

The Impact of Education on Multidimensional Poverty across the regions in Punjab

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Abstract

The assessment of poverty in the multidimensional spectrum has become a growing concern of the developing world. This conceptual shifting encompasses the income denials to the lack of education, ill health, poor housing services and so on. In this methodological improvement, the achievement of education has been well accepted as key determinant of wellbeing. The present study aims to assess the educational deprivation and estimate the incidence of multidimensional poverty in Punjab. To carry out the primal objective of this research, the study estimated the contribution of lack of education in the incidence of multidimensional poverty in Punjab, including the both regions (urban & rural) and over the time, through the advanced method of identification of the poor in the multidimensional way out. The scheme of study so proposed is similar to the FGT class of poverty measures (FGT, 1984) but enlarged to some intuitive changes for accommodating the ordinal aspects of the attributes. To analyze the incidence of multidimensional poverty rather than income denials, three other dimensions (education, health, housing & services) were being considered on the basis of Household Integrated Economic Survey (HIES) and Pakistan Social & Living Standard Measurement Survey (PSLM) datasets for the year 1998-99, 2001-02, 2004-05, 2005-06 & 2007-08. The overall educational deprivation of the multidimensional poor segment during 1998-99 was found to be 60.8 percent, which significantly increased to 83.4 percent in 2001-02 but decreased as 72.4 percent in 2004-05 and again increased to 79.8 percent during 2005-06 along with little decline as 78.0 percent in 2007-08, whereas the incidence of multidimensional poverty during the same period was 48.6, 49.99, 40.80, 45.72 & 42.38 percent respectively over the time. Throughout the period under consideration educational deprivation as well as the incidence of multidimensional poverty was lowest in urban area. The present study highlights the role of education in alleviating the incidence of poverty while offering government some policy lessons for constructing Poverty Reduction Strategy Papers (PRSP,s) rather than merely addressing the monetric phenomenon and achieving the core objective of millennium development goals.

Key words: Education, Multidimensional Poverty, Punjab

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Introduction

In the international community the term human development progressed and goes beyond the economic growth that covers the multiple aspects of human wellbeing. In this context the achievements of education and human capital are essential for economic growth and have gained much weight in the mid of 90s due to the significant economic progress in the East Asian countries. Thus, being a key factor, education and poverty are related in a two prong way directly and indirectly, because the higher level of education not only increases the sources of earning or wages but also improves the income level. In the same way, according to Sackey (2005) education has a crucial role in the wellbeing of individual/ household.

Pakistan also has been the victim of this issue since its inception. Thus, the problem of poverty remained the burning confront in the history of the economy. Historically, Pakistan seems to have made good progress in the poverty reduction during the years of 1970s, but this period was also associated with a sharp rise in the income inequality, both regionally and functionally. However the overall national statistics of poverty have explained decline during the decade of 1980s, which reversed in 1990s and continued rising trend at the end of the last decade (Amjad and Kemal, 1997). The magnitude of poverty in both regions rural and urban increased over the period during 1998-99 to 2000-01 (Haq, 2004). The incidence of poverty increased from 30.6 percent in 1990 to 34 percent of the total population in 2005, due to multiple factors such as lack of education, large household sizes, Gender discrimination, cultural & social traditions, which tend to be poor. Contrarily, during the years of 2001-02 to 2005-06, incidence of poverty considerably decreased from 34 percent to 22 percent (CPRSPD., 2008).

In this context one third population of Pakistan has been classified as poor in 1999 and somewhat majority in the rural segment. The World Bank estimated that the social indicators like education and health depressed over the time as compared to the other countries having the same growth rate and exposed large regional disparities (World Bank, 2002). In this context, Pakistan is one of the three countries of Asia having the literacy rate less than 40 percent and also one of the few countries of the world, where illiteracy is increasing over the period as 28 million in 1972 and 46 million in 2005 (Siddiqi, 2005).

To analyze the role of education on poverty while meeting the international standards, this research is a unique effort at the divisional level in Punjab. The methodological framework based upon the traditional FGT class of poverty measures along with the adjusted structure. These new measurement approaches handles the cardinal as well as ordinal data to be taken from Pakistan Federal Bureau of Statistics,

Statistical Division Islamabad, for the years 1998-99, 2001-02, 2004-05, 2005-06 and 2007-08.

