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Assessing Modified Multidimensional Poverty Index and its Demographic Correlates in Khyber Pakhtunkhwa

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Abstract

Poverty is multidimensional concept. This study specially focuses on the poverty rate in the province of Khyber Pakhtunkhwa. For this purpose, we measure multidimensional poverty by using Alikire-Foster methodology and constructed extended multi-dimensional poverty index motivated by the fact that poverty is not only related to income and expenditure but also with other capabilities and functionalities such as education, health, women empowerment, and environment. We find that the division of Bannu is the poorest division of the province. The second poorest division of the province is the Malakand division which is home to some of the geographically disconnected areas of the province. Moreover, the divisions of Peshawar and Mardan have the smallest ratio of poor people in the province. Finally, from the demographic correlates of MDPI, the dependency ratio has direct impact on the MDPI. This calls for rural areas specific policy interventions to reduce the poverty on multi dimensions level.

Keywords: Multidimensional poverty, Alkire-Foster, demography, Khyber Pakhtunkhwa, Pakistan
JEL Codes: I32, N3

1. Introduction

Poverty is a worldwide problem. It is one of the objectives of both in millennium and sustainable developmental goals that how we can minimize the world poverty. It is not only lack of money or income for daily life expenditure, but it is multidimensional in nature. Measuring a poverty is always a challenging issue for the researchers and policy makers, mostly poverty is measured in unidimensional context in which income is used as a measuring tool as it is very easy to estimate the poverty, but it cannot portray a actual picture of poverty, poverty is multidimensional phenomena it is deprivation of individuals in certain aspects of life like health, education, sanitation etc. Amritra sen (1985) views the poverty in terms of household or individual's capabilities. Poverty is multidimensional, referring lack of food not only to the low-income level, illiteracy, deprived healthiness, insufficient communications, and lack of power and voice. As in the literature poverty is multidimensional in more than one dimensions i.e., hunger, powerlessness, noiselessness, dependency, shame, and humiliation, lack access to basic infrastructure, little attention for schoolings, economic environment, ill health and gender (Nafziger, 2006). Laderchi et al. (2003) mentioned for four approaches while measuring poverty and these included the monetary, capability, social exclusion, and participatory approaches. The United Nations (UN, 2003) also assume that poverty is multidimensional by calculating the Human Poverty Index which was based on three dimensions i.e., the age of probability not at birth rate surviving to age of 40, adult literacy rate and lack of decent standard of living. Poverty is the principle basic reason for health wellbeing in numerous rustic networks in Asia.

Sen (1976) argues that poverty measurement is a two-step exercise. The first step is the identification of the poor while the second step "quantifies the extent of poverty by aggregating the characteristics of the poor into an overall indicator". This two-step exercise has evolved the concept of multidimensional poverty index based on Alkire-Foster methodology. Alkire and Foster (2009) have introduced an advance methodology for the assessment of poverty in the multidimensional perspective. In addition, the study is based on dual cut-off criteria for the 'identification' of poor households while adjusted 'Headcount Ratio' has been suggested for the aggregation of the poor (Khan *et al*., 2016). Finally, the study provides a single index that shows the extent of multidimensional poverty. However, a multidimensional approach for the estimation of poverty came into the policy agenda when Mexico's National Council for the evaluation of social policy used a multidimensional approach for the estimation of poverty at national level in 2009 (Frerria and Lugo, 2013).

This paper uses the methodology of Alkire and Foster (2011) to estimate the multidimensional poverty as this methodology is most acceptable in the literature due to its suitability for application to categorical data. Unlike other studies we consider additional dimensions of poverty that might measure the capabilities of poor and the opportunity available or denied to them. These dimensions are women empowerment, environment and access to information and communications technologies (ICT). These dimensions make our analysis unique and more relevant in the context of Khyber Pakhtunkhwa which is characterized by weak representation of women in the

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society due to cultural norms. Besides there are areas in the province where internet and other ICT services are still lacking and thus, they need to be included in a study that measures poverty on several dimensions.

