Mapping Multidimensional and Income Poverty using Pakistan Panel Household Survey (PPHS)

Saqlain Raza

Supervisor: Dr Nasir Iqbal

Pakistan Institute of Development Economics (Islamabad)

Pakistan Institute of Development Economics

CERTIFICATE

This is to certify that this thesis entitled: **"Mapping Multidimensional and Income Poverty using Pakistan Panel Household Survey (PPHS)"** submitted by Mr. Saqlain Raza is accepted in its present form by the Department of Economics, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of **Master of Philosophy in Economics**.

External Examiner:

_____
Dr. Abdul Sattar
Associate Professor
Bahria University
Islamabad

Supervisor:

_____
Dr. Nasir Iqbal
Associate Professor
PIDE, Islamabad

Head, Department of Economics:

_____
Dr. Attiya Y. Javid
Professor/Head
Department of Economics
PIDE, Islamabad

Abstract

This study attempts to examine the theoretical relationship between income poverty and multidimensional poverty, and to explore the empirical linkages and discrepancies between these two types of poverty measures using Pakistan Panel Household Survey (PPHS) dataset.

Income poverty measure indicates that incidence of poverty has declined 27.5% (2001) to 20.7% (2010). While multidimensional poverty declined from 75.46% (2001) to 35.98% (2010). Dynamics perspective results highlight that incidence of multidimensional poverty is higher than incidence of income poverty. The result indicates that there are about 75% households of total population facing multidimensional poverty which is higher than those households who are facing income poverty (38%) over this extended period of time. Other results indicates that the proportion of population that is moving into poverty pool and moving out of poverty pool is higher in Sindh and Southern Punjab than in central-north Punjab by using income poverty approach.

Multidimensional poverty approach results revealed that there is a significant decline in the incidence of headcount poverty rather than intensity of poverty. Results of dynamics of multidimensional poverty approach reveals that there is more than 50% households of the total sample are transitory poor during 2001-10. A little attempt can reduce the multidimensional poverty significantly by focusing on child school attendance, quality of education, assisted delivery and sanitation issues.

The result indicates that there is no significant association between the gender of household head and the dynamics of poverty according to both poverty approaches. Association between age of the household head and poverty dynamics is significantly according to income approach while it is insignificant according to multidimensional approach. According to both poverty approaches, there is a significant and negative association between the education of the household head and dynamics of poverty. Family size is significantly associate with poverty dynamics but this association is positive in case of income approach while this association in negative according to multidimensional approach.

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CHAPTER 1

1.1. Importance of the Study

Eradication of poverty was the first millennium development goal (MDG) agreed by the all members countries of the UN in 1990. The changing development paradigm from MDGs to SDGs puts poverty at the forefront. Ending poverty in all forms and dimensions by 2030 is the first goal of the Sustainable Development Goals (SDGs). This emphasizes the importance of poverty elimination in developing prosper society.

Different poverty definitions span different "Spheres of concerns", each poverty is not measured easily but there is concrete reason behind each definition. Literature highlights the different aspects of poverty like income/monetary poverty approach, capability deprivations approach, exclusion and participatory approaches. All these poverty approaches are distinguished among each other on the basis of different arguments like unit of analysis, subjective method or objective method, spheres of concern, poverty line, absolute or relative approach and time horizon (Laderchi, 2003).

The journey for the identification of poverty measure highlights the monetary and capability approach in literature. From the perspective of basic needs, the World Bank defines poverty as deprivations in well-being and defines the poverty line as the income needed to meet the basic needs of the "shopping basket" (World Bank 2000). According to Amartya Sen, however, poverty refers to deprivations in basic capabilities of the individual or family; the deprivation of basic capabilities is multidimensional and includes premature death, obvious malnutrition, persistent disease and widespread illiteracy, etc. One should understand deprivations in basic capabilities with reference to people's actual living and empowerment. Such capabilities are intrinsically and also instrumentally valuable: enhancing poor people's

basic capabilities through education and health care will increase their productivity and income (Sen 1999). Therefore, multidimensional poverty measurement based on basic capability can more accurately reflect the real circumstances of poverty, and the measurement of poverty should be multidimensional (Alkire 2002, Alkire and Foster 2007 and 2011, Wang and Alkire 2009).

