A Cross-Sectional Analysis of Determinants of Poverty: Evidence from the Agriculture Sector in South Punjab, Pakistan

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ARTICLE DETAILS	ABSTRACT
History: Accepted: 01 October 2023 Available Online: 20 October 2023 **Keywords:** *Asset ownership, Gender, Women empowerment, Poverty* OPEN ACCESS	**Purpose:** This study investigates the factors contributing to poverty in South Punjab's agricultural region in Pakistan. By conducting a cross-sectional analysis, it examines how household characteristics, agricultural productivity, and socioeconomic factors impact poverty levels. The primary objective is to identify the root causes of poverty in the region, aiming to alleviate it and enhance the well-being of rural communities. The study serves as a valuable resource for policymakers seeking to address poverty in South Punjab's agricultural sector. **Research Gap:** The existing literature lacks comprehensive insights into factors such as asset ownership, women's empowerment, and various access to services variables in this specific regional context. **Design/Methodology/Approach:** We employed the Ordinary Least Square (OLS) method to analyze data gathered from 900 households in South Punjab's Multan, Bahawalpur, and DG Khan divisions in 2022. **The Main Findings:** The study focused on three categories of independent variables: socio-demographic, economic, asset ownership, and women's empowerment determinants of poverty. Various factors were found to influence poverty in South Punjab, including age, marital status, dependency burden, distance from home to workplaces and healthcare facilities, access to safe drinking water and sanitation, employment status, education, asset ownership, and women's empowerment. The results indicate a positive association between age, dependency burden, distance from home to workplaces and healthcare facilities, and overall women's empowerment with poverty. Conversely, having a spouse, being widowed, and female asset ownership showed a negative association with poverty. **Theoretical/Practical Implications of the Findings:** This study provides essential insights into the underlying causes of poverty in South Punjab's agricultural sector, offering valuable guidance for policymakers and stakeholders working towards poverty eradication in the region. **Originality/Value:** Unlike previous research focusing on limited determinants of poverty alleviation, our comprehensive analysis utilizes data from these divisions, offering a more thorough examination across varied variables.

1. Introduction

Millions of people worldwide are impacted by poverty, which is an extensive and complicated socioeconomic issue. Poverty involves a wide range of problems, including poor health, lack of education, and restricted access to social and economic opportunities, in addition to the lack of material resources. As policymakers work to solve the issues brought on by poverty and lessen its effects on people and communities, poverty alleviation has become a crucial policy concern (Mukhrjee and Benson, 2003).

For a number of reasons, reducing poverty is crucial. First, poverty has negative effects on both people and communities. It restricts access to necessities like food, water, shelter, and healthcare, which can result in reduced life expectancy and poor health outcomes. Poverty can keep people and families stuck in a cycle of poverty that is challenging to break because it restricts access to education and work possibilities. Furthermore, poverty may contribute to social unrest and political unrest, which may result in violence and conflict (Rupasingha and Goetz, 2007).

Second, reducing poverty is crucial for fostering development and economic prosperity. Because it lowers human capital, productivity, and investment in infrastructure and education, poverty restricts economic progress. Governments can promote economic growth and development through raising productivity, making investments in infrastructure and education, and enhancing access to credit and financial services by eliminating poverty. More employment possibilities and entrepreneurship may result from this, raising living standards and reducing poverty (Geda et al., 2001).

Third, establishing social justice and equity depends on reducing poverty. Poverty is a root cause as well as a result of social and economic inequality. Because it restricts access to chances for employment, healthcare, and education, poverty can exacerbate inequality. By ensuring that everyone has access to the resources and opportunities they need to live a full life, policymakers may promote greater social justice and equity by reducing poverty (Datt and Jolliffe., 1999).

However, governments and policymakers all around the world must deal with the essential issue of poverty reduction. Poverty hinders economic growth and development and has serious negative effects on both individuals and society. Governments may encourage greater social justice and equity and increase possibilities for people and communities to prosper by lowering poverty. As per statement of the United Nations (UN): "Poverty eradication is an indispensable requirement for sustainable development and should be a priority for all countries" (United Nations, n.d). Governments must consequently intervene to address poverty and encourage greater wealth and well-being for everybody (Bogale et al., 2005).

2. Literature Review

We have evaluated the studies on the causes of rural poverty in this section. A survey of studies on the causes of poverty is shown in Table 1.

Table 1: Studies on the Determinants of Poverty

Reference(s)	Country/Area	Period/Observations	Methodology	Main Results
Shirazi (1995)	Pakistan	1991-92	OLS	The findings of the study showed that education, size of household, location, and employment status were significant determinants of poverty in Pakistan.
Coulombe & McKay (1996)	Mauritania	1988	Multivariate regression analysis	The results showed that household size, education, and the gender of the household head were among the most significant predictors of poverty.
Grootaert (1997)	Cote d'Ivoire	1985	OLS	The results indicate that poverty was linked to a lack of education, limited access to productive assets, and low levels of agricultural productivity.