2. Literature Review

Alkire and Foster (2011) presented a statistical methodology of measuring such multidimensional poverty. Assuming that poverty is a multidimensional phenomenon, United Nations (UN, 2004) calculated global Human Poverty Index which is based on macro level data on three dimensions i.e., probability at birth of not surviving till the age of 40, adult literacy rate, and standard of living (access to safe water and health services). In 2010, the United Nations also calculated multidimensional poverty index (MPI) for 104 countries by using household level micro-data and individually identifying individuals depriving in multiple dimensions and thus it could measure both the poverty rate in a country as well as its depth (UNDP, 2010). Inspired by the UN's work, several studies have studied and estimated multidimensional poverty (such as, Bourguignon & Chakravarty, 2003; Jenkins & Micklewright, 2007; Alkire & Santos, 2010; Antony and Rao 2007).

MPI has been estimated for many individual countries to understand the with-in country dynamics and factors affecting poverty. For instance, Aristei and Bracalente (2011) measures multidimensional poverty in various Italian regions. Similarly, Batana (2008) presented estimates of multidimensional poverty in the Sub-Saharan Africa. Metha and Shah (2003) studied multidimensional poverty in India, whereas, Justino (2005) is a study of the multidimensional poverty in Brazil. Battiston et al. (2013) used Alkire-Foster and Bourguignon-Chakravarty based measures of multidimensional poverty to derive the estimates of multidimensional poverty in six countries in Latin America.

In the case of Pakistan, several studies have estimated the multidimensional poverty on regional basis. Javed and Awan (2020) use data from three waves of PSLM and ten different indicators of poverty such as schooling, immunization, electricity, water, gas, assets, and crowding. They find that poverty rate is higher in rural areas as compared to urban areas and that the province of Punjab had the lowest whereas the province of Balochistan had the highest rate of poverty. Likewise, Khan and Shah (2020) take four dimensions of poverty i.e., expenditure, education, health and housing into the multidimensional poverty index and uses PSLM/HIES data from 1998 – 2013 to analyze the trend of poverty in sub-regions of the province of Punjab. They find that the rate of poverty has been declining considerably in the province over the decade. Khan et al. (2014) study the multidimensional poverty in the Rawalpindi region using three dimensions of education, health and housing. The study reveals that poverty in the region has been declining overtime, however, educational deprivation showed significant net increase.

3. Data and Methodology

Data for this study is obtained from the Household Integrated Economic Survey 2018-19 (henceforth referred to as HIES 2018-19). The data set contains information regarding household demographic characteristics, income and employment, education, health, housing, water and sanitation and consumption patterns across Pakistan. Information regarding the primary sampling units (enumerations blocks) and secondary sampling units throughout Pakistan are given in table 1.

Table 1: Primary & Secondary Sampling Units of the HIES 2018-19

Administrative Units	Rural/Urban	Primary Sampling Units	Secondary Sampling Units
Punjab	Rural	500	7836
	Urban	350	3945
Sindh	Rural	220	3497
	Urban	248	2719
Khyber Pakhtunkhwa	Rural	194	3035
	Urban	125	1450
Baluchistan	Rural	99	1568
	Urban	66	759
Azad Jammu & Kashmir	Rural	64	979
	Urban	35	397
Gilgit Baltistan	Rural	49	637
	Urban	25	240
Total		1975	27062

Source: HIES 2018-19

The data set contains information on a total of 4485 households from different parts of Khyber Pakhtunkhwa. However, essential information on 21 households were missing and hence the data set collected for this study contains 4464 households only. The administrative division wise, district-wise (rural only) and rural-urban wise distribution of the selected households is given in table 2 below.

Table 2: Division & District-wise Distribution of the Selected Secondary Sampling Units (Khyber Pakhtunkhwa)

Administrative Divisions	Urban	Rural		Total
	SSU	District	SSU	
Malakand	196	Chitral	79	959
		Dir Upper	125	
		Dir Lower	170	
		Swat	92	
		Shangla	63	
		Buner	80	
		Malakand Protected Area	47	
		Bajaur	107	
Hazara	164	Kohistan	223	844
		Mansehra	126	
		Batagram	48	
		Abbottabad	126	
		Haripur	111	
		Torghar	46	
Mardan	174	Mardan	157	472
		Swabi	141	
Peshawar	653	Charsadda	142	1225
		Peshawar	187	
		Nowshera	123	
		Khyber	72	
		Mohmand	48	
Kohat	105	Kohat	79	369
		Hangu	30	
		Karak	61	
		Kurram	62	
		Orakzai	32	
Bannu	46	Bannu	86	265
		Lakki Marwat	58	
		North Waziristan	75	
D.I.Khan	108	D.I.Khan	127	330
		Tank	31	
		South Waziristan	64	
Total	1446		3018	4464

