

MEASURING POVERTY AND DEPRIVATION IN A MULTI-DIMENSIONAL PERSPECTIVE: A CASE STUDY OF DISTRICT ASTORE, GILGIT-BALTISTAN

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Abstract

Poverty is no more about income and wealth alone. Previously, poverty and deprivation have been measured by conventional methods used by the governments and international organizations. Nevertheless, with the conceptualisation of human development, and the capability approach, it has been now widely recognized that poverty and deprivation are not about income alone. In this backdrop, this research measures socio-demographic variation of multidimensional poverty in Gilgit-Baltistan. As a case study, we have considered selected villages of district Astore. The study sample size was 151 households from seven different villages of district Astore. The data has been collected through structured close ended questionnaires in a field survey. We used the Alkire-Foster methodology and ordered logistic regression for the analysis. The index of multidimensional poverty was generated through principal component analysis and includes nutrition, employment and living standards to calculate multidimensional deprivation index. These indicators are further composed of different elements. Our results suggest that clusters, age, family size and income have significant relationship with multidimensional poverty.

Jel Classification: I30, O15

Key Words: Socio-Demography, Multidimensional Poverty, Astore

1. INTRODUCTION

One of the main problems the world is facing today is poverty and many people across the globe are suffering from poverty, deprivation, and inequality. The global definition of poverty has evolved into a multi-faceted socio-economic concept that goes beyond the purely monetary aspects. It could be in terms of money which is called the monetary approach or the conventional approach to poverty that if a person is not earning one or two dollars a day, he is considered to be poor. Sometimes it could be in multi-dimensions which relate to health, education, assets, living standards and other dimensions. This advancement pushes the policymakers around the globe to measure poverty using multi-dimensional approaches [Qazilbash (2002)].

This study aims at measuring poverty and deprivation along the socio-demographic variation of multidimensional poverty in Gilgit-Baltistan by taking the case study of district Astore. As we know poverty is a phenomenon which has always prevailed and evolved to a multi-faceted socio-economic concept that goes beyond mere

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financial dimensions. According to the view of Sen, “poverty is best understood in terms of deprivation of functioning and capabilities” (see Sen 1983, 1987, 1993, and 1999). Only income is not enough for considering individuals and households as poor. There are many other factors which can be used to gauge the poverty like freedom of choice, freedom of speech and freedom in every aspect of life.

The curiosity in exploring the multidimensional deprivation and poverty is motivated by the evolution of poverty learning through "functioning and capabilities". We expand the dimensions of poverty as empirical approaches become more challenging. We recognize that nutrition, employment, social exclusion and poverty are often weakly related to income or expenditure [Sahn et al.(1999), Appleton and Song (1999)]. In order to explain and resolve these conflicting relationships, researchers show that multidimensional poverty comparisons are logically and empirically desirable and can be achieved that are robust to the definition of poverty lines and the selection of indices for poverty [Duclos et al. (2006)]. Such approaches refer to many indicators; health, education, vulnerability, and voice related topics. Yet another important feature of multidimensional poverty is to emphasis on persons who has common to assess to "functionings and capabilities" rather than households, where income and spending are typically calculated. Therefore, a multidimensional approach gives insight into intra-household poverty situations that are often ignored by conventional quantitative measures of poverty. For instance, discrimination against women can be manifested in less education, worse health, and a more limited sense of involvement in community life and household decision-making.

Many researchers across the world studied the reasons and causes of poverty and discovered the ways to measure and overcome the problem. Rippon (2012) Studied a multidimensional poverty approach in the city Marrakech. Suppa (2015) found an index for the measurement of multidimensional poverty in Germany. Chowdhury and Mukhopadhaya (2014) have discussed the multidimensional approach and creation of indices of poverty for Bangladesh's. Likewise, Rippon (2016) studied the multidimensional poverty in Germany and Trani et al. (2016) studied poverty in Afghanistan by using capability approach. Multidimensional poverty evaluations are aimed at assessing the dimensions of poverty that based on non-income factors which may explaining a more detailed measure of inequality and deprivation. There are several global multidimensional instruments for poverty, including by the official of EU-2020 poverty measure, the UNDP MPI, the 'Bristol' metric for calculating multidimensional child poverty, the UNICEF multidimensional child poverty measurement etc. The UNDP's Human Development Report Office publishes the Multidimensional Poverty Index (MPI) and calculates poverty across three dimensions with ten indicators: “health (child mortality, nutrition), schooling (school years, enrollment), and living standards (water, sanitation, power, cooking fuel, housing, assets)” [UNDP (2018)].