Datt et al. (1998)	Egypt	1990	Probit regression model and OLS	According to the findings, living in rural areas and having a higher household size were major predictors of poverty in Egypt.
Datt & Jolliffe (1999)	Egypt	1997	OLS	According to the study, access to essential amenities like water and sanitation as well as a lack of education and employment are all strongly associated with family poverty.
Datt et al. (2000)	Mozambique	1996-1997	Probit model	According to the study, household size, adult education levels, and geographic location all have an impact on poverty in Mozambique, with homes in the north being more likely to be poor than those in the south.
Geda et al. (2001)	Kenya	1994	Probit model	According to the findings, poverty is more common in rural areas, in households with female heads of household, and in bigger households. Access to credit was found to have a positive impact on lowering poverty, whereas education and household income showed a negative correlation with poverty.
Mukherjee & Benson (2003)	Malawi	1998	OLS	The results indicated that a lack of education, large size of households, and poor health were significant determinants of poverty in Malawi.
Tufail & Sheikh (2023)	Pakistan	2022	OLS	The study identifies various factors affecting women's empowerment in South Punjab, emphasizing the positive impact of education, income, and access to credit in the agricultural sector. It recommends measures to enhance these aspects.

Source: Authors' Compilation

After reviewing the factors that affect reducing poverty is the goal of this section. Various nations place varied emphasis on various factors that influence reducing poverty. In earlier literature, there are also several policies to lessen poverty. Despite extensive literature on factors influencing poverty reduction globally, there is a notable research gap concerning the specific dynamics within South Punjab, Pakistan's agricultural sector. While prior studies have explored diverse factors impacting poverty alleviation, there is a scarcity of empirical evidence focused on the agricultural landscape in this region. The research, as outlined, delves into novel dimensions by concentrating on Asset ownership prevalence among both men and women, Women's empowerment index, and various access to services variables. Furthermore, the utilization of Poverty gap index and Squared-poverty gap index as measurement tools adds a distinct quantitative layer to the investigation. This research aims to contribute substantially to the existing literature by shedding light on the unique factors influencing poverty in South Punjab's agricultural sector, offering valuable insights for both policymakers and practitioners aiming to implement effective poverty reduction strategies in this specific context.

To the best of our knowledge, Multan, Bahawalpur, and DG Khan divisions have not been the subject of any studies. It is important to note that other research have looked into the restricted determinants of poverty alleviation, as revealed by our analysis of the numerous literature reviews. These studies didn't pay

as much attention to so many different aspects, but our study was thorough and used four different categories of variables, including socio-demographic, economic, asset ownership, and women's empowerment determinants. In addition, we conducted our research using data from three divisions: Multan, Bahawalpur, and DG Khan.

3. Data and Methodology
In selecting our sample of 900 respondents, which involved 300 participants from each of the three divisions (Multan, Bahawalpur, and DG Khan), we employed a combination of stratified and simple random sampling. First, we divided each division into districts. Then, from each division, we selected one district—Dera Ghazi Khan, Bahawalpur, and Multan. Within each chosen district, we conducted simple random sampling to select 300 households from the rural areas. This approach ensured that we had a geographically diverse yet representative sample from each division, allowing us to draw meaningful insights from the study.

4. Model Specification and Methodology
4.1 An Elementary Data Analysis
For explaining and interpreting the data obtained from the multidimensional field survey of the current study, elementary data analysis is necessary at the initial stage. This analysis is so important because it permits the construction of formal quantitative models by allowing the researchers to formulate or make null hypotheses against the alternative hypothesis that are tested in the analytical work.

Table 2: Distribution of Economic Status with respect to Gender

Status	South Punjab		Multan		Bahawalpur		DG Khan	
	Men	Women	Men	Women	Men	Women	Men	Women
Poor	2571	2225	830	630	578	579	1163	1017
Non-Poor	778	685	212	155	267	252	299	277
Total	3349	2910	1042	785	845	831	1462	1294

Source: Authors' Estimation

Table 2 shows the number of men and women categorized by their economic status (poor or non-poor) in three divisions of South Punjab, namely Multan, Bahawalpur, DG Khan. The totals for each district are also provided. The total number of men in South Punjab is 3349, out of which 2571 are categorized as poor and 778 are non-poor. The total number of women in South Punjab is 2910, out of which 2225 are categorized as poor and 685 are non-poor. In Multan, there are 1042 men and women combined, out of which 830 men and 630 women are poor while 212 men and 155 women are non-poor. In Bahawalpur, there are 1676 men and women combined, out of which 578 men and 579 women are poor while 267 men and 252 women are non-poor. In DG Khan, there are 2756 men and women combined, out of which 1163 men and 1017 women are poor while 299 men and 277 women are non-poor. It highlights the higher proportion of poor individuals, especially women, in the region, indicating a need for targeted policies to address poverty in the area.

4.2 Econometric Analysis of the Determinants of Poverty
After making the elementary analysis, we have made an econometric analysis of the determinants which would affect the poverty. Many micro and macroeconomic variables determine the poverty. Within the microeconomic context, as concerned and is the major part of our study, the alternative simplest techniques are econometric methods, in terms of regression analysis. The ordinary least square (OLS) regression analysis is used to examine the influence on poverty.

