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Analysing Household Determinants of Poverty Eradication: A Microdata Analysis

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Abstract: *The current study is an attempt to explore the micro determinants of poverty eradication in Pakistan. The probit model has been used on the data obtained from Pakistan Standard Living Measurement Survey 2019–20. The results indicate that access to drinking water, availability of sanitation and hygiene facilities, holding an agricultural land, having livestock in possession, household size and being a native of the area reduce the predictive probability of being poor. Other variables such as cash transfers, receiving foreign remittances and being self-employed also have a positive impact on poverty eradication. Poverty Trends are analysed using three cycles of data from 2008–08, 2015–16 and 2019–20, which further reveals an increase in absolute poverty. Government should increase spending on socio-economic programs with special emphasise on land distribution in rural areas. Social safety nets in the form of cash transfers and foreign remittances would support the vulnerable in the event of external shocks.*

Key Words: Poverty, Inequality, Probit, Capability Approach

Introduction

For the last several decades, many developing countries have made poverty alleviation their foremost objective. Countries have initiated intense research on the issue of poverty alleviation and its long-run effects on social & economic structures. It is in rural areas that poverty is mostly pronounced with multidimensional aspects (economic, social demographic and so forth). Almost one-third of the population lives in the rural areas where the majority of the people are poor, which imposes a

repressive weight on Pakistan's economy. The absolute number of poor has increased from the 1960s despite of decline seen in poverty during the 1970s & 80s. During the 90s, absolute poverty continued to rise despite of various policy initiatives taken by the government. As per the World Bank (2000), poverty has declined, but still, the bulk of poverty exists in the rural areas of Pakistan.

Explaining poverty through macroeconomic Factors have become difficult as they involve various aspects mostly related to the household level.

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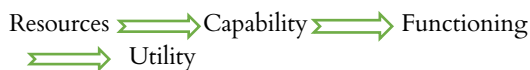
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Nonetheless, most of the poverty persists in Pakistan, with much more in isolated areas. As poverty has been seen as an essential economic development issue, efforts have been undertaken to relieve it by boosting household income levels. It has also been stated as the main purpose of all government policies in Pakistan. Much research on poverty has been undertaken in Pakistan, although the bulk of these studies has concentrated on determining poverty figures at the national and provincial levels, with just a few attempting to explain poverty via other characteristics. The current research is a continuation of prior studies but with a focus on a different set of factors and a study region at the provincial level. Poverty can be explained as a lack of basic necessities like daily food intake, ability to get an education and adequate income [Sen \(1981\)](#). Income can only be assumed as a reliable factor if it has the ability to give access to the vital needs of life. According to [Sen \(1983\)](#), there are a few categories which can be gauged as vital necessities, such as health, education, social equality, self-respect & freedom from harassment. Poverty alleviation has become a major goal for underdeveloped countries within the last two decades. This has also been added as one of the foremost factors in the UN SDGs Sustainable Development Goals for 2030. In Pakistan, poverty eradication has relied upon the trickledown theory of economic growth. It has been professed for many years that an increase in growth rates would reduce poverty as the income generated from the top will trickle down to the bottom quintile of the population. However, average growth rates of 4 to 5 per cent failed to reduce poverty as income distribution remains to be skewed towards the top segment of the population. Pakistan's spending on health, education and social protection remains to be 3 per cent of the GDP as compared to the regional rate of 5 per cent in South Asia, according to the report by IPC-IG UNICEF (2020). Social spending may reduce income inequalities and multidimensional poverty by providing basic necessities to the people, which would improve their standard of living. Determinants of poverty eradication should be evaluated so that targeted policies are initiated which could reduce

multidimensional poverty and improve living standards. The objective of this study is to evaluate the determinants of poverty eradication in Pakistan and estimate various poverty ratios such as headcount poverty, poverty gap, poverty severity, Watts Index and Gini Coefficient in three time periods 2008-9, 20015-16 and 2019-20.

Literature Review

The theoretical framework of this thesis is based on the works of Nobel Laureate Amritya Sen. His theory of the Capability Approach provides the basis for human development and sustainable growth. The Capability approach is defined as a theoretical framework that involves two approaches. The first approach entails that human beings are free to achieve well-being which has primary importance. The second approach pertains to the understanding of well-being in terms of a person's capabilities and functioning. Capabilities are doings and beings that a person can achieve if he chooses to, such as getting an education, fulfilment of nourishments, getting married and so on. Functioning are capabilities that have been comprehended (Sen, 1990).



The above diagram is the process flow that presents the starting point from the resources to capability to functioning and to final utility. It demonstrates the linear relationship between means and ends (Clark, 2005). The Capability Approach has been regarded as a human-centred approach which gives importance to the human agency rather than any institutions or markets. The capability Approach proposes freedom to an individual to pursue his or her own goals against going for an individual utility (Dodd, 1997). Poverty can be explained as a lack of basic necessities like daily food intake, ability to get an education and adequate income [Sen \(1981\)](#). Income can only be assumed as a reliable factor if it has the ability to give access to the vital needs of life. According to [Sen \(1983\)](#), there are a few categories which can be gauged as vital necessities, such as health, education, social equality, self-respect & freedom from harassment. With the given explanation, it has been established that the

income has to be perceived as an entitlement, i.e. whether a person has entitlement or access to some of the vital things s/he needs in exchange for income or otherwise (e.g. by social right).

