



The Calculus of Rural Poverty: Evidence from District Bhakkar – Pakistan

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ARTICLE DETAILS	ABSTRACT
<p>History Revised format: November 2018 Available Online: December 2018</p>	<p>The study was conducted to determine the factors associated with poverty in Pakistan. Using cross sectional survey design, data was collected from 300 households. Multiple linear regression model was employed to analyze the data. Results of regression analysis showed that household size, dependency ratio, participation rate, ownership of physical assets and landholding size had a significant impact on the poverty status of the households. The study suggested an increased investment in agricultural sector and creation of social infrastructure, with a view to create more employment opportunities, ensuring supply of healthy and educated workforce and thus reducing poverty.</p>
<p>Keywords Poverty, Poverty Line, Household</p>	
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1. Introduction

Poverty has been a major challenge in Pakistan since inception of the country. Realizing its social and economic implications for overall development of the country, Pakistan implemented various economic and social development models to conquer the menace of poverty. However, the goal of significant reduction in poverty remained elusive. Latest official figures show that 29.5 percent of population in the country lives below the poverty line¹. The phenomenon is more pronounced in rural areas where 35.6 percent population lives below the poverty line. In terms of multidimensional poverty index, in rural areas 54.6 percent of population lives below the poverty line². A recent analysis shows that, if poverty line is shifted to Rs. 5000 per person per month, 63 percent population of Punjab slides down the poverty line³.

Inspired by the dominant development paradigms, Pakistan, over the years, experimented with several development models to trigger economic development, leading to poverty reduction. These models included import substitution industries of 1948-55; export expansion of 1960-65; shift from agriculture to industry of 1966-67; population control policies of 1967-68; and GNP growth model of 1971-75 (Haq, 1976). These were followed by programs implemented with the assistance of international development finance institutions such as structural adjustment programs (1980s & 1990s), Poverty Reduction Strategy Papers (2000s), Millennium Development Goals (2000-2015), and now Sustainable Development Goals (2015-2030). The evidence in literature suggests that, despite

1. Pakistan Economic Survey 2015-16

2. Pakistan Multidimensional Poverty Index Report 2016

3. Punjab Economic Report 2017

efforts, poverty remained unconquered. Irfan and Amjad (1984) noted that in mid-sixties, despite the increase in agriculture sector, rural poverty index increased from 42 percent to 55 percent. In seventies, the decrease in rural poverty was primarily attributed to the remittances sent by the overseas Pakistanis. Similarly, offshoots of structural adjustment programs were negative for employment, poverty and governance (Kemal & Naseem, 1994). Literature suggests that there was an increase in poverty in 1990s (Amjad & Kemal, 1997; Ali & Tahir, 1999; Jafri, 1999; Arifet *al.*, 2000). Naseem (2012) noted that the poverty headcount ratio jumped from 24 percent (1987-88) to 30 percent (1998-99).

Therefore, keeping in view the economic development of the country, the perpetuity of the phenomenon poses a colossal challenge and merits attention of academia and the policy makers. In order to devise an effective and indigenous strategy to arrest poverty, it is imperative that an empirical study be conducted to unearth the underlying factors of rural poverty. The studies conducted in Pakistan mostly rely on secondary data and are limited to counting numbers of the poor. The available literature and empirical evidence of poverty is scattered. The present study is an attempt to fill this gap and undertake a systematic investigation of factors responsible for rural poverty in district Bhakkar – Pakistan.