4.3 Model Specification
This section shows the determinants of poverty based on two models: the poverty gap model and the square-poverty gap model. These models aim to predict poverty based on several socio-demographic, economic, gender asset ownership, and women's empowerment factors. The poverty gap model is given as.

$$PGI = f(AGE, MS_i, DEPB, DHWP, DHHU, ASDW, ASF, EDU, EMPS_i, AOPW, AOPM, WOEI) \qquad (1)$$

The econometric form of the model is:

$$PGI = \alpha_0 + \alpha_1 AGE + \alpha_2 MS_i + \alpha_3 DEPB + \alpha_4 DHWP_i + \alpha_5 DHHU + \alpha_6 ASDW + \alpha_7 ASF + \alpha_8 EDU + \alpha_9 EMPS_i + \alpha_{10} AOPW + \alpha_{11} AOPM + \alpha_{12} WOEI + \varepsilon \tag{2}$$

Similarly, the squared-poverty gap model is.

$$SPGI = f(AGE, MS_i, DEPB, DHWP, DHHU, ASDW, ASF, EDU, EMPS_i, AOPW, AOPM, WOEI) \tag{3}$$

$$SPGI = \beta_0 + \beta_1 AGE + \beta_2 MS_i + \beta_3 DEPB + \beta_4 DHWP_i + \beta_5 DHHU + \beta_6 ASDW + \beta_7 ASF + \beta_8 EDU + \beta_9 EMPS_i + \beta_{10} AOPW + \beta_{11} AOPM + \beta_{12} WOEI + \varepsilon \tag{4}$$

Table 3: Variables' Abbreviation, Description and Measurement

Variables	Abbreviation	Description of Variables	Measurement
Age	AGE	Age of household members (in years)	Continuous
Marital Status			
Married	MS1	Whether the person is married or not	1 for married 0 for others
Unmarried	MS2	Whether the person is unmarried or not	1 for unmarried 0 for others
Divorced	MS3	Whether the person is divorced or not	1 for divorced 0 for others
Widowed	MS4	Whether the person is Widowed or not	1 for widowed 0 for others
Education level	EDU	Number of years of schooling	Continuous
Employment Status			
Employee	EMPS1	Whether the person is an employee or not	1 for employee 0 for others
Employer	EMPS2	Whether the person is the employer or not	1 for employer 0 for others
Unpaid family worker	EMPS3	Whether the person is an unpaid family worker or not	1 for unpaid family worker 0 for others
Other workers	EMPS4	Whether the person is other worker (such as a part-time worker) or not	1 for other workers 0 for others
Unemployed	EMPS5	Whether the person is unemployed or not	1 for unemployed 0 for others
Poverty gap index	PGI	It is the ratio in which the per-capita Income of poor people falls below the poverty line	Continuous
Squared-poverty gap index	SPGI	It is the square of the poverty gap index	Continuous
Women's overall empowerment index	WOEI	It is the average of women's economic, social, familial and political empowerment index	Continuous
Asset ownership prevalence among women	AOPW	It is the ratio of the total number of females owners to the total number of females in a household	Continuous
Asset ownership prevalence among men	AOPM	It is the ratio of the total number of males owners to the total number of males in a household	Continuous
Dependency burden	DEPB	Total number of non-earners to total household members	Continuous
Distance of home from the workplace	DHWP	In kilometers	Continuous
Distance of home from the health unit	DHHU	In kilometers	Continuous
Access to safe drinking water	ASDW	Whether the people have access to safe drinking water or not	1 for yes 0 for no
Access to sanitation facility	ASF	Whether the people have access to sanitation facilities or not	1 for yes 0 for no

Source: Authors' Compilation

5. Results and Discussions

The causes of poverty are examined in this section. The factors that determine poverty are broken down into three groups: socio-demographic factors, economic factors, and asset ownership and empowerment indices. In the first category, social and demographic aspects are covered, economic factors are covered in the second category, and asset ownership factors and empowerment indices are covered in the third category.

Table 4: Determinants of Poverty Gap in South Punjab

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.289	.023		12.686	.000
Socio-demographic Determinants						
Age		.005	.002	.232	2.526	.012
Marital Status	Married	-1.082	.232	-.599	-4.664	.000
	Unmarried	.006	.046	.007	.120	.904
	Divorced	-.002	.001	-.177	-3.106	.002
	Widowed	-.743	.131	-.714	-5.670	.000
Dependency Burden		.973	.186	.421	5.236	.000
Distance of home from Workplace		.014	.007	.128	2.068	.040
Distance of home from health unit		.089	.031	.059	2.853	.004
Access to Safe Drinking Water		-.241	.140	-.106	-1.724	.086
Access to Sanitation Facility		-.240	.137	-.022	-1.747	.081
Years of Schooling		-.010	.005	-.127	-2.166	.031
Economic Determinants						
Employment Status	Employee	-.123	.036	-.077	-3.415	.001
	Employer	-.076	.049	-.056	-1.544	.123
	Unpaid Family Worker	.027	.010	.036	2.719	.007
	Other	-.007	.007	-.051	-.910	.364
	Unemployed	.307	.033	.139	9.185	.000
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.013	.003	-.055	-4.166	.000
Asset Ownership Prevalence among men		-.041	.023	-.105	-1.812	.071
Overall Women Empowerment		2.885	.444	1.222	6.503	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.273		1.653		

