

ROLE OF HOUSEHOLD SIZE IN POVERTY ALLEVIATION IN
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Abstract

This study looks at the role of household size in poverty alleviation in Jhang district, Punjab, Pakistan. This research aims to investigate the relationship between reducing poverty and household size within the context of the household's monthly income. The study uses monthly household income as a base variable and household size, sewing machine, land in acres, land access, household head occupation, monthly household head expenditure, household unemployed individual, household asset ownership, and household energy consumption as independent variables. This paper uses primary data from 200 households, covering from Jan and Feb 2024. To check data, the paper uses the econometric technique of quantitative methods on SPSS, Used inferential statistical tests, like as T-tests, ANOVA, correlation, and regression, to determine the best linear prediction of a criterion variable based on one or more predictor variables. Regression and ANOVA,s results show that monthly expenditure, number of unemployed people in household (with no job), sewing machine, and household energy consumption (fuel use for cooking and lighting in house) are significant and positively linked to household head monthly income. Houses that have more family members unemployed are related to poverty. Results also reveal that asset-based income sources like sewing machines have the potential to alleviate the poverty.

INTRODUCTION

Poverty is a complex worldwide problem, having a higher prevalence in less developed (Crespo Cuaresma et al., 2018; Desmond & Western, 2018; Ram, 2021; Santos, Dabus, & Delbianco, 2019). Poverty refers to the inability to access or provide the resources necessary to meet basic needs for an individual or family (Buheji et al., 2020). It arises when individuals, groups, or societies fail to fulfill the fundamental social and

economic requirements for survival. essentially it means having insufficient resources or money whereby the individual is unable to afford payments for his basic necessities like meals, clothing, and house (Brady, 2019; Roesch-Knapp & Inquiry, 2020; Simpson Reeves, Parsell, & Liu, 2020).

Every country is dedicated to achieving the Sustainable Development Goals (SDGs) for its

2030 Sustainable Development agenda in the current technology era. (Iqbal, Mohsin, & Sciences, 2020) The eradication of poverty in all of its manifestations and worldwide is one of the main objectives of these aims. 17 Sustainable Development Goals (SDGs) and 169 related targets centered on social and economic advancement were established by the 2030 Agenda for Sustainable Development (Oliveira, 2024)(UNDP, 2015). According to (Hameed & Karim, 2016), the first objective (SDG-1) is to eradicate poverty in all its manifestations worldwide.

A research conducted in the Ghorbani sector (Iran) using data from 220 established homes found that over 87% of these households were living below the absolute poverty threshold. Furthermore, 20% lived in extreme poverty (Soltani, Baraty, Razaghian, & Foroughzadeh, 2019). Poverty has a significant impact on people's living conditions. The vast majority of low-income people live in inexpensive rental housing. Their dwellings are congested, and the facilities in a house should be more adequate. With a rising population, many more social and economic concerns arise (Aluko & Management, 2011). According to the report, illiterate heads of families had a greater frequency of poverty, with 82% being literate and 27% being illiterate poor household heads. Similarly, the frequency of poverty is three times higher among heads of households with less than 10 years of schooling (Arif, 2000; Majeed & Malik, 2015).

Pakistan is dedicated to eradicating multifaceted poverty and was among the first nations to incorporate sustainable development goals into its national development policy. (tribune.com,pk). In 2020, extreme poverty increased globally for the first time in nearly 20 years, and many nations are still coping with the health, economic, and social effects of the COVID-19 pandemic, which has affected over 210 countries, with over 620 million cases reported and over 6.5 million deaths worldwide, including in Pakistan (World Bank Report, 2022) (Ara, Ali, & Shah, 2025).

Daily, one observes the emergence of instability in Pakistan, with numerous factors and causes contributing to the pervasive issue of poverty.

Poverty manifests in various forms. For instance, factors such as limited income, minimal expenses, restricted access to resources, and the stagnation of poverty alleviation initiatives prompt critical inquiries: What is the percentage of individuals residing in poverty? What is the distance to the threshold of poverty? What exactly is the difference between the typical poor and the wealthy, and what factors contribute to poverty in a particular society?(Iqbal, Kamal, Malik, & Mohsin, 2024) In recent years, it has become increasingly important to study and evaluate poverty in Pakistan. However, some of these factors—such as population pressure, population growth, unemployment, illiteracy, low living standards, inflation, low foreign investments, low national income, a higher proportion of women in households, a lack of household asset ownership, and low savings—are the main causes of poverty (Nisar, Anwar, Hussain, Akram, & Economics, 2013).

