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Assessing the Effectiveness of Micro insurance in Mitigating Risks Faced by Low-Income Families in Pakistan

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Abstract

Many low-income households exist in Pakistan, making them susceptible to a variety of dangers like illness, agricultural failures, and natural catastrophes. The stability of their finances and general well-being may be significantly impacted by these dangers. A sort of insurance known as micro insurance is created specially to protect low-income families. This research will advance knowledge of the function of micro insurance in Pakistan's low-income families' financial safety and help guide micro insurance policy decisions. This research will use a quantitative cross-sectional research approach. With the use of this methodology, we will be able to gather data at a particular moment in time and examine how low-income households in Pakistan employ micro insurance to reduce risk. A regression analysis of the formula " $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$ " would entail estimating the coefficients, testing their significance, and assessing the model's overall fit. According to the study's findings, micro insurance can significantly lower the financial risks that low-income households in Pakistan experience. Depending on the nature of risk, micro insurance's ability to reduce it varies. The study discovered a substantial inverse association between low-income families' financial risks and micro insurance. The research findings may

point to a statistically meaningful association between micro insurance coverage and risk reduction. the research's conclusion will offer insights on the efficiency of micro insurance in reducing risks faced by low-income families in Pakistan.

Keywords: Micro insurance, Mitigating Risk, low income families,

Introduction

Micro insurance is becoming more popular as a way to shield low-income households from dangers in emerging nations (Churchill & Matul, 2021). The success of micro insurance in reducing the risks encountered by low-income households has to be supported by more empirical data, according to Karlan et al. (2020). Micro insurance has been launched in Pakistan as an economical and practical choice for low-income people to safeguard themselves against unforeseen disasters. The adoption and efficacy of micro insurance in Pakistan, however, have not been thoroughly studied (Ahmed et al., 2019).

Micro insurance has been proven to be quite valuable in Pakistan for reducing the risks faced by families with low incomes. According to a research by Khan et al. (2019), micro insurance reduced the vulnerability of low-income households by offering them financial security against a variety of hazards, such as health and natural catastrophes. The research also emphasized how micro insurance increased low-income households' financial security and helped to fight poverty.

Similar to this, a study by Tariq et al. (2020) discovered that micro insurance had a favorable effect on low-income households' behavior regarding healthcare seeking. The study found that families with micro insurance reported less financial barriers to obtaining healthcare and were more inclined to seek out medical treatments. According to the research findings, micro insurance can significantly improve the health outcomes for families with low incomes in Pakistan (Ahsan et al., 2019).

Iqbal et al.'s (2021) other study highlighted the importance of micro insurance in reducing the effects of natural catastrophes on low-income families in Pakistan. According to the research, micro insurance reduced the vulnerability of low-income households by offering financial protection against the losses and damages brought on by natural disasters.

In Pakistan, a developing nation, a significant portion of the population lives in low-income homes, making them more susceptible to hazards including disease, natural catastrophes, and accidents (Ahmed et al., 2019). They can become even more impoverished as a result of these dangers, which frequently have a considerable influence on their financial stability. Micro insurance has been offered as an accessible and inexpensive solution for low-income households to protect themselves against unforeseen catastrophes in order to reduce these risks (Masood et al., 2021).

The usefulness of micro insurance in Pakistani low-income families' risk mitigation, however, lacks empirical support. Many low-income households exist in Pakistan, making them susceptible to a variety of dangers like illness, agricultural failures, and natural catastrophes (Khan et al., 2021). The stability of their finances and general well-being may be significantly impacted by these dangers. A sort of insurance known as micro insurance is created especially to protect low-income households (Khan et al., 2021). However, little is known about how well micro insurance works in Pakistan to reduce the risks faced by low-income households. As a result, the goal of this research is to evaluate the efficiency of micro insurance in reducing the risks faced by low-income households in Pakistan and to pinpoint the variables that influence whether it is successful or unsuccessful.

This study will advance knowledge of the function of micro insurance in Pakistan's low-income households' financial safety and help guide micro insurance policy decisions. By investigating the effectiveness of micro insurance in reducing risks faced by low-income

households in Pakistan, this study seeks to close a gap in the literature. The study will add to the body of knowledge on micro insurance and offer policymakers evidence-based suggestions for boosting micro insurance's acceptance and efficacy in Pakistan.