[Malik, M \(1988\)](#) estimated poverty using HIES 84–85 data. He estimated a calorie-based poverty line on the consumption level of 2550 calories per adult for both urban and rural households. [Ahmad and Ludlow \(1989\)](#) estimated poverty using HIES 84–85 data for urban and rural individuals and households both. They used per capita and GDP deflators for the estimates. Ahmed and Alison (1990) use the same formula as above to estimate the poverty levels. [Havinga et al. \(1989\)](#) estimated poverty levels using calorie consumption ranging from a low of 1500–2000 calories per person to a high of 2000–2550 per person. They used data from HIES 84–85. [Erceclawn \(1991\)](#) used HIES data of 84–85 and estimated consumption through calorie intake of 2550 per person. He excluded remittances and durables from the data. He used regression of calorie intake over total expenditure to calculate expenditure level. He developed the level of poverty for 4 provinces with urban and rural classifications. [Mahmood et al. \(1991\)](#) used HIES data of 84–85 and estimated poverty levels of households through regressing calorie intake on food expenditure for urban and rural areas. Malik, S. (1991) estimated poverty using HIES data of 84–85 and 87–88 through calorie consumption level of 2550 per person. He included inflation to estimate the incidence level. [Ahmad \(1993\)](#) estimated the poverty incidence using HIES data of 87–88 and developed the estimated cost of the basic bundle of goods. [Gazdar, Howes and Zaidi \(1994\)](#) used HIES data from 84 to 91 and calculated poverty by modifying the basic bundle approach with purchasing power parity.

[Kemal \(1995\)](#) evaluated policies for poverty eradication. He proposes four instruments to reduce poverty. New technology, promotion of small and medium firms, reasonable taxation policy and equal opportunity for the poor. Malik (1996) explored determinants of increased standard of living by using micro data of a village in Punjab. Amjad and Kamal (1997) studied the relationship between macro variables and poverty. The impact of

structural adjustment policies on poverty was also examined. [Malik et al. \(2000\)](#) examined the impact of land distribution on poverty alleviation. He concluded that land redistribution helps to increase agricultural growth and reduce poverty in rural areas. [Azid et al. \(2001\)](#) analysed the role of female labour force participation in alleviating poverty. They studied the cottage industry of Multan and concluded that there is a strong association between the number of hours worked and household poverty. Siddiui (2001) professes the role of women's participation in poverty reduction. She emphasised the role of women in productive activity, which reduces gender-based poverty. Chaudry (2003) explored the micro determinants of poverty in the Bahawalpur district of Punjab through empirical analysis. He concluded that various policy measures such as health, education, efficient economic infrastructure and promotion of farm productivity would alleviate poverty. Chaudhry et al. (2005) analysed the poverty profile of the Cholistan in South Punjab. They concluded that land distribution, increased livestock productivity, and other improved variables would decrease poverty. [Arif \(2006\)](#) studied the poverty alleviation programs such as zakat, microfinance and health services. He concluded that most of the programs have failed to reach the population. [Chaudhry et al. \(2006\)](#) investigated the determinants of rural poverty with respect to agriculture. He analysed data from 1963 to 1999 and concluded that inflation, unemployment and growth play an important role in poverty alleviation. [Hussain and Scott \(2016\)](#) explore the impact of financial exclusion on gender poverty in Pakistan. They suggest that financial exclusion, gender discrimination and conservative values played an important role in women's poverty in Pakistan. The study supports the use of microcredit in poverty eradication. Haroon (2021) updated the poverty numbers using PSLM data for 2018–19. He also estimated the vulnerable to poverty percentage of the population. 37% of the population was below the poverty line, and 51% was vulnerable to falling into the poverty trap. Israr and Ali (2019) explored the impact of macroeconomic policies on poverty alleviation. They used time series data from 1994 to

2005 and came to the conclusion that investment in social and development projects, job opportunities, growth in per capita income and improvement in living standards may reduce poverty. [Dzidza et al. \(2018\)](#) evaluated the impact of education on poverty reduction. The study was conducted in Ghana, Africa, using descriptive techniques to assess the impact. The study concluded that education had a positive relationship with poverty eradication; therefore the government should invest more in primary and secondary education. Shirazi, Javed and Ashraf (2018) analysed the role of remittances on growth and poverty eradication. They used econometric modelling for the analysis. The results revealed that foreign remittances could be enhanced through efficient financial systems, which would then lead to higher growth and lower poverty. [Amjad \(2017\)](#) evaluated the importance of remittances in poverty reduction. He took Pakistan and Bangladesh as a case study. The analysis was done through time series and econometric techniques. The result indicated that remittances would reduce poverty, but due to migration costs, remittances do not reach the poor directly. Remittances do not have any significant impact on economic growth.

Research Methodology

This paper used a quantitative design for data analysis. The data is interpreted through the use of the Probit technique. The probit technique is used to analyse binomial response variables. It is a type of regression analysis which transforms the sigmoid dose-response curve into a straight line by using least square or maximum likelihood regression. The Probit analysis was developed by ChestnerIttner Bliss in 1934 through a paper published in the Science journal. He was an entomologist in the Connecticut agriculture experiment station, where he was working on finding effective pesticides that fed on grape leaves (Greenberg 1980). He plotted various responses of the insects to different concentrations of pesticides. The results show that insects were affected by pesticides at different concentrations. The differences were not compared due to the unavailability of statistical methods; however, Bliss successfully developed a straight line

of sigmoid dose responses. In 1952 another professor David Finey wrote a book called Probit Analysis. It is a specialised regression model of binomial response variables.

