

## Sensitivity of Multidimensional Poverty Index in Pakistan

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### Abstract

*The study estimates multidimensional poverty in Pakistan following Alkire-Foster methodology. The analysis is based on Pakistan Social and Living Standard Measurement Survey 2004-05 and 2014-15. The study adopts expert opinion weights, frequency-based weights and equal weights for the provision of estimates of MPI at national and provincial levels. The results show that the estimates of MPI range from 14% to 20% at national level and these estimates are quite sensitive to the choice of weights. Whereas, equal weights always underestimate the magnitude of poverty. Moreover, the inter-temporal analysis of poverty reveals that the intensity of poverty has lower contribution in the reduction of multidimensional poverty in Pakistan. Therefore, the deprived regions of the country should be focused separately (especially the deprived districts of Balochistan) to target poverty. Besides, the regional allocation of resources can be made according to the intensity of poverty. The study concludes that the measurement of poverty is a complex phenomenon and it is quite sensitive to the choice of weights. So, the researcher should be careful about the choice of weighting scheme while providing estimates of multidimensional poverty.*

### Introduction

Poverty is a multidimensional phenomenon and it shows the incapability of the individuals to satisfy their basic human needs. Therefore, the “Millennium Development Goals” (MDGs) as well as the “Sustainable Development Goals” (SDGs) include “eradication of poverty” in their description of goals.<sup>c</sup> However, poverty reduction is not an easy target as 10.7 percent of the world population lives below \$1.90 a day and 26.5 percent of the world population has been identified as multidimensionally poor (World Bank, 2017; Global Multidimensional Poverty Index, 2017).<sup>d</sup> The researchers have explained two broad approaches to quantify poverty, one is income approach (uni-dimensional approach) and the other is multidimensional approach. Although traditionally poverty has been defined as the lack of income to meet basic human needs however, it is considered narrow definition of poverty and it is argued that monetary variables (such as income or expenditure) are unable to truly evaluate human well-being (Wang, 2016; Alkire *et al.*, 2017; Idrees and Baig, 2017). For this reason, Sen (1979) defines poverty as “capability deprivation” while Bourguignon and Chakravarty (2003) discuss that well-being depends on food, housing, clothing and availability of public goods. However, the seminal work by Alkire and Foster (2009) is considered an innovative approach for the assessment of multidimensional poverty.

Alkire-Foster methodology is an index-based approach and it includes different dimensions, indicators and cutoffs for the measurement of multidimensional poverty. Furthermore, it quickly reflects changes in dimensions and indicators of poverty and it directly monitors changes in poverty trends. Therefore, these features of MPI are used as important tools for policy analysis

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<sup>c</sup> The MDGs were eight development goals set by the United Nations in 2000. While the SDGs are 17 goals set by the United Nations for sustainable development in 2015. Whereas, all member states and United Nations Development Program (UNDP) are working to fulfill these SDGs by the year 2030.

<sup>d</sup> <http://ophi.org.uk/multidimensional-poverty-index/global-mpi-2017/>.

(Alkire, 2011). Despite the criticism that the methodology focuses on the computation of a single index rather than a set of poverty indices, Alkire-Foster methodology received huge attention from the researchers and policy makers (Vijaya *et al.*, 2014; Alkire and Seth, 2015; Dehury and Mohanty, 2015; Suppa, 2015; Mahoozi, 2015; Wang, 2016; Alkire *et al.*, 2017; Megbowon, 2018; Santos *et al.*, 2018).

However, as far as Pakistan is concerned, very few studies have computed Multidimensional Poverty Index (MPI) using Alkire-Foster methodology (Saboor *et al.*, 2015; Masood *et al.*, 2012; Khan *et al.*, 2016). An important feature which can be drawn from these previous studies is the adoption of equal weighting scheme for the measurement of MPI. Conversely, the Alkire-Foster methodology is sensitive to the choice of weights for the dimensions and indicators. The magnitude and the intensity of MPI may be different under different weighting schemes. Therefore, equal weighting scheme is generally criticized by the researchers. Chowdhury and Squire (2006) discuss that equal weighting scheme is “obviously convenient but universally it is considered wrong”. Likewise, if education is more important than health, then the education poverty should not have the same weight as that of the health poverty (Ravallion, 2011).