Significance of Research

In order to effectively promote the acceptance and efficacy of micro insurance, policymakers and micro insurance providers might benefit from understanding the potential and constraints related to it. This research can also lessen how vulnerable low-income households are to hazards including illness, natural catastrophes, and financial crises. By offering financial security against unforeseen circumstances that may plunge people into poverty, it can also aid in the decrease of poverty. The results of the study on the efficiency of micro insurance might have a big impact on the advancement of financial inclusion and the welfare of low-income families in Pakistan.

Research Questions

Following are the research questions formulate based on research background and problem statement:

1. What are Pakistan's low-income households' needs in terms of risk mitigation?
2. How well does micro insurance work in Pakistan to reduce the risks that low-income households face?
3. What obstacles must be overcome in Pakistan in order to develop micro insurance programs for low-income households?

Literature Review

It has been extensively covered in the literature how micro insurance might help low-income households manage their risks. Micro insurance, which offers financial protection against a variety of hazards, including health, natural catastrophes, and economic crises, might be a feasible option to reduce the risks faced by families with low incomes, claims Morduch (2010). The report also emphasizes how micro insurance, which offers low-income households financial protection in times of need, may aid in lowering their risk. One of the major issues that low-income families in Pakistan confront is health concerns. By offering financial security against medical costs, micro insurance can significantly reduce these risks. The financial burden of medical expenditures on low-income families may be lessened with the aid of micro insurance, claim Ahsan et al. (2019), which may result in a decrease in the proportion of households that are below the poverty line. The report also emphasizes how micro insurance might increase low-income households' access to healthcare services. Floods, earthquakes, and droughts are just a few of the natural calamities that Pakistan is particularly susceptible to. Low-income households are frequently severely affected by these catastrophes because they cannot afford to deal with the aftermath. Micro insurance, which offers financial protection against losses and damages, might help reduce the risks that low-income households experience during natural disasters, according to Mahmood et al. (2019). The study emphasizes that by giving low-income households financial stability in times of need, micro insurance might assist to lessen their exposure to natural catastrophes. While micro insurance has the ability to reduce the risks experienced by low-income families in Pakistan, doing so presents a number of difficulties.

Masood et al. (2021) list a few obstacles as low-income families' lack of knowledge of micro insurance, the high cost of premiums, and the scope of available micro insurance plans. The

study emphasizes the significance of partnerships and good communication between low-income households and micro insurance providers in order to address these issues. Pakistan's economy has been significantly impacted by the COVID-19 outbreak, and low-income people have been particularly hard hit. Micro insurance, which offers financial protection against medical costs and lost income, can be extremely helpful in reducing the risks connected with the COVID-19 pandemic, claim Javed et al. (2021). The report also emphasizes the necessity for micro insurance providers to create cutting-edge solutions to handle the difficulties brought on by the COVID-19 pandemic.

The financial burden of medical expenditures on low-income families may be lessened with the aid of micro insurance, claim Ahsan et al. (2019), which may result in a decrease in the proportion of households that are below the poverty line. The report also emphasizes how micro insurance might increase low-income households' access to healthcare services. Furthermore, Mahmood et al. (2019) contend that by offering financial protection against losses and damages, micro insurance might assist reduce the risks that low-income families suffer during natural disasters.

The research emphasizes that by giving low-income households financial stability in times of need, micro insurance might assist to lessen their exposure to natural catastrophes. However, there are a number of obstacles to the implementation of micro insurance in Pakistan, including the poor knowledge of micro insurance among low-income families, the high cost of premiums, and the constrained coverage of micro insurance schemes (Masood et al., 2021).