In Pakistan few studies have been conducted to measure the multidimensional poverty. For instance, Idrees and Muneeb (2017), Awan et al. (2011), Salahuddin and Zaman (2012), Abbas et al. (2016), and Ataullah et.al. (2016) are among the recent researchers who studied multidimensional poverty in the country. However, studies

for regions like Gilgit-Baltistan rarely exist in literature. Among many reasons, unavailability of official household data remains on the top. Yet carrying out a primary research and collecting for a large sample is expensive and time-taking process. This study has taken the lead in initiating the measurement of multi-dimensional poverty for regions where secondary data is not available.

Gilgit-Baltistan being a quasi-province in Pakistan often misses official households' surveys to assess poverty and therefore no reliable data is available on poverty in general and multi-dimensional poverty in particular. To fill this gap, this research takes District Astore as a case study. In particular, we are interested in examining the existing situation of multidimensional poverty in district Astore. Likewise, we also investigate the variations that exist in socio-demographic factors.

Rest of the paper is structured as follows. The next section discusses the related literature. Section three outlines the methodology that also includes a discussion on the theoretical framework Findings are discussed in section four. The paper concludes its argument in the last section.

2. LITERATURE REVIEW

A good academic scholarship exists examining the issues of multidimensional poverty and deprivation, though on macro level. For instance, Chowdhury and Mukhopadhaya (2014) studied Bangladesh's multidimensional approach to poverty and development of indicators of poverty. According to their study the developing countries does not pay attention to the multidimensional problem of poverty at the policy formation time. The study also reveals that the poverty dimension differs across and within the nations. Cross-country studies and existing poverty literature were the source for data on this study. This study reveals the development of a multidimensional poverty model for Bangladesh in order to better inform poverty listing. Moreover, it tells that besides income approach there are social, political and natural issues which are also important to consider while designing the poverty reduction policies in a country.

Rippon, (2016) studied the multidimensional poverty in Germany. The capability approach of Amartya Sen provides the theoretical foundation for the national economic reports by the German government. Their research examines whether the assumption of the two indices leading to different outcomes is supported by the implementation of two separate 'multidimensional poverty measures in order to operationalize the 'capability approach'. The results suggest poverty ratings of the three indicators over time and show that the difference is with the trends in poverty, the identification of the most disadvantaged and the impact of locations in the two parts of Germany. The study supports that a measure of multidimensional deprivation is needed to complement the conventional poverty measure.

Trani et al. (2005) studied the multidimensional poverty in Afghanistan using capability approach. The study inquires about the deprived and disables in country to achieve first sustainable development goal to remove the poverty. The data has been taken from Afghanistan national survey 2005. The methodology used for this study is Alkire-Foster (AF) method. Results of this study reveal that only income approach is not appropriate measure of poverty and depend on several dimensions of well-being. The study further suggests that all Afghan adults are suffering from poverty at least in one dimension but women of rural area and disables are the poorest among all.

Likewise, for Morocco and Tunisia, Trani et al. (2015) measured ‘disability and poverty’ using a multidimensional approach. They used the headcount ratio and the Alkire-Foster method. Their study revealed that the people with any disability were poorer as compared to people without disabilities. Disable were unable to jobs or underpaid if employed. The results further argue the fact that women are more vulnerable especially when those with disabilities. The study suggests a set of policy implications for improving living conditions of the disable.