Monetary poverty approach was initiated for the poverty measurement by the inspirational studies of Booth (19th century) and Rowntree (20th century). According to monetary approach, the disparities among population are captured by consumption level or income level at market prices. The use of monetary poverty measure approach can be justified in two different ways (i) the minimum right approach (ii) use of monetary poverty approach (consumption or income) is often appreciated *not* in terms of that monetary resources calculate utility (Atkinson, 1989). Sen (1976, 1985, 1997 and 1999) criticized monetary poverty approach by introducing Capability Approach (CA). Sen indicates that the economic well-being of an individual not only depends upon the income level but it is gained by its capabilities and functioning's which include health, nutrition's and opportunities. Sen also argues that these functioning not only depends on private commodities owned by an individual but also depends upon the publically provided and ability of an individual to use them. That's why economic well-being is considered as a multidimensional phenomenon.

No doubt there is theoretical link between monetary poverty approach and multidimensional approach. Supa (2016) indicates that when income level of an individual increases then the human well-being increase in both monetary and non-monetary terms. Literature reveals that a movement from monetary poverty approach to multidimensional poverty approach usually leads by markets failure or incomplete markets (Wang 2016).

1.2. Motivation of the Study

The poverty trend indicates that over the last two decades there is a significant decline in the poverty level. In 1990, half of the population was lying in poverty (less than $1.25 a day) in the developing countries but recent data indicates that this proportion has declined by 14% till 2015. Globally, this poverty level also declined by 1.9 billion in 1990 to 386 million in 2015. It is evident that Pakistan has succeeded to reduce headcount poverty from 64.4 percent in 2000-01 to 24.3 percent in 2015-16[1] (GoP, 2017). In contrast, there is no significant improvement in social indicators such as health, education and assets (Nawaz & Iqbal, 2016; Iqbal & Nawaz, 2017). Similarly this trend of poverty also declined 64.3% in 2000-01 to 36.8% in 2010-11 and reached at 19.7% in 2014-15 by using multidimensional approach.

Oxford Poverty & Human Development Initiative (OPHI) checked the Multidimensional Poverty Index (MPI) of 104 countries which covered about 78 percent world's total population by using household level data. The results calculated by income poverty and MPI are quite different. Like, in Pakistan, multidimensional poverty (51%) is higher than income poverty (23%). In Ethiopia, multidimensional poverty (90%) is higher than income poverty (39%). Sometime countries are wellbeing in different indicators but income is still low, which enhance the income poverty. Like, in Tanzania, 89% are extreme income poor but 65% MPI poor. According to MPI, half of the world's poverty exists in South Asia (51%) but the intensity of poverty in greatest in Sub-Saharan Africa (64.5%) then South Asia [Alkira and Santos 2010]

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1 These estimates are based on new poverty line calculated using Cost of Basic Need (CBN) approach. Using CBN approach, the poverty line is Rs. 3030 per adult equivalent per month using HIES 2013-14 data. While using old Food Energy Intake (FEI) methodology, poverty has declined from 34.4 percent in 2000-01 to 9.3 percent in 2013-14.

In addition there is the need to get a better understanding of the empirical properties of the MPI, and its empirical correlation with money-metric poverty. It is also important to look the transitional dynamics of poverty based on money matric and multidimensional. It can be argued that money matric measures is more sensitive to external situation while multidimensional is static in nature. This needs to be investigated using panel data at household level. It will help to identity the shocks which are linked with money matric as well as multidimensional approach.

Various research questions emerge from this discussion: What is the relationship between income poverty and multidimensional poverty? What is the cause of multidimensional poverty? What are the differences in the transition rates in two different approaches? Which one is more sensitive? This thesis tries to answer these questions using Pakistan Panel Households Survey (PPHS)

1.3. Objective of the Study

This thesis compares the income base poverty with a multidimensional poverty index in Pakistan using Pakistan Panel Household Survey (PPHS). More specifically, following are the objectives:

1. To construct multidimensional poverty index (MPI) using Pakistan Panel Household Survey (PPHS)

2. To compare the income base poverty with a multidimensional poverty index in Pakistan

3. To explore discrepancies between these two types of poverty

4. Find the transitions rate among two different approaches

1.4. Significance of the Study

Conventionally, poverty is seen through the means of unidirectional factors which embedded with monetary indicators such as income and expenditure approaches. Intuitional and logical reasoning is observed by the proponent of unidirectional money-metric approach that potential purchasing power leads households to enjoy wealthier and healthier life by dint of having higher income or efficient purchasing power (Townsend, 1970; World Bank, 2000; Laderchi *et al.*, 2003; Rao, 2006). In 1990, about half of the population was lying in poverty (less than $1.25 a day) in the developing countries but recent data indicates that this proportion has declined by 14% till 2015. Globally, this poverty level also declined by 1.9 billion in 1990 to 386 million in 2015 (MDGs Report 2015). The proportion of the world's workers living with their families on less than $1.90 per person a day declined significantly over the past two decades, falling from 26.9 per cent in 2000 to 9.2 per cent in 2017.