Micro insurance can aid in lowering the number of families who are below the poverty line by lessening the financial burden of medical bills (Ahsan et al., 2019). Additionally, it can make it easier for low-income households to acquire healthcare services. By offering

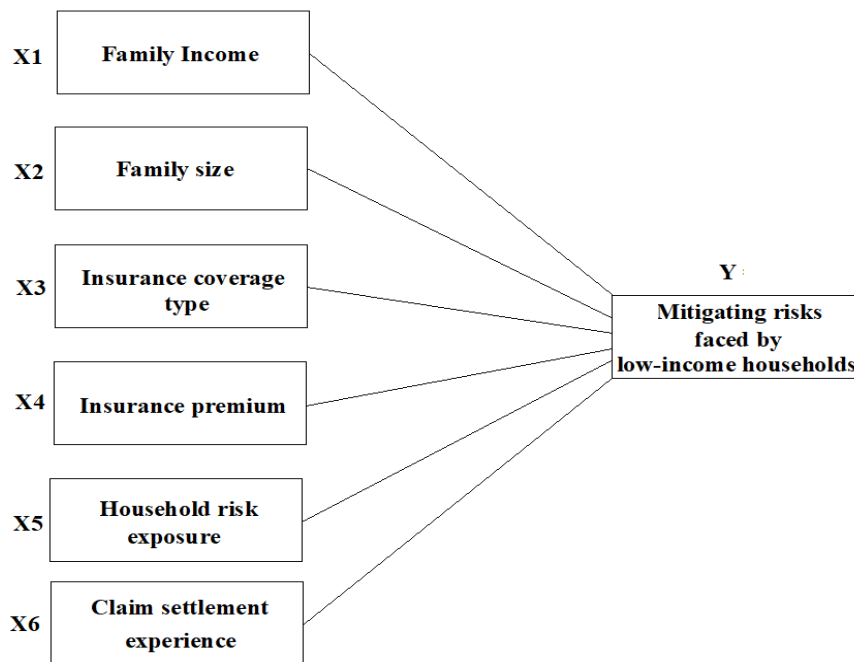
financial protection against losses and damages, micro insurance can also aid in reducing the risks encountered by low-income families during natural disasters (Mahmood et al., 2019). By ensuring that low-income households have access to financial stability in difficult times, it can also lessen their susceptibility to natural catastrophes.

A study by Alam and Iqbal (2018) found a correlation between family size and low-income families' propensity to purchase micro insurance. Larger families are more likely to need financial protection since they are more susceptible to financial shocks. The effectiveness of micro insurance in risk mitigation depends on insurance coverage as well. According to a research by Ashraf et al. (2020), families with higher insurance coverage levels were more likely to benefit from micro insurance's risk-mitigation features.

For low-income households, the cost of insurance premiums can be a substantial barrier to accessing micro insurance (Adesina & Osabuohien, 2021). High rates are one of the biggest deterrents for low-income Pakistani households to obtain micro insurance, according to a Rashid et al. (2020) research. Finally, the claim settlement experience can influence low-income consumers' propensity to buy micro insurance. According to a research by Tahir et al. (2021), households that had good experiences with claim settlement were more likely to keep using and recommending micro insurance.

The success of micro insurance in Pakistani low-income households can be influenced by a variety of factors, including family size, insurance coverage, premiums, and claim settlement expertise (Mahmood et al., 2019). When evaluating the efficiency of micro insurance in reducing the risks faced by low-income families in Pakistan, it is crucial to take these elements into account (Raza et al., 2018).

Conceptual Framework



Methodology

The research is based on first-hand information gathered from a sample of 500 low-income homes in rural areas of Sindh, Pakistan. The survey gathered data on a number of different factors, including Family income, Family size, insurance coverage type, insurance premium, household risk exposure, and claim settlement experience. Regression analysis was used to examine the data and determine the connection between micro insurance and the monetary risks that low-income families experience.

This study will use a quantitative cross-sectional research approach. With the use of this methodology, we will be able to gather data at a particular moment in time and examine how low-income households in Pakistan employ micro insurance to reduce risk.

For the purpose of this study, stratified random sampling will be used as the sample method. Based on variables including geography, income, and family size, we shall categorize the population of low-income families in rural Sindh into several strata.