Source: HIES 2018-19

4. Identification of Dimensions and Indicators

Those dimensions are selected which are internationally comparable and representable, most of the researchers used the three dimension like health, education, standard of living. But due to sustainable developmental and millennium developmental goals the new dimensions can be added as did by Sabina Alkire and Ushna Kanagartnam (2020).

In this study we use 10 dimensions of poverty as listed in the table 3. The dimension of household living standards is measured with 9 indicators as listed in table 3 below. The indicators of living standards include overcrowding, availability of electricity, gas and telephone in the house, unmeasured with a single indicator, namely the type of fuel used by the household for cooking. In this dimension of ownership of durable assets, two types of durable consumption items are included; livelihood related, and mobility related. Items in the livelihood related items include ownership of refrigerator, washing machine, fans, stove, sewing machine, iron, chairs, and tables by the household. In the mobility, related items, ownership of bicycle, motorcycle, and car are taken as the indicators of private mobility. The education dimension is measured with two indicators: male households' average years of schooling and female households' average years of schooling. The health dimension is measured with four indicators namely immunization, prevalence of diseases (malaria, hepatitis, and tuberculosis), health habits and child mortality. The economic activity dimension is measured with two indicators: household employment and monthly household income. Access to the computer and information technology (CIT) is measured with three indicators. The first indicator is the number of household members having laptops. Likewise, the second and third indicators are the number of household members having mobiles/smart phones and access to internet facility. The food security dimension is measured with eight Yes/No answers related to questions about food insecurity.

Women empowerment dimension is measured with 10 statements recorded by the female members of the household about their say in matters related to education, employment, marriage, birth control, purchase of food items and clothing, medical treatment and recreation and travel.

Table 3: Dimensions of Poverty and Indicators Within Each Dimension

S.no.	Dimension	w_j	Indicators	Measures		Indicators Weights
1	Living Standards	1/10	Overcrowding	Number of Persons per room		1/90
			Availability of Utilities	Monthly expenditure on electricity, gas, and telephone	Electricity	1/90
					Gas	1/90
					Telephone	1/90
			Residence	Occupancy Status (Dummy)		1/90
			Garbage	Garbage collection facility		1/90
			Housing Material	Material used in floor, roof and walls	Floor	1/90
					Roof	1/90
					Walls	1/90
2	Water & Sanitation	1/10	Purity of Drinking Water	Sources of Drinking Water		1/40
			Toilet Facility	Type of toilet, Shared or not		1/40
			Sewerage	Connection with drainage/sewerage system		1/40
3	Environment	1/10	Air Quality	Type of cooking fuel used		1/10
4	Assets	1/10	Ownership of durable consumption items	Livelihood Related Assets	Refrigerator	1/110
					Washing Machine	1/110
					Fans	1/110
					Stove	1/110
					Sewing Machine	1/110
					Iron	1/110
					Chairs	1/110
					Tables	1/110
				Mobility Related Assets	Bicycle	1/110
					Motorcycle	1/110
					Car	1/110
5	Education	1/10	School Attainment	Household average years of schooling (male & female)	Average HH Education Male	1/20
					Average HH Education female	1/20
6	Health	1/10	Immunization	Proportion of children immunized		1/ 60
			Prevalence of diseases	HH members having suffered from Malaria, TB & Hepatitis	Malaria	1/ 60
					Hepatitis	1/ 60
					TB	1/ 60
			Health Habits	Monthly expenditure on tobacco & chewing products		1/ 60
			Child Mortality	Number of children died after live birth		1/ 60

7	Economic Activity	1/10	Employment Status	Proportion of adult HH members employed		1/20
			Income	HH per capita income/consumption	Income	1/20
8	ICT	1/10	Access to ICT	Number of HH having mobile, laptop & internet access	Laptops	1/30
					Mobiles/smart phones	1/30
					Internet	1/30
9	Food Security	1/10	Scale	Including 8 items[a]		1/80 (each)
10	Women Empowerment	1/10	Scale	Including 10 items[b]		1/100 (each)

Note: a: The 8 items can be seen in the section 5 of PSLM/HIES 2018/19 male questionnaire online. b: The 10 items related to women empowerment are given in the female questionnaire of PSLM/HIES 2018/19 in section 4F part E.

