

Household Poverty and Welfare in Pakistan: Evidence from Pooled HIES Data 2005-2014

Amara Amjad Hashmi¹, Maqbool Hussain Sial², Waqar Akram³,
Maaida Hussain Hashmi⁴

¹Assistant professor, Department of Economics, Lahore College for Women University, Lahore, Pakistan

²Professor of Economics, Dr Hasan Murad School of Management (HSM), University of Management and Technology, Lahore, Pakistan

³Teaching Fellow, Waikato Management School, University of Waikato, New Zealand

⁴Assistant Professor, Department of Economics, COMSATS University Islamabad, Pakistan

Correspondence: drmaaida.hashmi@comsats.edu.pk⁴

ABSTRACT

Aim of the Study: This study examines household poverty and welfare in Pakistan using five pooled repeated cross-sectional rounds of the Household Integrated Economic Survey for 2005-06, 2007-08, 2010-11, 2011-12, and 2013-14. The household is treated as the primary unit of analysis, and expenditure per adult equivalent is used as the principal monetary welfare indicator. Poverty status is defined by comparing household expenditure per adult equivalent with the relevant poverty line for each survey year. The study first estimates poverty headcount ratios to describe changes in poverty incidence across survey rounds and then examines the socioeconomic correlates of poverty status and welfare among poor households.

Methodology: Since the welfare equation is estimated only for households classified as poor, the empirical strategy uses a logit-based two-stage selection-correction approach to account for possible non-random selection into this subsample. The first stage models the probability that a household is classified as poor, while the second stage estimates log expenditure per adult equivalent among poor households after including the generated selection-correction term.

Results: The results show a declining poverty headcount under the comparable poverty-line approach. The second-stage results indicate that education, asset value, access to safe water, sanitation, and electricity are positively associated with log expenditure per adult equivalent among poor households. Household size, age of the household head, food insecurity, rural residence, and later-survey-year indicators are negatively associated with welfare among poor households.

Conclusion: The findings highlight the importance of distinguishing poverty incidence from welfare variation within the poor-household subsample.

Keywords: Household, Poverty, Welfare, Pooled HIES data.

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1. INTRODUCTION

Poverty monitoring continues to be a key component of development policy because policy makers need to have reliable, comparable, and current information to identify households facing a higher level of deprivation, and to develop interventions accordingly. Low income is the symptom of poverty, but poverty also involves other limitations of human capabilities and human living conditions (Sen, 1999). Poverty assessment in Pakistan was historically correlated with vulnerability, social disparities, rural deprivation and inequality in resource use (World Bank, 1995, 2002, 2024; Arif & Ahmed, 2001). Accurate measurement of poverty is therefore a starting point for identifying vulnerable groups, examining socioeconomic determinants, and developing policies that are based on evidence. While a poverty headcount provides a measure of poverty and the percentage of households living below a poverty line, it cannot be used to identify the characteristics of poor households or what welfare measures they are likely to experience (Malik, 2014; Jamal, 2005).

The measurement of poverty is difficult because there are several ways to define poverty, there may be reporting and recall error in the survey, and there is variance in estimates based on the welfare indicator, equivalence scale, price adjustment, and poverty line. The choice of calorie requirement, and poverty line has been demonstrated to have an impact on poverty estimates in Pakistan, and therefore methodological clarity is important for meaningful comparison between the various rounds of the survey (Anwar & Qureshi, 2002; Jamal, 2013; Malik et al., 2014; Ravallion & Lokshin, 2006). In this paper expenditure per adult equivalent is not viewed as poverty, but rather as a monetary measure of household welfare. This welfare indicator is not considered to be poverty status until it is compared to the corresponding poverty threshold. In theories of household welfare, consumption or expenditure tends to be more common than reported income because income may not always be reported, it may be irregular, or it may not be reported at all in the household surveys, whereas expenditure is more likely to be realised over the period of the household survey.

Poverty in Pakistan is still higher in rural parts of the country, and several factors are responsible for making the household vulnerable. Unequal distribution of land in the rural areas of Pakistan is one of the important factors (Arif & Ahmed, 2001; FAO, 2009). If the poverty line is set at \$1.25 per day, the estimated headcount ratio for Pakistan was about 21.04% of the total population in 2008. When the threshold is raised to \$2 per day, a standard often used for middle-income countries, 60.19% of the population falls below the poverty line (World Bank, 2014). More recent estimates suggest that rural poverty declined from 70% to 28%, while urban poverty fell from 50% to 11% between 2001 and 2019. The national poverty headcount also declined persistently over the last decade (Pakistan Economic Survey, 2018-2019).