The primary objective of the study is to provide assessment of MPI under different weighting schemes using Pakistan Social and Living Standard Measurement Survey (PSLM) 2014-15. Therefore, the study adopts three different weighting schemes (expert opinion weights, frequency-based weights and equal weights) for the computation of MPI and investigates the sensitivity of MPI towards the choice of weighting scheme. Furthermore, the study investigates the time trend for poverty from 2004-05 to 2014-15 and makes use of PSLM 2004-05 along with PSLM 2014-15. The study evaluates the contribution of incidence and intensity of poverty in inter-temporal settings and focuses on the magnitude of intensity of poverty rather the incidence of poverty. This categorization can help us to understand the pattern of multidimensional poverty reduction over time. The reduction in the intensity of poverty is important to end poverty from its roots and to understand the success of policies related to SDG goals (Alkire *et al.*, 2017).

The present study contributes to the existing literature on multidimensional poverty, as it focuses on the methodological aspects of MPI. The earlier studies estimate MPI with equal weights for all dimensions and ignore the sensitivity of MPI towards different weighting schemes. While the magnitude of MPI entirely depends upon the weights attached to the dimensions (Belhadj, 2012). Therefore, the debate on the technical aspects of multidimensional poverty gives us the deeper and wider understanding of the problem. The focus of the study is not to declare a best weighting scheme for well-being indices rather it aims to provide comparison of magnitude and intensity of MPI under equal and unequal weighting schemes. Likewise, it highlights the sensitivity of a destitution measure towards different weighting schemes.

The remainder of the study is organized as follows. Section 2 provides the review of literature on multidimensional poverty and weighting schemes of well-being indices. Section 3 describes the data and methodology while section 4 provides the estimation results of the study. Finally, section 5 concludes the study.

## Literature Review

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). Several researchers used Alkire-Foster methodology to estimate MPI following this study (Wang, 2016; Alkire and Seth, 2015; Vijaya *et al.*, 2014; Dehury and Mohanty, 2015; Suppa, 2015; Mahoozi, 2015; Alkire *et al.*, 2017; Megbowon, 2018; Santos *et al.*, 2018).

The Alkire-Foster methodology offers more accurate picture of wellbeing through multiple dimensions and indicators. In addition, the MPI calculated through Alkire-Foster methodology can be expressed as a product of two components where the first component is the incidence of poverty while the other component is the intensity of poverty.<sup>a</sup> Moreover, it can be decomposed across population sub-groups. Furthermore, the percentage contribution of each indicator in multidimensional poverty can also be computed (Alkire, 2011). However, the procedure proposed by Alkire and Foster (2009) suggests equal weighting scheme for the dimensions and indicators within the dimensions. Therefore, the studies that follow Alkire-Foster methodology usually adopt equal weighting scheme.

Although, the weights assigned to the dimensions and indicators play crucial role in the estimation of poverty yet there is no standard procedure to determine the weights for MPI's dimensions and indicators (Kruijk and Rutten, 2007; Alkire and Foster, 2009). Nevertheless, three broad approaches are available in the poverty literature to choose weights for the well-being indices (Decanq and Lugo, 2008). These approaches are further divided into seven weighting schemes and the details are shown in Table 1.

**Table 1: Available Approaches for the Choice of Weights**

<b>Data Driven Weights</b>	<b>Hybrid Weights</b>	<b>Normative Weights</b>
Frequency based weights	Self-stated weights	Expert opinion weights
Statistical weights		Equal weights
Most favorable weights		Price based weights

Source: Decanq and Lugo (2008)

The frequency-based weights are those weights which are determined by the proportion of population deprived in any one dimension. If less people are deprived in any one dimension, then the higher should be the weight for that dimension. It suggests that if less people are deprived in any one dimension then deprived segment of the population will feel more deprived, therefore, the weight should be higher for that dimension (Decanq and Lugo, 2008). However, according to Cerelio and Zani (1990), the higher weight should be assigned to the dimension in which the highest proportion of population is deprived as it provides the better understanding of the severity of the poverty.

The statistical weights are determined through descriptive or explanatory models. While Principal Component Analysis and Factor Analysis are generally used to construct well-being indices under statistical weighting schemes (Noble *et al.*, 2008). Conversely, Melyn and Moesen (1991) suggest

<sup>a</sup> The intensity of poverty, in Alkire-Foster methodology, is defined as the average deprivation score among the poor.

that well-being weights are individual specific and therefore, should be determined endogenously. The study proposes most favorable weighting scheme and assign the highest weight to the dimension in which an individual performs the best. The next approach assumes self-stated weights. In this approach, the respondents are asked to rank the dimensions of well-being according to the relative importance of each dimension (Kruijk and Rutten, 2007).