5. Reliability of Dimensions and Indicators

When using multiple item measures of a concept, the Cronbach's alpha (Cronbach, 1951) has become common practice in research (Tavakol & Dennick, 2011). The alpha measures the extent to which all the items in a measure relates to each other and its value ranges from zero to 1, whereby 1 indicates best reliability. Another useful way of using the Cronbach's alpha is to square it and subtract it from 1 which produces and index of measurement error (Kline, 2014). Hence, higher the value of Cronbach's alpha, lower is the measurement error in the concept measured. However, it is also important to note that a lower value of the Cronbach alpha does not necessarily mean lower internal consistency as the value is directly related with the number of items measuring a concept (Streiner, 2003). The table 5 report the values of Cronbach alpha for each of the dimensions of poverty used in the study.

Table 4: Cronbach Alpha Test of Reliability of Dimensions

Dimensions	No of item in scale	Average inters item covariance	Scale reliability
Living standard	9	0.04	0.697
Water & Sanitation	4	0.01	0.251
Environment	1	NA	NA
Assets	11	0.042	0.753
School Attainment	2	0.076	0.483
Health	6	0.004	0.143
Economic activity	2	0.035	0.254
ICT	3	0.067	0.599
Women empowerment	10	0.052	0.788
Food security	8	0.033	0.759

For instance, the living standard dimension is measured with 9 items (called indicators) and the Cronbach alpha value for this dimension is approximately 0.70 which represent excellent reliability of the dimension.
Weighting schemes

For a multidimensional poverty dimension abased on deprivation counts and simple averages, we have implicitly assigned an equal weight of wj=1 to each dimension j. This is appropriate when the dimensions have been chosen to be of relatively equal importance. As Atkinson et al. observe, equal weighting has an intuitive appeal Dual Cutoffs In measuring multidimensional poverty through AF approach to identifying the poor that uses two forms of cutoffs. The first is the traditional dimension-specific deprivation cutoff, which identifies whether a person is deprived with respect to that dimension. The second cutoff - which is the poverty cutoff, k, is a minimum number of dimensions of deprivation

6. Construction of MDPI

For computations of various indexes of multi-dimensional poverty, the Alkire and Foster (2011) methodology is utilized. To outline the methodology, let there be n (=4464) individuals whose poverty/deprivations are assessed through d (=10) dimensions in each year. The 10 dimensions used in this study are outlined in section 2 above. Let xij be individual i's achievement on dimension j which are represented in a n×d matrix X. Let zj be the deprivation cutoff level for each jth indicator, which can be represented by a vector z. Information regarding various deprivation cutoff points used in this study are given in table 4 below. The ith individual in indicator j

would be considered deprived if $x_{ij} < z_j$ and vice versa. Table 4 below contains the cutoff points used in each indicator. For simplicity we take mean of the sample as the cutoff point in a continuous or numerical indicator and in case of categorical variable we use 1 for deprived and 0 otherwise. If for individual i, the conditions that $x_{ij} < z_j$ holds in a particular indicator, then his/her deprivation status in that indicator (denoted by Sij) equal 1 and zero otherwise. The matrix that contains information on the deprivation status of the n individuals in d dimensions is denoted by g0 and is called the deprivation matrix. Since the Alkire and Foster (2011) method is a two-stage poverty identification method, the deprivations cutoff used (zj) to convert the achievement matrix to the indicator deprivation matrix is known as the first stage calculations to identify the indicators on which a household is poor.