Source: Authors' Estimations

Tables 4, 5, 6, and 7 illustrate the determinants of the poverty gap index in the South Punjab Province, Multan division, Bahawalpur division, and DG Khan division respectively. And Tables 8, 9, 10, and 11 show the factors affecting the square of the poverty gap in the South Punjab Province, Multan division, Bahawalpur division, and DG Khan division correspondingly. The dependent variable is the poverty gap and the square of the poverty gap. The independent variables are divided into three categories: socio-demographic determinants (include age, marital status, dependency burden, the distance of home from workplace, the distance of home from health unit, access to safe drinking water, access to a sanitation facility, and years of schooling), economic determinant (include employment status), asset ownership (include asset ownership prevalence among women and asset ownership prevalence among men) and overall women empowerment determinants.

Table 5: Determinants of Square of Poverty Gap in South Punjab

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.130	.081		1.602	.110
Socio-demographic Determinants						
Age		.003	.001	.298	3.265	.001
Marital Status	Married	-.117	.037	-.076	-3.171	.002
	Unmarried	.015	.015	.065	.995	.321
	Divorced	-.010	.003	-.197	-3.201	.002
	Widowed	-.185	.061	-.186	-3.043	.003
Dependency Burden		.005	.002	.132	2.209	.028
Distance of home from Workplace		.022	.005	.557	4.362	.000
Distance of home from health unit		-.015	.003	-.665	-5.296	.000
Access to Safe Drinking Water		-.020	.004	-.394	-4.915	.000
Access to Sanitation Facility		.059	.010	1.139	6.059	.000
Years of Schooling		-.416	.081	-.412	-5.114	.000
Economic Determinants						
Employment Status	Employee	-.375	.102	-.474	-3.693	.000
	Employer	-.202	.057	-.443	-3.507	.001
	Unpaid Family Worker	1.775	.293	1.139	6.059	.000
	Other	-.031	.026	-.104	-1.176	.241
	Unemployed	.769	.195	.745	3.939	.000
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.665	.152	-.557	-4.362	.000
Asset Ownership Prevalence among men		-.457	.086	-.665	-5.296	.000
Overall Women Empowerment		-.600	.122	-.394	-4.915	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.294		1.946		

Source: Authors' Estimations

Age is the first factor in the sociodemographic category. In South Punjab Province, Multan Division, and Bahawalpur Division, age is strongly correlated with both the poverty gap and the square of the poverty gap, which is highly statistically significant in all locations and models with the exception of the Bahawalpur Division square of the poverty gap model. Age, however, has a negative relationship with both the poverty gap and its square, which is highly statistically significant.

The possible reasons behind the positive relationship may be that most of the people in South Punjab, Multan division, and Bahawalpur division are working in the public sector, and they get will get pensions in old age so in old age the probability of being poor becomes low. They may use their pension to start a new business or to fulfill their needs in old age. While the results show a negative impact on the DG Khan division because the DG Khan division is poorer as compared to the other divisions. Most of the people in the DG Khan division are a laborer they do not receive pensions in old age which increases the chances of being poorer. They are unable to work in old age, so they are more likely to spend their savings due to their needs. The result shows that people aged more than 60 years increase the probability of being poor by four percent (Evans et al., 2007). Our results are in line with the following studies Sherlock, 2000; Evans, 2007).

Table 6: Determinants of Poverty Gap in Multan Division

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.235	.122		1.927	.055
Socio-demographic Determinants						
Age		.003	.001	.101	4.323	.000
Marital Status	Married	-.028	.015	-.107	-1.877	.062
	Unmarried	.032	.012	.182	2.740	.007
	Divorced	-.001	.000	-.183	-3.248	.001
	Widowed	-.080	.055	-.063	-1.459	.145
Dependency Burden		.007	.001	.216	9.208	.000
Distance of home from Workplace		.232	.173	.060	1.336	.182
Distance of home from the health unit		.473	.122	.173	3.866	.000
Access to Safe Drinking Water		-.885	.294	-.118	-3.008	.003
Access to Sanitation Facility		-1.593	.383	-.344	-4.159	.000
Years of Schooling		-.010	.005	-.142	-2.316	.021
Economic Determinants						
Employment Status	Employee	-.128	.067	-.043	-1.909	.056
	Employer	-.064	.036	-.046	-1.804	.071
	Unpaid Family Worker	.061	.056	.025	1.107	.268
	Other	-.044	.007	-.158	-6.638	.000
	Unemployed	.003	.001	.221	2.436	.016
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.009	.004	-.073	-2.652	.008
Asset Ownership Prevalence among men		-.318	.164	-.044	-1.939	.053
Overall Women Empowerment		-.028	.003	-.218	-9.381	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.284		1.838		

Source: Authors' Estimations

The second variable in the socio-demographic category is marital status. Married, divorced, and widowed are negatively associated with the poverty gap and square of the poverty gap which is highly statistically significant in all places and all models except the married group of DG Khan division in the square of the poverty gap model, divorced group of Bahawalpur division in poverty gap model, and windowed group of Bahawalpur and DG Khan division in the square of the poverty gap model. while the unmarried group is positively related to the poverty gap and the square of the poverty gap which is highly statistically significant except in South Punjab Province. It has been proven that marriage has many benefits in terms of economics (Waite and Gallagher, 2000).