Jhang is an old district in Punjab, Pakistan, created in 1849, with the first settlement allowed in 1856. The site ranges from 30° 55' 57" N compass to 31° 21' 15" N latitude, and 71° 43' 0" E latitude to 72° 35' 15" E longitude, at an elevation of 679 feet above the surface of the ocean. The district is bounded by Sargodha in the north, Chiniot in the northeast, Faisalabad in the east, Khanewal in the south, Toba Teak Singh in the southeast and Layyah in the west. District Jhang has an estimated population of 2.743 million. Jhang district has 6,166 km² and is divided into four administrative divisions (tehsils): Jhang, 18 Hazari, Shorkot, and Ahmadpur Sial. Jhang District has 84 Union Councils, including 66 rural and 18 urban union councils (GOP, 2017; GoP, 2011).

Household size is one of major factor of poverty. The population growth rate is increasing rapidly in Pakistan. The increase in population put effects on the size of household. Faster growth in population and higher size of household will higher the poverty. The relation between poverty and household size is positive. The rapid growth rates in population have low household size and large household sizes are not growing economically, and they became poor.

Once these questions are answered correctly, they will know who the poor are, where they live, and why they are poor. By examining the events related to the incidence, household size, expenditures of household, income of household, unemployed member in household, occupation of household head, assets ownership on household and poverty of District Jhang. This research will provide answers to the above listed questions in the sense of District Jhang, will contribute to the life of information and will be contained in literature papers. The outgoing space will be filled and this study will serve as a public-based policy platform for sub-district / district / province and state elimination of poverty.

Profile, Incidence, and economic determining factor of poverty in Pakistan were examined by (CHEEMA & PARKASH). The research used income and expenditure from the households to identify variables for poverty reduction. The analysis utilized data from HIES 2005-06. Khan et al (2015) examined the role of livestock in reducing poverty. The goal of the study was to find the tools and techniques for increasing livestock productivity and the role of livestock in poverty reduction in Lasbela district.

This paper represents District Jhang data from the time period of (Jan 2024- Feb 2024). Since socio-economic survey studies and studies are available all over the world but there is still no socio-economic research in Jhang in the past. The objective of this study to check the relationship between Number of households, monthly household income, monthly household expenditure, household size, number of unemployed, ownership of household properties, household occupation, household use, sewing machine, land access. To determine the Character of Household Size in poverty Alleviation in District Jhang, Punjab, Pakistan

The main objective of the analysis is to estimate the social and economic-economic conditions of District Jhang with variables that are uses to explore the relationship among gender (male, female), education in terms of academic year, age, Number of household, Occupation (private sector, public sector) and Household Energy

consumption (dwelling related, fuel use for cooking, lighting in house).

The second section discusses the analysis of the literature while the third section deals with the details and methodology. 4 Chapter outlines the findings and debates, and the final section summarizes the outcomes and the application of policies.

1. LITERATURE REVIEW

Poverty is an event in multiple dimensions, which is measured in many forms. In general, poverty is calculated using the principle of supreme poverty. The findings of poverty studied executed in some other part of the world during previous years are given as,

(Ara et al., 2025) examined the Post-COVID Multidimensional Poverty Profile of Urban and Rural Households in Khyber Pakhtunkhwa, Pakistan's Malakand Division. The purpose of the survey was to gather cross-sectional data on poverty indicators that were grouped under the aspects of living standards, health, and education. The findings indicate that the incidence and severity of multidimensional poverty were 50.2 percent and 59.7 percent, respectively, across the entire Malakand division. The MPI for the Malakand Division was determined to be 30%.

(Iqbal et al., 2024) examined the relationship between poverty level and settlement issues and trends using Jhang, Pakistan, as a case study. The respondents' settlement patterns were irregular (35.3%) and dispersed (35.5%) as a result of extreme poverty. Additionally, correlation research confirmed that the degree of poverty significantly influences settlement issues and trends.

Sadique et al. 2023 studied. Recognizing multifaceted poverty in Pakistan: consequences for strategies tailored to certain regions and demographics. Multidimensional poverty is especially prevalent in Balochistan, according to the findings; this demonstrates that 22% of Pakistanis are holistically impoverished in terms of health, education, basic living standards, and financial stability. Furthermore, the logistic regression results show that houses with more working-age persons, employed women, and

employed adolescents are less likely to be poverty, but households with more dependents and children are more likely to be impoverished.

Bokhari et al. 2022 examined the role that education plays in reducing poverty in Pakistan, using data from Southern Punjab. The goal of the study is to look into the complex relationship between educational achievement and household poverty in South Punjab, Pakistan. Employment status, family size, and family structure have all had a negative impact on this division's economic face. Shakoor and shah (2021) examined Khyber Pakhtunkhwa, Pakistan's Multidimensional Poverty Profile of Rural Households and Its Determinants. Regression analysis revealed that the age of the head, household income, education, and ownership of agricultural land all had a negative impact on the predictors of multidimensional poverty. Due to uneven regional development, poverty was prevalent in both the Northern and Southern divisions.