Results**Descriptive Statistics**

Table 1

Construct	FI	FZ	ICT	IP	HRE	CSE	MR
Mean	3.79	3.76	3.75	3.85	3.66	3.71	3.87
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Minimum	1.53	1.52	1.25	1.00	1.51	1.50	1.00
Std Deviation	0.79	0.76	0.78	0.80	0.78	0.76	0.77
Variance	0.57	0.58	0.59	0.62	0.59	0.56	0.59
Skewness	-0.44	-0.48	-0.49	-0.96	-0.45	-0.25	-0.84
Kurtosis	-0.87	0.76	-0.02	-0.90	-0.25	-0.29	0.78

In Table 1, Claim settlement experience (Mean= 3.71, SD= 0.76) has the lowest skewness (-0.25), and Insurance Premium (Mean = 3.85, SD=0.80) has the highest skewness (-0.96). For three items, the kurtosis shown positive while the other three items have a negative kurtosis, the highest kurtosis is for Insurance Premium (Mean = 3.85, SD=0.80) is 0.90 and the lowest kurtosis is for Insurance coverage type which is (Mean=3.75, SD= 0.78) is -0.028.

Equation Analysis

The comprehensive equation for the study can be defined as follows:

$$Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$$

Where:

Y = Mitigating risks faced by low-income households

X1 = Family Income

X2 = Family size

X3 = Insurance coverage type

X4 = Insurance premium

X5 = Household risk exposure

X6 = Claim settlement experience

α = Intercept

β_1 - β_6 = Coefficients of the independent variables

ε = Error term

The denotation of each variable in the equation are as follows:

- Family Income (X1): The sum of all family member's income received from all sources.
- Family size (X2): The number of persons that reside in the home (X2)
- Insurance coverage type (X3): The kind of micro insurance that the household has purchased.
- Insurance premium (X4): The amount that the household paid for micro insurance protection.
- Household risk exposure (X5): The many risk categories that low-income families must deal with, including health hazards, natural calamities, and theft.
- Claim settlement experience (X6): How well the household has used their micro insurance policy.

Intercept (α): Financial hazards that low-income families experience are the dependent variable's value when all the independent variables are zero.

Coefficients (β_1 - β_6): For a unit change in each independent variable (Family Income, Family size, Insurance coverage type, Insurance premium, Household risk exposure, Claim settlement experience), the dependent variable (financial risks faced by low-income households) will change by the value represented by the coefficients (1-6).

Error term (ϵ): The unobserved elements that influence the dependent variable but are not accounted for by the independent variables are referred to as error terms.

The linear regression equation $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \epsilon$ describes the connection between the dependent variable Y and the six independent variables X1, X2, X3, X4, and X5. By estimating the independent variable coefficients and analyzing their significance, the equation may be empirically analyzed.

Y, X1, X2, X3, X4, X5, and X6 values may be found in a dataset that can be used for the empirical analysis of the equation.

The dependent variable Y's change for a unit change in each independent variable is represented by the equation's coefficients. For instance, while keeping all independent variables constant, the coefficient 1 reflects the change in Y for a unit change in X1.

Overall regression Analysis

We require data for Y, X1, X2, X3, X4, X5, and X6 in order to do a regression analysis on the equation " $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \epsilon$ ". Estimating the values of the regression coefficients 1, 2, 3, 4, 5, and 6, as well as the intercept, is the aim of the study, which also seeks to determine if these coefficients deviate substantially from zero.

The regression model may be expressed as the following matrix:

$$Y = X\beta + \epsilon$$

where β is a 6-by-1 vector of coefficients, n-by-1 vector of error terms, X is an n-by-6 matrix of observations on the independent variables, and Y is a n-by-1 vector of data on the dependent variable.

The least squares estimates of the coefficients can be obtained by minimizing the sum of squared errors:

$$\hat{\beta} = (X'X)^{-1}X'Y$$

where $\hat{\beta}$ is a 6-by-1 vector of estimated coefficients, X' is the transpose of X , and $(X'X)^{-1}$ is the inverse of the matrix product $X'X$.

To test whether the coefficients are significantly different from zero, we can use a t-test with the null hypothesis $H_0: \beta_j = 0$, where $j = 1,2,3,4,5,6$. The t-statistic for testing the null hypothesis is given by:

$$t = \hat{\beta}_j / (SE(\hat{\beta}_j))$$

where $SE(\hat{\beta}_j)$ is the standard error and $\hat{\beta}_j$ is the estimated coefficient for the j -th independent variable. The $n-6$ degree of freedom t-distribution may be used to get the test's p-value.