Because marriage usually involves a potential earner at home, it appears that marriage can increase the economic well-being of family members. Married women living in male-headed households are more likely to enjoy greater family income because these families have a higher number of earning members and especially a larger number of earning men. A marital relationship for a long period can also mean a more stable income and a greater number of consumable goods such factors can restrict the range of economic difficulties facing a recession in the economy. Additionally, married people can also be more easily able to get help from relatives in hard situations (Lerman, 2002).

Table 7: Determinants of Square of Poverty Gap in Multan Division

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		-.165	.465		-.355	.723
Socio-demographic Determinants						
Age		.006	.003	.077	1.884	.060
Marital Status	Married	-.035	.007	-.123	-5.050	.000
	Unmarried	.317	.139	.070	2.270	.023
	Divorced	-.174	.066	-.064	-2.620	.009
	Widowed	-.194	.129	-.068	-1.505	.132
Dependency Burden		.315	.158	.047	1.993	.046
Distance of home from Workplace		.182	.084	.058	2.158	.031
Distance of home from the health unit		.227	.131	.041	1.732	.083
Access to Safe Drinking Water		-.014	.009	-.047	-1.649	.099
Access to Sanitation Facility		-.014	.008	-.050	-1.742	.082
Years of Schooling		-.005	.001	-.088	-3.660	.000
Economic Determinants						
Employment Status	Employee	-.005	.002	-.065	-2.637	.008
	Employer	-1.055	.409	-.122	-2.577	.010
	Unpaid Family Worker	.105	.068	.050	1.562	.118
	Other	-2.144	.694	-.127	-3.089	.002
	Unemployed	2.076	.904	.199	2.296	.022
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.757	.289	-.123	-2.617	.009
Asset Ownership Prevalence among Men		-.006	.003	-.040	-1.721	.085
Overall Women Empowerment		-.049	.011	-.103	-4.468	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.245		1.784		

Source: Authors' Estimations

Due to the specific skills and duties, long-term marriage commitment can increase household efficiency and productivity. The total output of the married couple is greater than the output of unmarried people. The expectations of the married couple encourage them to save more for their children, to buy a large house and other assets (Anyanwu, 2014).

A married couple can achieve the same utility with lower joint expenditure than the sum of their expenditure if living separately due to the economies of scale in consumption. From the employment of their partner, married people can get more benefits such as medical facilities and life insurance. Married people are more likely to earn than unmarried ones. After marriage, the social network of the people expands which results in additional opportunities that increase their savings (Grinstein-Weiss et al., 2006). Married people are less likely to waste their money and time outside the home. Unmarried people are more likely to live in poverty than married people. Married people have more savings to buy assets as compared to unmarried (Hirschlet al., 2009).

The negative impact of divorced and widowed people on poverty may be because when people help divorced and widowed people, they may bring up their children and may have chances to save their grants, and charity given by other people.

Table 8: Determinants of Poverty Gap in Bahawalpur Division

Variable		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.583	.066		8.782	.000
Socio-demographic Determinants						
Age		.329	.160	.049	2.064	.039
Marital Status	Married	-.445	.235	-.103	-1.893	.059
	Unmarried	.003	.001	.118	5.227	.000
	Divorced	-.120	.166	-.031	-.724	.469
	Widowed	-.302	.107	-.096	-2.822	.005
Dependency Burden		.005	.001	.155	4.299	.000
Distance of home from Workplace		.088	.041	.074	2.135	.033
Distance of home from the health unit		.006	.002	.088	3.862	.000
Access to Safe Drinking Water		-.019	.005	-.082	-3.603	.000
Access to Sanitation Facility		-.037	.004	-.243	-10.061	.000
Years of Schooling		-.175	.092	-.046	-1.904	.057
Economic Determinants						
Employment Status	Employee	-.004	.001	-.164	-7.109	.000
	Employer	-.007	.001	-.183	-4.924	.000
	Unpaid Family Worker	.788	.276	.159	2.859	.004
	Other	-.254	.187	-.032	-1.354	.176
	Unemployed	.005	.000	.249	11.070	.000
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.004	.001	-.068	-3.053	.002
Asset Ownership Prevalence among Men		-.012	.005	-.058	-2.597	.009
Overall Women Empowerment		-.040	.003	-.303	-12.870	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.314		1.725		

Source: Authors' Estimations

The third factor in the socio-demographic category is dependency burden. The dependency burden is positively related to the poverty gap and the square of the poverty gap which is highly statistically significant in all places and all models. The dependency burden means the number of non-earners in the family depends upon the earner member of the family. As dependency increases, it means the number of non-earner members is more than the number of earner members which means in household eaters are more and earners are fewer. So that poverty tends to increase. The dependency burden has an adverse effect on savings in less developing countries (Gupta, 1971) and (Adams, 1971). The following studies support our results Orlando and Pollack, 2000; Gupta, 1971; Adams, 1971; Ndanshau, 1998; Guzmán, 2005; Xu et al., 2022.