Review of Literature

Poverty is generally perceived as scarcity of resources to meet the materialistic needs and participate in the economic activities for living a tolerable life (Townsend 1970). The concept of development has progressed from conventional monetric terms to the achievement in the quality of human welfare including life expectancy, education etc, and illustrated the example of six countries with the introduction of broad capability approach. He explains that economic prosperity is one mean to enrich the living standard of the people and merely enhancing average economic lavishness (Sen 1990).

Mukherjee (2001) explains that the state of wellbeing is a multifaceted phenomena and the concept of deprivation goes beyond the income denial to the lack of several socio-economic attributes of life. Bourguignon and Ckavrarty (2002) concluded that the poverty of a person arises due to insufficiency of different necessities such as literacy, housing, health, provision of public services, etc., that are substantial contributor in the subsistence level of living. Alkire and Foster (2007) presented a comprehensive methodological framework for the measurement of multidimensional poverty that encompasses through education, health, housing, etc, and extended the FGT class of measures to accommodate the ordinal aspects of various attributes. Naveed and Islam (2010) used the set of twelve indicators for the assessment of multidimensional poverty in the two provinces (Punjab & KPK) of Pakistan while addressing education, health and nutrition, living standards/ housing, source of lighting, access to safe drinking water, sanitation, assets, livelihood, child status, source of cooking & air quality landholding and consumption. They critically examined the scorecard used for the identification of poor in the Benazir Income Support Program.

Education is primary weapon to eradicate poverty. The role of education at various level in Pakistan is analyzed by using the HIES data for the years 1998-99 & 2001-02 through logistic regression model and found negative relationship between the educational achievements and incidence of poverty during the both years. In the same way, an interim assessment of the World Bank (2001) highlighted the linkages of illiteracy, lack of health facilities, lack of access to other services, large family sizes, skewed pattern of land ownership, etc., with poverty in Pakistan and estimated the primary gross enrolment rate as 69 percent. According to Preece (2006) it is necessary to explore the linkages of education for the right understanding of poverty.

The study extended the concept of human poverty and describes the non-conventional ways to overcome the problem.

Nasir and Nazli (2000) identified a direct negative relationship between the educational achievements and level of wellbeing. They concluded that education "can increase the earning potentials of the poor and they become more productive. Similarly, Nasir (2008) explained the relationship of education and poverty by using the (primary data of Sargodha district and concluded by using the logit model in the study that education has substantial role in the reduction of poverty. He estimated the direct linear relationship between educational achievements and the earning level. Qureshi and Arif (2005) argued that educational achievement is a critical determinant of household poverty at various levels in Pakistan. They concluded a negative relationship between educational achievements and poverty at the national level. Chaudary et al (2010) analyzed the effects of different level of education and literacy on the incidence of poverty and found a considerable role of education by using the time series data of thirty five years from 1973-2007 in Pakistan.

Materials and Methodological Framework

Description of Data:

The study examines the role of education in the incidence of multidimensional poverty in Punjab by using the available information regarding household indicators in the Household Integrated Economic Survey (HIES)/ Pakistan Social and Living Standard Management Survey (PSLM) for the years of 1998-99 to 2007-08. To capture the problem, present study focused ten indicators through the three domains like as education, health & housing, whereas educational deprivation was estimated on the basis of two basic indicators i.e. years of education, can read & write in any language.

Multidimensional Poverty

Multidimensional poverty covers the multiple dimensions such as education, health and housing & services while presenting the broader view of wellbeing. The methodological shifting to the multidimensional poverty, give rise to the number of questions such as how many dimensions will be taken into consideration? How the weights will be given and what will be the cutoff point? After the seminal work of Alkire (2007) most of the issues have been taken into consideration. Thus, the measurement process of the multidimensional poverty is analogous to the traditional measures of poverty, but in the extended to the adjusted form to accommodate some of the ordinal aspects of data. The estimation scheme of multidimensional poverty can be broken down into two phases:

The Identification Phase

The identification problem employs dual cutoff method, where first cutoff is used with in each dimension to differentiate the deprived from non-deprived and the second cutoff is used across the dimension to distinguish the poor from non-poor.

The Aggregation Phase

The aggregation phase gathers the data regarding poor people and it is mainly accomplished by defining a poverty line while explaining the poor at the collective plate form (Alkire and Foster, 2008).