While examining multidimensional poverty in Hechi city, China, Wang and Wang (2016) suggest a poverty reduction strategy for Chinese rural areas. The study aims to explore the factors contributing towards the poverty using a set of Chinese-characteristic multidimensional indices of poverty, including cut-offs for Alkire-Foster, dimensional classification and approaches to decomposition. Under different geographical and socio-economic conditions, a system of GIS spatial analysis was used to define spatial heterogeneity. Using A Festimation strategy, they studied 11 locations of Hechi city showing both severity and the intensity of poverty and poverty occurrence. Poverty level was different across these 11 regions with the factors creating or promoting poverty more or less same. Unsafe housing, family health, and the adult illiteracy were the factors contributing to poverty, according to their results. They further suggest that fuel type and children enrollment are strongly linked to each other either in promotion or reduction of poverty. This study would assist policymakers in designing policies according to each region's needs as poverty dimensions and levels differ in different areas.

Housseni and Ouilli (2016) analysed poverty by using AF method and indexed the “child multidimensional poverty”. This study investigates the factors of child multidimensional poverty and emphasizing on the mother education, empowerment, and family size. By using an instrumental variable approach, their results suggest positive correlation with the education and employment of mother and negative correlation with the family size. Their main findings suggest proper education and awareness to parents on family planning could be of great help.

In another study, Niazi and Khan (2010) analysed the impact of education across the Punjab by using multidimensional poverty measures. They found that poverty occurrence is not only the result of lack of income, but it has several dimensions. Using the indexing methodology, they find a positive effect of education in improving poverty and found inverse relation with poverty. Moreover, they noticed there is

higher poverty in rural areas of Punjab due to lack of education facilities as compare to urban areas. To tackle multidimensional poverty, they suggest improvements in education and human capital. Policies like creating the non-farm employment, improving health facilities and developing the agriculture sector in rural areas have the potential to reduce poverty, the study suggests.

Likewise, in a more recent study, Idrees and Baig (2017) empirically analysed the multidimensional poverty in Pakistan. The study was meant for finding the extent and depth of poverty. The study used data from Pakistan Demographic Health Survey (PDHS) and adopted Alkire-Foster methodology. The study identified 10% households to be chronically poor and 30% to be substantially poor. Further it found smaller population poor when dimensions are assigned weightage according to preferences, but the intensity of poverty increased

In a similar vein, Salahuddin and Zaman (2012) studied multidimensional poverty measurement in Pakistan: Time series, trends and breakdowns. The study argues that poverty is a phenomenon beyond income. The study used data to find the time series multidimensional poverty from 1998-2006 by using Alkire Foster methodology. The result revealed education and health sector that suffered the most, but the education sector has deteriorated a lot.

In a different study, Attaullah, (2016) analysed the urbanization of multidimensional poverty: empirical evidence from Pakistan. The study aims at finding the different domains of multidimensional poverty in urban regions of the country and took the data from HIES and PSLM survey. The study proposed ways to reduce poverty in urban regions. Abbas et.al. (2016) studied the multidimensional poverty: a case study of Sargodha both through qualitative and quantitative approach. The study used Alkire-Foster methodology and focused group discussions were held for this analysis. The study measured the MPI in rural and urban settlements and suggested different policies respectively.

Awan et al., (2011) have estimated the multidimensional poverty in Punjab at district level. They used the Multiple Indicator Cluster Survey (MICS). The variables used in the study are education, sanitation, expenditure, water, land and housing. The results identified Jhelum, Sialkot, Gujranwala, Rawalpindi and Lahore as the least deprived districts of Punjab whereas Rajanpur, Muzaffargarh, Rahimyar Khan, Kasur and Okara remained the most deprived districts of Punjab.

Using panel data from Seoul Child Panel from 8 to 11 grades for 908 adults, Kim et al. (2015) examined the effects of 'multidimensional poverty' on Korean adolescent health using hierarchical linear modelling. The results suggest though poverty affects one physically, but the vulnerable ones suffer the most. The study suggests that proper counselling from childhood to adulthood make the children including the vulnerable to live a better life.

There exist a good number of literatures on measurement of multidimensional poverty across the world. Few studies have been conducted in Pakistan as well, but Gilgit-

Baltistan has largely remained neglected and no official statistics are available on multidimensional poverty. This study aims to fill the gap and measure the multidimensional poverty in the region in which it takes district Astore as a case study. The study particularly aims at finding the contemporary situation of multidimensional poverty in selected regions of district Astore. Further, the study finds the socio-demographic variation of the multidimensional poverty in selected villages of district Astore which is a unique and different kind of study never done before in Pakistan.