Table 9: Determinants of Square of Poverty Gap in Bahawalpur Division

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		-.160	.125		-1.277	.202
Socio-demographic Determinants						
Age		.003	.002	.042	1.110	.267
Marital Status	Married	-.149	.078	-.069	-1.908	.057
	Unmarried	.039	.006	.163	6.620	.000
	Divorced	-.217	.105	-.049	-2.064	.039
	Widowed	-.600	.301	-.049	-1.995	.046

Dependency Burden	.003	.001	.155	4.299	.000
Distance of home from Workplace	.058	.027	.074	2.135	.033
Distance of home from health unit	.003	.001	.068	3.053	.002
Access to Safe Drinking Water	-.008	.003	-.058	-2.597	.009
Access to Sanitation Facility	-.027	.002	-.303	-12.870	.000
Years of Schooling	-.293	.155	-.103	-1.893	.059
Economic Determinants					
Employment Status	Employee	-.440	.266	-.073	-1.653	.098
	Employer	-.594	.173	-.086	-3.433	.001
	Unpaid Family Worker	.187	.077	.079	2.432	.015
	Other	.078	.049	.057	1.611	.107
	Unemployed	.004	.000	.249	11.070	.000
Asset Ownership and Women Empowerment Determinants					
Asset Ownership Prevalence among Women	-.010	.001	-.268	-11.393	.000
Asset Ownership Prevalence among Men	-.004	.001	-.104	-4.495	.000
Overall Women Empowerment	.882	.443	.113	1.991	.047

Model Summary		
Model	R-Square	Durbin-Watson
	.343	1.617

Source: Authors' Estimations

The fourth and fifth factors in the socio-demographic category are the distance of home from the workplace and the health unit. The distance of home from the workplace and health unit is positively related to the poverty and the square of the poverty gap which is highly statistically significant in all places and all models except the distance of home from the workplace of Multan division in poverty gap model and the distance of home from health unit of DG Khan division in the square of poverty gap model. The more the distance of home from the workplace and health unit the more will be the transportation cost which may have an adverse effect on savings that leads to increases the poverty.

Table 10: Determinants of Poverty Gap in DG Khan Division

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.687	.038		18.295	.000
Socio-demographic Determinants						
Age		-.001	.000	-.075	-2.837	.005
Marital Status	Married	-.025	.012	-.058	-2.094	.036
	Unmarried	.191	.032	.110	5.950	.000
	Divorced	-.052	.003	-.310	-16.397	.000
	Widowed	-.005	.001	-.103	-4.990	.000
Dependency Burden		.115	.021	.102	5.530	.000
Distance of home from Workplace		.034	.002	.316	16.673	.000
Distance of home from health unit		.003	.001	.088	4.263	.000
Access to Safe Drinking Water		-.003	.000	-.226	-11.953	.000
Access to Sanitation Facility		-.341	.076	-.111	-4.489	.000
Years of Schooling		-1.196	.176	-.169	-6.786	.000
Economic Determinants						
Employment Status	Employee	-.020	.014	-.029	-1.417	.157
	Employer	-.077	.013	-.130	-6.141	.000
	Unpaid Family Worker	.051	.010	.107	4.979	.000
	Other	-.068	.138	-.009	-.488	.625
	Unemployed	.672	.114	.147	5.873	.000
Asset Ownership and Women Empowerment Determinants						

	Coefficient	Std Err	Coefficient	t	Sig
Asset Ownership Prevalence among Women	-.002	.000	-.151	-8.084	.000
Asset Ownership Prevalence among men	-.002	.000	-.203	-10.711	.000
Overall Women Empowerment	.264	.049	.132	5.346	.000

Model Summary		
Model	**R-Square**	**Durbin-Watson**
	.381	1.972

Source: Authors' Estimations

The sixth and seventh variables in the socio-demographic category are access to safe drinking water and access to a sanitation facility. Access to safe drinking water and sanitation facilities has a negative impact on the poverty gap and the square of the poverty gap which is highly statistically significant in all places and all models. If safe drinking water is available, it may reduce the cost of filtration which leads people to save more of their income. If people access the sanitation facility easily it protects people from diarrheal diseases like typhoid, polio, cholera, etc. Fewer diseases mean less cost of medication, as a result, people can save more either to buy any assets or to fulfill their basic needs which will, in turn, reduce the poverty.