Table 5: Deprivation Cutoff in Each Dimension

Dimension	Indicator/Measures	Cutoff (mean)
Living Standards	Number of persons per room	>3.18
	Monthly Expenditure on Electricity (Rs)	≤1252.1
	Monthly Expenditure on Gas (Rs)	≤297.97
	Monthly Expenditure on Telephone (Rs)	≤604.96
	Occupancy Status	=1
	Garbage Collection	=1
	Material used in floor, roof and walls	=1
Water & Sanitation	Sources of drinking water	=1
	Type of toilet & shared or not	=1
	Connection with drainage/sewerage	=1
Environment	Air quality	=1
Assets	No. of refrigerators owned	<1
	No. of washing machines owned	<1
	No. of fans owned	<3.05
	No. of stove owned	<1
	No. of sewing machines owned	<1
	No. of Irons owned	<1
	No. of Chairs owned	<2.32
	No. of tables owned	<1.36
	No. of Bicycles owned	<1
	No. of motorcycles owned	<1
	No. of Cars owned	<1
Education	Male education	≤6.67
	Female education	≤2.74
Health	Proportion of children immunized	≤32.37
	Malaria	>0
	Hepatitis	>0
	Tuberculosis	>0
	Health habits	>232.84
	Child Mortality	>0
Economic activity	Employment	<41.21%
	Income (Rs.)	<4077.22
ICT	Laptops	<1
	Mobiles/Smart Phones	<2.43
	Internet	<1
Food Security	8 items	=1
Women Empowerment	10 items	=1

Note: <, =, and > implies, respectively, that a household is considered deprived in the indicator if it scores less than, equal to or greater than the specified value.

To convert the deprivation matrix to the weighted deprivation matrix (denoted by $\bar{\boldsymbol{g}}^{\boldsymbol{0}}$), one needs to assign relative weights (wj) to each dimension such that each wj>0 and that $\sum_{j=1}^{10} w_j = 1$. The weight assigned to each indicator is shown in the table 3 above. The relative weight of each dimension is 1/10 and the weights sums to 1. That is, the study assume that each dimension of poverty is equally important in the measurement of multi-dimensional poverty and hence equal weights are assigned to each of the 10 dimensions. Weights assigning is a major controversy in the literature about multidimensional poverty, whereby some studies recommends weights according to the importance of each dimension, while others treat all the dimensions equally to avoid subjectivity. In this study we use the equal weighting scheme which is also the recommendation of Alkire and Foster (2011).

The MPI is constructed by summing the weighted deprivation scores over all the dimensions. Mathematically, the index is created by $c_i = \sum_{j=1}^{10} w_j s_{ij}$. By construction, the index ranges from 0 to 1 for all the households in the sample. After the creation of the poverty index, we use aggregate poverty cutoff point of 0.33 which differentiates between poor and non-poor. Hence the Alkire and Foster (2011) methodology uses dual cutoffs. This way for each region of the Khyber Pakhtunkhwa we have certain number of poor people and certain number of non-poor in the sample. Using this information, we compute poverty indices like poverty head count ratio (H), average deprivation amongst poor (A) also called as poverty intensity, and the adjusted head count ratio (M0) for region-wise comparative statistics of poverty. Mathematically,

$$H = \frac{q}{n} \; ; \qquad A = \frac{\sum_{i=1}^{q} c_i}{q} \; ; \qquad M_o = H * A$$

where, q is the number of multidimensional poor people in the sample, n is the sample size, and c_i is the total deprivation score depicting the number of dimensions on which a poor household is poor.

7. Regression Analysis

Besides estimating the multi-dimensional poverty index, the study also contains regression analysis to know various demographic determinants of the muti-dimensional poverty in the selection region. These demographic variables are listed in table 5. The measurement of the MDPI variable is detailed below which may be called as an overall deprivation score. It is computed for each of the sampled household by adding their weighted deprivation scores in all the 10 dimensions. Higher scores of MDPI would represent deprivation is greater number of dimensions and hence more poverty.