(Cheema, Nadeem, & Continuity, 2020) studied researched Pakistani poverty and its associated factors. According to the study, Pakistan's headcount ratio, poverty gap, and squared poverty gap are 15.41%, 2.4%, and 0.58%, respectively. Although poverty increased between 2010–11 and 2011–12, the difference is not statistically significant, according to the study of time. In terms of enrollment, education, gender parity index, vaccination, pre/postnatal services, family planning, etc., the data show that the poor, women, and rural areas were most impacted.

(Iqbal et al., 2020), examined Jhang, Pakistan, as a case study for assessing the degree of household poverty. This study's main goal was to determine the degree of household poverty in Punjab province's district Jhang using a few chosen socioeconomic variables (i.e., inhabitants' income, occupation, available facilities, drinking water, etc.). The majority of respondents in the research region were clearly living in substandard and poor conditions, according to the results. Despite having adequate understanding of poverty, the majority of residents lived in extreme poverty, primarily due to unemployment and overcrowding.

(CHEEMA & PARKASH, 2018), the study examined the role of microfinance in alleviating poverty in the provincial areas of District Sargodha, Pakistan. The head check proportion was used to analyze the impact of microfinance charged by the Punjab Rural Support Program (PRSP). Data were analyzed using Ordinary Least Square Regression (OLS). The findings indicated that microfinance was a significant factor in reducing poverty, that population growth should be controlled, and that the size of households positively correlates with the reduction of poverty. (Alam, Kashif, Ahmed, & Chhapra) Estimating the prevalence, severity, and intensity of poverty as well as identifying its drivers and coping mechanisms among Jhang district households are the goals of the study. In order to ascertain the impact of different poverty indicators, including household socioeconomic, demographic, and social factors, on the poverty incidence in Jhang District, this study employed bivariate and multivariate analysis. A 2016 poll found that 39.8% of individuals live below the poverty line, with 10.4% being extremely poor. The percentages of people living in poverty are 34% and 11%, respectively. The logistic model's findings indicate that the likelihood of being poor was positively and significantly connected with the household head's age, size, illiteracy, farming, daily labor, and household head's living in a kacha (mud) home.

(Khan, Umar Farooq, Rizwan Yaseen, & Proceedings, 2018) examined the socioeconomic determinants of food security using data from Pakistan's Jhang District in Punjab. Using a logistic regression model, this study concentrated on the main socioeconomic causes of food insecurity in Jhang district, one of 80 impoverished districts in Pakistan. There were 200 responders in the data set. With probabilities of 15.74, 5.22, 0.082, 5.864, and 3.878 times, respectively, the number of family members between the ages of 2–10, the rented or owned area, and the number of earning hands are also considerably causing increased possibilities of food security.

(Parveen, Raza Cheema, & Proceedings, 2018) investigated poverty alleviation and the rural non-farm economy in Tehsil Sillanwali, District

Sargodha, Pakistan. They looked at how non-farm activity affected the fight against poverty. For estimation, the study used primary data. Cross-sectional data were employed in the study. The study's estimating method was the Logistic Binary Model. The findings demonstrated the importance of reducing household size, household head education, land ownership, and income level in order to reduce poverty. Income (farm and non-farm) and poverty decrease are positively correlated.

(CHEEMA & PARKASH, 2018) examined how microfinance can reduce poverty in Pakistan's Sargodha district's rural districts. This study employs Multiple Ordinary Least Squares (OLS) regression to calculate the headcount ratio and investigate the effects of microfinance given by the Punjab Rural Support Programme (PRSP) in Pakistan's Sargodha district's rural districts. According to the statistics, the headcount ratio was 56.7% before microfinance activities and decreased to 14.1% following microfinance. OLS model results indicate that microfinance is a key factor in reducing poverty and that poverty is positively correlated with household size but negatively correlated with the number of earners and educational attainment.

(Abrar ul haq, Jali, Islam, & Quantity, 2018) evaluated the contribution of home empowerment to reducing participatory poverty in Pakistani rural households. The current study used primary data, which was gathered from rural households in 24 villages in southern Punjab using a multi-stage random sampling technique. Participatory poverty is negatively impacted by household empowerment, remittances, agriculture occupation, agriculture experience, secondary occupation, household size, and the female-to-male ratio, according to the current study's findings.

(Majumder, Biswas, & Development, 2017) examined Evidence from Bangladesh on the Function of Education in Reducing Poverty. The purpose of this study is to explore how education and other demographic, economic, and social factors influence household poverty in Bangladesh using data from the Bangladesh Bureau of Statistics' (BBS) 2010 Household Revenue and

Expenditure Survey (HIES). According to the study's findings, rural households are less wealthy than urban ones, and factors such as household size, the head of the household's age, sex, and work status, the materials used to build the walls and roofing, and the supply of drinking water all significantly affect how impoverished a household is.