The expert opinion weights are based on the opinion of experts e.g. policy makers and researchers. Moreover, the weights are determined according to the importance of the dimensions (Satty, 1987; Choudhory and Squire, 2006). However, the equal weighting scheme assumes equal weights for each dimension. It is the most commonly used approach in the literature of well-being indices and almost all the studies adopt equal weights for the dimensions of MPI (Wang, 2016; Alkire and Seth, 2016; Saboor *et al.*, 2015; Khan *et al.*, 2016).

The last approach considers price-based weights and these weights are derived from the marginal rate of substitution (implicit prices of dimensions) between the dimensions of well-being indices (Sarinivasan, 1994). However, it is not popular in literature, because there is no standard method to derive the marginal rate of substitution between the dimensions of well-being indices (Belhadj, 2012).

Although, seven weighting schemes are available for the choice of weights, however, in some cases it is impractical to follow these approaches (Decanq and Lugo, 2008). For example, the statistical techniques of assigning weights are complex and therefore, may not accurately represent the true preferences of the individuals in the society. Similarly, application of self-stated weight as well as most favorable weight is subject to the data availability. However, in case of PSLM data set, the relevant data is not available. Besides, price based weights are not much popular in literature due to the lack of theoretical foundations of computing marginal rates of substitution between the dimensions (Belhadj, 2012).

Although, it is difficult to choose an appropriate weighting scheme for the assessment of poverty, however, the study adopts three different weighting schemes from the literature. The study considers expert opinion weights, frequency-based weights and equal weights for the computation of MPI. The expert opinion weights are obtained from the Pakistan Economic Survey (2016) while the frequency based weights are applied following Cerilio and Zani (1990). Besides, the 'equal weighting scheme' is the most popular and widely used technique for the analysis of poverty, therefore, it has been included in our study (Seth, 2016).

### **The Data**

The analysis is based on Pakistan Social and Living Standard Measurement Survey (PSLM) 2004-05 and 2014-15. The data set PSLM 2014-15 is the most recent data set available for the social indicators, therefore, study has used it for the assessment of poverty. It covers 78635 household whereas the sample share comprises of 64.93% of rural population and 35.07% of urban population. It is usually argued that poverty reduction is a long-term phenomenon, therefore, the study has made use of PSLM 2004-05 for inter-temporal comparisons. The PSLM 2004-05 covers 73,345 households and includes 67.87% of rural population and 32.13% of urban population. The study has selected three dimensions for the assessment of multidimensional poverty in Pakistan. The dimensions are education, health and living standard while the details of dimensions, indicators, weights, and cut-offs are given in TableA1 in Appendix.

## Methodology

The Alkire-Foster methodology of multidimensional poverty is based on the weighted deprivation score. While these scores are computed using the following equation:

$$c_i = \sum_{k=1}^K w_k I_{ki} \quad (4.1)$$

here vector  $c$  summarizes the deprivation scores of all persons while  $I_{ki}$  is a binary indicator and if it is 1 then it denotes deprivation and 0 otherwise. In Alkire-Foster methodology  $I_{ki}$  is the value of component  $k$  of household  $i$  and  $w_k$  is the weight of  $I_{ki}$ . A person  $i$  is identified as poor if  $c_i$  is greater than or equal to  $k$  and non-poor, otherwise. The overall poverty cut-off (denoted by  $k$ ) is defined as the proportion of weighted deprivations a person needs to experience to be considered multidimensionally poor. Whereas, the headcount ratio is obtained using the formula given below:

$$H = \frac{q}{n} \quad (4.2)$$

where  $q$  denotes the number of poor household and  $n$  denotes the total number of households. The average share of weighted indicators is obtained in next step and it is denoted by  $A$ . It is called the intensity of multidimensional poverty and it is obtained as follows:

$$A = \frac{\sum_{i=1}^n c_i(L)}{n} \quad (4.3)$$

where  $c_i(L)$  is censored deprivation score. While  $M_0$  which shows the magnitude of multidimensional poverty is obtained as the product of two components, the multidimensional headcount ratio ( $H$ ) and the intensity of the poverty ( $A$ ). Technically, it is obtained as follows:

$$M_0 = \frac{1}{q} \sum_{j=1}^d c_i(k) \times \frac{q}{n} = H \times A \quad (4.4)$$

where  $q$  denotes the number of poor people and  $n$  denotes the total number of people in the sample.