This study analyses household poverty in Pakistan over five rounds of the Household Integrated Economic Survey for 2005-06, 2007-08, 2010-11, 2011-12, and 2013-14. The repeated survey rounds enable examination of changes in poverty incidence and assessment of whether socioeconomic correlates of poverty and welfare remain consistent across the pooled sample. The study contributes by combining poverty measurement with an econometric analysis of log expenditure per adult equivalent among poor households. It asks: how has poverty incidence changed across the selected survey years, and which household characteristics are associated with welfare among poor households?

2. LITERATURE REVIEW

Researchers have shown sustained interest in poverty trends and determinants, as poverty is multidimensional and persistent. Several studies have documented poverty trends in Pakistan since the 1960s (Arif & Ahmed, 2001; Kemal, 2001). Early studies from the 1970s focused on poverty by assessing the distributive effects of development strategies adopted under different government regimes, particularly during the Ayub and Bhutto periods (Naseem, 1973, 1977; Alauddin, 1975; Mujahid, 1978). Although agricultural subsidies were provided during these periods, large landowners captured most of the benefits, and the intended effects did not reach poorer rural households to a sufficient extent (Arif &

Ahmed, 2001). Overall poverty declined substantially during the 1970s and early 1980s, but rural poverty continued to rise in some estimates (ADB, 2002; Ali & Tahir, 1999; Amjad & Kemal, 1997; CRPRID, 2003; Ercelawn, 1990, 1992; Malik, 1993, 1994, 2005). In contrast, Malik (1996) reported a decline in rural poverty. Poverty estimates are also sensitive to the selected poverty line (Anwar & Qureshi, 2002). For this reason, researchers disagree on the appropriate yardstick for minimum caloric intake. Some studies in Pakistan used 2,250 calories per person per day as the minimum requirement (Amjad & Kemal, 1997; Arif, 2002; Malik, 1988, Saddique et al., 2023), whereas others used 2,350 calories per adult equivalent (Jamal, 2013; Malik, 2014, 2015).

Several studies report that the likelihood of poverty decreases as the education level of the household head increases. While the education of all household members also matters, low education among household heads may place the whole household at greater risk of poverty (Malik, 1996, Haq et al., 2024). Other studies identify household size, employment status, and age as important correlates of poverty (Sekhampu, 2013, Hameed et al., 2024). Maloma (2016) similarly found that employment among household heads is associated with lower household poverty.

In recent years many studies (GOP, 2019; Iqbal, 2020; World Bank, 2025) claimed that Pakistan made a significant progress in poverty reduction over the almost past two decades. This amazing improvement was mainly due to rise in labour income from informal sector and a shift of labour to low skilled services from agriculture sector. But unfortunately, the progress is hampered in recent years and reversing back the years of efforts to fight the state of poverty (World Bank, 2025).

3. DATA AND METHODOLOGY

In this study, the HIES data has been pooled and repeated cross section data has been utilized to discuss the poverty and welfare of the households in Pakistan from 2005-06 to 2013-14. The five survey rounds are not a household panel but rather observe similar household samples at various times. The analysis, therefore, addresses changes in association and across survey rounds and does not refer to transitions experienced by the same households over time. The household is the basic unit of observation while expenditure per adult equivalent is the most important welfare indicator because it standardises total household expenditure for household size and demographic composition.

3.1 Data

This study uses the HIES datasets, which include detailed household-level information on income, consumption and expenditure, demographic characteristics, education, employment, health-related indicators, assets, land, remittances, food and non-food expenditure, and quantities of goods consumed over specified reference periods. Five HIES rounds are used: 2005-06, 2007-08, 2010-11, 2011-12, and 2013-14. The pooled repeated cross-sectional dataset provides the basis for the descriptive poverty estimates and the econometric analysis reported in the paper.

3.2 Definition and Construction of Variables

Table 1 below defines the key variables used in descriptive and econometric analysis. The household is the unit of observation, and binary variables are coded as 1 when the stated condition applies and 0 otherwise.