However, during the last 15 years multidimensional poverty measurement has advanced significantly (Tsui, 2002, Bourguignon & Chakravarty, 2003, Alkire & Foster, 2011a). Moreover, a consensus that poverty is multidimensional seems have emerged (Ravallion, 2011, Alkire & Foster, 2011b, Ferreira, 2011). Important as it is, this agreement neither implies a particular conceptual framework nor a specific method for measurement. Nevertheless, multidimensional measures, in general, and the Alkire-Foster method in conjunction with the capability approach, in particular, are attracting more and more attention e.g. Alkire & Santos (2014), UNDP (2010). Similarly this trend of poverty also declined 64.3% in 2000-01 to 36.8% in 2010-11 and reached at 19.7% in 2014-15 by using multidimensional approach.

Relative performance of multidimensional and conventional income-based methods is quite surprising for both developing countries. Pakistan, multidimensional poverty (51%) is higher than income poverty (23%). In Ethiopia, multidimensional poverty (90%) is higher than income poverty (39%). Sometime countries are wellbeing in different indicators but income is still low, which enhance the income poverty. Like, in Tanzania, 89% are extreme income poor but 65% MPI poor [Alkira and Santos 2010].

According to some socialist and policy makers, poverty is an input if it consists a metrics of well-being indicators. According to others, it is output if it rely on endowment and choices. This nature of duality helps to distinguish between money metric approach and multidimensional approach. Money metric approach capture the poverty when it is considered as output while Multidimensional approach captures the poverty when it is considered as input. The careful comparison of income base poverty measure and multidimensional poverty measure reveals the paramount importance. There exists a significant variation in the trend or dynamics of poverty, target group of population, conclusion and policy under the comparison of these two different measures.

The significance of this study is to compare the two different poverty approaches i.e. income poverty and multidimensional poverty by using same dataset. This study will also compare the transition rate among two different poverty measures. Finally, this study will compare the determinants of poverty dynamics based on these two different poverty measures.

1.5. Data and Methodology

Pakistan panel household survey (PPHS) dataset is used in this study. This dataset was collect under a project covering a wide range of socio-economics and demographic topics with the collaboration of World Bank and Pakistan Institute of Development Economics

(PIDE). This survey covers three round named as PRHS-I (2001), PRHS-II (2004) and PPHS-2010. There are two types of methodologies are used in this study. First methodology is the multivariate analysis which captures the income poverty/uni-dimensional and second methodology is the Alkire and Foster methodology which estimate the multidimensional poverty.

1.6. Organization of Study

The study is organized as follows. Chapter 2 reveals the theoretical review of income poverty and multidimensional poverty and also highlights the literature review related to Income poverty, Multidimensional poverty and dynamics of poverty. Chapter 3 highlights the overview of poverty profile in Pakistan. Chapter 4 covers the methodological frame work used in this study. These are two methodologies have been used in this study. First methodology is the multivariate analysis which captures the income poverty and second methodology is the Alkire and Foster methodology which estimate the multidimensional poverty. Chapter 5 explains the data source. This chapter also explains the list of variables, indicators, dimensions, cut-off and weights used in multivariate analysis as well as in Alkire and Foster methodology. Chapter 6 explains the estimation results. These estimation results are divided into three sections. First section provides the results for the income poverty, second section provides the results for the multidimensional poverty and the last section provides the result for the comparison of both poverty measures i.e. income poverty measure and multidimensional poverty measure. Chapter 7 highlights the conclusion of the study and gives recommendations for policy.

Chapter 2

Theoretical and Literature Review

2.1. Introduction

This chapter presents the theoretical review of different poverty measure and transition of absolute poverty measure to multidimensional poverty measure. Section 2.2 indicates the poverty profile related to absolute poverty and multidimensional poverty in Pakistan.