Table 11: Determinants of the Square of Poverty Gap in DG Khan Division

Variables		Unstandardized Coefficients		Standardized Coefficients		
		Coefficient	Standard Error	Coefficient	t Statistic	Significance
Intercept		.222	.014		16.312	.000
Socio-demographic Determinants						
Age		-.002	.001	-.108	-4.091	.000
Marital Status	Married	-.060	.019	-.090	-3.228	.001
	Unmarried	.122	.151	.014	.807	.420
	Divorced	-.058	.033	-.036	-1.767	.077
	Widowed	-.042	.050	-.015	-.847	.397
Dependency Burden		.006	.001	.149	7.573	.000
Distance of home from Workplace		.363	.041	.227	8.764	.000
Distance of home from health unit		.007	.005	.030	1.406	.160
Access to Safe Drinking Water		-.016	.005	-.078	-3.554	.000
Access to Sanitation Facility		-.007	.004	-.043	-1.935	.053
Years of Schooling		-.073	.018	-.105	-4.076	.000
Economic Determinants						
Employment Status	Employee	-.001	.000	-.156	-5.693	.000
	Employer	-.024	.004	-.158	-5.461	.000
	Unpaid Family Worker	.059	.035	.030	1.652	.099
	Other	-.027	.008	-.074	-3.533	.000
	Unemployed	.025	.008	.065	3.379	.001
Asset Ownership and Women Empowerment Determinants						
Asset Ownership Prevalence among Women		-.117	.019	-.127	-6.027	.000
Asset Ownership Prevalence among Men		-.072	.016	-.097	-4.532	.000
Overall Women Empowerment		-.003	.000	-.165	-8.897	.000
Model Summary						
Model		R-Square		Durbin-Watson		
		.367		1.597		

Source: Authors' Estimations

The last variable in the socio-demographic category is years of schooling or education level. The years of schooling have a negative impact on the poverty gap and the square of the poverty gap which is highly statistically significant in all places and all models. Human capital is an important factor to eliminate poverty. According to the theory of human capital, investment in education leads to the development of

human capital. The formation of human capital can increase economic growth. Training, skills, and productive knowledge along with education convert human into valuable human capital. That will increase the productivity and earnings of the people (Rosen, 1989). According to the basic needs approach established in the mid-1970s (International Labour Office, 1976), education is considered a basic need, and it will help to fulfill the other basic needs that will improve the standard of living (Streeten, 1977). Education has an indirect effect on poverty through the fulfillment of basic needs, for example better health facilities, shelter, clothes, food, and freshwater for drinking and sanitation facilities. It also affects the fertility decision of the family, the welfare of the family, and the health. The fulfillment of basic needs in turn increases productivity that yields higher wages. More education means reducing poverty (Noor, 1980; Cochrane, 1988; Jeffery and Basu, 1996). The following studies are in line with our results: Rosen, 1989; Streeten, 1977; Noor, 1980; Cochrane, 1988; Jeffery and Basu, 1996; Ladd, 2012; Awan et al., 2011; Wedgwood, 2007).

The second category of independent variables is economic determinants. The variable in the economic determinants category that can affect the poverty level is the employment status of people. The employee, employer, and other employment status of people has a negative impact on the poverty gap and the square of the poverty gap in all places which is highly statistically significant except in the other employment status of South Punjab Province and Bawalpur division in the poverty gap model and the square of the poverty gap model and other employment status of DG Khan division in the poverty gap model. While unpaid family workers and an unemployed status of people have a positive impact on the poverty gap and the square of the poverty gap which is highly statistically significant in all places and models except in the unpaid family worker of Multan division in the poverty gap model and the square of the poverty gap model. The expected salary of employees, employers and other employees such as part-time work is high as compared to the unpaid family worker and unemployed people. So that they may have more chances to invest in education, and business and they can buy a house and other asset which may reduce the probability of being poor. On the other hand, unpaid family workers and unemployed people do not receive a salary so they have no chances to invest in education, business and so on which may increase their probability of being poorer. Those who are employed either in the public or private sector have a better chance of eradicating poverty (Dunga and Sekatane, 2014). Employment is one of the major factors in dealing with poverty (ILO, 2008). Other studies that found a similar relationship between poverty and employment are Islam 2004; ILO, 2008; Hull 2009; Dunga and Sekatane, 2014.

The last category of the independent variable is asset ownership prevalence among women and women empowerment. The asset ownership prevalence among women and men is negatively associated with the poverty gap and the square of the poverty gap which is highly statistically significant in all places and all models. If males and females of the family have more assets under their ownership, they have more sources of income. When they have more income they can get a better education, save more, and invest in a business that will increase the living standard of their families which ultimately reduces poverty. Accumulation of assets is an important source of eradicating poverty (Coulombe and McKay, 1996).

Women empowerment is also negatively related to the poverty gap and the square of the poverty gap which is highly statistically significant in all places and all models. Women empowerment is the procedure to permit freedom to an individual or group of the individual so that they can freely take their decisions and work hard to achieve their goals (Pratto, 2016). The following studies show that women's empowerment affects the education, health, and standard of living of their families which may affect the employment status that leads to eradicating poverty: Alano & Hanson, 2018; Becker, 2009; Bharadwaj et al., 2020; Bueno & Morefield, 2017; Rahman et al., 2017.