Dual cutoff Method

The first cutoff is used as the deprivation threshold. It explains the criteria for each dimension to declare the individual or household as deprived or non-deprived in that particular dimension. Generally first cutoff is denoted by “z”, where all the deprived level of achievements are normalized as “ $(z_i - y_{ij})/z_i$ ” and replaced with the positive non-zero values “1” for deprived and “0” otherwise. The second cutoff is used to dichotomize the sampled data as poor and non-poor people through constructing a vector by counting vertically each column and giving the number of deprivation of each person. The step was taken on the basis of trivial application of dimensional cutoff such as “k”. Consequently, the number of dimensions in which a person must be deprived in order to be categorized as multidimensionally poor should be greater than or equal to the cutoff point “k”.

Multidimensional Headcount Ratio

The multidimensional headcount ratio exposes the percentage of the poor population, where individual is the unit of analysis. It is denoted by “H” and achieved through the application of aggregate cutoff point “k”. The value of cutoff point “k” is derived through dividing the number of dimensions divided by 2 which is required to be declared as multidimensionally poor (Naveed and Islam, 2010). Alkire and Foster (2007) explains that “k” is an integer between zero and d (number of dimensions) to classify the poor i.e. $c_i \geq k$. The general formula for the estimation of multidimensional headcount ratio can be explained as below:

$$H(X; z) = \frac{1}{n} \sum_{i=1}^n \left[\sum_{j=1}^d g_{ij}(k) \right]^0 = \frac{q}{n}$$

Where, q = number of poor; n = total population of sampled data.

This is entirely parallel to the conventional measurement where headcount ratio “H” varies between zero to one. Though the multidimensional headcount ratio is

simply computed and easy to understand, but the measure has the weakness of being a crude and partial index of poverty (Bourguignon and Chakravarty, 2003). In addition to this, headcount ratio also violates the dimensional monotonicity and overall poverty remains the same as if the deprivations of a person increase.

Adjusted Headcount Ratio (M_0)

The adjusted headcount ratio explains the average deprivation gap that reflects the additional information of the breadth of deprivation experienced by the poor. Thus the adjusted headcount ratio is derived as the total number of deprivations of the poor divided by the maximum possible number of deprivations (Alkire and Foster, 2008). Alternatively, “ M_0 ” can also be calculated as the product of multidimensional headcount ratio “ H ” and average deprivation gap “ A ”, and it can be explained as below:

$$M_0 = HA$$

Where,

H =Multidimensional headcount ratio;

A = average deprivation gap which is calculated as $A = \sum_i (c_i^*/d)/q$

Properties of Adjusted Headcount Ratio (M_0)

The adjusted headcount ratio (M_0) is a suitable measure that runs with ordinal as well as cardinal data. The measure inherits the following important properties:

- i) It can be calculated for different groups of population i.e. province, region, profession, etc.
- ii) The adjusted headcount ratio is sensitive to the deprivations of the poor.
- iii) The measure can be adjusted for different sizes of groups; so as to give meaningful comparisons across the space and time.
- iv) It can be broken down by dimensions to identify the share of each dimension in the overall multidimensional poverty (Alkire and Foster, 2007).

The Scheme of Weights

The multidimensional scenario of the problem necessitates a satisfactory solution to the question of weighting. According to Krulik and Rutten (2007) the application of weights ideally reflects the relative importance of the different aspects. In this context, Nobel, et al. (2009) argues that the existence of separate dimensions

of deprivation enables the researchers to explicitly control the weights assigned to each of the domains. In the literature most of the studies follows composite indexes like as Human Development Index, assign arbitrary weights. According to Chakravarty et al. (2008) the appropriate method of weighting in the measurement of multidimensional poverty is to give the equal weights to each dimension. Two alternative methods have been frequently used in the literature i.e. 1) equal weight, which is justified when there is no compelling reason to weight one dimension more than the other (Foster, 2007); and 2) the nested weight, in which the weights are unequally distributed among the several dimensions. The present study adopted the equal weighting methodology among the three domains i.e. education, health, housing & services and also across the several attributes due to the absence of suitable justification.

Results and Discussion

Educational Deprivation and Incidence of Multidimensional Poverty

The estimation of poverty in the multidimensional spectrum exposes the wider and deeper information of the wellbeing and used for the targeted interventions. The study identifies the deprivation of education and its significant contribution in the incidence of multidimensional poverty at various levels. The problem of poverty necessitates the multi-strategic solution that encompasses through various socio-economic aspects for the effective policy intervention. The study in hand focused the issue at the provincial level along with the regional variation while highlighting the role of education in the incidence of multidimensional poverty across the divisions in Punjab.

