ¯
$Y_j = 1, if\ Y_j > 0\ ;$	Improvement in household welfare indicator
$Y_j = 0, Otherwise$	

To check the correlation between two equations, the probability value of rho is used that follows the chi-square distribution.

4 Result and Discussion

This section discussed the empirical results of the bivariate probit model. Loan Cycle One is dropped due to high multi-collinearity. Most of the explanatory variables (loan cycles) have a positive and statistically significant impact on household welfare.

4.1 Impacts on Household Income and Savings

The results, Table 1, indicate that all the explanatory variables (loan cycles) had a positive impact on household income, and loan cycle 4, loan cycle 5, and loan cycle 6 had a statistically significant impact on household income. The value of loan cycle coefficients is increasing and results are more statistically significant for every next installment of loan showing that the household income is increasing as long as a member of the microloan program. The strongest predictor of household income is loan cycle 6 recording a coefficient value of 5.64. This demonstrates that the probability of an increase in household income will be 5.64 times more being a member of loan cycle six as compared to other loan cycles.

The impact of all control explanatory variables on household income is statistically significant. Household head age had an inverse relation with income that indicates higher the age lower will be a contribution to household income. Total dependent family members are also

inversely related to household income showing that the higher the dependency ratio, household income is lower and the probability of a decline in household income will be 0.739 units for one more dependent member in the family. The variable "total family member earning income" did not have a highly positive coefficient; the reason is high dependency ratio, low education, and low-income earning activities. The variable "total family member" has a positive and statistically significant impact indicating an increase in family size will increase the probability of family income. The strongest predictor of income among control explanatory variables is education indicating that a higher education level of the household head leads to a greater probability of an increase in household income. This finding is consistent with Morduch (1999); Akram and Hussain (2011) and Li *et al*. (2011) that found microfinance services amplified the income and living standard of most of the beneficiaries' households.

The results of household savings are also depicted in Table 1. The explanatory variables (loan cycles) had a positive and statistically significant impact on household savings. The coefficients value is increasing and their significance is improving for every next loan cycle; indicating that household savings and welfare are improving after availing of loaning facility. The strongest predictor of household savings is loan cycle 6 recording a coefficient value of 1.11 indicating that the probability of an increase in household saving will be 1.11 times higher as long as compared to other loan cycles.

Table 1: Biprobit Estimates of Impact on Household Income and Savings.

Dependent Variables	Impacts on Household Income				Impacts on Household in Savings			
Independent Variables	Coef.	Std. Err.	Z –stats	P-value	Coef.	Std. Err.	Z –stats	P-value
Loan Cycle 2	0.32	0.69	0.47	0.63	0.04	0.44	2.13	0.08*
Loan Cycle 3	0.42	0.62	0.68	0.49	0.07	0.53	2.16	0.05**
Loan Cycle 4	1.36	0.64	2.59	0.01***	0.89	0.45	0.06	1.04**
Loan Cycle 5	1.62	0.57	2.81	0.00***	0.96	0.48	1.98	0.04**
Loan Cycle 6	5.63	0.57	9.75	0.00***	1.11	0.55	0.20	0.03**
Age	-0.02	0.01	-1.81	0.07*	-0.01	0.01	-0.88	0.37
Total Family Member	0.95	0.44	2.13	0.03**	0.67	0.31	2.15	0.03**
Family Member Earning Income	0.21	0.37	2.16	0.03**	-0.57	0.34	-1.68	0.09*
Dependent Family Members	-0.73	0.41	-1.79	0.07*	-0.72	0.31	-2.32	0.02**
Primary	0.18	0.60	6.34	0.03**	0.43	0.37	1.17	0.24
Middle	1.69	0.55	3.06	0.00***	0.75	0.36	2.04	0.04**
Matriculation	0.26	0.50	0.52	0.06*	0.87	0.35	2.49	0.01***
Intermediate	6.36	0.58	10.96	0.00***	0.90	0.66	1.36	0.17
Graduation	5.40	0.87	6.21	0.00***	4.31	0.56	13.04	0.00***
Constant	0.33	1.17	0.28	0.77	-0.04	0.70	-0.06	0.95