Probit estimation is based on an underlying latent variable model of the social safety net & its impact on poverty.

$$Y^*_i = \chi_i\beta + u_i, E(u_i) = 0 \text{-----eq(1)}$$

The interpretation of this variable y^*_i is the difference in the utility between choosing $y_i = 1$ and 0.

Model Specification

The probit and logit models are estimated by maximum likelihood (ML). Assuming independence across observations, the likelihood function is

$$L = \prod_{\{i|y_i=0\}} P(y_i = 0|x_i) \prod_{\{i|y_i=1\}} P(y_i = 1|x_i) \\ = \prod_{i=1}^N [1 - F(z_i)]^{1-y_i} F(z_i)^{y_i}$$

where $P(y_i = 1|x_i) = F(z_i) = \Phi(z_i)$ in the probit model and $P(y_i = 1|x_i) = F(z_i) = e^{z_i} / (1 + e^{z_i})$ in the logit model. The corresponding log likelihood function is

$$\log L = \sum_{i=1}^N [(1 - y_i) \log (1 - F(z_i)) + y_i \log F(z_i)]$$

The first order conditions for an optimum are in general, for all k including a constant $x_{i0} = 1$

$$\partial \log L / \partial \beta_k = \sum_{i=1}^N [(1 - y_i) - f(z_i) / 1 - F(z_i) + y_i f(z_i) / F(z_i)] x_{ik} = 0$$

where $f(z) \equiv \partial F(z) / \partial z$. This simplifies in the probit model to

$$\partial \log L / \partial \beta_k = \sum_{\{i|y_i=0\}} -\phi(z_i) / 1 - \Phi(z_i) x_{ik} + \sum_{\{i|y_i=1\}} \phi(z_i) / \Phi(z_i) x_{ik} = 0$$

The estimator β of ML can be conceived as consistent and asymptotically normally distributed. It can also be stated with accuracy that in ML the error term is normally distributed and homoscedastic. However this study estimates the poverty using probit with likelihood hypothesis. Source: Kurt Schmidheiny, Short Guide to Macro econometrics

Head Count Index

The mostly used poverty index is called the headcount

poverty index. It is the proportion of the population counted as poor. The equation for the headcount index can be written as.

$Po = 1/N \sum I(y_i < z)$, where I is an indicator which takes function 1 if it is true or 0 otherwise. So if y_i is less than the poverty line that is z , then the household would be identified as poor. This index is easy to understand as it clearly presents the number of poor households.

Poverty Gap Index

It is used to measure the gap between the income and poverty benchmark. The number of people who fall below the poverty line is divided by the poverty line itself into percentage terms. The formula can be written as:

$$Gi = (z - y_i) \cdot I(y_i < z).$$

Where Z is the poverty line, and y_i is the income level. This shows how much a gap persists between poor people's income in reaching the poverty line. It also explains how many resources are required to bridge the poverty gap through direct transfers.

Poverty Severity Index

This index is used to take inequality among the poor into account. It gives weight to poverty gaps where a poverty gap of 10% will be given 10% weightage as compared to the equal weightage given to all. The measure can be written as:

$$P_2 = 1/N \sum (G_i/z)^2$$

Poverty severity is computed by dividing the poverty gap by the poverty line and squaring and estimating the average to give the poverty gap index. The poverty severity index is one of the families of measures by Foster, Greer and Thorbecke (1984).

Watts Index

The Watts index is known to be the first distribution-sensitive measure proposed by Watts (1968). It can be written in the form

$$1/N \sum [\ln(z) - \ln(y_i)]$$

Where N are the individuals in population. $\ln(z)$ is the log of the poverty line and $\ln(y_i)$ is the log of income of the individuals. The poverty line is divided by the income, taking the log and finding the average over the poor.

Time Taken to Exit

Time taken to exit is another measure through which a timeline can be obtained in poverty alleviation. This is calculated by dividing the Watts index by the growth rate of the economy. It will provide the time period to exit from the current level of poverty.

Data Sources & Data Description

Data have been taken from Pakistan Living Standard Measurement Survey 2019-20. Poverty has been taken as the dependent variable, whereas Livestock possession, self-employment, Agricultural Land, Pension, Access to drinking water, Access to Sanitation, Access to hygiene, Foreign remittance, Native of the area, household size and Literacy have been identified as explanatory variables. Gender and Age have been used as control variables. All variables are categorical in nature as they are used in a binary form. The poverty benchmark has been estimated using an absolute measure, and it is measured through calorie intake of 2350 per adult per day. Data have been used for the national level, which includes all four provinces, rural and urban. The sample size consists of 150,000 households on the national level.

Absolute poverty has been estimated using different indices such as headcount index, poverty gap, severity index, watts index, time to exit and Gini coefficient. Data used for the estimation are taken from three different time periods of the Pakistan Living Standard Measurement Survey starting from 2008-09, 2015-16 and 2019-20.

Result and Discussion

Descriptive Analysis

Table 1 Represents the Maximum and Mean Income of 156,000 Respondents in a PSLM Survey

Table 1. 2019-20. The mean Income is Rs 25,395, and the Maximum Income is Rs 5.2million in a Month with a Standard Deviation of Rs 45,052.

Descriptive Statistics				
	Minimum	Maximum	Mean	Std. Deviation
Income Level	-	5,200,005	25,395	45,052

Source: Author's Estimate from PSLM 2019-20

Table 2 Provides the Average Income and Average Household Size in Four Provinces. KP's Mean Income is Rs 24,15 Punjab's Mean Income is Rs 25,693, Sindh's Mean Income is Rs 25,171, and Baluchistan's Mean Income is Rs 26,083. KP Household size is 4.62, which is the highest compared to other Provinces. Punjab Household size is 3.72, Sindh Household Size is 3.36 and Baluchistan Household Size is 3.87.