2. Literature Review

There are two major groups of literature on poverty (Aikaeli, 2010). The first group views poverty as a cultural (or behavioral) phenomenon; while, the second group takes poverty as a structural (or economic) phenomenon. The cultural group sets itself in line with the assumptions of classical economic theory. According to this perspective, poverty is caused when an individual fails to make rational decisions regarding utilization of resources available to him/her. This is seemingly influenced by 19th century eugenics movement – describing the conduct and status of an individual in the society as a function of his/her genetic makeup (Gordon, 2003). It argues that poverty is rooted in dysfunctional values of the poor. However, critics hold that the cultural strand only encompasses the symptoms and ignores the underlying realities of poverty. The structural viewpoint of poverty aligns itself with neoclassical (Liberal/Keynesian) economic theory, which recognizes that market externalities and initial differences in terms of individual potential, skills and resources play an important role in determining the status of an individual in the society. This view appreciates that inequality or disadvantage in respect of economic opportunities and location has an impact on the earning potential of individuals. In other words, the structural approach concludes that poverty of an individual cannot be explained in terms of his/her individual characteristics, while ignoring the socio-economic features of the location (Holzer, 1991). Among the factors underlying incidence of poverty were availability and access to economic opportunities, the level of median income and inequality (Keynes, 1936; Ellwood and Summers, 1985; Abramovitz, 1996).

The present study aligns itself with the theoretical assumptions of structural paradigm and assumes that the household income (or welfare) is impacted by its social, economic and demographic characteristics. A number of national as well as international studies have been conducted following the structural group of poverty. At national level, Shirazi (1995) noted that the head of a household's educational level along with participation rate of a household were related negatively with the household poverty, while the size of the household had a positive correlation with the poverty status of a household. Hashmiet *al.* (2008) concluded that education of head of a household, ownership of livestock; household size, dependency ratio, landholding size, and ownership of physical assets were important underlying factors to determine the poverty status of a household. Arifet *al.* (2012) found household size and dependency ratio to be positively related with protracted poverty, while, ownership of land and livestock, housing structure and availability of rooms were found to be negatively related with chronic poverty. Khan *et al.* (2015) found out that, in the presence of other factors, household size, female-male ratio and participation rate were significantly related with the rural poverty. Akhtar *et al.* (2015) analyzed the headcount ratio, poverty gap and squared poverty gap of rural poverty. Utilizing HIES4 datasets, logit regression model was used to study the changes in poverty overtime. The study found out that landholding size, dependency ratio, household size and educational attainments of the households were significantly related with poverty status of rural households in terms of all three indices.

Similarly, there is evidence in international literature on developing countries that supports the findings that socio-economic conditions and household composition are important factor towards determining the poverty status of households. Dattet *al.* (1999) identified that the determinants of poverty in Egypt included, among others, the level of education, participation rate, household size, child dependency ratio and old age of head of a household.

Bogale *et al.* (2005) noted that the determinants of rural poverty in Ethiopia included landholding size, education level and livestock ownership. Apata *et al.* (2010) stated that the key factors related to rural poverty in Nigeria included level of education and female headed households. Aikaeli (2010) found out that the determinants of rural poverty in Tanzania included education of head of a household, participation rate, landholding size and gender of household head. Bahta and Haile (2013) found out that the determinants of poverty in Eretria included education level, landholding size, household size and child dependency ratio. Muhammad hussen (2016) identified that the determinants of rural poverty in Ethiopia included, among others, livestock ownership, family size and land possession.

Review of the literature highlights that poverty (or welfare) status of a household is determined by the economic, social and demographic characteristics. Too much demographic pressures can push a household towards poverty, while the well-being of a household could be improved by improving the economic status. The vast body of knowledge on the subject highlights that the factors related with rural poverty are both varied and complex. Generally the rural areas in developing countries are marred by location disadvantages, along with inadequate availability and access to social and economic infrastructure. Hence the literature on economic strands of poverty highlights how the poverty status of a household is defined by the structural and economic realities. This current inquiry, by building on the structural strand of poverty theory, aims to analyze the relationship between demographic and socio-economic characteristics of households and the level of poverty in district Bhakkar.

3. Methodology

3.1 Theoretical Relationship of Household Characteristics with Poverty – Hypotheses

In order to investigate the relationship between household characteristics and the poverty status of a household, following thirteen hypotheses were developed for the purpose of the present study. It is important to take note that theoretical bases of these hypotheses have been drawn from the evidence available in the poverty studies conducted on the developing countries.