3. THEORETICAL BACKGROUND

Reduction in poverty around the world has been the major agenda of almost all the nations and international organizations. A reiteration to eradicate poverty is reflected in the recent emphasis on pro-poor growth and 'Millennium Development Goals'. This attention on the poor has pushed policy towards for a pro-human development agenda. Human development is now seen as expanding people's choices and have gained attention among policymakers as an alternate measure to income-based approaches. The change is due to the recognition that specific poverty conditions are created by the two forms of poverty measures [Qazilbash (2002)].

Among the approaches to human development, "The Theory of Justice" originated from the ideas of basic needs by Rawl's (1971). Later, it was Sen (see Sen 1983, 1987, 1993, and 1999) who founded the foundation of modern approaches to human development. The concept of capability approach is used in this paper to define non-income poverty. Clark, (2005) suggests that capability approach can be linked to the ideas of Aristotle, Adam Smiths and Karl Marx. The main emphasis of capability approach is on increasing opportunities and resources for individuals and addresses multi-dimensional facets of inequality and well-being on the premises that the economic measures alone are not capable of addressing these challenges. It has been argued by the proponents of the capability approach the convectional approaches to measure poverty fail to take subjective feelings into consideration. In contrast, the capability approach to poverty has also integrated the subjective dimensions. Sen defined it as "the enhancement of living conditions should clearly be an important, if not the central, goal of the entire economic exercise and that enhancement is an integral part of the concept of growth" [Sen (1988)].

Some existing studies on capability approach such as Bibi, (2007) also couldn't find any correlation between conventional measures of poverty and other measures of well-being across countries. Similarly, Robeyns (2003) defines the capability approach as "(it) is a broad normative framework for evaluating individual well-being and social arrangements, policy-making, and social change initiatives in society" (p. 5). Poverty alleviation and development occurs in the capability approach when people have greater opportunities and capacity [Alkire (2003)]. On the other hand, income-based methods to quantify poverty use GDP and GDP per capita as the

benchmark for measuring poverty and may neglect the other important dimensions of poverty.

Initially measuring capabilities and functioning was not an easy task given that there existed no measurement techniques. Choosing the capabilities and functioning's was another challenge for the researchers (Klasen, 2000). Most of the household surveys don't contain adequate information on capabilities and functioning's. This applies especially to capability investigators working on regional and local settings. Most of the studies were performed at country level, which may not provide a clear picture of capability poverty on local levels. Although, there have been advancements in both measurements' techniques and provision of data, some remote regions still remain neglected.

In this context, the current research focuses on measuring multidimensional poverty in an isolated and mountainous region of northern Pakistan. This study doesn't analyse the conceptual aspects of the capability approach but tests it empirically to assess multi-dimensional poverty and deprivation. As noted earlier, the study builds on the thesis that the conventional poverty assessment measures cannot fully capture all aspects of human well-being.

As a case study for implementing the multi-dimensional measurement approach to poverty in Gilgit-Baltistan, a field sample survey was conducted in District Astore; northern Pakistan.

4. DATA AND METHODOLOGY

The study was aimed at investigating the situation of poverty in selected district villages in Astore. This area has been selected because of the reason that no previous study on this topic has been conducted. Multidimensional measurement of poverty is based on the methodology of Alkire-Foster. This section presents a description of the MPI and its properties, together with the design of the measurement. A new method for assessing multidimensional poverty was suggested by Alkire and Foster (2011). By considering the intensity of deprivations they suffer, it identifies who is poor and suggests a method of aggregation. Mathematically, an AF measure of multidimensional poverty combines two aspects of poverty:

$$\text{MPI} = H \times A \tag{1}$$

Where H is the "Incidence of poverty or the percentage of people who are multi-dimensionally poor, and A is the Intensity of poverty or the average percentage of dimensions in which poor people are deprived" (Alkire, 2011). The implementation of the AF method can be summarized into three steps:

Two identification steps: first identify who is deprived for each of the indicators of the MPI by comparing the achievements of each individual to the defined deprivation

cut-offs, and then identify who is multi dimensionally poor by comparing individual deprivation scores to the given poverty threshold.

i) The incidence of multidimensional poverty (Headcount Ratio)

$$H = \frac{q}{n} \quad (2)$$

Where q is the number of multi dimensionally poor and n is the total number of population.

ii) The intensity of poverty:

$$A = \frac{\sum_{i=1}^n C_i(k)}{q} \quad (3)$$

$C_i(k)$ is the censored deprivation score or the average deprivation score across the poor. Finally, the MPI is obtained a product of the incidence of poverty (H) and the intensity of poverty (A):

$$MPI = H \times A \quad (4)$$

This aggregate index will then be decomposed by subgroups (gender, age, regions, etc) and broken down by indicators and by dimensions [for details see Alkire and Foster (2011)].

4.1 Construction of Multidimensional Poverty Index

Using main principal analysis, we find the multidimensional poverty index (MPI) from three different dimensions of multidimensional poverty: health, education and standard of living. Each dimension has several elements for the measurement

$$MPI = B_1 HLT + B_2 EDU + B_3 LS \quad (5)$$

HLT is Health indicator comprised of three elements. It includes chronic disease that is blood pressure, heart disease, asthma, hepatitis and other disease like cancer, kidney failures or other deadly diseases. The other element it includes is availability of doctor which is responded as yes or no. It also includes the element satisfaction of health facilities which is coded as yes and no. We computed the mean value of the indicator from the aforementioned elements. People who fell below the mean value are considered as poor and ranked as 1 and the people who fell above the mean value are considered as non-poor in this indicator and labelled as 2.

The second indicator EDU is education which comprises three elements. First element is the “enrollment to school”, which is coded as yes and no. The second element is the “highest class passed” with categories of illiterate, primary, middle, intermediate, and higher education. The third element is about “access to school” taken as a binary variable with ‘yes or no’ responses. We have computed the mean value of this indicator and consider individuals below mean value as ‘poor’ and

labelled them as 1. Similarly, the people above mean value are ranked as ‘non-poor’ and labelled as 2.

Table 1 Dimensions, Indicators, and Cut-off points of Multidimensional Poverty

Health (1/3)	Chronic disease	If one member is under serious illness the household is poor and assigned value 0 otherwise it is non poor and assigned value 1.
	Doctor availability	If the doctor is not available twice a month the household is poor, and value assigned is 0 otherwise he is not poor and assigned value is 1.
	Access to hospital	If the hospital is not located at the distance of 10km the household is poor and assigned value is 0 otherwise he is not poor, and the assigned value is 1.
Education (1/3)	Adult’s literacy	The average family members are five. If there is at least one-person illiterate in house, the household is poor and the assigned value is 0, otherwise it is non-poor and the assignment is 1.
	School enrollment & Access to school	If Primary school incomplete for children and if school going age children are not in school, then the household is poor and the assignment is 0 otherwise it is non-poor and the value assigned is 1 and non-poor
Living conditions (1/3)	Access to clean drinking water	If there is no access to clean drinking water in house the household is poor and the assignment is 0 otherwise it is non-poor and assignment is 1.
	Access to sanitation	If there is no availability of water toilet at home the household is poor and the assignment is 0 otherwise it is non-poor and assignment is 1.
	Access to electricity	If one household does not enjoy electricity 18 hours a day he is poor and the value assigned is 0 otherwise the household is non-poor and the value assigned is 1.
	No of living rooms	If more than three people are Sharing a room the value is 0 and household is poor otherwise value is 1 and the household is non-poor.
	Domestic assets (washing machine Iron, oven, fridge, motorcycle, car, sofa, computer, internet, TV).	If the mean value of assets is close to 0 the household is poor, if the value is close to 1It is non-poor. The cut-off point value is 0.5.
	External assets (sheep, goat, horse, poultry, donkey, cultivated and uncultivated land) the household is non poor	If the average value of these assets is close to 0 the household is poor but if the value is close to 1 they are non-poor.

