The Policy Impact and Evaluation of Education on Poverty Reduction in Pakistan: An analysis of economy of Pakistan

Saba Shakeel*[1], Abdul Haque[2], Sajjad Hussain Abbasi[3]

[1]*Lecturer, Department of Education, Jinnah University of Women, Karachi Sindh, Pakistan.

[2]M. Phil Scholar, Faculty of Education, University of Sindh, Jamshoro, Sindh, Pakistan.

[3]Ph.D Scholar, Department of Economics, Shah Abdul Latif University, Khairpur, Sindh, Pakistan.

Correspondence author: sabashakeel2003@gmail.com

Determining the variables linked to poverty like education is a critical first step in developing policies intended to end it. Designing policies for the eradication of poverty is made possible by a comprehensive understanding of the factors that generate poverty. This research aims to investigate the correlates of poverty in Pakistan's rural and urban areas specifically by focusing on education. We investigated the effects of a range of household (HCR), societal, and regional factors, such as the availability of educational facilities, inequality, Trade opportunities and the dependence ratio and education levels. The findings demonstrated that poverty is caused by illiteracy and dependency ratio. Poverty is found to be inversely correlated with education, the accessibility of healthcare and educational resources, and consumer inequality on CPI. The comparison of rural and urban areas showed that while the dependency ratio is more damaging in rural areas, education is comparatively more effective in urban areas for eradicating poverty. Because these places have better access to healthcare and education, there has been a greater decline in urban poverty as a result of social factors. In terms of consumption disparity, the marginal effect is more pronounced in metropolitan regions, most likely as a result of the diversity of employment and educational options available there, which raises consumption inequality and education access there.

1. Introduction

There are several ways to view poverty, and definitions of the term might change depending on which viewpoint is used. It varies depending on the nation and the situation. One might define poverty as absolute or relative. Relative poverty cannot be eliminated, but absolute poverty may. Due to its comparative nature, the concept of relative poverty is dynamic. It is present everywhere in the planet, either in small amounts or on a much bigger scale. Both absolute and relative poverty are common in Pakistan; the concept of poverty is expressed in monetary terms (Dollar & Kray, 2022).

Poverty and education are two inter related social issues having great importance. Remittances are frequently used to launch small enterprises and engage in entrepreneurial endeavors. By promoting entrepreneurship and opening up job opportunities, this can boost local economic growth. Remittances can help create microenterprises, which can be a long-term strategy for reducing poverty when they are used wisely (Kehkashan et al., 2024). In Pakistan, remittances have played a significant role in providing for families, particularly in rural and economically disadvantaged areas. This immigration has increased living standards, strengthened spending habits, and made it possible for people to access better healthcare and educational resources, all of which have benefited the basic standards of society and community as a whole. Diverse results from earlier research helped to identify the REM influence on poverty. Certain studies indicate that remittances have a favourable impact on the expansion of the economy (Makun, 2018). Remittance money is occasionally combined at the community level to assist with development initiatives. This could involve making changes to the physical infrastructure, including building new roads, schools, or medical facilities. Community-based programs that improve overall quality of life and address systemic issues can have a greater significant effect on the level and potential of level of poverty prevailing in the economy. Even though there are advantages, an over reliance on remittances might present problems (Solarin, 2023).

The effects of microfinance extend beyond only funding businesses. The impoverished frequently use financial services not only for business investments but also for family emergencies, investments in health and education, and other related needs or wants. Evidence from millions of microfinance clients worldwide suggests that financial services access helps impoverished individuals increase their household income, build assets, and reduce their susceptibility to the crises that are so common in their everyday lives. Access to financial services is also closely linked to better nutrition and better health outcomes, such higher immunization rates (Kai, 2019).