(Meyer & Nishimwe-Niyimbanira, 2016) examined how the size of a family affected neediness and categorized several low-income communities in South Africa's Northern Free State District. Finding a correlation between poverty and family unit size in low-wage networks was the main goal of the investigation. Cross-sectional data was used in the study to determine the results. The relationship between the parameters was assessed using the Pearson's chi-square test. The results showed a strong correlation between the size of the family unit and impoverishment. Families with large numbers were below the poverty line, while those with smaller numbers were above it.

Kashif et al. (2016) Examine how income affects poverty in Pakistan. The study's goal was to estimate the prevalence, severity, intensity, and component of poverty. Measures to lessen poverty in the Jhang district. Cross-sectional data were employed in the study. To determine how various household characteristics affected poverty, bivariate and multivariate analysis was employed. The logistic model is also employed. The findings demonstrated a positive correlation between poverty and the following factors: household age, household size, and farmer head, and low wage head, lack of family planning, illiteracy, and livestock ownership. In district Jhang, increasing land ownership, livestock, and education can all help to lower poverty.

Khan et al (2015) examine how livestock might help alleviate poverty. The study's objective was to identify methods and resources for raising livestock productivity and the contribution of livestock to the fight against poverty in the Lasbela district. Cross-sectional data were employed in the study. Data was estimated using the Ordinary Least Square (OLS) model. According to 58.5% of farmers, livestock is their main source of income,

while 29% of farmers perceive it as a secondary source. There was a favorable correlation between income and livestock. The rise in cattle contributed to the decrease in poverty.

(S. Ali, Chaudhry, & Chaudhry, 2015) did an empirical research on reducing poverty through the production of livestock in Pakistan. The purpose of the study was to determine how the livestock industry affected poverty and income. Time series data from 1972 to 2010 were used in the study. To fine-tune the relationship between variables, the unit root test, Johansen's Cointegration approach, and vector error correction methodology were employed. Poverty and cattle had a detrimental, long-term relationship in Pakistan. The findings demonstrated that advancements in the livestock sector can boost household income and serve as a means of reducing poverty.

Haq et al. (2015) investigated ways to reduce poverty in Pakistan. The study looked into the variables that affect household poverty in rural regions. Southern Punjab provided the primary data. The logit model was used to determine the relationship between the independent and dependent variables. The results showed that the legislature should provide a higher percentage of women in the workforce, individuals per room, a reduction in the number of family units, advanced education, and a better rate of family collaboration. These measures will help to alleviate poverty.

(A. G. Awan, Sheikh, & Linguistics, 2015) Examine the relationship between wealth and education and rural poverty: A contextual study of District Rahim Yar Khan, Pakistan. The goal of the experiment was to determine how family size, wealth, and training affected impoverishment. Age, family size, instruction, wage, utilization (fuel, food, clothing), material sources, richness (domesticated animals, resources, self or acquired) were the chosen factors. The method of multivariate logistic regression was applied. The findings indicated that even little changes in factors have the potential to alter the degree of poverty, either by decreasing or increasing it (inverse relation). As wealth, assets (livestock),

education, and household size decrease, poverty is lessened or eliminated.

(Jali, Ayub, & Development, 2015) Khan et al. (2015) examined the role of household socioeconomic empowerment in determining the factors that contribute to rural household poverty. Study used primary data from rural home survey to examine the determinants influencing rural household poverty in Bahawalpur, Pakistan. According to the findings, rural household poverty is significantly impacted by socioeconomic empowerment, only agriculture vocation, household experience in agriculture, remittances, the female to male ratio, employment ratio, household size, and sewage system.

(Abbas, Sabir, Shehzadi, Abbas, & Economics, 2014) examined how the welfare of households in District Jhang is affected by workers' remittances (A Case Study of Tehsil 18 Hazari). During the fiscal year, Pakistan received 13186.58 million dollars in international remittances. The study's goal was to determine how remittances affected household welfare and poverty in Tehsil 18 Hazari, including income and expenses. They employed cross-sectional data. Data estimation has been done using the Logit model and the Ordinary Least Square Regression Model. The findings demonstrated a negative correlation between the dependency ratio, household size, and material welfare (income). Household size, income (material wellbeing), remittances, the household head's level of education, and livestock ownership were all found to be positively correlated.

(Cheema, Sial, & Development, 2014) investigated the causes of poverty in Pakistan. They found that poverty is more prevalent in rural than in urban areas. To estimate poverty, the study uses the headcount ratio and the poverty gap. Estimates were made using PSLM data from 2010 to 2011. The determinants were found using multiple OLS regression. The results in Pakistan showed a poverty gap of 2.29% and a head count ratio of 15.06%. According to the findings, family planning, household education, and household size reduction are all necessary to reduce poverty in KPK, Baluchistan, Pakistan.