## Results and Discussion

The Table 2 shows the estimates of MPI for the PSLM 2004-05 and PSLM 2014-15. The study has adopted expert opinion weights for the computation of MPI while these weights are taken from Pakistan Economic Survey (2016).<sup>a</sup> The multidimensional poverty estimates show that 28.8% of the population was multidimensionally poor according to the PSLM 2004-05 while 19% of the population is multidimensionally poor according to the PSLM 2014-15. The Table 2 also shows that rural poverty is a critical issue in Pakistan as reported MPI is higher for rural areas of Pakistan as compared to the urban areas of Pakistan for both data sets. This result is consistent with the earlier poverty studies for Pakistan (Naveed and Ali, 2012; Sallauddin and Zaman, 2012; Pakistan Economic Survey, 2016).

Moreover, the provincial estimates show that MPI is the highest in Balochistan, followed by KP, Sindh and Punjab (PSLM 2014-15). These results are consistent with National estimates for

<sup>a</sup> According to this weighting scheme, all dimensions have equal weights, however, the indicators within each dimensions have unequal weights. While these weights are decided by the experts and policy makers and details are provided in Table A1 in appendix.

PSLM-2014-15 reported in Pakistan Economic Survey (2016). Besides, the earlier studies also reveal that Balochistan is the most deprived province of Pakistan (Salauddin and Zaman, 2010; Khan *et al.*, 2011).

These estimates of MPI are further investigated to evaluate the contribution of incidence as well as intensity of poverty for the inter-temporal analysis of poverty. The intertemporal analysis of the multidimensional poverty reveals that although poverty has declined during this period by 34%, however, this decline is mainly attributed to the headcount index (H) rather the intensity of multidimensional poverty (A). The Table 2 reveals that the intensity of poverty that was 51.4% in 2005 just reduced to 50.4% in 2015. It also suggests that each individual is on average deprived of at least half of the weighted indicators.

**Table 2: Estimates of Multidimensional Poverty in Pakistan  
(PSLM-2004-05 and PSLM-2014-15)**

Region	PSLM 2004-05			PSLM 2014-15			Growth Rate		
	Head count index	Intensity of Poverty	MPI	Head count index	Intensity of Poverty	MPI	Head count index	Intensity of Poverty	MPI
<b>Pakistan</b>	56.1	51.4	28.8	38	50.4	19	-32.3	-1.95	-34
<b>Rural</b>	65.9	52.4	34.5	53.2	51.1	27.2	-19.3	-2.48	-21.2
<b>Urban</b>	35.3	47.5	16.8	8.8	42.9	4.0	-75.1	-9.68	-76.2
<b>KP</b>	61.1	50.9	31.1	50.8	50.8	27.5	-16.9	-0.2	-11.6
<b>Punjab</b>	50.5	49.7	25.1	31.5	48.4	15.3	-37.6	-2.62	-39
<b>Sindh</b>	61.9	54.2	33.5	40.1	52.4	21	-35.2	-3.32	-37.3
<b>Balochistan</b>	80.5	54.8	44.1	70.5	55.1	38.8	-12.4	0.55	-12

Moreover, this table shows that the intensity of poverty has reduced by only 1.95 percent however, headcount index has reduced by 32.3 percent during this period. Therefore, this contribution of H and A in the reduction of MPI shows that headcount index has significant share in the reduction of MPI. The Table 2 also provides estimates of rural and urban poverty along with its components head count ratio and intensity of poverty. The table shows that intensity of poverty has declined by 9.68 percent in the urban areas as compared to 2.48 percent in the rural areas of Pakistan. It means reduction in rural poverty should be the immediate concern of the policy makers. Besides, the Table 2 reports the estimates of provincial poverty. It is evident from the table that the intensity of poverty is the highest in Baluchistan followed by Sindh, KP and Punjab. Moreover, the inter-temporal analysis reveals that intensity of poverty has reduced in all provinces except for Balochistan. It suggests that poverty reduction is because of reduction in the number of people who are marginally poor and it is not because of the reduction in the deprivations of the poorest of the poor.

Although, the intensity of poverty shows the percentage of the deprived weighted indicators, however, the empirical research in Pakistan does not focus on the intensity of poverty. Surprisingly, most of the studies providing estimates of poverty even do not report the estimates

for the intensity of poverty (Saboor *et al.*, 2015). The intensity of poverty has important policy implications and it explains which part of the MPI has reduced inter-temporally. Poverty reduction may be either because of reduction in head count ratio or it may be because of reduction in the intensity of poverty. If only head count ratio reduces then it shows that poverty is reducing because of reduction in the number of people who are marginally poor. On the other hand, if poverty reduction is because of reduction in the intensity of poverty then it suggests that policies has taken care of the deprivations of the poorest of the poor (Alkire, 2011).