Table 2

	Mean Income and Average Household Size by Provinces			
	K-Pakhtunkhwa	Punjab	Sindh	Baluchistan
Income Monthly	24,515	25,693	25,171	26,083
Household	4.627	3.725	3.361	3.876

Source: Author's Estimate from PSLM 2019-20

Table 3 Shows the Head Count of Poverty on National Level. 31.78% of the Population Remains under the Poverty Threshold. The Poverty Benchmark has Been Estimated using a Calorie Intake of 2350 Calorie Per Person Per Day.

Table 3

National Head Count Poverty		
	No of Respondents	Valid Percent
Non-Poor	106,443	68.21%
Poor	49,596	31.78%
Total	156,039	100.00%

Source: Author's Estimate from PSLM 2019-20

Table 4 Represents Region-wise Poverty Headcount. Rural Poverty is around 37.85%, and Urban Poverty is around 22.43%.

Table 4

Poverty by Region	Rural	Urban
	Non-Poor	62.15%
Poor	37.85%	22.43%

Source: Author's Estimate from PSLM 2019-20

Table 5 Represents the Head Count Poverty by Province. Punjab and Sindh's Poverty Estimates are around 21.85% and 34.24%, whereas KP and Baluchistan's Poverty Estimates are around 35.39% and 41.35%, respectively.

Table 5

Poverty by Province				
	K Pakhtunkhwa	Punjab	Sindh	Baluchistan
Non-Poor	64.61%	78.15%	65.76%	58.65%
Poor	35.39%	21.85%	34.24%	41.35%

Source: Author's Estimate from PSLM 2019-20

Table 6 provides an analysis of the Multidimensional Poverty Index. 32.29% of the households are poor, having possession of live stocks as compared to those households who do not own are 36% poorer. 33.31% of households are poor, having agricultural land as compared to those who do not own agricultural land and are poorer by 36%. 29% of the households receiving pensions are poor, whereas 32% of the households are poor without pensions. Literacy reduces poverty from 32% to 35%. Being Native of the land reduces

poverty by 31.84% from 32.4% if not a native of the land. Having access to fresh drinking water tends to reduce poverty to 32.82% from 36.2% of not having access to drinking water. Having access to Sewerage and Hygiene reduces poverty to 31.6% and 32% from 35.4% and 34.2% without having any of the facilities. Self-employment reduces poverty to 22% from 36% without any employment. Foreign remittances also reduce household poverty by 22% from 32%.

Multidimensional Poverty

Table 6

Variables	Yes	No	Percentage Change in Points
	Poverty Index		
Livestock Ownership	32.29%	36.0%	3.70%
Agri Land Ownership	33.31%	35.5%	2.24%
Pension received	28.99%	31.9%	2.92%
Literacy	31.80%	34.8%	2.96%
Native Born	31.84%	32.4%	0.57%
Access to Drinking Water	32.82%	36.2%	3.41%
Access to Sewerage	31.61%	35.4%	3.83%
Access to Hygiene	32.18%	34.2%	2.05%
Self Employed	22.06%	35.6%	13.50%
Foreign Remittance	21.64%	32.0%	10.36%

Source: Author's Estimate from PSLM 2019-20

Table 7 Represents the frequency of respondents according to socio-economic factors. 27% of the respondents own live stocks, and 24% own agricultural land. Around 2% of the respondents receive pension cover. The literacy rate is around 58%. 95% of the individuals are native to the area. Availability of drinking water is around 90%, availability of sanitation is 60%, and availability of

Hygiene is 52% for a particular household. 20% of the individuals are self-employed, and 1% of respondents received foreign remittances. The marital status of respondents is composed of 60% unmarried and 40% married. Genderwise analysis shows Males are 51% and Females are 49% of the total sample.

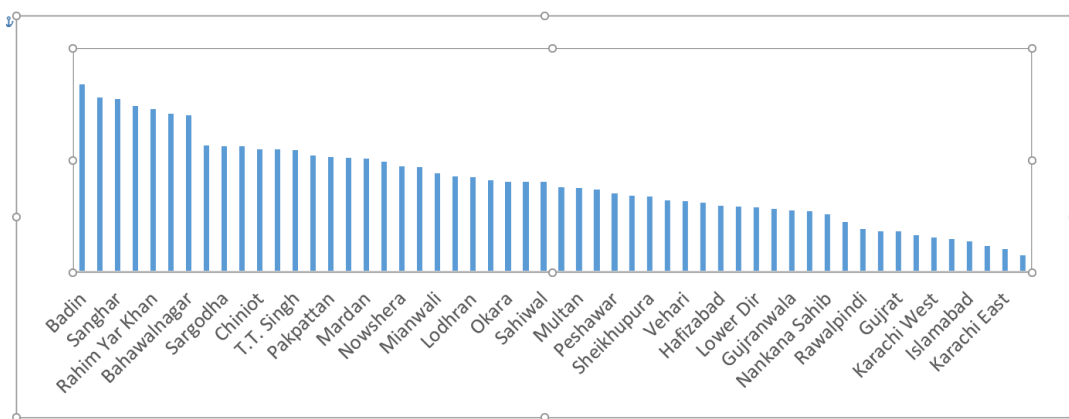
Table 7

Frequency of Respondents		
Variables	Yes	No
Livestock Ownership	26.7%	73.3%
Agri Land Ownership	24.0%	76.0%
Pension received	1.7%	98.3%
Literacy	58.4%	41.6%
Native Born	95.0%	5.0%
Access to Drinking Water	90.0%	10.0%
Access to Sewerage	60.0%	40.0%
Access to Hygiene	52.0%	48.1%
Self Employed	19.8%	80.2%
Foreign Remittance	1.0%	99.0%
Marital Status	60.0%(Un-m)	40%(M)
Gender	51.00% (M)	49% (F)

Source: Author's Estimate from PSLM 2019-20

Graph 01 portrays headcount poverty citywise. According to the graph highest poverty is present in the areas of South Punjab, Eastern and Central

part of Sindh and Northern parts of K-P. Metropolitan cities of the country tend to have poverty of less than 10%.