(A. Ali & Khan, 2013) an Examination of Pakistani Household-Level Poverty, Income Inequality, and Their Changes. The study's goal was to identify the variables influencing household inequality and poverty. This study uses the PSLM 2008-09 data set to offer the facts and figures related to the extent of household poverty and inequality. According to the results of the multinomial logit model, the likelihood of temporary poverty was considerably decreased by male-headed families, middle-level education, employment status, land and livestock as assets, and female empowerment. The gap between lower- and upper-income households widens during this time, worsening the distribution of income.

Ghalib et al. (2012) Pakistani research on microfinance and its contribution to reducing household poverty. The study's goal was to determine how much access households had to micro lending in order to combat poverty. Interviews were employed to gather primary data for the study. 1132 households in 11 rural areas provided the data. Heterogeneous board causality processes were used in the study to evaluate 44 developing countries between 1996 and 2012. The results demonstrate that increasing the number of active borrowers through microcredit admission raises the incomes of the impoverished and leads to a reduction in inequality. The measure of the individual credit appears to be problematic, which is another important finding from our analysis.

Abdelhak et al. 2012 examined Assets' Contribution to Raising Household Income: An Analysis of Poverty Reduction in Rural Communities in Kelantan and Terengganu. The purpose of this essay is to investigate how rights and assets contribute to the growth of farmers' income. A standardized socio-economic questionnaire was used to examine 302 randomly chosen farmers in the states of Terengganu and Kelantan. Consequently, it is discovered that assets reduce farmers' incomes in part because of their apparent ineffective and subpar decision-making techniques. Therefore, in order to better comprehend the intricate dynamics underpinning the farmers who are falling into the poverty trap, it is crucial to incorporate psychological

perspectives such as farmers' behaviors and attitudes.

Ivanic (2012) studied the effects of a family's financial savings on poverty. The distinction between family income and consumption was evaluated in the examination; this research suggests elucidating this distinction as family sparing decisions are made inside the framework of family unit requests. It uses hypothetical and experimental justifications to support the inclusion of investment funds in family request systems. The study concludes that the least fortunate families, who rely on selling their own benefits as a mechanism of adaptation, are greatly impacted by family unit sparing.

(Cheema & Sial, 2012) Examine Pakistan's development assistance for the defenseless between 1993 and 2008. In order to determine whether or not development has benefited the poor, the study evaluated three development files that support them, specifically the Poverty Equivalent Growth Rate (PEGR), the Poverty Growth Index (PPGI), and the Poverty Bias of Growth (PBG). According to the results, underprivileged individuals did not benefit from specific times of progress. The Federal Bureau of Statistics (FBS) Pakistan's HIES data was used in the study. Cross-sectional data were used in the analysis. According to the study, increasing financial development and redistributing salaries can reduce neediness.

(Malik, Chaudhry, Hanif, & Science, 2012) carried out a study on rural poverty in Pakistan. The purpose of the study was to determine the sources of poverty reduction and the role of determinants of poverty in Pakistan's rural areas. Cross-sectional data was collected for the study from a few chosen Pakistani villages. For approximation, the discrete option modeling technique was employed. According to the findings, decreasing poverty in rural Pakistan can be achieved by changing factors of poverty, such as livestock ownership, household size, and demographics.

Cheema and Sial (2012) examine the prevalence, characteristics, and economic factors that contribute to poverty in Pakistan. In order to identify factors that contribute to poverty

alleviation, the study used household income and spending. Data from HIES 2005–06 were used in the study. Multiple regression using ordinary least squares is employed for estimate. According to the findings of the OLS multiple regression model, the incidence of poverty is inversely correlated with household size, age, education, and land ownership. The rise in household size led to an increase in household poverty. A sewing machine, cattle ownership, household size, and education all contributed significantly to the decrease in poverty.

(M. S. Awan, Malik, Sarwar, & Waqas, 2011) examined how education may help reduce poverty. According to the study, poverty made economic development difficult. The Millennium Development Goals (MDGs) state that education is a key weapon in the fight against poverty. The study made use of HIES data. The model that was employed was logistic regression. The findings indicated that education and male-dominant families had a beneficial effect on reducing poverty.

(M. S. Awan & Iqbal, 2010) examined the factors that contribute to urban poverty in a medium-sized Pakistani city. According to the study, poverty varies in metropolitan regions because of economic, demographic, and political factors. Cross-sectional data from Sargodha, Pakistan, was used in the study. For estimate, a logistic regression model was employed. According to the report, the government must implement public sector employment promotion programs and educate the public about the need to minimize household size. According to a study, government investments in public infrastructure and human capital can reduce poverty.

(Chaudhry & Economics, 2009) investigated ways to reduce poverty in Southern Punjab. The purpose of the study was to look into the factors influencing poverty in rural areas. The Asian Development Bank provided primary data for the study. For the assessment outcomes, the study employed a logit regression model. According to the study, it can be lessened by decreasing the size of the household, the dependency ratio, education, and increasing landownership, cattle, and sewing machines.