The study's goal is to look into the connection between poverty and remittances in Pakistan. In this study, two alternatives to poverty were considered. Household consumption (HHC) is used as a stand-in for poverty in Model 1. In model 2, health issues account for the poor newborn death rate, whereas low-income accounts for the poor household consumption. The unit root results show that co-integration and (ARDL) regression analysis can be completed using the ARDL bond testing.

The co-integration test results indicate that there is a long-term relationship between the variables in Models 1 and 2, as indicated by their respective F-statistics being higher than the critical value (Vocafores, 2022). The purpose of microfinance is to provide low-income individuals with access to financial services so they can engage in economic activity. Microfinance has grown in popularity as a financial instrument to fight poverty in recent years. Microfinance projects are now seen as an essential strategy for eradicating poverty. The ability of the impoverished to engage in income-generating activities is hindered by their restricted access to and inadequate availability of credit, insurance, and savings options (Donou et al., 2020).

The use of microfinance by stakeholders and decision-makers has increased recently. To encourage development and lower poverty, cooperative efforts have been made to increase the scope of microfinance programs. Since poverty is the main problem facing the modern world, this study aims to add to the body of knowledge about the use of microfinance as a tool for global policy. The main hypothesis of the article is that nations with higher gross loan portfolios per capita also have higher per capita consumption expenditures, which in turn lead to lower rates of poverty. We looked at this link using SAARC countries' macro-level panel data from 2000 to 2019. We use GLP per capita as a measure of microfinance activity since it tracks the amount of money distributed to individuals (Khandker, 2022).

The long- and short-term outcomes of model 1 demonstrate that remittances (REM) have a detrimental effect on poverty (HHC). Previous studies have shown that remittances negatively affect poverty. Remittances have a negative effect on poverty (IMR), according to the results of model 2 (long run). However, short-term results indicate a favorable correlation between poverty (IMR) and remittance impact. Remittance expansion has the potential to reduce Pakistan's poverty rate because of the inverse relationship between remittances and poverty. The results showed that remittance inflows significantly contribute to Pakistan's declining rate of poverty (Yasmeen et al. 2021). In Pakistan, poverty has posed a serious socioeconomic problem. It is essential to pay attention to the socioeconomic issues that exist. In Pakistan, living conditions, income levels, and access to essential services are frequently used as metrics to quantify poverty. Poverty in the nation is a result of several factors. For a large number of people and families, high unemployment, underemployment, and poor salaries are contributing factors to their financial difficulties. People who don't have access to high-quality education may find it difficult to gain the skills necessary for better employment prospects, which might prolong poverty cycles (Migration Poverty Institute, 2020). Remittances, together with official development aid (ODA) and foreign direct investment (FDI), have become a noteworthy source of foreign income. In addition to boosting the economy, this wave of remittances into the nation has been crucial in combating poverty since it gives families—especially those in rural and economically disadvantaged areas—the critical financial support they need. The steady increase in remittance inflows has highlighted how critical it is to comprehend and use this economic force to successfully fight poverty (Odhiambo, 2019). Pakistan is becoming more and more concerned with strategically utilizing this influx, realizing that it has the potential to improve communities and reduce poverty through the promotion of economic

stability and the empowerment of individuals and households. The role of remittances stands out as a promising avenue as the nation attempts to address poverty through various economic means, prompting a deeper investigation into how these financial inflows can be channeled and utilized optimally to create sustainable impacts on the level of income and poverty reduction initiatives. Remittances have diverse effects that go beyond the confines of a single household. They have a major impact on GDP growth overall, can give governments more fiscal room, and facilitate access to foreign exchange reserves. These combined results show lower rates of poverty and stronger economic foundations, underscoring the critical role remittances play in improving the standards (Rotha et al., 2018). Following are the research questions of the current study.

i)   What is relationship of poverty reduction and education?
ii)   What is impact of regional factors on poverty reduction?
iii)   What is impact of societal issues on poverty reduction?