***' **' * Significant at 1%, 5%, and 10% Probability Level Respectively

While among control independent variable "total family member, family member earning income, dependent family members and household head education" had a statistically significant impact on savings of household. Household head education had a higher positive coefficient of 4.32 and a statistically more significant impact on family savings indicating that if the education level will be higher the probability to increase in household savings will be 4.32 times higher as compared to other control explanatory variables. This finding is consistent with Hulme and Mosley

(1996) found a positive impact on savings while Coleman (1999) inspected an insignificant impact on saving due to high-interest debt.

The estimations in Table1 show a strong association between two dependent variables: income and savings. The probability value of rho is significant at 1% that demonstrates a strong association between Y_i and Y_j indicating that explanatory and control explanatory variables have a strong statistically significant impact on dependent variables that are household income and household savings.

4.2 Impacts on Household Consumption of Food Items and Household Clothing

Table 2 presents biprobit results about household consumption of food items and household clothing. The results are consistent with Table 1 that household welfare indicators improved as long as being a member of the microfinance program. All explanatory variables (loan cycles) had positive coefficients and a statistically significant impact on the consumption of food items and household welfare is improved after the loaning facility.

The strongest predictor between independent variables is loan cycle six that have a higher positive coefficient and a more statistically significant impact on consumption of food items demonstrate that as long as being a member of microfinance program the probability of an increase in household consumption of food items will be 1.22 times higher as compared to other loan cycles.

Table 2: Biprobit Estimates of Impact on Household Consumption of Food Items and Clothing

Dependent Variables	Impacts on Consumption of Food Items				Improvement in Household Clothing			
Independent Variables	Coef.	Std. Err.	Z –stats	P-value	Coef.	Std. Err.	Z-stats	P-value
Loan Cycle 2	0.63	0.59	2.76	0.06*	-0.47	0.47	-1.00	0.31
Loan Cycle 3	0.48	0.56	2.60	0.09*	-0.24	0.43	-0.57	0.56
Loan Cycle 4	1.06	0.44	0.15	0.08*	0.42	0.45	0.93	0.35
Loan Cycle 5	1.18	0.51	2.30	0.08*	0.98	0.54	1.79	0.07*
Loan Cycle 6	1.21	0.64	2.34	0.07*	1.14	0.65	2.52	0.06*
Age	-0.01	0.01	-1.30	0.19	-0.00	0.01	-0.61	0.54
Total Family Member	0.24	0.22	1.08	0.27	0.16	0.28	-0.60	0.55
Family Member Earning Income	0.12	0.24	-0.50	0.61	0.45	0.31	1.45	0.14
Dependent Family Members	-0.25	0.22	-1.13	0.25	-0.09	0.27	0.35	0.72
Primary	1.43	0.44	3.22	0.00***	1.19	0.40	2.97	0.00***
Middle	1.02	0.36	2.78	0.00***	0.91	0.35	2.56	0.01***
Matriculation	1.12	0.35	3.16	0.00***	1.25	0.33	3.69	0.00***
Intermediate	2.74	0.74	1.00	0.00***	0.89	0.73	1.21	0.00***
Graduation	6.03	0.58	10.2	0.00***	5.93	0.60	9.85	0.00***
Constant	-0.10	0.81	-0.13	0.89	0.04	0.79	0.06	0.95