(J. J. L. R. f. R. D. Ali, 2007) examines the expansion of the livestock industry and its effects on reducing rural poverty in India. The study's objectives are to reduce poverty and evaluate the worth of cattle in terms of employment and revenue. The Ministry of Statistics and Program Implementation time-series data from the Indian government's NSSO was used in the study. The study found a negative correlation between cattle value and poverty. According to the study, poverty would decline as the proportion of cattle increased.

Smallwood and Blaylock (1981) examined how household income and size affected patterns of food expenditure. The study's goal was to estimate spending elasticity and other elasticities. According to the study, family expenses, namely those related to food, can fluctuate in tandem with changes in household size. The study estimated the statistical relationship using cross-sectional data from the United States Department of Agriculture's 1977–1978 countrywide food consumption survey. The findings indicated that home food consumption will rise in tandem with household size. When household income rises, food consumption steadily rises as well, especially in large households.

2. EMPIRICAL MODEL

Monthly income of household head is a complicated fact and has multi-dimensional features. List of variables made to estimate the impact of household size in poverty reduction. This study evaluates the household size as the tool for reduction of poverty in district Jhang.

$MIH = f(NO, MEH, HHS, NOU, OHA, OHH, LIA, HHEC, SM, AOL)$

FUNCTIONAL FORM OF ECONOMIC MODEL

Dependent variable = (Monthly income of household)

Independent variable = (Number of household, Monthly expenditure of household, Household size, Number of unemployed people, Ownership of household assets, Occupation of household head, Land in acre, Household Energy consumption, Sewing machine, Access of Land)

$$F = i + bR + e$$

F= Dependent variable

R = Explanatory (Independent variable)

i = Intercept

v = Slope

c = Residual (error)

MIH = NOH, MEH, HHS, NOU, OHA, OHH,
LIA, HHEC, SM, AOL

$$\begin{aligned} \text{MIH} = & a + b_1(\text{NOH}) + b_2(\text{AOL}) + b_3(\text{MEH}) \\ & + b_4\text{HHS} + b_5\text{NOU} + b_6\text{OHA} \\ & + b_7\text{OHH} + b_8\text{LIA} + b_9\text{HHEC} \\ & + b_{10}\text{SM} \end{aligned}$$

Dichotomous dependent variable:

Explanatory variables:

Occupation of household size= public sector = 1,

Private sector= 0, Business= 02

Access of Land = 0=yes, 1= no

Sewing machine= 0= yes, 1= no

Household Energy consumption = 0= gas, 1= wood, 2= bulb 3= all

Ownership of H.H asset (Live Stock, transport, Appliances)= 0= app, L.S, tran, 1= transport,appli, 2= appl

Monthly expenditure was added because this is indicator of some important points like Consumption is more obvious and measurable than income, particularly in poor countries and according to life cycle theory, individuals seek to balance their spending between low and high income years by borrowing and saving. Expenditure shows the real and direct indicator of basic needs. As a result, consumption is thought to be more stable than income (Cheema et al., 2014).

Table 1: List of Selected variables for Empirical Analysis

Name of Dependent variables	
MIH	Monthly Income of household
Name of Explanatory variables	
NOH	Number of household
MEH	Monthly expenditure of household
HHS	Household size
NOU	Number of unemployed people (with no job)
OHA	Ownership of household assets (livestock, transport, Appliances)
OHH	Occupation of household head(private sector, public sector, business)
LIA	Land in acre
HHEC	Household Energy consumption(dwelling related, fuel use for cooking, lighting in house)
SM	Sewing machine

DATA AND METHDOLOGY

4.1 Study Area

According to the 1998 Census District Jhang exhibits 52% male residents together with 48% female residents among its 1.868 million populations. The population growth projection shows a rate of 2.2% while the rural areas represent 77% of the district against urban areas which occupy 23% (Population Census Organization, 1998; Punjab Development Statistics, 2012; Pakistan Bureau of Statistics, 2017).

Demographic profile of City 1 shows that the city was built in 1292 AD, and became a tehsil during British rule, has 14 UCs, and has a total area of 28.27 square feet. In 1998, the city's total population (urban population forecast) At 342.285, the city's literacy rate was 60.8% and the average household rate was 6.9, while the growth rate was 2.41% in 1981-98, the district census report (1998). In this district, economic activities related to agriculture are also most prominent, with some development in the small service industry and in the textile industry.