2. Literature Review

Nearly all of the world's developing nations now face the delicate problem of poverty. Reducing poverty is largely dependent on education. Consequently, it's critical to look into whether varying literacy or educational levels contribute to a reduction in poverty. This study aims to assess the impact of varying literacy and educational levels on the prevalence of poverty in Pakistan. Our findings imply that investing in the education sector, particularly in higher education, will hasten the process of reducing poverty. Pakistan offers a contradictory scenario. Pakistan had a remarkable track record of economic growth and a sharp decline in the rate of poverty up until the late 1980s, but the nation's social indicators were appalling (Irfan, 2019). However, the average rate of economic growth decreased in the 1990s as social indicators started to improve for a number of reasons, both driven by internal and external factors. In contrast to the aforementioned circumstances, the general consensus about education is that it plays a critical role in reducing poverty when it works closely with other social sectors. The primary goal of this essay is to investigate the actual impact of education on the reduction of poverty in Pakistan. To determine the true nature of the issue, a few significant macroeconomic variables have also been thoroughly examined (Dollar & Kray, 2022).

A single cause is unable to adequately explain it. Numerous elements, including social, psychological, economic, and physical ones, are frequently linked to poverty. A poor natural environment and a deficiency of fundamental economic and physical infrastructure are two of the physical elements contributing to poverty. These could also be connected to malnourishment and ill health. Psychological aspects include feelings of powerlessness, hopelessness, low self-esteem, and low self-image brought on by an unsuitable value system, cultural impoverishment, and unrealized potential. A lack of ability to engage in democratic processes and behavioral deficiencies made worse by low literacy and educational levels may also be connected to these concerns (Meyr, 2017). This study is empirical in nature and analysis as compared to previous studies which are included under analysis. The study's factors include income, debt, human capital inflation, foreign aid, and foreign remittances. The main objective of this research is to ascertain
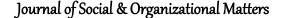
the impact of these factors on population and reduction of poverty growth in specific manner and in general terminology.

In terms of population growth, researchers examine 39 countries that fall into the lower middle, higher medium, and high income groups. The data used for the analysis was collected between 1990 and 2014 for the sake of data analysis and estimation of data typically. Thirteen lower middle-income and fifteen high-income countries provide the data. Only the data for these countries are available. The FMOLS Panel fully modified OLS statistical test is employed in this investigation (Abdulnasser & Salah, 2014). According to the economic diversification idea, REM promotes economic diversification, which in turn helps to alleviate POV. Local enterprises thrive as a result of recipients of migrant workers' money investing it in a variety of economic ventures. In the end, poverty may be decreased by this economic diversification's ability to raise income levels and generate job opportunities. This theory, however, can only hold water if remittances are effectively used for worthwhile endeavors as opposed to just spending (Abosedra et al., 2016). Remittances, on the other hand—cash sent home to relatives by immigrants employed abroad—can be a major factor in the fight against poverty. Remittance inflows have the following several effects on reducing poverty: Remittances give recipient households immediate access to money, enabling them to satisfy necessities like clothing, food, and shelter.

Remittances are frequently used by families to pay for medical and educational costs, which increases access to healthcare and educational possibilities. Remittances can be utilized to launch or grow small enterprises, giving families the opportunity to diversify their revenue streams and become less dependent on established industries (Acosta, 2008). Health-related issues can arise from inadequate healthcare infrastructure and services, which can have an impact on both personal well-being and economic productivity. Poverty in some areas or among particular demographic groups can be made worse by income inequality and differences in the distribution of resources. Poverty may continue in part due to factors including discrimination, gender inequity, and social instability. Pakistani efforts to reduce poverty frequently include social interventions, economic measures, and development initiatives. To address these issues, the Pakistani government, NGOs, and international organizations work on a number of projects, such as advancing education, enhancing healthcare facilities, and putting in place programs to reduce poverty (Adam & Cuecuacha,2013). In Pakistan, poverty has posed a serious socioeconomic problem. It is essential to pay attention to the socioeconomic issues that exist. In Pakistan, living conditions, income levels, and access to essential services are frequently used as metrics to quantify poverty. Poverty in the nation is a result of several factors. For a large number of people and families, high unemployment, underemployment, and poor salaries are contributing factors to their financial difficulties. People who don't have access to high-quality education may find it difficult to gain the skills necessary for better employment prospects, which might prolong poverty cycles (Adam & Klobodu, 2016). Funds from remittances can be used to support skill development and education, which will enhance the human capital of the recipient community. Remittances can be used to build infrastructure and enhance living conditions, such as housing,