2.2. Theoretical Review

2.2.1. Income Poverty/Money Metric Approach

The most commonly used approach for the identification and measurement of disparity is the Money metric approach. This approach identifies the poverty by looking at income level or consumption level. Laderchi *etal* (2003) has argued that poverty is a better way to measure the well-being by either income or expense. According to this approach, market price is used as a proxy to find the consumption and components of income. The validity of money metric approach depends: (a) is well-being captured accurately by utility level (b) is money metric approach is satisfactory measure of utility.

The money metric approach was explored by seminal work of Booth and Rowntree. They studied the poverty in London (19th) and New York (20th) respectively. Booth's study explored that one third of the total population of London was poor in 1887. He collected the data by using school board visitors and then classified into eight groups. His classification went beyond a pure monetary identification of the poor. While Rowntree's (1992) first time estimated the poverty line by using money metric approach. He used the nutritional requirement and also the used the clothing and rent. His results indicates that 30% of total population of New York is facing the poverty.

The most obstinate financial and social issue of twenty first century in developing countries is poverty. Before poverty was just identified with income and remained focal point of the idea, yet income itself is a more problematic thing than poverty and should be explained carefully and absolutely to recognize poor people. According to theory, annual income gives an image of a household economic capacity. But it is a partial view of picture, there exists assets etc. which affects the wealth and influence the living standard of a household. Other argument is that income level changes form one year to the next year but the living standard remain the same due to saving.

It is unquestionable in reality that economic and social wellbeing of an individual or a household increases with increase in income and consumption. (Maltzahn and Durrheim, 2007); however issue of non-accessibility of non-monetary markets and imperfection also exist in the meantime. The disadvantage of income approach is connected with non-monetary qualities because it can neither be purchased nor be valued. (Thorbecke, 2005). Expenditure level is more stable measure for poverty then income level because it reflects the concept of permanent income instead of actual income (Maltzahn and Durrheim 2007), (Bourguignon and Chakravarty 2002). But this measure has also its own disadvantages. Like the data of expenditures is collected weekly, monthly or quarterly and then transformed into annually which can cause a measurement error. This approach indicates that all those household which have same income level have same standard of living which became a criticism on that approach.

2.2.2. Multidimensional Approach

Currently, multidimensional approach is being used to estimate the poverty, which is based on a basket of goods and services considered as a minimum requirement to live a non-

impoverished life is valued at the current prices. People who do not have an income sufficient to cover that basket are deemed poor. Multidimensional dimensional poverty is used as a welfare measure of any economy. It covers the welfare in many aspects like education, housing, assets, health status etc.

Chakravarty (2008) argued that Poverty is generally acknowledged as multidimensional fact in the current literature the term not only covers the money related matters as well as different dimensions, for example, literacy, shelter, health and so on, to provide best possible figure of individual or household wellbeing.

First of all the concept of multidimensional poverty index was introduced by Peter Townsend (1979), Mack and Lansley (1985) and Callan *etal* (1993).

Townsend (1979) constructed multi-dimensional deprivation index using sixty indicators of necessities. He selected twelve out of these sixty indicators regardless of age and gender. He gave the same weightage to each indicator. He assigned a value 0 if a household is deprived in zero indicator, assigned 1 if a household is deprived in one indicator and so on successively. He used income level as a threshold where deprivation of household increased outrageously or where well-being of a household declined drastically. Mack and Lansley (1985) constructed a new multi-dimensional deprivation indicator using eighteen out of thirty five indicators. These indicators were determined or confirmed from interviewers themselves. He classified a household as a poor if he is deprived in any three indicator out of these eighteen indicators. It measure was used as a direct measure of deprivation. Callan *etal* (1993) looked at poverty in a new perspective. They checked a link between the monetary poor (income poverty) and material poor (material living condition). They used 24 indicators and distributed them into three dimension by using factorial

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analysis. These three dimension were "dwelling and durable goods", "basic" and "social aspect and others". They used the same criteria of multi-dimensional deprivation to make distinguish between poor and non-poor. The results indicates that those people were classified as monetary poor, it's not necessary they were also material poor. Similarly, those who were classified as material poor, it's not necessary they were also monetary poor.