Graph 1

Source: Author's Estimate from PSLM 2019-20

The study's objective is to explore the micro determinants of poverty alleviation using cross-sectional data from the PSLM 2019-20. The dependent variable in the study used is poverty which is a binary in which an individual is either poor or not. The poverty line has been established using the food calorie intake methodology, which is 2350 calorie per person per day. The explanatory variables have been categorised as covariates and control variables. Control variables are age, marital

status and family size and gender, whereas covariates are literacy level, employment status of an individual, live stocks, agricultural land, pensions, foreign remittance, access to drinking water, access to sanitation, access to hygiene and being native of the land. Probit procedure has been used to analyse the impact of the social safety net on poverty alleviation, and a complete model has been developed, which can help policymakers to enhance their focus on the variables in the model.

$$Y_i = \alpha + \chi_i\beta + u_i, E(u_i) = 0 \text{-----eq(2)}$$

$$\text{Poverty} = \alpha^* - 0.393 + \text{Pension}^* - 0.130 + \text{Native}^* - 0.155 + \text{Livestock}^* - 0.068 + \text{Gender}^* 0.021 + \text{Age}^* 0.004 + \text{Drinking Water}^* - 0.065 + \text{Sewerage}^* - 0.179 + \text{Hygiene}^* - 0.086 + \text{Literacy}^* - 0.057 + \text{Self Employed}^* - 0.346 + \text{Foreign remittance}^* - 0.216 + \text{Agriland}^* - 0.015 + \text{Marital status}^* 0.006 + \text{Dummy}^* 1 + u_i, E(u_i) = 0$$

The above model has been further explained through its significance levels with regional and district dummies.

Model Estimation

In the above eq(2), the actual estimates are plugged in to ascertain the impact on poverty reduction.

$$\text{Poverty} = \alpha^* - 0.393 + (0.03) - 0.130 + (0.96)^* - 0.155 + (0.28)^* - 0.068 + (0.91)^* - 0.065 + (0.61)^* - 0.179 + (0.53)^* - 0.086 + (0.59)^* - 0.057 + (0.21)^* - 0.346 +$$

$$(0.02)^* - 0.216 + (0.23)^* - 0.015 + \text{Dummy}^* 1 + u_i, E(u_i) = 0$$

The above equation is computed by plugging one unit increase in pensions from the current 0.017 to 0.03, one unit increase in being a native of the land calculated from PSM data from 0.95 to 0.96, one unit increase in owning live stocks from 0.27 to 0.28, one unit increase in access to drinking water from current statistics of 0.90 to 0.91 and one unit increase in access to sanitation from current 0.60 to 0.61. One unit increase in access to hygiene from the current 0.52 to 0.53, one unit increase in Literacy from 0.58 to 0.59, one unit increase in self-employment from 0.20 to 0.21, one unit increase in foreign remittances from 0.01 to 0.02 and one unit increase in agricultural land from 0.22 to 0.23. Hence the model can predict the probability of a decline in poverty is 0.097. Gender and marital status estimates were not considered due to insignificant estimates.

Table 8

Parameter	B	Std. Error	Hypothesis Test		
			Wald Chi-Square	df	Sig.
(Intercept)	-0.393**	0.057	47.573	1	0.000
Pension	-0.13**	0.0716	3.316	1	0.049
Native to Area	-0.155**	0.0398	15.075	1	0.000
Livestock	-0.068**	0.021	10.45	1	0.001
Drink Water	-0.065**	0.0286	5.233	1	0.022
Sewerage	-0.179**	0.0204	77.593	1	0.000
Hygiene	-0.086**	0.0197	19.11	1	0.000
Self-employed	-0.346**	0.0203	290.215	1	0.000
Remittance	-0.216**	0.0616	12.315	1	0.000
Agriland	-0.015**	0.0214	0.515	1	0.033
Gender	0.021	0.0177	1.347	1	0.246
Marital Status	0.006	0.0253	0.065	1	0.799
Age	0.004	0.0007	1.047	1	0.306
Literacy	-0.057**	0.0176	10.36	1	0.001

**Significant @5%

Source: Author's Estimation from PSLM 2019-20

Goodness of Fit

Likelihood Ratio Chi-Square- 521.247 - df 13 - Sig .000

Pension is one of the micro determinants of poverty alleviation; as per the model estimated 1% increase

in pensions will decrease the predicted probability of poverty by 0.13%. The parameters are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. The results are inconsistent with the study of Deither, Pestieau and Ali (2011), HelpAge India (2007) and Kakwani, Son

and Hinz (2006). The studies have concluded that pension programs support people from falling into a poverty trap, and the programs should be extended to alleviate poverty. Being native to the area is an important aspect of improving one's life. The results revealed that a 1% increase in being native to the area might reduce the predicted probability of poverty by 0.16%. The parameters are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. Knowledge of the local geographical area would support rural families build farms and producing agricultural products, which reduce overall poverty. Livestock possession has been an important asset a family can own in a rural economy. The results estimate that for 1% increase in livestock possession may reduce the predicted probability of poverty by 0.06%. The results are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. The results are inconsistent with the studies of Chaudry (2003), Jan, Chishti and Eberle (2008) and Iqbal et al. (2018). Social living standards have a significant impact on poverty alleviation. The results concluded that a 1% increase in access to drinking water, access to the sewerage system and the presence of a Hygiene facility at home would reduce the predicted probability of poverty by 0.065% , 0.018%, 0.09%, respectively. The results are inconsistent with studies of Awan and Iqbal (2010), Khan, Rehan and Haq (2015) Israr and Ali (2019).