Local feudal power over additional possessions and indeed the local rural population has been occupied, as it occupies a substantial percentage of agricultural land where the villagers work during the seeding and harvesting period (Haseeb, Hartani, Abu Bakar, Azam, & Hassan, 2014). A large number of houses in the villages are in the possession of the locals of the district, who, despite the exploitation of rural life, further contributed to the rural dependence on the landlords to earn their living. Punjab City Improvement Investment Program Report, (2009)

4.2 Data

An important step for correct and reliable answers of questions and information was the selection of size of sample and sampling techniques. The study was based on the primary source of data obtained from Pakistan's provincial city of Punjab. By nature, study was quantitative sampling. Targeted area for survey and collection of sample was

conducted in some houses from different tehsils of district Jhang, city of Punjab. In the month of Jan and Feb 2024, data was conducted. 200 Households were included in survey to make it flawless. The simple random technique was used in survey.

By dividing a questionnaire to households, survey was conducted for the data collection. Questionnaire was made according to the research title. Survey was conducted to find the role of household size in the poverty reduction. The major point of survey was the household. The survey gives the complete and comprehensive information on household size, income, expenditure, unemployed people of household, ownership of assets, dwelling, Land in acre, occupation of household head, and sewing machine.

4.2 Data Analysis

After coding, data was analyzed statistically using SPSS version 17. SPSS was used to explore the relationships between variables. The results were obtained using descriptive statistics (frequency, percentages) and inferential statistics (chi-square). It is a useful way to identify the relationship between two variables and their corresponding significance (Mohsin, 2014)

Sample characteristics including frequency and percentage distribution were clarified using descriptive statistics to describe gender, income, age, energy consumption, occupation of household head and Education. The bivariate relationship between income rates and related factors such as gender, employment, age, energy consumption, household occupation and energy consumption was analyzed using a simple regression of OLS. The significant variables with p-value <0.010 was included in model. The critical significant level was set at 0.05.

Table 1 Descriptive Statistics

Variables	Mean	Std. Deviation
Number of unemployed people in household(withno job)	3.5050	1.82
Monthly income of household	36.00	2.58
Monthly expenditure of household	35.60	2.00
Household size	05.05	1.93
Ownership of household owner assets(livestock, transport, Appliances)	0.97	0.82
Access of land	0.52	0.50
Sewing machine	0.85	0.35
How much land(in acre)	1.45	3.8
Occupassion of household head(private sector, public sector, business)	0.96	0.81
Household energy consumption(fuel use for cooking, lighting in house)	2.36	0.77
Valid N (listwise)		

Source: The author's calculations are between JAN 2024 to Feb 2024

Interpret highest value of mean

Table 1 show that, about mean value of number of unemployed people in household (with no job) is 3.5 and it has minimum value 1.00 and maximum point is 9.00 and have 1.82 std. deviation. Monthly income of household has mean value 3.50 with 5000.00 minimum and 125000.00 maximum value and 22952 std. dav value. monthly expenditure of household 355644.16 and with minimum 80000 to maximum range of 110000.00 , household size and number of unemployed people in household(with no

job)mean an average is 5 years and 3 percent respectively, ownership of household owner assets(livestock, transport have .9750 mean value, Appliances), access of land is with .5250 of mean value, mean value of sewing machine .8550, how much land (in acre) have 1.4500 mean value, occupassion of household head(private sector, public sector, business) is with .816 std. Daviation .96500 value of mean , household energy consumption(fuel use for cooking, lighting in house)2.365 mean value.

4.3 Bivariate Analysis

Table 2 Correlation Matrix

Variable	Pearson Correlation
Monthly income of household	1
Monthly expenditure of household	.869
Ownership of household owner assets(livestock, transport, Appliances)	-.567
Household energy consumption(fuel use for cooking, lighting in house)	.548
Access of land	-.012
Occupation of household head(private sector, public sector, business)	.192
Number of unemployed people in household(with no job)	.002
How much land(in acre)	.136
Household size	.141
Sewing machine	-.043

Source: Author's calculation

5. RESULTS AND DISCUSSION

Pearson correlation test tells about correlation and linear relationship among variables. There is the correlation coefficient value in the table 2. Monthly expenditure of household has .869 value in Pearson results it mean it has 86 percent correlation with dependent variable monthly income of household head that is 1 it is positive relation. It means there is positive correlation between them, assets ownership of household has -.567 and it is negatively 56% correlation with the household income. Household energy consumption has value .548 it means positively correlated with monthly household income that is % 1 it means 54% correlation between them.

Access of land has a weak negative correlation with income of household head access of land is -.012. 19% Correlation b / w Home Head Occupancy and Monthly Household Head Profits .it is weak positive relation in both variables. No of unemployed is very much weak positive correlation with monthly income, if there is increase in income there will be 0% increase in unemployment. how much land (in acre) is at value (.136) only 13 % relationship between dependent variable and other variable household size (.141) has positive relation with monthly income of household head and sewing machine (-.043) small negative relationship between sewing machine and monthly income.

Consistent results are obtained with (Iqbal et al., 2024). According to the survey, 82% of household heads were literate, whereas 27% were illiterate poor household heads, indicating that the incidence of poverty is higher among illiterate household heads. Similarly, heads of families with fewer than ten years of education had a threefold higher poverty incidence rate (Arif, 2000; Majeed & Malik, 2015).