which will raise people's standard of living generally. Remittance beneficiaries frequently interact with official financial institutions, which promotes financial inclusion and offers chances for investments and savings. Remittance money may occasionally be combined for community development initiatives like constructing hospitals, schools, or other vital infrastructure. Consequently, this study's goals are to investigate whether REM inflows lessen POV in Pakistan (Akobeng, 2016).

Remittances are sums of money that people working or living abroad send home to their friends, family, or communities; these remittances are usually in the form of financial contributions. For receivers back home, these financial transfers are frequently a vital source of assistance. Remittances can be sent via a number of routes, such as money transfer services, official financial institutions, or unofficial ways like hand-delivery. The main sources of remittances are frequently people—often referred to as expatriates or migrants—looking for work opportunities overseas (Azam et al., 2016). These migrants transfer money they earn back to their home countries in order to help support their family or advance local communities. The global economy greatly depends on remittances, as millions of people rely on these inflows of money to cover basic needs including food, shelter, healthcare, and education. Remittances of money can have a significant impact on both specific households and larger economic systems. Remittances help reduce poverty on a microeconomic level by giving recipients a reliable source of income. This financial assistance frequently helps families launch small enterprises, invest in education, or get access to basic services, all of which promote economic resilience (Bharadwaj, 2014).

Economists frequently characterize the effects of schooling as either "direct" or "indirect." The transfer of information and skills linked to greater salaries is one of education's direct consequences. The satisfaction of basic needs, increased levels of democratic participation, improved use of healthcare facilities, shelter, water, and sanitation, as well as additional effects that arise in women's behaviour in decisions relating to fertility, family welfare, and health, are examples of the indirect effects, also known as external benefits. Both at the individual and social/national levels, the relationship between education and poverty can be investigated through the use of production function analysis and rate of return analysis (Gupta, 2009). A linear interpolation approach is used to create time series data on the incidence of poverty. Pakistan finds itself in a paradoxical condition over the chosen time period, with growth and social indicators moving in opposing directions. It is chosen in order to comprehend this strange circumstance. The duration of thirty-five years is sufficient to capture the long-term effects of the majority of the variables used in this investigation. We have made an effort to consider the indigeneity issue when choosing the explanatory factors for our investigation. The important variables in the study include the enrollment rate in elementary, middle, and university levels—all of which are often used proxies for education—as well as the absolute poverty (poverty headcount index) (Kaidi et al., 2018).

2.1 Theoretical Framework

Economists frequently characterize the effects of schooling as either "direct" or "indirect." The transfer of information and skills linked to greater salaries is one of education's direct consequences. The indirect effects, also referred to as external benefits, include things like the fulfilment of basic needs, higher levels of democratic participation, better use of healthcare facilities, shelter, water, and sanitation, as well as additional effects that arise in women's behaviour in decisions about fertility, family welfare, and health. Production function analysis and rate of return analysis can be used to examine the relationship between education and poverty at the individual, social, and national levels. Two techniques are employed to estimate rates of return: the Mincerian earnings function (Mincer, 1972) and the concept of marginal efficiency of capital, which connects the lifetime benefits of education to its expenses (i.e., wages associated with education).
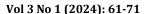
3. Data and Methodology

To investigate the relationship between education and poverty, the research selected time series data for Pakistan spanning 34 years (1990-2024). The primary sources of the poverty data sets are Malik (1988), Amjad and Kemal (1997), Jamal (2003), and several Pakistan Economic Survey issues published since 1990. The World Bank, World Development Indicators (WDI), and other official sources provided the data on other factors.