3.1.1 Household Size

Composition of a household is defined by means of its size and characteristics of its members, for example, age, literacy level, participation ratio. It is believed that poor households comprise large family size and younger population which lead to an increase in poverty. Shirazi (1995) concluded that household size had a positive correlation with poverty status of a household. Haq *et al.* (2005) also found a positive relationship between size of a household and its poverty status. Hashmi *et al.* (2008) held that household size was found to have a strong impact on determining poverty status of a household. There are other studies which establish relationship between household size and poverty status of a household (Datt *et al.*, 1999; Arif *et al.*, 2012; Khan *et al.*, 2015; Akhtar *et al.*, 2015).

Hypothesis (H1): The larger is the size of a household, the higher the probability of its being poor.

3.1.2 Dependency Ratio

Dependency ratio is defined as the ratio of the number of family members (≤ 14 years and ≥ 65 years) not in the labor force to those members of a family which are in the labor force. This definition of dependency ratio is based on parameters defined by the World Bank⁵, United Nations⁶ and the International Labour Organization (ILO)⁷. The dependency ratio allows us to assess the burden on members of a household in the labor force due to the household members who are not in labor force. Hashmi *et al.* (2008) and Datt *et al.* (1999) observed that dependency ratio has a strong impact in determining the poverty status of a household. Arif *et al.* (2012) noted a significant positive relationship of dependency ratio with protracted poverty. Results of empirical studies showed that dependency ratio was an important determinant of poverty (Bahta & Haile, 2013; Akhtar *et al.*, 2015).

Hypothesis (H2): The larger is the dependency ratio of a household, the greater the probability of its being poor.

3.1.3 Gender of the Head of Household

It is assumed that poverty status of a household is impacted by the gender of its head. It is perceived that households having women as their head are more prone to poverty compared to households with men as their

5. <http://data.worldbank.org/indicator/SP.POP.DPND>

6. <http://www.un.org/esa/population/publications/worldageing19502050/pdf/95annexi.pdf>

7. <https://www.ilo.org/ilostat/faces/home/statisticaldata/conceptsdefinitions>

heads. The underlying assumption is that socio-cultural values prevailing in a typical Pakistani rural society inhibit women to choose profession of their own choice or participate freely in paid economic activity. This limits their scope in obtaining paid jobs and contributing to the income (welfare) of their households. Aikaeli (2010) concluded that gender of the head of a household was among the determinants of rural poverty in Tanzania.

Hypothesis (H3): The households having females as their heads have a greater probability of being poor.

3.1.4 Age of the Head of Household

Datt et al. (1999) and Malik (1996) held that age of the head of a household was among the determinants of poverty status of a household. It is assumed that earnings of the head of a household are positively correlated within the age bracket of 25 to 64 years and have a negative correlation beyond and below this age cohort. The underlying assumption is that, prior to the age of 25 years, one remains engaged in his/her studies or keeps on searching for some employment and as such his/her contribution towards income of the household remains insignificant. However, as one grows in age, generally he/she succeeds in securing independent position in formal and non-formal settings, leading to increase in his/her income. The income curve again declines once he/she gets retired from active life.

Hypothesis (H4): The households having their heads within the age bracket of 25 to 64 years have a lesser probability of being poor; whereas, households having their heads up to 24 years and equal or above 65 years of age have a greater probability of being poor.

3.1.5 Female to Male Ratio

The female to male ratio (sex ratio) has important bearings on participation rate of a household. Though not generalizable, but in a typical Pakistani family socio-cultural traditions discourage women to opt for jobs far away from their homes, thus hampers the women's participation in paid work. The studies suggest that female to male ratio has a relationship with poverty status of a household (Malik, 1996; Khan et al., 2015).

Hypothesis (H5): The higher the female-male ratio of a household, the higher the probability of its being poor.