Table 1: Variables Description

Variable Name	Description
Household size	Number of persons in the household
Household head's age	Age of the household head in years
Household head's sex	Sex of the household head
Household head's education	Highest class completed by the household head
Children	Number of children under 10 years of age in the household

Earner's ratio	Share of earning members in the total household size
Dependents	Number of dependent members in the household
Basic education	Household members with at least a primary or middle school education (% of household)
Secondary education	Household members with at least a matric or secondary-level education (% of household)
Higher education	Household members with at least a graduate, master's, or PhD-level education (% of household)
Professional education	Household members with professional or technical qualifications, including doctors, engineers, lawyers, technical diploma holders, and related categories
Safe drinking water	1 if the household has piped water or a motorised pump; 0 otherwise
Electricity access	1 if the household has an electricity connection or extension; 0 otherwise
Value of assets owned	Reported value of household assets in rupees
Agricultural land ownership	1 if the household owns agricultural land; 0 otherwise
Small livestock ownership	1 if the household owns small livestock such as goats, sheep, or poultry; 0 otherwise
Large livestock ownership	1 if the household owns large livestock such as cows, buffaloes, or horses; 0 otherwise
Livestock output	1 if the household produces livestock products for sale or home consumption; 0 otherwise
Agricultural output	1 if the household produces food crops for sale or home consumption; 0 otherwise
Domestic remittances	1 if the household receives domestic remittances; 0 otherwise
Overseas remittances	1 if the household receives overseas remittances; 0 otherwise
Poverty status	1 if household expenditure per adult equivalent is below the relevant poverty line; 0 otherwise
Food insecurity status	1 if the household is classified as food insecure; 0 otherwise
Urban area	1 if the household lives in an urban area; 0 otherwise
Rural area	1 if the household lives in a rural area; 0 if urban

3.3 Poverty Measurement, Welfare Indicator, and Expenditure Method

At the household level, the poverty status is determined by comparing per-adult-equivalent household expenditure with the poverty line. Income and expenditure are both available in the HIES, although expenditure is the main welfare indicator because income may be underreported, irregular or not available, and expenditure is a more direct reflection of the actual living standards over the time frame of the survey. Household expenditure is adjusted to an adult equivalent monthly basis to allow the comparison of expenditure on a more consistent basis across households of different size and demographic composition. The official poverty line adopted in this study is the amount required for an adult equivalent on a monthly basis for food energy requirements and essential non-food requirements. Official poverty lines are employed where available, inflated lines for relevant years and the revised 2013-14 line are reported.

The econometric analysis separates the poverty-status equation from the welfare outcome equation. In the first stage, the selection equation models whether a household enters the selected subsample of poor households. Let $S_i = 1$ if household i is classified as poor and $S_i = 0$ otherwise. This classification is based on whether the household's expenditure per adult equivalent falls below the relevant poverty line. The selection equation is specified as a binary-response model for the full sample of poor and non-poor households:

$$S_i^* = Z_i\gamma + u_i \quad (1)$$

The first-stage binary-response model is estimated using a logit specification. The estimated coefficients in Table 6 describe the relationship between the explanatory variables and the log-odds of being classified as poor. The odds ratios and marginal effects provide additional interpretations of the same poverty-status equation.

$$S_i = 1 \text{ if } S_i^* > 0; \quad \text{otherwise } S_i = 0 \quad (2)$$

The first stage estimates the probability that household i is observed in the poor-household subsample. A two-stage selection correction is relevant when unobserved factors associated with selection into poverty are also correlated with unobserved determinants of log expenditure among poor households. Estimating the outcome equation only for poor households, without accounting for this selection, could bias the coefficient estimates; therefore, the generated selection-correction term is included in the second-stage equation as a control-function term.

The second-stage outcome equation is specified as a linear welfare equation for households classified as poor.

$$Y_i^* = X_i\beta + \varepsilon_i \quad (3)$$

or

$$Y_i = X_i\beta + \delta\lambda_i + \varepsilon_i \quad (4)$$

The second stage is estimated only for households classified as poor. The dependent variable is log expenditure per adult equivalent, and λ_i denotes the selection-correction term generated from the first-stage poverty-status equation. A statistically significant coefficient on λ_i indicates non-random selection into the poor-household subsample.

$$\lambda_i = g(\hat{Z}_i) \quad (5)$$

where S_i denotes the observed poverty-status indicator for household i ; S_i^* is the latent poverty-status index; Y_i denotes log expenditure per adult equivalent for households in the selected poor-household subsample; Z_i is the vector of covariates in the first-stage logit poverty-status equation; X_i is the vector of covariates in the second-stage welfare equation; λ_i is the generated selection-correction term obtained as a function of the fitted first-stage logit index; γ , β , and δ are parameters to be estimated; and u_i and ε_i are error terms.