An increase in self-employment has been estimated to have a significant impact on poverty alleviation. The model suggests that a 1% increase in self-employment level will reduce the predicted probability of poverty by 0.35%. The results are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. The results are consistent with the studies of Israr and Ali (2019), [Kemal \(1997\)](#), Islam (2004), Hull (2009), Anwar (2002), and Arif and Farooq (2012). The availability of agricultural land has been reported in various studies to have a positive impact on poverty alleviation. In the current model, the result suggested that a 1% increase in agricultural land will reduce the predicted probability of poverty by 0.012%. The results are significant at a 5%

significance level, and the null hypothesis of zero estimates can be rejected. The results are consistent with the studies of [Malik et al. \(2000\)](#), Chaudhry et al. (2005), Khalid, Shahnaz and Bibi (2005), Jan, Chishti and Eberle (2008), T.Anwar (2002), TS Jayne (2002) and Khatiwada (2017). Literacy played an important role in reducing poverty and improving the standard of living. Literacy provides an opportunity for an individual to progress in life. The current study confirms the assumption of higher literacy and lower poverty. The results suggest that a 1% increase in literacy will reduce predicted probability by 0.05%. The results are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. The results are inconsistent with the studies of Chaudhry (2003), Ahmed, E. and Ludlow(1989) and Kurosaki (2010). Foreign remittances have become a major cause of poverty alleviation in recent years. The model suggests that a 1% increase in foreign remittances will reduce the predicted probability by 0.22%. The results are significant at a 5% significance level, and the null hypothesis of zero estimates can be rejected. The results are inconsistent with studies by Amjad (1986), Siddiqui and Kama (2006), Amjad (2010), [Jamal \(2004\)](#), and Nishat and Balgrami (1991). Age, Marital Status and Gender have been used as control variables. The model's results remain insignificant; therefore, no substantial impact can be assessed on poverty alleviation.

Poverty Estimates

Different Poverty measures are used to estimate the total magnitude of poverty currently present in society. The poverty benchmark of the food calorie intake of 2350 per person per day has been adopted. Poverty incidence can be estimated using various measures. Table 10 represents the trend in poverty headcount, poverty gap, poverty severity, watts index, Gini Index and Time to exit poverty from 2008-9, 2015-16 and 2019-20. The headcount poverty index was 41.5% in 2008-09, whereas it declined in 2015-16 to 19.9% and rose to 31.9% in 2019-20. The poverty Gap is used to measure the gap between the income and poverty benchmark. The number of people who falls below the poverty

line is divided by the poverty line itself into percentage terms. The poverty gap was 11% in 2008-09; it declined to 8.59% in 2015-16 and again rose to 11% in 2019-20. The poverty severity index is one of the families of measures by Foster, Greer and Thorbecke (1984). It describes the trend in inequality among the poor. Poverty severity in 2008-09 was 6.87%, in 2015-16, 4.76% and in 2019-20, it was 5.49%. This trend depicts the decline in income distribution for the poor in 2019-20 as compared to 2015-16. Watts Index is an index which describes the trend in the income transfer to the poorest. Watts Index in 2008-09 was 26.55% which improved to 20.29% in 2015-16 but again declined to 2019-20. This clearly displays the inequality in income distribution among the

poorest of all. Gini Index is a measure to analyse income inequality in society. In 2008-09 the Gini was 0.447, which improved in 2015-16 but marginally declined again in 2019-20. This proves that income inequality and poverty have increased from 2015-16 due to instability in the economy. The time to Exit ratio is used to estimate the time required to exit from extreme poverty. In 2008-09 Watts Index was 26.55% which could have been reduced if the economy had grown by 6% in the next 7 years. In 2015-16 Watts Index was 20.29% which could have been reduced if the economy had grown by 6% in the next 3.4 years, whereas in 2019-20, as per the Watts Index of 36.15%, the economy should grow by 6% in next 6 years in order to eliminate extreme poverty.