Table: 6 Variables Used in the Regression Analysis

Variable(s)	Abbreviations	Measure	Source
Multi-Dimensional Poverty Index	MDPI	Index	Own Calculations
Gender of Household Head	GHH	Binary	HIES 2018-19
Age of the Household Head	AHH	Years	HIES 2018-19
Household Average Age	AHHA	Years	HIES 2018-19
Household Dependency Ratio	DRR	Ratio	HIES 2018-19
Household Size	HS	Number	HIES 2018-19
Household Male Female Ratio	MFR	Ratio	HIES 2018-19
Marital Status of the Household Head	MSHH	Binary	HIES 2018-19

Gender of the household head is measured as a binary response variable. Originally, a male household head is represented by 1 and female by 2. The response category 2 is however recoded to 0 to represent female headed households. Age of the household head and household average age is measured in complete years. The household dependency ratio is computed by dividing the number of dependents (all those who are below 15 years of age) in a household by the number of adult members in a household. Hence the variable can best be described as children per adult household member. Household Male Female Ratio (MFR) is measured as the number of male household members divided by female household members. Marital Status of the Household Head (MSHH) is measured as binary response where 1 represent single parent headed households and zero otherwise.

8. Results and Discussion

8.1. Division-wise Estimates of Poverty in KP

The MPI estimates for each of the seven individual divisions of KP are shown in table 6. Two indices of poverty i.e. head count ratio H and the adjusted headcount ratio Mo are displayed in the table. The ranking of divisions is based on the estimated poverty level in that division and shown in the last column of the table. Both the H and Mo produce almost similar rankings of division according to poverty. We can see that the division of Bannu is the poorest division among all the seven divisions of the province where almost 54 percent of the people are multidimensional poor. The division of Bannu contains the district of North Waziristan which is bordering Afghanistan and has been severely affected by the war against terrorism. This might be the reason behind the high rate of poverty in the entire division of Bannu. The second poorest division in the province is Malakand which is in the northern region of the province. Likewise, the third poorest division in the province according to our estimates is D.I.Khan where the adjusted head-count ratio is 51 percent. As far as the least poor division of the province are concerned, Mardan and Peshawar have the smallest proportion of poor people i.e. 45 percent and 39 percent respectively. This is as per the expectations because these two divisions are urban in nature, have considerable amount of industry, and have highly productive agricultural lands.

Table 6: Division-wise Estimates of Poverty in KP

Division	Poverty Indices		Proportion of population in the division	Poverty Rankings
	H	M_o		
Malakand	0.918	0.538	0.208	2
Hazara	0.839	0.479	0.193	5
Mardan	0.824	0.455	0.106	6
Peshawar	0.726	0.392	0.274	7
Kohat	0.855	0.487	0.083	4
Bannu	0.931	0.539	0.059	1
D I Khan	0.858	0.511	0.075	3
Total	0.831	0.471	1	

Source: Authors' calculations from PSLM/HIES 2018/19

8.2. Measuring Multidimensional Poverty Index Estimate

Table 7: Poverty Index Estimates

MPI by: Division code, K=0.33 OR 33%								
	Division1	Division2	Division3	Division4	Division5	Division6	Division7	Total
	Malakand	Hazara	Mardan	Peshawar	Kohat	Bannu	DI Khan	Total
H	0.918	0.839	0.824	0.726	0.855	0.931	0.858	0.831
MO	0.538	0.479	0.455	0.392	0.487	0.539	0.511	0.471
POP	0.208	0.193	0.106	0.274	0.083	0.059	0.075	1.000
	2	5	6	7	4	1	3	