The empirical analysis is implemented through two related model specifications. The first model explains poverty status for the full pooled sample of poor and non-poor households. The second model explains log expenditure per adult equivalent for the selected subsample of poor households.

First-stage poverty-status model: Poverty status is modelled as a function of household size; age, sex, and education of the household head; earners ratio; education composition of household members; access to safe water, toilet facilities, and electricity; agricultural land ownership; agricultural output; livestock-product production; value of assets; food-insecurity status; rural residence; and survey-year indicators.

The first-stage model is estimated for all households in the pooled HIES sample. The dependent variable equals one when the household is classified as poor and zero otherwise.

Second-stage welfare model: Log expenditure per adult equivalent among poor households is modelled as a function of household size; age and education of the household head; education composition of household members; food-insecurity status; value of assets; access to safe water, toilet facilities, and electricity; rural residence; survey-year indicators; and the generated selection-correction term from the first-stage poverty-status model.

4. RESULTS

4.1 Descriptive Analysis of HIES Data

The results first report poverty estimates and then present the econometric analysis. The headcount estimates describe how many households fall below the poverty line in each survey year, while the regression results identify household characteristics associated with poverty status and log expenditure per adult equivalent among poor households.

4.2 Poverty Estimates

The study treats poverty status as a binary variable, with poor households coded as 1 and non-poor households as 0. The headcount ratio measures the percentage of households that fall below the relevant poverty line. Adult-equivalent analysis is used for this purpose, with the official poverty line serving as the threshold. The official poverty line is constructed following the expenditure required to meet food and non-food needs per adult equivalent per day. Five poverty lines based on the food energy intake method are used for the relevant datasets (Table 2). In 2013-14, the methodology for the official poverty line was updated to the cost-of-basic-needs (CBN) approach. Therefore, two poverty estimates are reported for 2013-14 (Table 2): one based on the inflated poverty line and another based on the new official poverty line.

Table 2: Poverty lines used in the analysis, 2005-06 to 2013-14

2005-06	2007-08	2010-11	2011-12	2013-14	
944.47	1,141.53	1,745	1,943.93	2,266.90	3,030
(FEI officially estimated)	(Officially inflated)	(Officially inflated)	(Author's inflated)	(Author's inflated)	(CBN officially estimated)

Source. GOP (2014) and the authors' own inflated poverty lines; values are in Pakistani Rupees (PKR)

Table 3 reports poverty estimates based on adult-equivalent and per capita measures. Income-based poverty per adult equivalent declines from 26.5% in 2005-06 to 21% in 2013-14, while expenditure-based adult-equivalent poverty shows a similar downward trend, albeit at lower levels. Per capita estimates are substantially higher as they assign equal weight to all household members, whereas the adult-equivalent approach adjusts for age and gender composition. Both approaches indicate a declining trend in poverty over the study period. For 2013-14, the table reports estimates based on both the previous inflated poverty line and the revised official poverty line. The revised line produces a higher estimate for both AE Income and AE Expenditures.

Table 3: National poverty estimates by welfare measure, 2005-06 to 2013-14

Years	Poor/ AE Income		Poor/ AE Expenditure		Poor/Capita Income		Poor/Capita Expenditure	
2005-06	26.5 %		19.6%		51.1%		48.8%	
2007-8	23.7%		17.3%		47.9%		43%	
2010-11	21.8%		13.9%		45.9%		36.6%	
2011-12	21.4%		9.7%		43.9%		34.5%	
2013-14	CBN	FEI	CBN	FEI	CBN	FEI	CBN	FEI
	36.0%	21%	30.1 %	18.3%	60.8 %	43.2%	55%	33.5%

Source. Authors' calculations from HIES.