2.2.3. Dynamics of Poverty

The study of economic mobility also depends upon the poverty movement. There is a lot of knowledge that is determining the static poverty but it is not enough to give a right picture of any household over the extended period. Poverty trend and poverty dynamics are two different concepts. Poverty trends discuss the overall poverty changes and under this process specific household is not taken under consideration. While in poverty dynamics the same household is taken under observation over a specific period. The dynamics of poverty is as necessary as the measurement and reduction of poverty is necessary in any country. But the dynamics of poverty has got less attention in literature as well as policy insight especially in Pakistan which can be used to determine the chronic or transitory. Transitory poor can change over the period by falling into or moving out from the poverty pool while chronic poor can be defined as those who are remaining persistent over the period in the poverty trap. Static studies are available that have been done to capture the well-being of a household. The purpose of this research is to distinguish between dynamics of poverty in perspective of money metric approach/income approach and multidimensional approach. This will help for the investigation of a well-being that how much households are moving into and how much household are moving out of poverty pool according to both approaches. Literature indicate that the dynamics of the poverty can be captured by using two different approaches i.e. spell

approach and component approach. Spell approach capture the dynamics of poverty by using spell. It also indicates the transition from one welfare point to another welfare point. And component approach check the dynamics of poverty by using permanent part of income or consumption.

2.3 Literature Review

2.3.1. Introduction

This chapter presents the literature review of the study regarding income base poverty, multidimensional poverty and also contain the literature review on the dynamics of poverty. Section 3.2 indicates the review of literature on income base poverty. Section 3.3 represents the literature review on multidimensional poverty. Section 3.4 reveals the literature review related to dynamics of poverty in perspective of income base poverty and multidimensional poverty. This section also contain some studies that reveals the comparison between income poverty and multidimensional poverty in perspective of static analysis and dynamics analysis. Final section 3.5 reveals the conclusion of the literature review and literature gap of the study.

2.3.2. Literature on Income Poverty Approach

McCulloch and Baulch (2000) distinguished the chronic and transitory poor of rural households by using the IFPRI food security panel of households. This survey is covering 686 households in 52 villages. This survey is consisting along with four districts of Pakistan i.e. Attock, Badin, Dir and Faisalabad. The dynamic of poverty has been checked during 1986 to 1991. Ordered and Multinomial Logit technique has been used to distinguish among chronic and transitory poor. The result indicates that the household size increased significantly over this extended period of time i.e. from 8.7 members in 1986 to 10.7 members in 1991. The estimation result indicates that by using Rs.2000 as a poverty line in

1986, 400 households out of 686 faced at least one time severity of poverty in this time duration. Among which 295 household were transitory poor and 105 household were chronic poor.

Kimsun and Sokcheng (2013) checked the role of income diversification during global economic and financial crisis. This study was done in Cambodia consisting nine villages. A panel data set of four years (2001, 2004, 2008 and 2011) has been selected to check this rural diversification. Herfindahl index measure has been used to measure the share of income from different source of earnings of a household. Both fix and random effect models have been used for the analysis of this purpose. The result indicates that the household that are based on the agriculture sector were more diversified in income then the other households due to this financial crisis. Households with high income are able to absorb the socks due to their diversified income portfolio. The result indicates that there exists a significant and positive impact of per capita consumption on income diversification.

Naseem (1973) estimated the poverty level in Pakistan for the first time by using the HIES data for the years of 1963-64, 1966-67, 1968-69 and 1971-72. Money materic approach has been used to describe the various trends of poverty and highlighted the fluctuations in rural & urban per capita income. The study analyzed that the rural per capita income increased during the decade of sixties due to green revolution in agriculture sector. The urban income was significantly higher than the rural region. The incidence of poverty was estimated using the arbitrary levels of per capita expenditure and income which were Rs. 250 and Rs. 300 per annum for rural and Rs. 300 and Rs. 375 for urban areas and a substantial decrease was observed in the rural poverty.

Kedir and McKay (2003) estimated the chronic poverty in urban Ethopia by using expenditure approach. Three waves of Ethopian Urban Household surveys (1994-97) have been used to check dynamics consisting 1500 households. The result indicates that households face more chronic poverty (25.9%) in central and northern regions than transitory poverty which is about 23%. The results also indicates that there are many factors like household composition, unemployment, lack of asset ownership, casual employment, lack of education, ethnicity, age and to a certain extent to female-headedness that leads to the chronic poverty.

Lanjouw (2004) checked the poverty and inequality in Morocco based on geographical differences. For this identification of this deprivation at micro level, combination of two surveys has been used i.e. Censes data of 1994 and Household surveys of 1998. Two poverty lines have been used to distinguish between poor and non-poor; 3037 dirhams per capita per year for rural areas and 3922 dirhams per capita per year for urban areas. The result indicates that overall national head count poverty rate was around 17%. The result indicates that there exist high level in inequality among communes in Morocco. This heterogeneity is higher in rural areas rather than urban areas. The poorest rural communes in Morocco are Gharb-Chrarda-Beni-Hssen, Meknes-Tafilalet, and Fes-Boulemane containing 27% head count ratio; Grand Casablanca is richest commune in Morocco containing 4.1 % head count ratio.