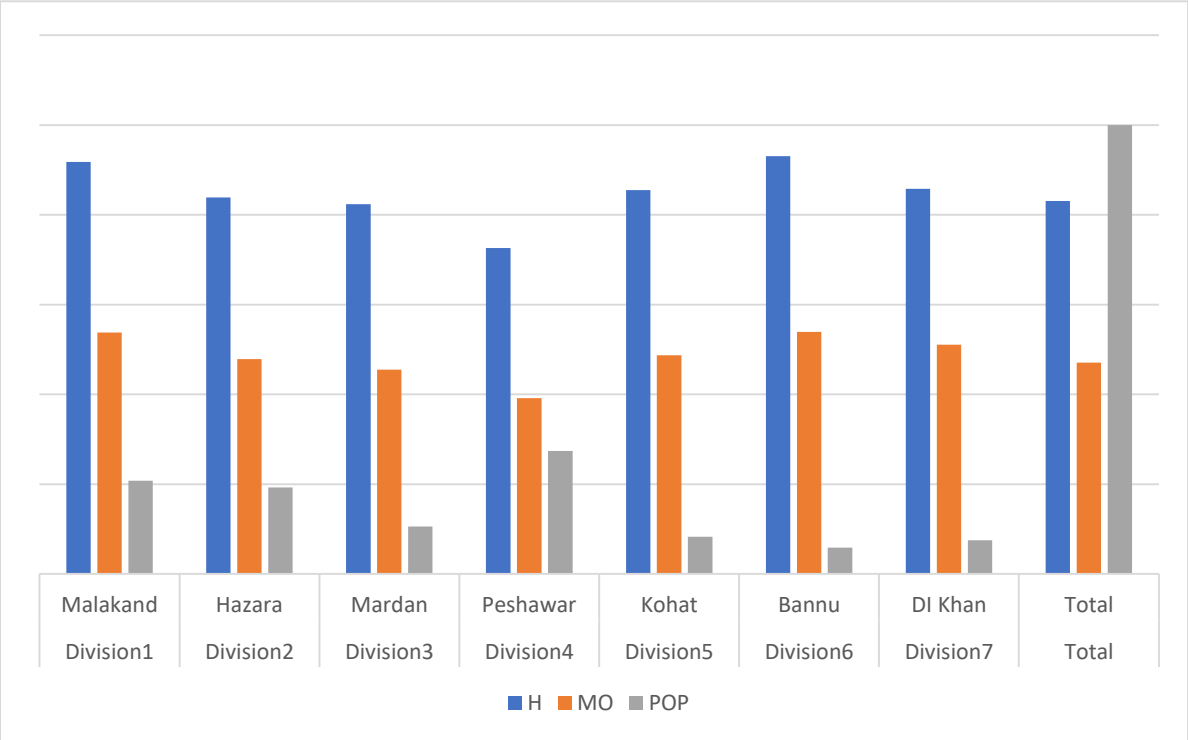

Figure 1: MPI by Divisions Code, k=0.33 0r 33%

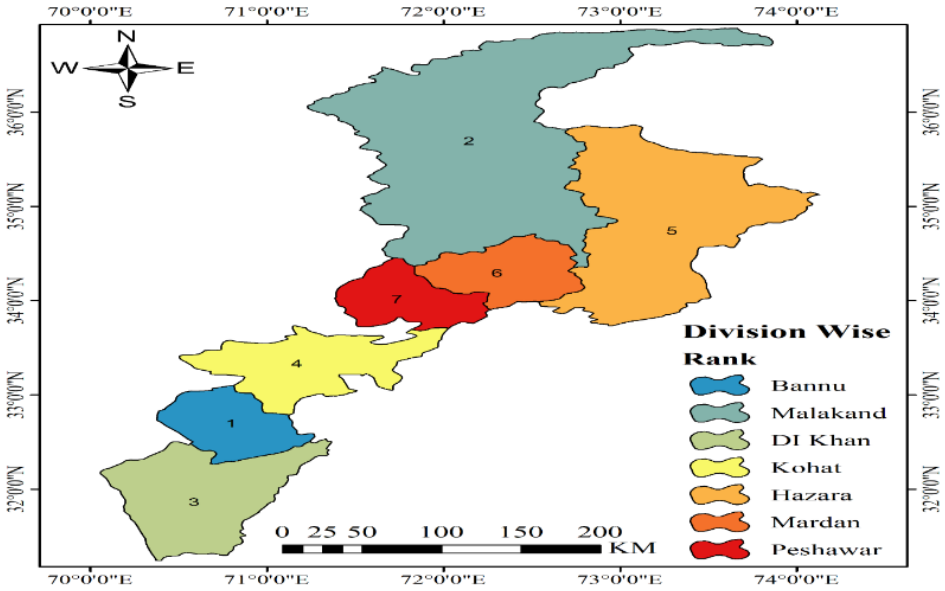

Figure 2

8.3. Demographic Correlates of MDPI at Khyber Pakhtunkhwa Division (GLS Results)

The Correlates of MDPI of various demographic variables are analyzed in the seven divisions of the Khyber Pakhtunkhwa. The household size is insignificant in all the divisions, except Hazara and DI Khan divisions. In the two divisions, a unit increase in the household size increases MDPI, respectively, by 0.003 units at Hazara Division and by 0.005 units at DI Khan division. Household Male Female Ratio (MFR) is insignificant in Hazara, Banu and DI Khan while significant in Malakand, Mardan, Peshawar and Kohat having negative impact on MDPI, in other words, having a large numbers of male household members reduces the incidence of poverty, it has highest ratio in Mardan, followed by Malakand, Kohat and Peshawar respectively. The household dependency ratio has direct impact on MDPI, an increasing dependency ratio results increasing the incidence of multidimensional poverty, the ratio has highest value in Peshawar division (0 .35) and lowest in Kohat (0.014). The gender of the house head is insignificant in Bannu and DI Khan divisions, while significant in Kohat, Hazara, Mardan, Peshawar, and Malakand. The marital status is insignificant in all divisions except Kohat. Age of the household head is insignificant in Banu divisions while significant in all other divisions, mean when the age of the household increase, it negatively affects MDPI. Average age of the household is significant in all divisions except Kohat and Banuu. showing positive effect on MDPI, mean an increase in the average age of the household head caused MDPI to increase.

Table 8: Demographic Correlates of MDPI at Khyber Pakhtunkhwa (GLS Results)

Variable(s)	Malakand	Hazara	Mardan	Peshawar	Kohat	Banu	DI Khan
Constant	.531*	.500*	.503*	.484*	.587*	.581*	.537*
Household size	.000	.003***	.001	.001	.001	-2.294E-5	.005**
Male female ratio	-.012*	-.002	-.015**	-.008**	-.010***	-.005	-.002
Dependency ratio	.024*	.023*	.031*	.035*	.014**	.020**	.019**
Gender of the household head	.041*	.064*	.060*	.055*	.076*	.019	.043
Marital status of household head	.011	.006	-.003	-.012	.069**	.051	-.009
Age of the household head	-.001*	-.002*	-.002*	-.001*	-.002*	-.001	-.001**
Average age of the household	.002*	.002*	.002*	.002*	.001	.001	.002**