Table 1: Educational Deprivation and the incidence of multidimensional poverty at divisional level in Punjab

Region	1998-99		2001-02		2004-05		2005-06		2007-08	
	H1	M0								
Rawalpindi	52.0	33.96	77.5	34.84	57.6	23.31	71.6	28.63	67.8	27.63
Urban	43.8	21.82	73.9	25.90	48.4	16.16	64.0	22.37	61.0	20.63
Rural	57.9	42.17	80.2	41.31	68.7	32.40	79.6	35.60	75.0	35.14
Sargodha	63.0	43.68	84.2	42.95	72.9	33.88	80.3	39.07	78.4	38.71
Urban	49.7	34.20	78.7	34.34	62.1	25.51	71.2	29.95	67.4	27.96
Rural	77.9	50.72	87.3	47.63	80.2	39.36	87.2	45.67	86.1	45.78
Faisalabad	61.8	43.02	84.9	42.09	72.6	34.38	80.2	40.61	77.2	34.84
Urban	52.2	33.27	77.7	30.85	65.0	27.28	70.8	30.11	70.9	26.63
Rural	68.5	49.47	90.8	50.59	78.5	39.91	87.4	48.40	82.1	41.30
Gujranwala	59.0	37.07	79.7	39.41	70.6	31.67	75.1	32.26	72.7	30.05
Urban	48.1	23.04	68.0	25.47	60.5	21.63	66.7	22.77	66.0	23.34
Rural	66.7	35.64	88.3	49.10	77.3	38.28	82.4	40.36	78.0	35.21

Lahore	59.4	36.81	81.5	39.22	69.5	29.16	79.3	36.92	77.3	36.02
Urban	45.7	23.45	71.9	26.79	59.3	20.84	69.1	27.15	69.3	25.82
Rural	73.1	48.82	92.0	51.92	79.9	32.65	87.8	44.79	84.5	44.74
Multan	68.7	44.51	88.1	46.22	78.4	38.98	81.1	40.02	83.4	37.38
Urban	54.9	33.14	77.0	34.32	64.4	27.10	70.5	29.14	75.7	28.02
Rural	75.7	49.98	94.5	52.67	86.0	45.11	88.2	46.97	88.9	43.82
D.G Khan	76.5	51.09	92.5	51.46	87.2	44.56	90.7	51.92	88.8	47.57
Urban	62.9	36.41	87.2	42.51	80.4	34.16	80.5	41.71	76.1	37.84
Rural	81.6	55.67	94.8	54.73	89.3	47.66	93.4	54.38	92.1	49.87
Bahawalpur	69.3	46.88	84.2	43.15	80.4	39.89	88.3	44.94	84.9	38.68
Urban	55.1	35.17	71.7	27.26	66.6	29.17	82.6	34.30	72.8	26.35
Rural	78.9	53.76	92.3	52.70	87.3	44.80	91.2	49.79	91.0	44.31
Punjab	60.8	40.14	83.4	41.86	72.4	33.75	79.8	38.35	78.0	35.56
Urban	48.0	27.17	74.4	29.69	60.5	23.41	69.9	27.68	69.0	25.62
Rural	70.1	48.64	89.9	49.99	80.8	40.80	86.9	45.72	84.4	42.38

The results explained in the Table-1 exposes that D.G Khan was the least affected division having 76.5 percent deprivation of education as compare to Rawalpindi where situation was 52.0 percent, but in both of the divisions the percentage increased over the time and reached to 88.8 & 67.8 percent respectively during 2007-08. In the same way in rest of the six divisions Sargodha, Faisalabad, Gujranwala, Lahore, Multan and Bahawalpur, the educational deprivation also increased over the period of study.

It revealed through the results that parallel to the illiteracy incidence of multidimensional poverty was also lowest in Rawalpindi which was 33.96, 34.84, 23.31, 28.63 & 27.63 percent during 1998-99, 2001-02, 2004-05, 2005-06 & 2007-08, whereas DD.G Khan was the poorest area having 51.09, 51.46, 44.56, 51.92 & 47.57 percent correspondingly during the years of the study. The regional bifurcation indicates in both cases (educational deprivation and incidence of multidimensional poverty) across the divisions rural situation was found to be worst than that of urban segment.