The results of the annova test, which verifies the model's validity, are displayed in Table 3. A statistically significant difference in monthly income between household size groups was found by the ANOVA ($F(9,190) = 76.28, p < 0.001$). Significant disparities in income levels across various household sizes are suggested by the F-

statistic of 76.28, which shows that the variance between household size groups is roughly 76 times bigger than the variance within groups. About 38.5% of the variance (104.83) can be explained by the between-group sum of squares (82.11), suggesting that household size explains a significant amount of the variation in monthly household income. The findings offer compelling proof that, in District Jhang, household size has a major role in influencing household income levels. The F-statistic is very significant since the P-value of 0.000 is smaller than the alpha value of 0.05. The link between the explanatory and response variables can be explained by the model.

TABLE 3 ANNOVA

Source: Author's calculation

Model	Sum of squares	Df	Mean Square	Sig.	F
Regression	82.11	9	91.23	0.000	76.284
Residual	22.72	190	11.95		
Total	104.83	199			

Regression Analysis

TABLE 4 COEFFICIENTS

Model	Unstandardized Coefficients	Sig
	B	
Constant	38.57	.408
Monthly expenditure of household	0.87	.000
Household size	-291.33	.733
Number of unemployed people in household(withno job)	185.827	.835
Ownership of household owner assets(livestock, transport, Appliances)	-3924.870	.001

Sewing machine	3414.906	.134
Household energy consumption(fuel use for cooking, lighting in house)	2508.139	.050
How much land(in acre)	-162.133	.447
Access of land	-1740.344	.271
Occupation of household head(private sector, public sector, business)	-1160.318	.249

Source: Author's calculation

Variable is significant if they value less than 0.100. Monthly expenditure of household is significant at (.000), ownership of household owner assets is significant at (.001) and third significant variable is household energy consumption that is (.050). Household size and all other remaining variables are in significant including number of unemployed people in household, sewing machine, how much land, access of land and occupation of household head.

Beta value means if b value is with positive sign it refers that increase in one variable leads towards increase in other variable and it is with negative sign decrease in one value lower the other value. In this model monthly expenditure of household (.876), number of unemployed people in household (with no job) (185.827), sewing machine (3414.906) and household energy consumption (fuel use for cooking, lighting in house) (2508.139) all are with positive impact. These 4 has positive relation with household income and they are significant. And 6 remaining variables are negatively insignificant they are no significant in Jhang.

The coefficient of household size has a significant and positive value, indicating that household size is the primary determinant and plays an enormous role in increasing poverty. The finding is that the probability of a household being poor decreases as the number of earners in the home grows. The quantity of animals per household and tangible assets (such as sewing machines, appliances, property other than land holdings, etc.) are important variables that have an inverse impact on the likelihood of poverty.

Household production assets have a considerable and beneficial influence on household total income. This indicates that households with high production assets can create more and enhance their overall income. A household's overall income is predicted to rise by 1% for every 1% increase in livestock holdings. As anticipated, a household's overall income rises in proportion to the value of its productive assets. The results also show that a household head who works for the government (public sector) makes greater money. Additionally, if a home is larger, 18% of its residents are unemployed.

TABLE 5 Summary of Model

MODEL	R	r square	adjusted R square
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1

0.885

0.783

0.773

Source: Author's calculation

The model's summary show that the value of R correlation coefficient is 0.88, indicating a forceful and substantial linear association between household income and monthly expenditure. The R-squared value is 0.78. It also implies that the coefficient of determination is a good fit for the regression model in table 5. Independent variables were explained 78 % variation in dependent variables (monthly income of household).

6. CONCLUSION AND POLICY RECOM MENDATION

Results showed that monthly expenditure of household, number of unemployed people in household (with no job), sewing machine, household energy consumption (fuel use for cooking, lighting in house) are significant and positively correlated with monthly income of household head in district Jhang, Panjab Pakistan. The results of the Logit Model show that the age of the household head, education of the household head, and general employment of the household head are inversely related to poverty, whereas being male as head, living in a rural area, household size, and dependency ratio are positively related to poverty incidence. As a result, adequate work opportunities can be made available to all in order to significantly reduce poverty and ensure the country's long-term prosperity. Thus, to significantly reduce poverty, the government should enact minimum wage legislation and offer social safety nets to increase the income of these low-paid workers and lift them out of poverty.

At the policy level, it is advised that the government focus more on education and job creation, such as the establishment of vocational training institutes, the distribution of assets such

as 1000 sewing machines, and subsidies for solar system installation. Furthermore, it should assist lower-income populations with low-interest loans for housing and starting their own companies, such as stores. Family planning should be

encouraged, particularly among poor households. All such measures in Pakistan should prioritize rural communities rather than urban areas.

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