3.1.6 Education Level of Head of Household

Education is considered as an agent of change. It enables the individuals to become an active part of society. Schult (1961) and Becker (1975) held that education was an investment and a skill set those results in provision of future benefits for the individuals. Woodhall and Psacharopoulos (1985) suggested that investment in education was a sure recipe to alleviate poverty both directly and indirectly. Educated individuals were found to be better able to take benefit of technology and have access to basic necessities of life. Human capital models argue that education help produce non-homogeneity in labor force. Hence, better performance in education opens new vistas of professional opportunities, which result in improved socio-economic conditions of a household. There is ample evidence in literature that education of the head of a household has an important role in determining its poverty status (Shirazi, 1995; Hashmi et al., 2008; Datt et al., 1999; Aikaeli, 2010).

Hypothesis (H6): The higher is the educational attainment of the head of a household, the lower is the probability of its being poor.

3.1.7 Participation Rate

Participation rate is defined as the ratio of household members of working-age (≥ 15 years and ≤ 64 years) who are engaged in any paid employment to those members of a household who fall within working age bracket but are unemployed. In contrast to dependency ratio, the participation rate takes into account only those members of a household who are in labor force, excluding household member ≤ 14 years and ≥ 65 years. The participation rate is an important factor used to ascertain employment status of a household. Since high participation rate indicates more number of employed members in a household. It is, therefore, assumed that increase in participation rate leads to decrease in poverty status of a household. Shirazi (1995) concluded that participation rate of a household was found to have a negative relationship with the household poverty. Datt et al. (1999) and Aikaeli (2010) noted that participation rate of a household was included among the important factors determining the poverty status of a household. Khan et al (2015) concluded that, among others participation rate turned out to be the significant factor associated with the rural poverty.

Hypothesis (H7): The higher is the participation rate of a household, the lower is the probability of its being poor.

3.1.8 Property and Assets of Household

The property of a household comprises its tangible goods such as land, cultivated areas, livestock, agricultural implements, machinery, buildings, household appliances, other durable goods and its financial assets, for example, liquid assets and other financial assets. These indicators are of paramount interest in determining the poverty status of a household because they reflect wealth of the households; thus affect income level of the household. Further, some of the households, particularly in rural areas, may be poor when their incomes are considered as an indicator of poverty, but they may be wealthy when their property is considered to weigh their status in the society. Rowntree (1901) calls this class of poverty as secondary poverty, for it subsumes the households those apparently have means, but are still unable to make use of these resources to pull themselves out of poverty threshold. Household property and assets, as proposed to be used in the current study, are discussed as under:

3.1.9 Landholding Size

It is considered that ownership of agricultural land plays an important role in raising a household above subsistence level. The parameter used in this study was the landholding of a household in acres⁸. It is assumed that higher landholding size would lead to decrease in incidence of poverty of a household. Hashmi *et al.* (2008) suggested that household size had a strong impact on determining the poverty status of a household. Arif *et al.* (2012) found that ownership of land had a significant and negative relationship with poverty. Akhtar *et al.* (2015) suggested that landholding size had a significant relationship with poverty status of rural households. It is argued that among others landholding size is an important determinant of rural poverty in developing countries (Bogale *et al.*, 2005; Aikaeli, 2010; Bahta & Haile, 2013).

Hypothesis (H8): The larger the size of landholding of a household, the lesser is the probability of its being poor.

3.1.10 Livestock Population

Livestock plays an important role in rural economy of Pakistan. It constitutes a significant part of a household's income. It is a net source of steady earnings for rural communities. The sector contributes 11.9 % to the GDP⁹. Its role in poverty alleviation efforts is, therefore, considered important. Hashmi *et al.* (2008) suggested that ownership of livestock, had a strong impact on determining the poverty status of a household. Arif *et al.* (2012) noted that ownership of livestock had a significant and negative relationship with poverty. Bogale *et al.* (2005) noted that livestock ownership was among the determinants of rural poverty in Ethiopia. Muhammad hussen (2016) demonstrated that, among others, livestock ownership was found to have an important role in determining rural poverty.