Interestingly, the incidence of multidimensional poverty also followed almost similar divisional ranking as that of the percentage of the educational poor over the time. Despite, the overall incidence of multidimensional poverty on average decreased, but the deprivation of education increased over the span of ten years (1998-99 to 2007-08). The declining trend of multidimensional poverty in the rural segment was more pronounced than urban, which is largely attributed to the agriculture sector. Particularly the declining trend was faster in the Faisalabad division that was majorly due to boom of the textile industry, increasing agriculture productivity and emerging higher education facilities like universities, medical

college, etc. The favourable factors for the sharp decline in the overall rural region were increasing trends of people towards higher education and other benefits of pro-poor growth strategies.

The lack of education and the incidence of multidimensional poverty was more common phenomenon in the rural region than urban. The main reasons for this horrible situation were the lowest quality as well as quantity of education, insufficiency/ absence of health facilities, poor housing environment, lack of improved resources of drinking water, limited road networks, imperfection of markets etc. These findings are parallel to Preece (2006) who extended the concept for deep understanding and also inline with the Bourguignon and Chakravarty (2002) who argued that poverty of a person arises due to insufficiency of different attributes such as housing, health, literacy, inadequacy of public services, income, etc. which are necessary to get the sustainable living standard. The higher insurgency of the educational deprivation caused the incidence of multidimensional poverty in the rural segment and the key determinacy of lack of education has also been found in the earlier studies like as Nasir, 2008; Arif, 2006; Nasir and Nazli, 2000, Qureshi and Arif, 2001, Chaudary et al., 2010, Jamal, 2009; Naveed and Islam, 2010 and so on. In addition to this, the other responsible factors for this problem are the agriculture based livelihood, large household sizes, limited non-farm employment opportunities (Datt and Jolliffe, 1999) and the increasing role of capital intensive technologies. However, the existing situation necessitates enhancing the literacy rate and raise the compatible growth between labour intensive agriculture and advanced non-agriculture sector for generating the farm as well as non-farm employment avenues in the rural sector (Arif, 2000). In addition to this the demographic characteristics i.e. large household size etc. also matters to keep the individual or household in the state of poverty (Chaudhry, 2009; Datt and Jolliffe, 1999; Arif, 2004).

The present study necessitates the improvements in the socio-economic aspects of life particularly in education to alleviate poverty particularly in the rural segment. In addition to this, the economic reform requires the gender equality, institutional innovations, provision of basic facilities, key improvements in the rural infrastructure like schooling, hospitals, banks, post offices, recreational activities and creation of non-farm farm employment opportunities i.e. ginning factories, juice factories, etc. along with the other disbursement programmes like zakat, etc. (Arif, 2006) and removal of traditional constraints that hinder in the way of curbing poverty. In this respect, the role of elected leadership is also a crucial element and it cannot be neglected while taking the anti-poverty initiatives across the region in Punjab.

Concluding Remarks and Policy Recommendations

Much work has been done to assess the incidence of poverty at the provincial and national level as well. As in the recent era the poverty concerns has been progressed to the socio-economic concept and it goes beyond the income denials to the lack of education and other basic necessities. In this way, there is an abysmal necessitation to address the issue through multiple domains particularly education which is the crucial determinant, while meeting the international standards and focusing the core objectives of the millennium development goals at various levels.

The present study encircles the importance of education in addressing the incidence of multidimensional poverty in Punjab by using indexing methodology. The data consistently shows that the incidence of multidimensional poverty was higher in rural area as compare to urban during the period of study. The results indicate the significant role of the education along with other regional & demographic characteristics for being in the state of poverty. Keeping the above analysis in view, following policy options can be used to wipe out poverty at the provincial as well as regional level.

- i. There is a terrible need to address on the education dimension of the poor as the human capital plays vital role to improve the wellbeing and enjoy the better livelihood opportunities. In this respect, different measures like as free primary education and other such facilities may also be helpful to improve the literacy rate.
- ii. The Government should create the non-farm employment opportunities through improving the technical education, on job training, etc., particularly in the rural segment of the population.
- iii. There is an awful need to address the health indicators to reduce the incidence of multidimensional poverty in general and particularly in the most affected areas of Pakistan. The solution necessitates the increase in the number of well equipped hospitals along with adequate trained staff particularly in the rural segment of the population.
- iv. To make sustainable development in the agriculture sector, it requires at the one side to subsidize the agricultural inputs like seeds, fertilizer, agriculture equipments etc. and at the other hand it needs market security, especially for the lower as well as medium class farmers. The availability of interest free loans and agricultural equipments may also be helpful for the rural sector to increase the productivity and non-farm employment opportunities.

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