The Table 3 provides the estimates of MPI along with its components head count ratio and intensity of poverty for equal weighting scheme and expert opinion weighting. Although, the equal weighting scheme is preferred due to the lack of theoretical guidance on other weighting schemes yet it is criticized by the researchers (Chowdhury and Squire, 2006; Ravallion, 2012; Seth, 2016). The Table 3 shows that MPI along with its components has declined when indicators are weighted equally. Moreover, the equal weighting scheme underestimates the magnitude of national MPI by 4.55% while it underestimates rural MPI by 6.52% and urban MPI by 0.88%.<sup>a</sup> Similarly, the estimates of head count index and intensity of poverty has declined when equal weights are adopted for the computation of MPI. The difference in the results for rural and urban breakdown shows that MPI is highly underestimated in the rural areas as compared to the urban areas. Consistent with the previous results it can also be documented that equal weighting schemes underestimates the magnitude of poverty whereas, the intensity of poverty is usually higher in rural areas as compared to the urban areas.

**Table: 3 Estimates of MPI with Expert Opinion and Equal Weighting Schemes (PSLM 2014-15)**

Poverty Measure	Pakistan		Rural Pakistan		Urban Pakistan	
	Expert Opinion Weights	Equal Weights	Expert Opinion Weights	Equal Weights	Expert Opinion Weights	Equal Weights
MPI (M)	19	14.45	27.21	20.69	3.79	2.91
Incidence (H)	37.67	30.33	53.24	43	8.84	6.87
Intensity (A)	50.43	47.65	51.11	48.11	42.89	42.34

The evidence presented in Table 3 clearly shows that equal weighting scheme has underestimated the magnitude of multidimensional poverty at all levels. The difference in the estimates of MPI by applying expert opinion weights and equal weights shows the importance of weights in the estimation of multidimensional poverty. Therefore, all these findings suggest that weights play an important role in the estimation of poverty and the estimates of MPI are quite sensitive to the weighting scheme (Belhadj, 2012).

The Table 4 shows the estimates of MPI with three different weighting schemes. The weighting schemes are equal weights, expert opinion weights and frequency based weights.<sup>b</sup> The estimates of MPI at provincial level also confirm the earlier results. The Table 4 shows that the estimates of

<sup>a</sup> The MPI is also highly sensitive to change in any indicator of MPI, specifically any indicator in health and education dimension.

<sup>b</sup> The dimensional breakdown for expert opinion weight shows that education, health, and living standard dimension has 35.5%, 35% and 29.5% contribution respectively. While for frequency based weight, education has higher contribution.

provincial MPI have reduced when indicators are weighted equally. The equal weighting scheme has underestimated magnitude of MPI by 6.02% for Balochistan followed by 5.47% for KP and 4.72 % for Punjab. While equal weighting scheme has underestimated MPI by 3.33% for Sindh. The Table 4 also provides the estimates of MPI based on frequency-based weights. These weights are applied according to the contribution of each dimension in MPI. The highest weight is given to the education (50% weight), as it has the highest contribution in MPI (Cerioli and Zani, 1990).<sup>a</sup> While the indicators within the dimensions are equally weighted for health and living standard dimension. The details of weights are shown in Table A1 in Appendix. The comparison of the frequency-based weights and equal weights also shows that the poverty is underestimated with equal weights. The Table 4 shows that national poverty has been underestimated with a difference of 5.89%, rural poverty has been underestimated with a difference of 6.68% and urban poverty has been underestimated with a difference of 4.4% with equal weights.