Hypothesis (H9): The larger is the size (value in monetary terms) of the livestock population of a household, the lesser is the probability of its being poor.

3.1.11 Value of Physical Assets

Material possessions are important for household incomes. The study took into account the material possessions in the shape of agricultural equipment and machinery and household appliances such as TV, refrigerator, washing machine, fans, sewing machine, computer etc. It is assumed that ownership of physical assets has a negative relationship with poverty. Hashmi *et al.* (2008) observed that among others ownership of physical assets had a strong impact on determining the poverty status of a household. Malik (1996) also noted a correlation between ownership of physical assets and poverty of a household.

Hypothesis (H10): The higher is the cumulative monetary value of the household's physical assets, the lower is the probability of its being poor.

3.1.12 Access to Health Services and Facilities (AHSF)

Health of a household is generally characterized by four types of variables which indicate living standards. Among these, are; (a) Nutritional status, such as weight for age, height for age and weight for height, (b) Disease status, for example, infant and juvenile mortality and morbidity rates as related to certain diseases such as malaria, respiratory infections, diarrhea and sometimes poliomyelitis, (c) The availability of health care services such as primary healthcare centers, maternity facilities, hospitals and pharmacies, basic healthcare workers, nurses, midwives, doctors and traditional healers and medical services such as vaccinations, access to medicines and medical

8. An acre is about 0.405 hectare

9. Pakistan Economic Survey 2015

information and (d) The use of these services by poor and non-poor households.

Hypothesis (H11): The greater is the access to healthcare facilities to a household, the lesser is the probability of its being poor.

3.1.13 Access to Drinking Water and Sanitation (ADWS)

It is commonly understood that water and sanitation significantly impact the living standards of households. There exists sufficient evidence in literature that access to clean drinking water and sanitation facilities are negatively skewed for the poor.

Hypothesis (H12): The greater is the availability and access to clean drinking water and sanitation facilities to a household, the lower is the probabilities of its being poor.

3.1.14 Household Shelter Quality (HSQ)

Shelter is a manifestation of overall personal life of a household. It is assessed in terms of poor and non-poor household groups. Three components are important in this regard such as type of housing, housing services and the overall environment surrounding housing services. Three type of indicator are important to track the quality of available housing. First type includes building and its characteristics like size and type of material (mud and straw, and baked and unbaked bricks). Second, how it has been procured whether it is self-owned or taken on rent and what is the household equipment. Third, services indicators comprise availability and use of drinking water, type of communication services available, sources of electricity and energy (kerosene, wood, dung cake etc.). Finally, the environment related indicators mainly include the quality of sanitation, the degree of isolation or development (existence of road infrastructure which can be accessed in all weathers, type of transport facility that is available and how long it takes to get to the market) and the extent to which the personal life is safe. It is commonly assumed that housing facilities available to poor are precarious and have low sanitary conditions. This, in turn, results in poor health leading to lower working efficiency of household members.

Hypothesis (H13): The better is the quality of construction material used for construction of houses by a household, the lesser is the probability of its being poor.

3.2 Profile of Study Area

District Bhakkar is present in the western part of the of Punjab province in Pakistan. The Human Development Index (HDI) Report of 2013 on Pakistan's districts classified Bhakkar as an "underdeveloped" district with HDI 0.48. It comprises of four tehsils¹⁰ including Mankera, Kallurkot, Bhakkar, and Darya Khan with 42 Union Councils (UCs)¹¹. It is important to differentiate here for the purpose of clarity and to avoid confusion that district Bhakkar also includes a tehsil with the same name (Tehsil Bhakkar), a smaller administrative unit. The total population of the district amounts to 1,051,456 person's¹² with 83.96% living in rural areas. The average size of the household in Bhakkar equals to 6.613 persons per household. The literacy rate of the district is 51%, while the unemployment rate stands at 6.8%, along with average annual growth rate of 2.72%. Out of total district population, 39% are underweight, with 12 % suffering from severe underweight conditions¹⁴. Utilizing the MICS 2003-0415 data, Cheema *et al.* (2008) estimated 58 % of rural population in the district living below poverty line. The topography of the district Bhakkar can be divided into three main areas. The river rain area is mainly tube well irrigated, while the plain area is both tube well and canal irrigated. The third desert area is mainly rain fed. The major sources of income in the rural areas of the district include agricultural produce and livestock.