Table 4: Urban poverty estimates by welfare measure, 2005-06 to 2013-14

Years	Poor/AE Income		Poor/ AE Expenditure		Poor/Capita Income		Poor/Capita Expenditure	
2005-06	14.5%		13.3%		32.3%		28.8%	
2007-08	12.7%		10.5%		30.7%		23.8%	
2010-11	11.9%		7.4%		30.7%		20.5%	
2011-12	11.0%		7.0%		28.5%		17.5%	
2013-14	CBN	FEI	CBN	FEI	CBN	FEI	CBN	FEI
	19.2%	10.8%	18.7%	6.6%	39.8%	23.7%	29.6 %	12.5%

Source. Authors' calculations from HIES.

Table 5: Rural poverty estimates by welfare measure, 2005-06 to 2013-14

Years	Poor/AE Income		Poor/ AE Expenditure		Poor/Capita Income		Poor/Capita Expenditure	
2005-06	35.9%		27.0%		63.8%		62.3%	
2007-08	31.2%		21.0%		59.4%		55.9%	
2010-11	27.8%		15.7%		56.1%		52.6%	
2011-12	27.7%		14.9%		55.4%		47.3%	
2013-14	CBN	FEI	CBN	FEI	CBN	FEI	CBN	FEI
	45.5 %	26.5%	35.9%	13.7%	72 %	53.6%	68.5%	44.6%

Source. Authors' calculations from HIES.

Tables 4 and 5 disaggregate poverty estimates by urban and rural areas. The results show persistent rural disadvantage, consistent with previous studies on poverty in Pakistan and other developing-country contexts (Cheema, 2010; Jamal, 2013; Malik, 2005, 2014, 2015).

4.3 Determinants of Poverty Status

The determinants of poverty status are estimated in the first stage of the logit-based selection-correction framework. The dependent variable equals 1 if the household is classified as poor and 0 otherwise. The model is estimated for the full pooled sample of poor and non-poor households and includes household demographic characteristics, education, assets, access to basic services, rural residence, food insecurity, and survey-year indicators.

The first-stage estimates identify household characteristics associated with a higher or lower probability of being classified as poor. The selection equation also provides the generated selection-correction term used in the second-stage welfare equation. This term is added to the second stage to minimize possible measurement error from log expenditure that could be caused by the fact that it is measured only on the selected group of poor households.

Model 1 includes no dummies for the year of the survey; Model 2 includes a year dummy with 2005-06 as the reference year. As seen in Table 6, food insecurity, rural residence and household size are positively correlated with poverty status. The negative association with poverty status is with education, the earner's ratio, electricity access, safe water, improved toilet facilities, asset ownership, and some land related variables.

The direction of these relationships is validated by the odds ratio and marginal effect estimates. The likelihood of being poor decreases as the number of adults in the household increases and increases as the number of food-insecure households grows larger, as well as when households live in rural areas. There are mixed patterns by category regarding livestock ownership, with positive associations between small-animal ownership and poverty status, and negative associations between large-animal ownership and poverty status. Agriculture-sector variables are included as approximately 60% of the sampled households live in rural areas and depend on farming or farm-related activities as a primary occupation. Such

households appear less likely to fall below the poverty line. Two additional variables are included because of their relationship to food insecurity: households that produce food crops for sale or for home consumption, and households that produce livestock products, such as eggs, honey, milk, and milk products, for sale or for home consumption. Both categories show a significant positive association with the probability of being poor. This pattern suggests that home production may help smooth household food consumption but may not generate enough income or expenditure capacity to keep households above the poverty line.

Table 6: *Determinants of poverty status and log expenditure per adult equivalent among poor households*