MPI is a continuous variable and it is further divided into two categories. We computed the mean value which is cut-off point of this index. The people falling below the cut-off point are

Living standard (LS) is the third indicator of multidimensional poverty. It includes the elements of monthly income, number of rooms, residential area, the main source of drinking water, the main source of lighting, external assets, internal assets. We further segregated the source of lightning into sub-categories of electricity, gas, candle and others. Likewise, we define sub-categories for drinking water as piped water, river, spring and others. Mean value computed for these elements which we consider as the cut-off point. People who fell below mean value are ranked as poor by labelling them 1 and those above mean value are ranked as non-poor and labelled them as 2.

ranked as ‘poor’ and who fall above it are ranked as ‘non-poor’. In this context, value 1 is assigned to the multi-dimensionally poor and value 2 is assigned to multi-dimensionally non-poor. Ordered logistic regression analysis is used for the analysis of variation of multidimensional poverty according to different socio-demographic factors.

4.2 Econometric Model:

$$MPI_i = \alpha + \beta_1 \text{ Cluster}_i + \beta_2 \text{ Gender}_i + \beta_3 \text{ Age}_i + \beta_4 \text{ Family size}_i + \beta_5 \text{ Highest class passed}_i + \beta_6 \text{ Employment status}_i + \beta_7 \text{ Income}_i + \mu_i \quad (6)$$

Where the MPI is the dependent variable and the independent variables of our model that is age, cluster, gender, highest class passed, income, employment status and family size.

4.3 Sampling and Data

We collected data for this study from the seven small villages of district Astore. Dirlay, Dari, Dhangidaari, Ajathali, Chaein, Fakirkot and Rattu. The sample size for the research is one hundred and fifty-one households. This study follows Alkire-Foster methodology for empirical estimations. Cluster sampling has been used to collect data. We consider seven villages in this study and collected data from each village according to their population size. Cluster sampling is a type of sampling in which the researcher divides the population into separate groups called clusters. The reason to select cluster sampling is that we don't have any access to the entire population and different villages served as clusters in our study. According to the results of 2017 census the current population of district Astore is 95000. The sample size of our study is 151 households.

5. RESULTS AND DISCUSSIONS

5.1 Estimates of MPI

As the first step, MPI value for every village was estimated. Summing the values of MPI for each village in the sample gives the overall MPI for district. Results are presented in Table 2.

Table 2. Estimates of MPI

Villages	MPI
Dirlay	0.520225
Dari	0.401847
Ajathali	0.376053
Dhangidaari	0.356279
Chaein	0.345167
Fakirkot	0.297117
Rattu	0.258599
Overall MPI	0.365041

5.2. Determinants of Poverty

As noted earlier, 'Multidimensional Poverty Index' (MPI) is the dependent variable in the study which is categorized as poor and non-poor. Poor is coded as 1 and non-poor is coded as 2. The independent variables under our study are village name, gender, age, highest class passed, total income and family size.

According to the regression results the coefficient of cluster is -.313 and its p-value is 0.003. This depicts a significant negative relationship between village and poverty. We ranked the villages from 1 to 7 in an order that the village nearest to the Astore headquarter is 1 and the most remote area got number 7. Each village is at least at a distance of 10km from the headquarters. The estimate reveals that the poverty increases as one moves towards the remote areas.

Table 3 Ordered Logistic Regression

MPI	Coefficient	Standard error	Z	P> z
Gender	-0.041584	0.8246892	-0.05	0.960
Age	0.062254	0.0180125	3.46	0.001
Highest Class Passed	-0.0636054	0.1528513	-0.42	0.677
Family Size	0.2349187	.0238081	2.26	0.029
Employment Status	0.1992022	.2943608	0.68	0.499
Log of Income	1.200097	.4323782	2.78	0.006

The coefficient value tells that the poverty increases by 0.31 times. The estimates further reveal that as age increases the multidimensional poverty decreases. The coefficient value of age is 0.6225, it's significant at p-value 0.003. The positive relationship suggests that as the age increases poverty decreases by 0.62 times. As we see in the real life that with the increase in age, possibilities for employment increases leading to poverty reduction. However, one can argue about the linearity of

the relationship, which is out of scope of this study. To sum up, the variable 'age' shows a significant and positive relationship with poverty. The coefficient value of family size is 0.235 and its p-value is 0.029. The coefficient value shows that when the family size increases the poverty reduces by 0.23 time. To add, total monthly income has a coefficient of 1.2 and its p-value is 0.006. This indicates a strong significant relationship between monthly income and poverty. The coefficient value indicates that poverty decreases by 1.2 times with the increase in income.