3.3 Sampling Design

A sample of 300 households was drawn in the present study by utilizing the multi-stage implicit stratified cluster sampling¹⁶ design. At the first stage, two tehsils including Bhakkar and Mankera were selected. Bhakkar tehsil was selected because it represents both river rain and plain area, while Mankera tehsil was selected because it represents

10. Tehsil is an administrative division in Pakistan with a city serving as an administrative center for towns and villages constituting the tehsil.

11. Union Council comprises a large village and surrounding areas often including small villages. It is third tier of Local Government in Pakistan headed by a chairperson and number of elected councilors.

12. Estimates are as per census report of 1998.

13. Bhakkar District at a Glance: Pakistan Bureau of Statistics.

14. Multiple Indicator Cluster Survey 2007-08

15. The Multiple Indicators Cluster Survey 2003-04

16. Designing Household Surveys Samples: Practical Guidelines: The Department of Economic and Social Affairs of the United Nations, Secretariat, New York, 2005.

the desert area. At the second stage of the multi-stage sampling, total of three UCs, one from each rive rain, plain and desert areas were selected. At the third stage, total of twelve villages, four from each UC, were selected randomly. At the fourth stage, a total of 300 households, with 25 from each village, were randomly selected for data collection. In the present study the unit of data collection was the household.

3.4 Data Collection

By using the cross-sectional survey design and a multi-topic questionnaire, data was collected from 300 households selected on random. The questionnaire was initially developed in the English language but was later translated into Urdu Language, duly vetted by a linguistic expert. The questionnaire comprised of three main sections to collect data on demographic, economic and social characteristics of the surveyed households. The survey included total 50 questions with 13 related to demographic, 21 related to economic and 16 related to social characteristics of the sampled households. The survey respondents were also asked to suggest ways to lessen poverty. Efforts were made to ensure that the survey respondent were the head of the randomly selected households. The data collection period lasted from April - July 2016.

3.5 Analytical Model

Descriptive statistics were utilized to develop the socio-economic and demographic profile of the area. For empirical analyses, the World Bank (2005) suggests that in most of the cases, contribution of various variables towards poverty of a household is estimated by using regression analysis. Level of income (or expenditure) per capita– the “*dependent*” variable – is explained as an outcome of variety of variables (the “*independent*” or “*explanatory*” variables). For the purpose of current study, explanatory variables have been discussed in the previous section (theoretical relationship of household characteristics with poverty – hypotheses). Following classical regression model, as employed to undertake poverty analysis, was used in the present study:

$$\ln (y_i / z) = \alpha_0 + \alpha_1 x_i^1 + \alpha_2 x_i^2 + \dots + \alpha_n x_i^n$$

Where Z denotes poverty line, y_i is (per capita) income, x_i^n are “independent” variables, α_n are the coefficients that are to be calculated and α_0 represents constant term. It may be noted that y / z is in log form, which is a common way of allowing for the log normality of the variable. The household size was adjusted, using Adult Equivalent (AE) Scale¹⁷, as utilized in Organization for Economic Cooperation and Development (OECD) countries (WB, 2005).

The concept of poverty line, as utilized in the current study, assumed the discrete characteristic of poverty, and could be signified by a single measure. The official poverty line of Pakistan is Rs. 3030 (or US\$ 28.91)¹⁸ per adult equivalent per month. Following the Cost of Basic Needs (CBN) approach¹⁹, the poverty line was calculated in 2015. The analyses in the current study are based on this official poverty line. Put another way, the log of rural income at the rate of Rs. 3030 (or US\$ 28.91) per adult equivalent per month has been used as independent variable in the present study.