	(1)	(2)			(3)
Variables	Logit	Time logit	Odds Ratios	Marginal Effect	Second-stage OLS with selection correction
Household head's age	0.004*** (0.0007)	0.004*** (0.0007)	1.004	0.0007	-0.002*** (0.0002)
Male household head	-0.668*** (0.019)	-0.772*** (0.033)			-----
Household head's education	-0.0851*** (0.002)	-0.0873*** (0.003)	0.913	-0.016	0.009 (0.0008)
Household size	0.007*** (0.003)	0.003 (0.003)	0.992	0.001	-0.023*** (0.0009)
Asset owner	-0.653*** (0.0398)	-0.653*** (0.0399)	0.502	-0.125	-----
Farmer/operator household	-0.425*** (0.054)	-0.433*** (0.055)	0.623	-0.076	-----
Earners' ratio	-3.348*** (0.063)	-3.353*** (0.064)	0.032	-0.624	-----
Basic education	-0.701*** (0.069)	-0.696*** (0.070)	0.518	-0.119	0.054** (0.025)
Secondary education	-1.231*** (0.090)	-1.217*** (0.091)	0.311	-0.212	-----
Higher education	-2.546*** (0.222)	-2.561*** (0.223)	0.081	-0.457	1.226*** (0.074)
Professional education	-0.542 (0.348)	-0.474 (0.351)	0.660	-0.075	-----
Asset value	-0.068*** (0.008)	-0.061*** (0.009)	0.960	-0.010	0.117*** (0.003)
Food insecurity	0.338*** (0.019)	0.354*** (0.020)	1.421	0.062	-0.296*** (0.007)
Safe drinking water	-0.211*** (0.020)	-0.252*** (0.020)	0.806	-0.042	0.086*** (0.006)
Improved toilet facility	-0.123*** (0.020)	-0.135*** (0.020)	0.905	-0.023	0.182*** (0.006)
Electricity access	-0.385*** (0.019)	-0.234*** (0.026)	0.809	-0.039	0.0869*** (0.007)
Livestock products produced/consumed	0.016 (0.044)	0.004 (0.028)	1.004	0.0007	-----
Food crops produced/consumed	0.509*** (0.039)	0.517*** (0.039)	1.666	0.092	-----
Large livestock ownership	-0.035 (0.046)	-0.023 (0.046)	0.934	-0.012	-----
Small livestock	0.368***	0.497**	1.644	0.10	-----

ownership	(0.0457)	(0.045)			
Rural area	0.666*** (0.224)	0.685*** (0.229)	1.978	0.119	-0.048*** (0.008)
2007-08	-----	-0.0693** (0.0296)	0.945	-0.01	-0.246*** (0.010)
2010-11	-----	-0.142*** (0.0318)	0.875	-0.024	-0.892*** (0.010)
2011-12	-----	0.977*** (0.033)	2.661	0.202	-0.595*** (0.010)
2013-14	-----	0.609*** (0.299)	1.839	0.120	-0.417*** (0.009)
Selection-correction term	-----	-----	-----	-----	-0.278*** (0.020)
Constant	1.557*** (0.116)	1.341*** (0.123)	1.831 (0.114)	0.605*** (0.114)	8.443*** (0.0355)
Observations	81,032	81,032	81,032	81,032	22,744
R-squared	0.17	0.192			0.791

Note. Robust standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

4.4 Determinants of Log Expenditure per Adult Equivalent among Poor Households

This section presents the second-stage estimates for poor households only. The dependent variable is log expenditure per adult equivalent, interpreted as a monetary welfare indicator within the poor-household subsample.

4.5 Second-Stage Welfare Equation with Selection Correction

The second-stage equation estimates the correlates of log expenditure per adult equivalent for the 22,744 households classified as poor in Table 6. As this subsample is selected on poverty status, the coefficient estimates may be biased if unobserved factors that affect selection into poverty also affect expenditure levels among poor households. The generated selection-correction term is therefore included as an additional regressor. Its negative and statistically significant coefficient suggests evidence consistent with non-random selection into the poor-household subsample. The results show that education variables, asset value, safe water, improved sanitation, and electricity are positively associated with log expenditure per adult equivalent among poor households. Household head age, household size, food insecurity, and rural residence are negatively associated with log expenditure per adult equivalent.

The negative year coefficients indicate that, conditional on the included covariates and selection correction, poor households in later survey rounds have lower log expenditure per adult equivalent than comparable poor households in 2005-06. This pattern differs from the declining headcount trend because the two analyses capture different outcomes: poverty incidence in the full sample and welfare variation within the poor-household subsample.

5. DISCUSSION

The results highlight the differences between being poor and being on welfare for families in poverty. The descriptive results indicate a reduction in the size of the poor population in the comparable poverty-line approach, and a decrease in log expenditure per adult equivalent for poor households in later survey rounds compared to 2005-06 in the second-stage selection-corrected estimates. This is important because poverty rates are very sensitive to the definitions and measures used in poverty analysis (Anwar & Qureshi, 2002; Ravallion & Lokshin, 2006; Malik et al., 2014).