Anwar and Qureshi (2003) checked the absolute poverty trend during 1990-91 and 2001 in Pakistan. For the investigation of this purpose, Foster, Greer and Thorbecke (1984) poverty measure technique has been applied on data of Household Income and Expenditure Survey (HIES) and Pakistan Integrated Household Survey (PIHS). The result indicates that poverty trend increases over this extended period of time. There was 17.2% poverty in 1990-91 at

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national level and this increases up to 30.4% in 1998 and reached at 35.6% in 2001. While looking al rural poverty this trend increases from 32.11% to 41.02% and urban poverty trend increases marginally from 26.39% 26.47% over this extended period of time.

Siddiqui and Kemal (2006) stated that Pakistan is a capital-scarce country which mainly depends upon the foreign capital inflow (FKI). The foreign capital inflow affects the poverty level in the economy whether the labor is homogeneous or heterogeneous. The computable general economic (CGE) model for Pakistan is used to capture the impact of FKI on poverty in the presence or absence of trade liberalization. The result shows that the poverty level in the economy of Pakistan is declined when labor homogeneity exists in the presence as well as the absence of trade liberalization. On the other hand when there exists the labor heterogeneity in the economy, the poverty level increases in the absence of the trade liberalization and level of poverty decreases in the presence of trade liberalization.

Amjad *etal* (2008) analyze the poverty profile in rural Punjab by using head count ratio. For this purpose, Sustainable Livelihood in Barani Area Punjab (SLBAP) project data has been used; which is covering 647 households in ten districts of Punjab. The poverty profile was calculated by using 40 food and non-food items. According to this survey, Punjab was divided into three different zones like Barani Punjab, rice/wheat zone and low intensity zone for a vivid poverty profile picture. The result indicates that overall poverty incidence in Punjab was 19.2% in 2007. The incidence of poverty in Barani Punjab was 15.6%, in rice/wheat zone was 22.6% and in low intensity zone was 18.9%.

Siddiqui and Kemal (2006) checked the change in poverty level from trade liberalization and remittances in Pakistan by using the computable general economic (CGE) model. The result indicates that the poverty level declines in both rural as well as urban areas in Pakistan when

there is tariff reduction in the absence of a decline in remittances. Head count, poverty gap and severity ratios measure are used to capture this affect. This results in the increase in household welfare. The welfare gain in urban areas will be larger than the rural areas. Another result indicates that the poverty level increases in the urban households as well as the poverty level decreases in the rural household in Pakistan when there is trade liberalization in the presence of a decline in remittances.

2.3.3. Literature on Multidimensional Approach

Awan *etal* (2012) observed the multidimensional poverty and inequality in Pakistan by using Pakistan Social and Living Standard Measurement (PSLM) survey data for two time periods (2005-06 and 2010-11). For the purpose of multidimensional inequality, the Gini index has been used based on three indicators which are equivalent per adult expenditures, maximum years of schooling and health risk index. For the purpose of multidimensional poverty, Alkire and Foster (2007) approach has been used based on nine indicators. The result indicates that health and education have major share (28% same for both) in the contribution of multidimensional poverty. The result also indicates that this poverty trends has declined over this extended period of time. Inequality in monetary term has declined more than multidimensional poverty during this time period. Other result indicate that this inequality in health is increasing over the period.

Alkire, S. & Apablaza, M. (2016) estimated the multidimensional poverty in Europe. For the identification of deprivation, the EU-SILC dataset of seven years (2006-2012) has been used by applying the Alkir Foster (AF) methodology. The result indicates that during this time phase the multidimensional poverty decreased in Europe. The dataset indicates that the severity and the depth of the poverty vary across the countries. The result also indicates that

sixteen countries show the reduction in poverty but this reduction is more significant only in five countries out of sixteen which are (Czech Republic, France, Latvia, Poland and Slovenia). On the other hand, dataset indicates that the disparity increases in six countries but it's more significant in three countries which are (Greece, Portugal and Sweden) over this extended period. While is poverty level is reduced in first half period of time and this poverty level is increased in last half period of time. The dataset also indicates that North Europe is showing less disparity among all other regions.