4. Results

Descriptive analysis of data offered important revelations on socio-economic characteristics of the rural households of district Bhakkar. The data showed the average age of the head of households equal to 45 years. Only 2% of heads of household were equal to or younger than 24 years. This suggested that trend of early marriages in rural areas, as commonly perceived, was not supported by this study. The literacy rate of the head of households came out to be 53 %; with only 2% receiving education up to bachelor level or above. This was close to 56 % literacy rate of the district. Average household size came out to be 6.5 persons per household, which was also close to average household size (6.6) of the district²⁰. The size of average landholding in sample came out to be 4.21 acres per household hence majority of the sample respondents comprised small land holders. A total of 76% farm sizes came out to be in the range of 1 to 7.5 acres. This figure was in accordance with the ‘Census of Agriculture – 2010’ estimate, highlighting that 79% private farms in Punjab ranged between 0.5 to 7.5 acres²¹. The mean income of sample households came out to be Rs. 209,824 (or US\$ 2,002.137) per household per annum. Given the household size of 6.5 persons per household in district Bhakkar, it implies that annual per capita income turned out to be US\$

17. Adult Equivalent. = 1 + 0.7 (N adult - 1) + 0.5 N Children

18. @ 1 US\$ = 104.800 PKR. This rate has been followed throughout this study for conversion of PKR to US\$.

19. Pakistan Economic Survey 2015-16

20. <http://www.pbs.gov.pk/>

21. Agricultural Census Organization, Government of Pakistan, Lahore. “Census of Agriculture – 2010”

308.021, which was much lower than national per capita GNI of US\$ 1,44022. 42% households received healthcare from Hakeems²³ followed by doctors who were available to 38% of population. Overall, access to medical facilities was available to 70% households. A high 94% households reported that quality of drinking water available to them was satisfactory. Latrine was available to 58% households in their own premises. District Bhakkar has no proper sewerage system available. In more than 70% cases, baked bricks were the construction material used in construction of houses. Average room occupancy came out to be 3.3 persons per room. It was noticed that, on most of the demographic and socio-economic indicators, results of the present study were close to the national average statistics.

4.1 Factors Affecting the Rural Poverty: Regression Analysis

Regression analysis is the most commonly used technique to study the contribution of different variables to household poverty (Manual *et al.* 2005). It attempts to explain the level of income per capita – the dependent variable – as a function of variety of independent or explanatory variables. Results of regression analysis show how closely each independent variable is related to the dependent variable, holding all other influences constant. Following table presents the results of regression analysis of the data collected for the present study.

Table 1: Determinants of Rural Income Per Capita: Log Linear Regression Results

Independent Variables	B	SE	β	Sig.
Household Size	-.051	.014	-.202	.000
Dependency Ratio	-.834	.253	-.163	.001
Gender of Household Head	-.264	.278	-.043	.343
Age of Household Head	-.007	.004	-.089	.071
Female - Male Ratio	-.061	.060	-.046	.314
Participation Rate	.396	.146	.125	.007
Landholding Size	.048	.008	.333	.000
Monetary Value of Livestock Population	.000	.103	.000	.997
Monetary Value of Physical Assets	.530	.090	.328	.000
Access to Medical Facilities	-.071	.081	-.039	.378
Availability of Latrine	.123	.082	.071	.135
Quality of Drinking Water	.087	.128	.030	.496
Education of Household Head	-.006	.009	-.033	.484
Material Used for House Construction	.142	.089	.074	.110
Persons Per Room	-.009	.022	-.021	.688
Intercept	-1.919	.672		.005
R ²	.474			
Adjusted R ²	.446			
F – Statistics	16.919 (.000)			
N	300			

The empirical results of log linear regression presented in Table 1 showed that explanatory power of the regression model, as measured by adjusted R², was 0.446. It could be said that, on average, 45% variation in dependent variable was explained by independent variables. The test of significance, F-test, was accepted at 1% level. Signs carried by the independent variables mostly supported the hypotheses. Household size, dependency ratio, landholding size, value of physical assets and participation rate were found significant at 0.001. Rest of the variables in the model, though had correct signs, but they were not found statistically significant.