A linear interpolation approach is used to create time series data on the incidence of poverty. Pakistan finds itself in a paradoxical condition over the chosen time period, with growth and social indicators moving in opposing directions. It is chosen in order to comprehend this strange circumstance. The duration of thirty-five years is sufficient to capture the long-term effects of the majority of the variables used in this investigation. We have made an effort to consider the endogeneity issue when choosing the explanatory factors for our investigation.

The important variables in the study include the enrollment rate in elementary, middle, and university levels—all of which are often used proxies for education—as well as the absolute poverty (poverty headcount index). Our model also incorporates a few helpful variables, such as trade openness, inflation rate, and growth rate.

Autoregressive models are used in this work to conduct an empirical econometric analysis. Growth, literacy rate, CPI, and hcr (-1) are utilized to analyze in our first poverty autoregressive regression model, whereas some enrollment rates at different levels are taken into account in our second model. Trade openness is taken into consideration to verify the robustness of globalization in order to meet the study's objectives. The analysis makes use of the variables' log values. We hypothesize that a greater degree of education has a substantial impact on the prevalence of poverty that exists in the economy.

4. Results and Discussion

Table No 01: Descriptive Statistics

	HCR	Lit	MID,E	PRI,E	UNI,E	TO	RGDP	CPI
Mean	23.65	33.91	2333.91	12312	86096.1	32.11	55662.1	53.54
Median	22.23	31.55	2177.88	9723.11	77671.3	33.66	88772.1	38.77
Max	41.88	51.33	5217.44	23632.1	297312.1	31.22	77233.2	156.32
Min	18.25	19.11	833.11	1512.00	19606.12	23.11	13322.33	8.92
S.D	5.23	9.88	1133.12	5103.12	77333.12	4.12	5354.77	39.56
Skewness	1.05	0.21	0.22	0.54	2.13	-0.30	-0.04	0.55
Kurtosis	4.23	1.77	1.98	3.12	6.12	3.34	1.99	1.98
J-B	5.45	4.26	3.44	4.86	23.12	0.43	1.88	2.99
Probab.	0.0001	0.0006	0.0123	0.1281	0.0000	0.0000	0.41	0.18

Our entire dataset has 34 years of yearly observations on the chosen variables, spanning from 1990 to 2024. According to the table of descriptive statistic, the average head count ratio (HCR) during the time period under study was 23.65%, with a standard deviation (SD) of 5.23. The standard deviation (SD) of the primary school enrollment rate is 5103.12, and its average is 12312.

The average enrollment in middle schools is 2333.91, with a standard deviation (SD) of 1113.12. The real gross domestic product (RGDP), openness, and university enrollment rate have respective average values of 55662.1, 86096.1, and 53.54, and their corresponding standard deviations are 77671.3, 5103.12, and 4.12.

Kurtosis measures how peaked or flat a data collection is in relation to a normal distribution. The variables' kurtosis statistics reveal that only university enrollment and HCR are Platykurtic, or having a substantially thinner tail than the normal curve, while all other variables are Leptokurtic, or having lengthy tails or high peskiness. Although the HCR value is higher than the Mesokurtic curve value, it is still within a reasonable range for a normal distribution. The combined hypothesis of skewness and kurtosis is provided by the Jerque-Bera (JB) test of normalcy. The Jerque-Bera test of normalcy suggests that we declare that the university enrollment rate's computed P-value of the JB-statistic is suitably low if the statistic's value is significantly different from zero.