6. DISCUSSIONS

This study examines the measurement and socio-demographic variation of the multidimensional poverty in selected villages of district Astore. According to the results we can see the coefficient of cluster is -0.313 and its p-value is 0.003. This depicts a significant negative relationship of clusters and poverty. The researchers ranked the clusters from 1 to 7 in an order that the village nearest to the Astore headquarter is 1 and the most remote area got number 7. Each village is at least at the distance of 10 km. The estimate reveals that the poverty increases as we move away from the headquarters. The coefficient value predicts that the poverty increases by 0.31 times. The reason for increase in poverty in distant villages is the unavailability of the facilities which people of headquarters can enjoy and more importantly worst infrastructure in remote areas. As one move towards remote villages he will find rough roads, poor health condition, poor transportation and poor education. People in remote areas of Astore are relatively poorer than people living near headquarters or at headquarters. Many studies like Abbas et al. (2016), Wang and Wang (2016), Awan et al. (2011) have considered different regions and measured MPI similarly.

The estimates further reveal that as age increases the multidimensional poverty decreases which was also studied by Husseini and Ouilli (2016) to analyse multidimensional poverty. The coefficient value of age is 0.6225, its p-value is 0.003 and it is significant value showing positive relationship of age with poverty. The coefficient value predicts that as the age increases poverty decreases by 0.62 times. The reason for this poverty reduction trend is that with the passage of time the person learns more and gains more experience to earn well. The dependency decreases. He also comes to learn where to spend money and the appropriate way. The increment in pay every year also makes him rich compared to the previous year. He might get better with skills and education.

When the family size increases the poverty decreases as there are many earners in one family. So, it shows a significant positive relationship with poverty. The coefficient value of family size is 0.235 and its p-value is 0.029. The coefficient value shows that when the family size increases the poverty reduces by 0.23 times. The reason for this relation is when the people in the family will be more the higher would be the earnings and jobs. The domestic chords load will decrease on every individual who can increase their efficiency in education and job. They can have a quality life with a large number of families.

It shows a significant positive relationship between monthly income and poverty. The coefficient value tells that with the increase in income poverty reduces by 1.2 times. It is a very clear from the results that poverty decreases as the family income increases. When income becomes higher people would spend on health, education, quality housing and living standard. They can go to other cities for better education and health facilities.

7. CONCLUSION

The present study provides estimates of multidimensional poverty and variation in it due to socio-demographic variables in selected villages of district Astore using the Alkire and Foster methodology. We collected the sample data from different villages according to the population size of respective villages. We used structured close ended questionnaires as a tool to collect data. Logistic Ordered regressions were used for empirical estimations. The findings of this study imply some important conclusions related to multidimensional poverty. First is that small villages of district Astore are poor in infrastructure, health, education and living standards as they are far from the headquarters. This study also suggests a positive relationship between the age of individuals and the poverty measures. An increase in age is associated with low levels of poverty in these villages. Moreover, it suggests this interesting result that the increase in family size reduces poverty as there are more bread earners in family now. Lastly, as many studies would suggest, this study implies that the higher income leads to reduction in poverty level.

The study can be used for better policy making according to the intensity of multidimensional poverty in different regions. Further it can provide huge support to conduct any research on gender inequality and its relation to poverty. The study can also provide help in finding the surge of crime rate, suicidal attempts and psychological issues due to poverty in society.

Here are few recommendations for poverty control.

- According to our results the areas far from headquarters are poorer. Remote areas need government attention for designing effective policies for education, health and living standard.
- The most important issue government needs to ponder on is budget allocation for health and its utilization which is not rationalized yet.
- The government needs to create job opportunities for youth as this could play a huge significant role in poverty reduction

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