The magnitude of effects reported in column B (unstandardized co-efficient) showed that dependency ratio followed by the value of physical assets had the largest impact on the dependent variable. As such, the dependency ratio was the most significant predictor of poverty in the study area. The other variables having significant impact on the dependent variable include participation ratio, household size and landholding size. Unstandardized B value of the household size indicated that for every one-unit increase in the household size (for each additional family

22. <http://data.worldbank.org/country/pakistan?view=chart>

23. A Physician using traditional remedies

member), there was 5% decrease in the household income. In case of the dependency ratio, for every one-unit increase in the dependency ratio, the income of the household would decrease by 83%. It showed that the dependency ratio had the largest impact in determining the poverty status of a household. The B value of the participation rate showed that for one-unit increase in participation rate, the income of the household would increase by 40%. Regression coefficient for landholding size suggested that for every one-unit (one acre) increase in the landholding size accounted for an increase equal to 5% of the per person per month income of the household. Likewise, for one-unit increase in the ownership of the physical assets of a household, the income of the household would increase by 50%.

4.2 Discussion

The results of descriptive analysis showed that most of the socio-economic characteristics of the sample households were close to national averages. For example, estimates of household size, literacy rate, and mean farm size came out to be close to survey results undertaken at national or sub-national levels. The results of regression analysis were also supported by national and international literature. For example, at national level, there was ample evidence that household size, dependency ratio, participation ratio, landholding size and ownership of physical assets had a significant impact on poverty status of a household (Shirazi, 1995; Malik, 1996; Hashim, 2008; Sabir *et al.*, 2006; Khan *et al.*, 2015). Also the factors identified as determinants of rural poverty in the present study found support from the studies conducted in other developing countries such as Ethiopia, Nigeria, Tanzania, Eritrea, and Egypt (Datt *et al.*, 1999; Zhao *et al.*, 1999; Bogale *et al.*, 2005; Ibrahim & Umar, 2008; Aikaeli, 2010; Bogale, 2011; Bahta & Haile, 2013; Muhammad hussen, 2016).

This adduced a clear evidence that findings of the present study were found in congruence with the findings of a body of literature available on the subject. It was, therefore, safe to conclude that household size, dependency ratio, participation rate, landholding size and ownership of assets were the significant factors responsible for causing rural poverty. The findings also supported the basic assumptions of structural strand of poverty, which recognizes that availability and access to economic opportunities play an important role in determining the status of an individual in the society. In the same vein, proximity of findings of descriptive data with national and sub-national statistics provided an evidence of the representativeness of the sample; thus increasing the generalizability of the findings of the study.

5. Conclusion and Recommendations

The study concluded that general demographic and socio-economic characteristics of the sample were largely in agreement with that of population's characteristics, as reported in national statistics. This showed that the sample was representative of the population. The study also showed that factors external to individuals were mainly responsible to determine the poverty status of rural households. Also the household size, dependency ratio, participation rate, landholding size and ownership of physical assets did play role in determining the poverty level of a household. This was an evidence unto itself that study was rightly placed in positivist paradigm based on the assumptions of neoclassical economic theory. Based on the findings of the empirical analysis, the study makes three recommendations. First, invest more, particularly in agriculture sector, to create additional job opportunities, thus; bringing positive changes in dependency ratios and improving participation rate. Second, invest more on social infrastructure, for example, on health and education, ensuring better health and increased employment opportunities. Finally, investment on poverty reduction initiatives should be integrated with broader agenda of sustainable development, for instance, Pakistan Vision 2025 and international development agenda of 2030 to make it possible that results of these initiative be measured at regular intervals and corrective actions, if needed, be taken to achieve the set targets.

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