The house-to-house results also indicate strong welfare gradients. Among the poor, larger households, food-insecure households and rural households are more likely to be poor and those with lower expenditure per adult equivalent. These results corroborate the earlier studies on the relationship between

poverty outcome, household size, characteristics of the head, employment, food security and rural disadvantage (Malik, 1996; Sekhampu, 2013; Maloma, 2016; Malik et al., 2015). Conversely, education, assets, access to safe water, better sanitation and electricity are linked to lower risk of poverty and increased welfare for poor households. The patterns in this paper emphasize the need to look at both income limitations and human capital, household assets, and access to basic services when considering poverty reduction (Jamal, 2005; Sen, 1999; World Bank, 2002).

As for methodological considerations, the logit-based two-stage selection-correction procedure makes the relationship between the poverty status selection equation and the welfare outcome equation for poor households more understandable. The large size of the selection-correction term is evidence that supports using the poor-household subsample in the second-stage expenditure equation because of the larger body of theory explaining the use of limited-dependent-variable models and control-function approaches (Maddala, 1983; Wooldridge, 2013). The analysis is based on pooled repeated cross sectional HIES data, which must be interpreted as evidence relating to poverty and welfare over time and across the different households.

6. CONCLUSION AND POLICY IMPLICATIONS

Household poverty in Pakistan exhibits variation over time. As a result, it is important to examine poverty at the household level. To investigate poverty and welfare at the household level, this study uses HIES data from 2005-06 to 2013-14 for the five pooled repeated cross-sectional rounds of the data. To measure the poverty level of the households, the study compares the household expenditure per adult equivalent to the relevant poverty line.

Such an investigation allows for the examination of both the poverty level of households and the welfare of households in poverty, and for the comparison of poverty and welfare of households in Pakistan over time. The results of the descriptive analysis of poverty levels in Pakistan suggest that poverty declined during the years of the study when the comparable poverty line was used. However, when the revised poverty line for 2013-14 is used, the poverty levels in Pakistan for the studied years are higher than the poverty levels when the comparable poverty line was used. These findings suggest that the poverty level of the households in Pakistan depends on the poverty line used for the analysis. Therefore, the focus of this study is on the welfare of the poor households in Pakistan.

The econometric evidence indicates that education, asset ownership, safe water, improved sanitation, and electricity are linked to a lower risk of poverty and higher welfare for the poor. In contrast, larger household size, food insecurity, rural residence, and certain indicators of the year in which the survey was conducted are associated with an greater risk of poverty and lower welfare for the poor in Pakistan. These results provide direction for policy in Pakistan regarding poverty reduction.

Support should be provided for rural households with large families who are struggling with food insecurity. Access to education should be greater to improve the welfare of poor households. Poor households should have access to assets that can provide them with a sense of security. Additionally, access to water and sanitation services and electricity should be provided to these households. The rural areas in which these poor households live should be developed to improve their lives. Furthermore, the provision of support for income-support measures is not enough to alleviate the poverty conditions that they face.

Further research could be conducted into how poor households enter and exit poverty to better understand the poverty situation in Pakistan. Such research could be done using panel data. Additionally, the results from the econometric study could be tested against poverty lines other than the ones that were used in the study. These additional studies would help to strengthen the conclusions from the initial study. The results suggest that policies should be developed that target both the poor households and the rural areas in which they live.

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Authors Contribution

Amara Amjad Hashmi contributed to the study design and data collection. Dr. Maaida Hussain Hashmi drafted the manuscript and revised it. Prof. Dr. Maqbool Hussain Sial and Dr. Waqar Akram proofread and supervised the research work. All authors read and approved the final manuscript.

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Data Availability Statement

The survey data generated and analyzed for this study are not publicly available and will not be deposited in any repository, to protect the confidentiality and anonymity of participants, who were assured that no identifying information would be shared beyond the research team. The quantitative data set in this paper may be made available by the corresponding author upon reasonable request.

Ethical Approval

The study has been done by using government published survey by Government of Pakistan. No primary data has been collected from running any experiment from human participants and no private information is included. For such kind research ethical approval is not required.

ORCID's

Amara Amjad Hashmi ¹  <https://orcid.org/0009-0001-5128-6606>
Maqbool Hussain Sial ²  <https://orcid.org/0000-0002-0622-5337>
Waqar Akram ³  <https://orcid.org/0000-0002-3003-0062>
Maaida Hussain Hashmi ⁴  <https://orcid.org/0009-0001-4143-0993>

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