5. Conclusion and Policy Recommendations
The elements that reduce poverty in South Punjab have been looked at in the study. The study investigated how poverty affected socio-demographics, economic standing, and wellbeing. According to the study, a number of variables, including age, marital status, dependency burden, distance of home from a health center and the place of employment, access to clean water and sanitation facilities, employment status,

education, asset ownership prevalence among men and women, and women's empowerment, have an impact on poverty in South Punjab. Because younger or older people may have less economic options and have a harder time getting employment, age plays a crucial role in poverty. Marital status is also important since single people may have fewer income sources and are more susceptible to economic shocks. The amount of dependents in a home, such as children and elderly relatives, is referred to as the dependency burden. Higher dependency burdens put a home under more financial stress and make it harder for it to spend money on things like health care, education, and other necessities. Access to healthcare services is significantly impacted by a household's proximity to a healthcare facility. Families in remote areas may have limited access to healthcare services, which has a negative impact on health outcomes, raises healthcare expenses, and lowers productivity. In turn, this increases inequality and adds to poverty. Another significant element that has an impact on poverty in South Punjab is access to clean drinking water and sanitary services.

Waterborne illnesses put households without access to clean drinking water at risk for higher healthcare expenses and decreased productivity. Poor sanitary conditions also contribute to health issues like diarrhea and other infectious diseases, which worsen poverty. Another significant element that affects poverty in South Punjab is the number of years of education. Greater-educated households typically have greater wages and more work options, making education a key factor in economic and social mobility. Economic prospects are restricted and poverty is maintained over generations when people lack education. South Punjab has a largely agrarian economy, and a large number of people work in the agricultural industry. However, the industry is characterized by low productivity, sporadic employment, and a shortage of finance, which worsens poverty. In South Punjab, there is a gender difference in the prevalence of asset ownership, with women owning less than males do. Cultural traditions and legislative restrictions that restrict women's access to land and property are a major cause of this gender difference. Because it increases their ability to make decisions, gain access to resources, and seize economic opportunities, women's empowerment is also a crucial component in the fight against poverty. But there are still gender differences in education, health, and labour force involvement, which restricts women's agency and keeps them in poverty.

5.1. Policies Implications to Alleviate Poverty

Many elderly persons depend on their family or friends for care and need assistance with daily duties. Policies that help carers, such paid family leave or respite care, may lessen the financial and emotional burden of caregiving and enhance the wellbeing of both carers and care recipients. Financial assistance and resource access policies may lessen poverty among widowed people. Widowed people may get crucial support through Social Security survivor benefits, and measures that promote access to affordable housing and healthcare may also contribute to reducing poverty in this population.

Policies that support people who are leaving marriages may lower poverty in this population. People going through a divorce may need to have access to legal assistance and financial counseling. Policies that support access to jobs and affordable healthcare may also assist lower divorce-related poverty. Policies that encourage economic security and retirement planning may lessen poverty among elderly couples. Seniors receive critical assistance from Social Security, Medicare, and Medicaid, and measures that strengthen these programmes may help to lower poverty among this population. The financial security of older couples may also be supported by other policies, such as programmes for cheap housing. Offering quality childcare at a reasonable price may ease the financial strain on families with small children. Subsidies for low-income families, tax breaks for parents who are also working, and assistance for early childhood education initiatives all fall under this category.

In order to help low-income people who live distant from medical facilities, governments and nonprofit organisations must set up mobile health clinics. Mobile clinics offer treatments like routine physicals, vaccinations, and preventive care. Governments must fund transport for low-income persons who must travel a long distance to get healthcare services. This includes supporting public transit, offering ride-sharing services, or working with local organisations to provide transportation for medical appointments.

The ability for employees to work from home or other remote places is one way that policies that support telecommuting and flexible work schedules may help the battle against poverty. This may result in reduced travel expenses and commuting times, as well as more freedom for staff members who are in charge of providing care for others. For communities to have access to sanitary facilities and clean drinking water, governments must invest in the infrastructure for water and sanitation. This covers funding for water treatment facilities, distribution networks, latrines, and other waste disposal methods. To make it simpler for them to access sanitary facilities and safe drinking water, low-income households may be eligible for subsidies and financial aid. To fund water and sanitation initiatives, there are microfinance programmes, grants for the construction of restrooms and other sanitary facilities, and water bill subsidies.

By expanding the number of people who have access to the workforce, policies that encourage employment growth may assist to reduce poverty. This include subsidies for infrastructure projects that create jobs, tax advantages for companies that do so, and programmes that encourage small company growth. Unemployment assistance programmes may be able to help those who have lost their jobs but are having problems finding new employment. This covers both financial rewards and help finding a job, like career coaching and job placement services.

Financial aid and support programmes for low-income students may enable more people to enrol in higher education. This category includes student loan repayment plans as well as grants and scholarships. Supportive legislation for community colleges and initiatives that offer vocational training may also assist people in finding stable employment and wage increases. Through microfinance schemes, women's access to credit and financial services may enable them to launch their own businesses and amass assets, thus decreasing poverty. Policy changes that expand women's economic prospects may help to lower household poverty. This includes initiatives that encourage women to establish their own businesses and have access to capital and markets.

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