***' **' * Significant at 1%, 5%, and 10% Probability Level Respectively

Among control explanatory variables, household head education had a statistically significant impact. That showed higher the household head education the probability of a rise in the consumption of food items will be 6.03 times more than other control explanatory variables. This estimate is consistent with Dichter (2006) and Khandker (1998) examined that microloan programs were supportive to fulfill day-to-day expenditures like on daily food items. The results of

the impact on household clothing are also presented in Table 2. At the early stage of loaning, the facilities have a negative and statistically insignificant impact on household clothing. Loan cycle four had a positive coefficient but statistically insignificant impact; loan cycle five and loan cycle six had a positive and statistically significant impact on improvement in household clothing. The coefficients of independent variables turned from negative to positive and statistically became more significant over every next loan cycle that signifies an improvement in household clothing over a period. The strongest predictor among explanatory variables is loan cycle six indicating that beneficiaries of loan cycle six had 1.14 times better access to clothing as compared to other loan cycles. Among control independent variables, household head education had a statistically significant impact on household clothing indicating that higher household head education leads to 5.93 times better access to clothing. This finding is correlated with Asian Development Bank Evaluation Study (ADB, 2007) found that an improvement in household clothing in most of the Asian countries after microfinance operations. The estimations in Table 2 have a strong association among two dependent variables "consumption of food items" and "improvement in household clothing". The probability value of rho is significant at a 1% level of significance that shows a strong correlation between two equations Yi and Yj.

4.3 Impacts on Household Health Status and Meeting Schooling Expenditures

Table 3 presents the results about household health and meeting schooling expenditures. The explanatory variables, loan cycle five and loan cycle six are statistically significant. The results presented in Table 3 demonstrate that coefficient value turned from negative to positive and significance level improved at every next loan cycle.

Table 3: Biprobit Estimates of Impact on Household Health Status and Meeting Schooling Expenditures

Dependent Variables	Improvement in Family Health Status				Meeting Schooling Expenditures			
Independent Variables	Coef.	Std. Err.	Z –stats	P-value	Coef.	Std. Err.	Z -stats	P-value
Loan Cycle 2	-0.03	0.55	-0.05	0.95	0.59	0.44	1.33	0.18
Loan Cycle 3	-0.13	0.50	-0.27	0.78	0.67	0.45	1.49	0.13
Loan Cycle 4	0.27	0.47	0.59	0.55	0.23	0.44	1.19	0.93
Loan Cycle 5	1.60	0.61	2.60	0.00***	0.81	0.46	1.74	0.08*
Loan Cycle 6	5.67	0.57	9.84	0.00***	1.14	0.59	1.69	0.07*
Age	-0.02	0.01	-2.30	0.02**	-0.00	0.01	-0.49	0.62
Total Family Member	-0.31	0.44	-0.71	0.47	0.18	0.23	0.81	0.41
Family Member Earning Income	0.11	0.45	0.26	0.79	-0.04	0.25	-0.18	0.85
Dependant Family Members	-0.40	0.43	0.93	0.35	-0.11	0.23	-0.51	0.61
Primary	1.00	0.45	2.22	0.02**	0.29	0.39	3.27	0.00***
Middle	1.41	0.42	3.29	0.00***	0.99	0.34	2.86	0.00***
Matriculation	0.89	0.39	2.23	0.02**	0.86	0.33	2.57	0.01***
Intermediate	0.03	0.61	-0.06	0.95	0.51	0.66	0.78	0.07*
Graduation	6.76	0.69	9.73	0.00***	6.43	0.51	12.56	0.00***
Constant	1.32	0.86	1.53	0.12	-1.08	0.75	-1.44	0.15

***' **' * Significant at 1%, 5%, and 10% Probability Level Respectively

Among explanatory variables loan cycle six is the strongest predictor of household health recording a coefficient value of 5.67. This indicates that beneficiaries of loan cycle six had 5.67

times better access to health as compared to other loan cycles. Among control independent variables, household head education had a more statistically significant impact on improvement in household health. Pitt *et al.,* (2003); Weiss and Montgomery (2005) also examined a positive and statistically significant impact on health especially on women's health while the results are inconsistent with Coleman, (1999) findings that microcredit had a significant but negative impact on health for not medical expenses.