Table 9

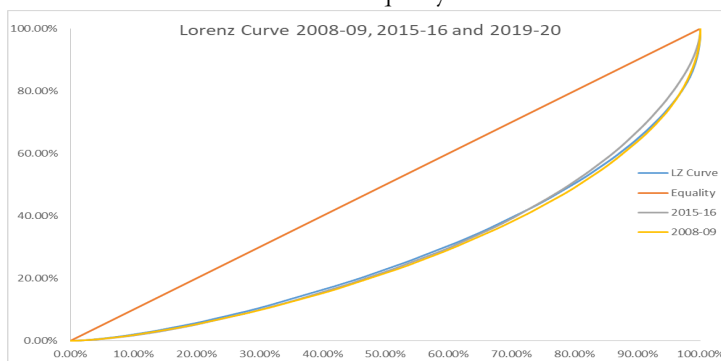
	Headcount	Poverty Gap	Severity	Watts Index	Gini Index	Time to Exit@6% Growth
2019-20	31.9%	11.00%	5.49%	36.15%	0.430	6.02 Years
2015-16	19.9%	8.59%	4.76%	20.29%	0.429	3.38 Years
2008-09	41.5%	11.69%	6.87%	26.55%	0.447	6.63 Years

Source: Author's Estimation from PSLM 2019-20

Lorenz Curve

Below the graph, 2c represents the Lorenz curve of three different periods. The Lorenz curve is used to present the income distribution across a sample. The wider the curve from the midline, the larger the income inequality. Lorenz curve is developed using Pakistan Standard Living Measurement Survey data for the period 2008-09, 2015-16 and 2019-20. The

curve in 2008-09 is much wider from the line of equality as compared to the curve of 2015-16 and 2019-20. The curve of later periods do not have any difference and are very much equal to each other. Hence it is concluded that income inequality in 2008-09 was much higher. In 2015-16 income inequality marginally declined, but in 2019-20, no further reduction can be observed in income inequality.



Graph 2

Source: Author's Estimation from PSLM 2019-20

Conclusion

Estimating regional and provincial trends in rural poverty has always been significant, but the debate on the link between land and asset ownership has been restricted. It is important to highlight that agriculture land holding and rural poverty have a strong relationship and are inextricably intertwined. It is often regarded as an essential contributor to the reduction of rural poverty. Agriculture lands are primarily concentrated in the hands of a few landowners, which has become a major impediment to poverty reduction. This creates a strong impression that agricultural land allocation in Pakistan is significantly skewed, resulting in widespread poverty in rural areas. Explaining poverty through macroeconomic factors has become difficult as it involves various aspects which are mostly related to the household level. Nonetheless, the majority of poverty persists in Pakistan, with much more in isolated areas. As poverty has been seen as an essential economic development issue, efforts have been undertaken to relieve it by boosting household income levels. It has also been stated as the main purpose of all government policies in Pakistan. The objective of the study was to evaluate the determinants of poverty eradication in Pakistan and estimate various poverty ratios such as headcount poverty, poverty gap, poverty severity, Watts Index and Gini Coefficient in comparison with ratios of 2008-9, 2015-16 and 2019-20. The results indicate that access to drinking water, availability of sanitation and hygiene facilities in a household, holding an agricultural land, having livestock in a possession, household size and being a native of the area reduce the predictive probability of being poor. Other variables such as cash transfers, receiving foreign remittances and being self-employed also positively reduce the predictive probability of being in poverty. The results remain to be consistent with the previous studies of [Malik \(1996\)](#), [Chaudhry \(2003\)](#), [Kemal & Amjad \(1997\)](#), and [Akram, Naz and Ali \(2011\)](#). Poverty levels are estimated in three different timelines that were of 2008-9, 2015-16

and 2019-20. Various indices such as Head Count Index, Poverty Gap, Poverty Severity, Watts Index, and Gini Coefficient were evaluated. National Headcount poverty decreased from 41% in 2008-09 to 20% in 2015-16 but increased to 31.9% in 2019-20. The poverty gap index shrinks from 12% in 2008-09 to 8.6% in 2015-16 but again increases to 11% in 2019-20. Poverty Severity Index shrinks from 7% in 2008-09 to 4.76% in 2015-16 but increases to 5.5% in 2019-20. Watts Index declines from 27% in 2008-09 to 20.29% in 2015-16 and again increases to 36.15% in 2019-20. Inequality marginally declines, having Gini 0.447 in 2008-09 to Gini 0.429 in 2015-16 but increases to 0.431 in 2019-20.

The determinants of poverty eradication explored were mostly related to socio and economic factors of the society. Government must ensure access to basic drinking water, sanitation and hygiene facilities for the people, as it would improve their living conditions and would lead to prosperity. Social spending should be increased from 3.7 per cent to 6 per cent of the GDP as per the regional spending rate. In the rural areas, land distribution should be prioritised as it would increase the income of poor farmers. Livestock possession would also support rural households with an increase in income and wealth; therefore, microloans should be distributed to encourage livestock productivity. Direct cash transfers as a safety net should be increased as they would cover the vulnerable from falling into the poverty trap. Foreign remittances should be encouraged through formal channels as it would improve the living standard of the people. Pensions should continue as it has been before, as they have become one of the major sources of income for retired and poor people. It should be made automated and people-friendly so that it can be received without any hassle. These various household determinants required targeted policies so that poverty could be eradicated without waiting for the trickle-down effect to happen. This would reduce income inequalities and could bring prosperity to society.