Khan (2011) measured the multidimensional poverty by using modified and adjusted FGT econometric technique. The analysis was static as well as dynamic. This study used five data sets of PSLM/HIES, which are 1998-99, 2001-02, 2004-05, 2005-06 and 2007-08. There have been used different dimensions like health, education, housing and services to capture the multidimensional poverty. Overall result indicates that multidimensional poverty declined 43.34 percent in 1998-99 to 38.31 percent in 2007-08. It revealed that decline of multidimensional poverty in urban areas was more than rural areas of Pakistan. The result indicates that Sindh rural is only region where multidimensional poverty increased over the period. While declining trend of this incidence of multidimensional poverty was higher in Punjab then Sindh. The result also indicates that there was only Blochistan province who remained worst in all dimensions for the reduction in multidimensional poverty. Balochistan contributes the highest proportion in multidimensional poverty in both rural and urban areas in 2007-08. Multilogistic analysis has also been used to check probability of incidence of poverty by household size, age, gender, education, etc.

Vijaya *etal* (2012) estimated the multidimensional poverty in India. Arthurs were keen to investigate the poverty at individual level instead of household level. Karnataka Household

Asset Survey (KHAS) has been used for this purpose which consists of 3400 households. Four dimension have been taken under consideration for this identification which are empowerment, health, durable good and education. The result indicates that there exists inequality within the household. 25% of household were multidimensional poor when looked at household level and 22% individuals were multidimensional poor when looked at individual level. This derivation was almost same when it was observed in case of gender wise at household level. But there was a large difference when it was observed at individual i.e 70% women poor as compared to 30% men poor. Large gender differences in poverty are also highlighted using the individual level analysis. At 68 per cent, the poverty rate among women is more than double the poverty rate among men (30%) with the consequence that the majority of the poor are women (71%).

Awan *etal* (2015) checked the multidimensional poverty in Pakistan by applying Alkire and Foster (2007) methodology on the Household Integrated Economic Survey for two time periods 2005-06 and 2010-11. Four dimensions have been used for this identification; expenditure, education, health and living standard. The results indicate that this poverty trend has been decreased during this extended period of time. The overall multidimensional poverty declines from 51% in 200-06 to 34.86% in 2010-11. The dimension of health and expenditure declined their share in MPI while other two dimension (education and living standard) increased their share in MPI over this extended period of time.

Majeed and Malik (2014) checked the determinant of poverty by using the household characteristics and personal characteristics of the household head. The data of Household Income and Expenditure Survey (HIES) 2001-02 has been used for the purpose of this measurement which was collected by Federal Bureau of Statistics (FBS) of Pakistan

covering four provinces: Punjab, Sindh, Balochistan and NWFP. A logistic regression technique was used to estimates the determinants of poverty. The result indicates that incidence and severity of poverty level is positively affected by household size, heads age, male-headed household while incidence and severity of poverty level is negatively affected by education level of households head, experience, agriculture as employment status, staying in urban areas and remittance receiving.

2.3.4. Literature on Dynamics of Poverty

Suppa (2016) compared the dynamics poverty in perspective of income base poverty and multidimensional poverty in Germany. The dataset of German Socio-Economic Panel (SOEP) for two years i.e. 2007 and 2012 has been used to tackle down the dynamics of poverty. Alkire and Foster methodology has been applied for the estimation of multidimensional deprivations. Six dimensions have been used to estimate the dynamics of poverty i.e education, housing, health, precarity, social participation and employment. The results highlights that there are 34.17% households are consistent poor in both poverty measure i.e income poverty measure and multidimensional poverty measure. There are only 20% household that lie in the category of transitory poor. This study reveals that the multidimensional poverty reduces with the increase in individual income by some extent but at decreasing rate. This study also reveals that there is no association or clear-cut linkages among these two poverty measures. This result of study also reveals that multidimensional poverty is better measure reflecting well-being of a household.