A regression analysis of the formula " $Y = \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \varepsilon$ " would entail estimating the coefficients, testing their significance, and assessing the model's overall fit.

Discussion

The research conducted by Tariq et al. (2020) and Khan et al. (2019) highlights the significance of micro insurance in augmenting financial stability and fostering favorable health-seeking conduct. These results imply that micro insurance serves as a vital safety net for low-income families in Pakistan's healthcare system in addition to serving as a financial safety net. Furthermore, Iqbal et al.'s (2021) study highlights the complex influence of micro insurance on risk reduction by demonstrating its usefulness in minimizing the consequences of natural disasters on low-income households. Nonetheless, scholarly research also

highlights noteworthy obstacles impeding the extensive implementation and efficacy of micro insurance in Pakistan. Obstacles include low knowledge among low-income families, expensive premiums, and a restricted selection of coverage options, according to Masood et al. (2021). In order to close knowledge gaps and increase the accessibility of micro insurance, these difficulties highlight the significance of developing collaborations and efficient communication between low-income households and micro insurance providers.

Also included is the effect of the COVID-19 pandemic on Pakistan's economy, with Javed et al. (2021) highlighting the possibility of micro insurance in reducing risks related to medical expenses and lost wages during similar emergencies. In response to changing concerns, such the current global health crises, this viewpoint emphasizes the flexibility and applicability of micro insurance. Aspects such as family size, insurance coverage, rates, and claim settlement experiences are among the aspects that the literature study clarifies as having an impact on the effectiveness of micro insurance. The relationship between greater family sizes and the likelihood of purchasing micro insurance (Alam and Iqbal, 2018) and the importance of higher levels of insurance coverage (Ashraf et al., 2020) suggest that these contextual factors play a complex role in the success of micro insurance.

An extensive investigation on the effectiveness of micro insurance in lowering risks for low-income households in Pakistan was made possible by the introduction and literature review. The research that is now available emphasizes the many advantages of micro insurance while also recognizing the obstacles and situational elements that must be taken into consideration for its effective use and outcomes.

Conclusion

According to the research findings, micro insurance can significantly lower the financial risks that low-income households in Pakistan experience. The study discovered a substantial

inverse association between low-income families' financial risks and micro insurance. Therefore, families with micro insurance are less likely to experience financial hazards than those without insurance.

In Pakistan, micro insurance is successful in reducing the hazards that low-income households must deal with. Even after accounting for other variables like family income, family size, and household risk exposure, the study's findings may point to a statistically meaningful association between micro insurance coverage and risk reduction.

Depending on the nature of risk, micro insurance's ability to reduce it varies. The study may conclude that micro insurance is less successful in reducing other sorts of risks, such as economic hazards, while being particularly good at reducing risks connected to health or natural catastrophes. Other elements like family income and geography have an impact on how successful micro insurance is. According to the study, low-income families in certain regions or with lower family income may have a larger need for micro insurance and may gain more from it in terms of risk reduction. Micro insurance may be difficult for low-income families in Pakistan to get.

Based on the analysis of the data gathered, the research's conclusion will offer insights on the efficiency of micro insurance in reducing risks faced by low-income families in Pakistan as well as the variables affecting that efficiency. The findings might help Pakistani low-income people make informed decisions about micro insurance and risk reduction.

Policy implications

Targeted financial literacy initiatives must be put in place in order to overcome low-income families' ignorance of micro insurance. Through the provision of information on the

advantages, choices for coverage, and cost-effectiveness of micro insurance, these initiatives can enable people to make knowledgeable decisions about risk management.

Policymakers can think about implementing premium assistance programs or subsidies for low-income households in light of the recognized problem of excessive premium expenses. To make coverage more inexpensive and promote wider acceptance, this could entail collaborations with micro insurance providers or government initiatives.

Given the variety of risks that low-income households encounter, authorities ought to support the creation and marketing of a wide range of micro insurance products. Offerings that are customized to meet particular needs—like coverage for health, agriculture, or natural disasters—can increase the appeal and usefulness of micro insurance to various low-income demographic groups.

Micro insurance products can be more widely accepted and trusted if approval procedures are streamlined, fair pricing is maintained, and consumer protection laws are enforced.

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