The results of meeting schooling expenditures are also presented in Table 3. All explanatory variables (loan cycles) have a positive association with meeting schooling expenditures. Loan cycle five and loan cycle six are statistically significant. The strongest predictor of meeting schooling expenditures is loan cycle six indicating as long as being a member of the microfinance program, the probability of meeting schooling expenditure will be higher and household education level will improve. Among control independent variables household, head education is statistically significant impacts on children schooling expenditures that demonstrate higher the household head education has higher the probability to improve household education level. The results are like the findings of Pitt and Khandker (1998) that found credit services improved the school enrollment of both boys and girls; Bebczuk and Haimovich (2007) examined that access to credit depicts a progression in primary school attainment. The estimation Table 3 shows a strong correlation between two dependent variables "improvement in household health status" and "meeting schooling expenditures on children education". The probability value of rho is significant at 1%; showing a viable association among the two equations Y_i and Yj.

The empirical estimates depict a progression in household welfare indicators. It is seen that after availing of micro-credit scheme household welfare indicators perk up for every next year of loaning facility. Household welfare indicators like income, savings, food consumption, clothing, health and schooling expenditures showed evolution as long as being a member of the microfinance program.

5 Conclusion

This study examined the impact of microfinance programs of BISP and NRSP on household welfare. Primary data were collected from BISP and NRSP beneficiaries. The sample size was 130 households, which include 25% from BISP and 75% from NRSP. Two kinds of analysis were made: Descriptive and Inferential statistical analysis. Improvement/increase was experienced in most welfare indicators like income, savings, health, education, clothing, and consumption patterns after availing of microfinance schemes. While the results of the Bivariate Probit Regression Model also indicate a positive and statistically significant impact on household welfare indicators. The empirical estimates of the model testify that the coefficient value is more positive, getting higher, and statistically more significant if being a member of microfinance programs for every next loaning year. It is concluded based on qualitative and empirical estimates of the study that the microfinance program plays a vital role to improve household welfare.

Based on the findings of the study following steps should be adopted to bring more effective fruits of microloan programs. It is very important to educate the beneficiaries/members of microloans about the worth of microloan schemes. People have abilities but unaware of the better utilization of the loan. Their skills and abilities can be polished by arranging seminars and workshops. Beneficiaries should be given training about various aspects of micro enterprise/venture that provide directions for productive utilization of the loan. It is seen that Loan amount is spent on non-productive activities like pay debt, spent on festivals and wedding ceremonies, etc. It must be assured through a proper monitoring channel that the loan amount is utilized on a micro enterprise/venture so that the beneficiaries may earn income and ensure future repayments of the loan in time.

6 Availability of Data and Material

Data can be made available by contacting the corresponding author.

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Mudassar Hussain is a Reseach Assistant at Allama Iqbal Open University Islamabad, Pakistan. He got an Mphil degree in Economics. His research focuses on Microecconomics and Welfare Economics.

Dr. Usman Shakoor is an Assistant Professor in the Department of Economics, COMSATS University, Islamabad Pakistan. He has a Doctoral degree in Agricultural Economics. His research focuses on Climate and Agricultural Economics and Data Science.
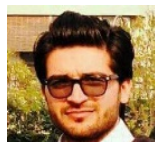
Muhammad Usman is a Lecturer at the Department of Management Scieneces, Foundation University, Islamabad Pakistan. He has an MPhil degree in Economics. His research focuses on Microeconomics and Data Science.

Dr. Mudassar Rashid is an Assistant Professor in the Department of Economics, COMSATS University, Islamabad Pakistan. He has a Doctoral degree in Econometrics. His research interests are Applied Econometrics, Climate, Health Economics, and Data Science.

Dr. Muhammad Irfan is an Assistant Professor in the Department of Economics, COMSATS University, Islamabad Pakistan. He has a Doctoral degree in Economics. His research interests are environmental Economics and Data Science.

Muhammad Abeer Farooq is a Project Manager in Sustainable Development Policy Institution, Islamabad Pakistan. He has an Mphil degree in Economics. His research focuses on Macroeconomics and Applied economics.