**p-value < 0.01, **p-value < 0.05, and ***p-value < 0.09.*

9. Conclusion and Policy Recommendations

Poverty identification and elimination is a challenging objective for all over the world but specially to developing countries which like Pakistan which is the second most populated country in the south Asia have remain the victim of terrorism and natural hazards. Pakistan is the second most populated country in South-Asia and therefore poverty reduction efforts in the country will manifest clearly in global efforts towards poverty eradication. This study specially focuses on the poverty rate in the province of Khyber Pakhtunkhwa. For this purpose, we measure

multidimensional poverty motivated by the fact that poverty is not only related to income and expenditure but also with other capabilities and functionalities such as education, health, women empowerment, and environment. We find that the division of Bannu is the poorest division of the province. This might be due to the fact that the district of North Waziristan is part of the Bannu divison. The North Waziristan district is bordering with Afghanistan and has been severely impacted by the war against terrorism. The second poorest division of the province is the Malakand division which is home to some of the geographically disconnected areas of the province such as Chitral, Upper Dir and Bajaur. These semi-mountainous areas neither have industry, service or agriculture and thus it is not surprising that the division of Malakand has the second highest proportion of poor in the province. Moreover, as per our expectations the divisions of Peshawar and Mardan have the smallest ratio of poor people in the province. While Peshawar is the provincial capital and the most urbanized division of the province, the district of Mardan is fast urbanizing and is also home to some of the most fertile agricultural lands of the province with abundant irrigation. The rural areas are poorer as compared to urban areas. This calls for rural areas specific policy interventions to reduce the poverty on multiple dimensions such as education, health, women empowerment, and ICT access. Finally, from the demographic correlates of MDPI, the dependency ratio has direct impact on the MDPI. The policy makers must focus how the dependency ration can be lowered through small scale or cottage industry.

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