4.1 Model and Estimation

$$LHCR = \beta_0 + \beta_1 LRGDP + \beta_2 LLITR + \beta_3 LCPI + \beta_4 LTO + \beta_5 LHCR(-1) + \varepsilon_t$$

Let,

HCR = Head Count Ratio

GDP = Gross Domestic Product

LITR = Literacy rate

CPI = Consumer Price Index

TO = Trade Openness

Table No 2: Estimation of Model

Variable	Co-efficient	S.E	t-statistic	Probab.
C	6.44011	3.156	3.541	0.0534
RGDP	-0.7232	-0.123	-3.045	0.0342
HCR	-0.61321	0.2341	1.8234	0.0516
CPI	0.61342	0.09231	0.0651	0.0712
TO	0.00324	0.1425	-0.651	0.9801
LHCR(-1)	-0.5234	0.934	2.342	0.383
R^2	0.91			0.000
Adj R^2	0.94		F-Stat	98.91
h-stat.	1.66		Probab.	0.000

Table 2: dependent variable is the head count index (HCI), and the explanatory factors in the current analysis are the prior year's head count index (HCI), growth rate, literacy rate, and consumer price index (CPI). With an adjusted R-squared of 94%, the independent variable accounts for 94% of the variation in the dependent variable. The robustness of our results is evident from the R-squared value of 91%.

5. Conclusion and Policy Recommendations

In this study, we addressed an important subject in the current discourse on social and economic development: the role that education plays in lowering poverty. We have looked at the empirical evidence about the relationship between education and poverty. The connection between education and poverty is one of the most important features of anti-poverty initiatives. There are several ways that education can reduce poverty. It could raise the incomes of those with education. Additionally, by promoting economic growth, it may raise the incomes of individuals with a particular level of education.

The literacy rate, primary education level, intermediate education level, and university education level were some of the proxies we used to measure education. We focused on quantifying absolute poverty by utilizing the poverty headcount index as a stand-in for relative poverty. We have sketched a few stylized facts within a highly intricate relationship framework for using of statistical and econometric approaches for solution of issues. The current analysis takes into account education, the poverty headcount index, and macroeconomic, structural, and policy variables. The poverty equation, in further detail, relates the prevalence of poverty to the CPI, growth, literacy rate, degree of education at elementary, middle, and university levels, as well as openness. Thus, the aforementioned link makes it possible to estimate how changes in macroeconomic or policy variables may affect poverty.

Using 34 years of data from Pakistan from 1990 to 2024, time series regressions are used to empirically evaluate the link between the above-mentioned macroeconomic, structural, and policy variables and poverty. The empirical analysis's findings show that attending college considerably lowers the prevalence of absolute poverty. Conclusively, with an inverse connection to the dependent variable, a university education is a potent instrument for reducing poverty. There is a national decline in poverty as higher education levels rise. This finding supports the hypothesis that education has a significant impact on poverty.

Local universities support developing nations in enhancing their human capital's skills, which eventually contributes to the reduction of poverty. Graduates from universities possess the specialized skills necessary to make a living and instill the enterprise that drives success in their field of work, whether it be the public sector, the private sector, or civil society. Achieving one of the Millennium Development Goals—universal primary education—without also achieving higher education would only increase the number of people without skills burdening the economy. A university degree is viewed by some as an extravagance in developing nations. It is a necessity, not a luxury.

Well-known approaches like Sen's capabilities approach, fundamental needs approach, human capital approach, and human development approach are validated by the estimation results we obtained. The main goal of these four strategies is to achieve education for social and economic development. A major policy implication of our estimation results is that the distribution of higher education within the population can significantly affect people's well-being. Even one educated member of the household can benefit the household even beyond the immediate benefits to that one individual.

Our empirical findings support the notion that education effectively reduces poverty. Therefore, it is reasonable to concentrate economic measures on education to lower poverty and accelerate growth. Poverty can also be caused by inflation, but it is much reduced by trade openness. However, it is advised that trade liberalization and inflation-controlling measures will unquestionably and greatly help Pakistan's poverty problem. Enhancing the children's education also makes it easier and more convenient for other family members to earn a living.

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