References

- Ahmad, E., & Stephen, L. (1988), "On Changes in Inequality in Pakistan, 1979–84", DERP Discussion Paper, Sticerd, London School of Economics.
- Ahmad, M. (1993), "Choice of a Norm of Poverty Threshold & Extent of Poverty in Pakistan", mimeo, Ministry of Finance, Islamabad.
- Alizan, M. (2012). Adopting the Capabilities Approach in Developing a Global Framework on Sustainable Development. Master thesis in Sustainable Development at Uppsala University, 30,
- Amjad, R. (2017). Remittances and Poverty: A Comparison of Bangladesh and Pakistan, 2000–2016. *The Bangladesh Development Studies*, 40(3 & 4), 75–103.
- Amjad, R., & Kemal, A. R. (1997). Macroeconomic Policies and their Impact on Poverty Alleviation in Pakistan. *The Pakistan Development Review*, 36(1), 39–68. <https://doi.org/10.30541/v36i1pp.39-68>
- Arif, G. M. (2006). Targeting Efficiency of Poverty Reduction Programs in Pakistan, Pakistan Resident Mission Working Paper 4, May. Islamabad: Asian Development Bank.
- Arif, G. M., Nazli, H., & Haq, R. (2000). Rural Non-agriculture Employment and Poverty in Pakistan. *The Pakistan Development Review*, 39(4II), 1089–1110. <https://doi.org/10.30541/v39i4iipp.1089-1110>
- Azid, T., Aslam, M., & Chaudhary, M. O. (2001). Poverty, Female Labour Force Participation, and Cottage Industry: A Case Study of Cloth Embroidery in Rural Multan. *The Pakistan Development Review*, 40(4II), 1105–1118. <https://doi.org/10.30541/v40i4iipp.1105-1118>
- Baumgartner, R. J. (2011). Critical perspectives of sustainable development research and practice. *Journal of Cleaner Production*, 19(8), 783–786. <https://doi.org/10.1016/j.jclepro.2011.01.005>
- Chaudhry, I. S., Malik, S., & Imran, A. (2006). Urban Poverty and Governance: The Case of Multan City. *The Pakistan Development Review*, 45(4II), 819–830. <https://doi.org/10.30541/v45i4iipp.819-830>
- Cobbinah, P. B., Erdiaw-Kwasie, M. O., & Amoateng, P. (2015). Rethinking sustainable development within the framework of poverty and urbanisation in developing countries. *Environmental Development*, 13, 18–32. <https://doi.org/10.1016/j.envdev.2014.11.001>
- Du Pisani, J. A. (2006). Sustainable development – historical roots of the concept. *Environmental Sciences*, 3(2), 83–96. <https://doi.org/10.1080/15693430600688831>
- Dzidza, P. M., Jackson, I., Normanyo, A. K., Walsh, M., & Ikejiaku, B. V. (2018). Educational policies on access and reduction of poverty: the case of Ghana.
- Ercelawn, A. (1991), "Absolute Poverty as Risk of Hunger", mimeo, Applied Economics Research Centre, University of Karachi, March.
- Fahad, I., & Ali, R. (2019). Impact of macroeconomic policies on poverty alleviation in Pakistan.
- Gazdar, H., Stephen, H., & Salman, Z. (1994b), "A Profile of Poverty in Pakistan", mimeo, STICERD, London School of Economics and PRDPH, World Bank.
- Havinga, I. C., & Et, al. (1989) "Poverty in Pakistan, 1984–85", Pakistan Development Review, 851–869.
- Hussain, J., Mahmood, S., & Scott, J. (2018). Gender, Microcredit and Poverty Alleviation in a Developing Country: The Case of Women Entrepreneurs in Pakistan. *Journal of International Development*, 31(3), 247–270. <https://doi.org/10.1002/jid.3403>
- Jamal, H. (2021). "Updating Pakistan's Poverty Numbers for the Year 2019," MPRA Paper 105135, University Library of Munich, Germany, revised 14 Jan 2021.
- Kemal, A. R. (1995). 'Poverty Alleviation in Pakistan: An Evaluation of Public Strategies and Policies Adopted for Poverty Alleviation', Organised by Institute of Policy Studies: Islamabad.

- Klarin, T. (2018). The Concept of Sustainable Development: From its Beginning to the Contemporary Issues. *Zagreb International Review of Economics and Business*, 21(1), 67–94. <https://doi.org/10.2478/zireb-2018-0005>
- Lélé, S. M. (1991). Sustainable development: A critical review. *World Development*, 19(6), 607–621. [https://doi.org/10.1016/0305-750x\(91\)90197-p](https://doi.org/10.1016/0305-750x(91)90197-p)
- Mahmood, S., Sheikh, K. H., & Mahmood, T. (1991). Food Poverty and its Causes in Pakistan. *The Pakistan Development Review*, 30(4II), 821–834. <https://doi.org/10.30541/v30i4iipp.821-834>
- Malik S. J. (2005). Agricultural Growth and Poverty: A Review of the Evidence, ADB Pakistan Resident Mission working Paper No.2, Islamabad: Asian Development Bank.
- Malik, M. H. (1988). Some New Evidence on the Incidence of Poverty in Pakistan. *The Pakistan Development Review*, 27(4II), 509–515. <https://doi.org/10.30541/v27i4iipp.509-515>
- Malik, S. (1992). A Study of Rural Poverty in Pakistan with Special Reference to Agricultural Price Policy, Unpublished PhD Thesis, University of Sussex: UK.
- Malik, S. (1996). Determinants of Rural Poverty in Pakistan: A Micro Study. *The Pakistan Development Review*, 35(2), 171–187. <https://doi.org/10.30541/v35i2pp.171-187>
- Malik, S., Sharif, I., & Jamal Z. (2000). 'Rural Poverty Alleviation Pakistan: Land Redistribution as a Direct Policy Measure,' *Journal of Rural Development* 33(1): 69-77.
- Sen, A. K. (1990), 'Development as Capability Expansion', in Keith Griffin and John Knight (eds), *Human Development and the International Development Strategy for the 1990s*, London: Macmillan, 41-58. <https://plato.stanford.edu/entries/capability-approach/>
- Steer, A., & Wade-Gery, W. (1993). Sustainable development: Theory and practice for a sustainable future. *Sustainable Development*, 1(3), 23–35. <https://doi.org/10.1002/sd.3460010306>