**Table: 4 Estimates of Multidimensional Poverty Index**  
(Equal weights, Expert opinion weights and Frequency based weights)

Region	Equal Weights	Expert Opinion Weights	Frequency based weights
<b>Pakistan</b>	14.45	19	20.34
<b>Rural</b>	20.69	27.2	27.37
<b>Urban</b>	2.91	3.79	7.31
<b>KP</b>	22.03	27.5	28.45
<b>Punjab</b>	10.58	15.3	18.07
<b>Sindh</b>	17.67	21	22.82
<b>Balochistan</b>	32.78	38.8	37.18

Similarly, the frequency based weights show that MPI at provincial level has been over estimated with a difference of 6.42% for KP, 7.49% for Punjab, 5.15% for Sindh and 4.4% for Balochistan as compared to equal weights. It is evident from the table that there are three different estimates of MPI at national and provincial level for equal weights, expert opinion weights and frequency-based weights. Instead of providing only one estimate of MPI, this study provides a range of estimates of MPI. For example, the estimates of MPI at national range from 14.45% to 20.34% and the same is the case with rural estimates ranging from 20.69% to 27.37% while urban estimates ranges from 2.91% to 7.31%. All these estimates of MPI suggest the sensitivity of MPI towards different weighting schemes.

The Table 5 also shows that MPI along with its components has been over estimated when frequency based weights are used for the computation of MPI. The Table 5 shows that incidence (H) has relatively higher contribution in the increment of MPI. Decancq and Lugo (2008) argue that if individuals perform well in any dimension then the increase in the weights of that dimension

<sup>a</sup> The results are also computed by assigning higher weight to health dimension, the results are almost similar. However, the indicator's contribution shows that years of schooling has the highest contribution in MPI in Pakistan.



leads to the increase in total well-being index, if the transformed achievements in the dimension are greater than the total well-being. This increase in the estimates of MPI as compared to equal weights indicates that poverty is sensitive to the changes in weights. This increase in the incidence of poverty by increasing weights of dimensions also reflects the severity of the phenomenon of poverty in Pakistan.

**Table: 5 Estimates of MPI with Frequency Based Weights and Equal Weights (PSLM 2014-15)**

Poverty Measure	Pakistan		Rural Pakistan		Urban Pakistan	
	Frequency based weights	Equal Weights	Frequency based weights	Equal Weights	Frequency based weights	Equal Weights
MPI (M)	20.34	14.45	27.37	20.69	7.31	2.91
Incidence (H)	40.91	30.33	53.91	43	16.83	6.87
Intensity (A)	49.72	47.65	50.77	48.11	43.45	42.34

There is an important finding that education and health deprivations are contributing more in MPI. Therefore, there are higher estimates of MPI. It implies that multidimensional poverty in Pakistan is highly sensitive to the weights of dimension and indicators. The researchers argue that important dimensions of poverty should have higher weight as compared to the other dimensions (Ravallion, 2001; Cerelio and Zani, 1990). Interestingly, if we follow this weighting scheme, the estimates of poverty are convincingly higher. There is national and international consensus on poverty reduction as an overriding goal of development policy, but there is little consensus on the measurement method of poverty (Ladherchi *et al.*, 2010). Therefore, it is difficult to have an exact estimate of poverty. In Pakistan poverty is severe phenomenon with highest deprivations comes from the deprivation of education and health. So, the researcher should be careful about the choice of weighting scheme while providing estimates of multidimensional poverty, otherwise, it may not be possible to design effective policies for poverty reduction.

## Conclusion

The multidimensional view of poverty has gained much importance in the recent years. There are many methodological aspects of the measurement of multidimensional poverty, one of which is weights attached to the dimensions and indicators of MPI. This study focuses on the sensitivity of MPI in Pakistan by providing the comparison of equal weighting scheme of MPI with unequal weights. Three different weighting schemes are adopted from the literature of well-being indices and these are equal weights, expert opinion weights and frequency based weights.

The multidimensional poverty is estimated by Alkire-Foster methodology using PSLM-2004-05 and PSLM 2014-15. The results show that the estimates of poverty largely depend on the choice of weights. The poverty estimates ranges from 14% to 20% whereas equal weights underestimate the magnitude of poverty. Likewise, the inter-temporal comparisons revealed that poverty has reduced in Pakistan from 2004-05 to 2014-15, however, it is only in terms of magnitude of poverty. Moreover, the inter-temporal analysis of MPI reveals that the intensity of poverty has significantly lower contribution in the reduction of multidimensional poverty in Pakistan. Hence, the main

objective of the policy makers should be on the reduction of intensity of poverty. In that case, similar policies for all provinces will not help to achieve this objective. Therefore, the deprived regions of the country should be focused separately (especially the deprived areas of Balochistan) to target poverty. The regional allocation of resources should also be made according to the intensity of poverty.

The study concludes that the measurement of poverty is complex phenomenon in Pakistan and it is quite sensitive to the choice of weights. So, the researcher should be careful about the choice of weighting scheme while providing estimates of multidimensional poverty.

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