Wang *etal* (2016) highlighted the theoretical relationship, empirical linkage and discrepancies between two different poverty measures i.e. income base poverty measure and multidimensional poverty measure. China Health and Nutrition Survey (CHNS) for the

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period of 2011 has been used to capture the objective of the study. The survey covers the sample of 3784 households consisting twelve province. In t this study the unit of analysis is household. Alkira and Foster measurement technique has been used to estimate the multidimensional poverty by using the six dimensions of deprivations education, health, housing, water and sanitation accessibility, energy and consumption of durables commodities. The result indicates that income is not only a factor that effect the basic human capabilities. The estimation result indicates that 31 percent households of total sample faced the income poverty and multidimensional poverty. In other word, proportion of households that lie in the only in the category of multidimensional poverty are 69 percent instead of income poverty. Final result of this study reveals that increase in income of household decreases the incidence of multidimensional poverty but this impact exists to some extent. Tran (2015) compared the income poverty/monetary poverty and multidimensional poverty in perspective of static analysis as well as dynamics analysis. A panel household dataset of Vietnam for the period of 2007, 2008 and 2010 has been used to estimate the dynamics of poverty according to these two poverty approaches i.e. income poverty and multidimensional poverty. Static analysis results indicates that household who are poor in monetary approach is not necessary to be poor in multidimensional approach. This dataset indicates that there is about 50 percent households of total sample who are poor in the both poverty approaches. The estimation results indicates that multidimensional poverty is more stable than the monetary poor over this extended period of time. From policy point of view, it indicates that economic growth influence monetary poverty immediately instead of multidimensional poverty.

Sen (2003) analyzed those factors that puts household into poverty and out of poverty. A panel dataset has been used which covers 21 villages consisting 379 rural household of two rounds 1987-88 and 2000 in Bangladesh. The identification of households is done through a multistage stratified random sampling method. The standard Foster, Green, and Thorbecke (1984) poverty measure is used to check the wellbeing in three dimensions which are the incidence, the depth and the severity of poverty of the households. The results indicate that the poverty level is decreased by 57% to 49% using headcount poverty. Dynamics of poverty has been checked by splitting the households into four groups. The first group is the "always poor" household in both rounds which are 119 households (31% of total sample). The second group is the "never poor" households in both rounds which are 95 households (25% of total sample). The third group who escaped from poverty is named as "ascending households" which are 98 households (26% of total sample). The factors that become a reason to escape from poverty are changes in demography, changes in human assets, changes in physical assets, changes in financial assets, changes in natural assets, changes in occupation, changes in income and self-perceptions of the major ''drivers of escape''. The fourth group who fell into poverty is named as ''descending households'' which are 67 households (18% of total sample). The factors behind descending households are life cycle, negative change in household demography and crisis.

Widyanti *etal* (2009) checked the relationship between chronic poverty and household dynamics. Indonesian Family life Survey (IFLS) panel data has been used for this identification; which is compiled over three waves 1993-94, 1997-98 and 2000 respectively. This survey is longitudinal and covers about 83% population of Indonesia. The study highlights the correlation between changes in the household composition and the related

changes in the economic capacity. The study also throws light on the incidence and duration of poverty spells. The result indicates that 66% of total experienced at least one change in composition of household during 1993 and 2000. The distribution of this change was that 13.7% were chronic poor, 20.7% were vulnerable and 65.6% were non-poor household. The remaining 44% which did not experience any change in composition of household is distributed as 15% were chronic poor, 19% were vulnerable and 66% were non-poor household. The final results indicates that this distribution across poverty group is similar for both who experienced the change of composition of household as well as those who did not face that change of household composition. According to author, the composition of household is dynamic the reason is that new born babies replace with the existing members over the period. So this indicates that the household composition is not a major source of chronic poverty. The composition of household can affect the chronic poverty little bit in two ways. The large household size and the single male households with or without children have high probability of being vulnerable.

Arif and Bilquees (2007) checked the poverty dynamics by using longitudinal household survey in Pakistan. This study used panel data of 3564 households surveyed by Pakistan Socio-economic Survey (PSES) in two rounds i.e. 1998-99 and 2000-01. Multinomial logit model is used to capture how poverty changes due to socio-economic characteristics. Overall results indicates that one-fifth of total household surveyed were chronic poor. Among which in rural areas 28% households and in urban 12% households were chronically poorer. Similarly, transitory poor households in rural areas (about 33%) were also higher than the urban areas (about 22%). The estimated result shows that headcount poverty rate increased by 4% over this extended period of time.

Ssewanyana (2009) investigated the chronic poverty and also tested the household dynamics in Uganda. A panel dataset of 1309 households of two years 1992-93 and 1999-2000 has been used; which is collected by the Uganda Bureau of Statistics. A bivariate analysis is used to check the household dynamics while Ordered Logit estimation is used to determine the chronic poverty. The results indicate that whose household size increased fell largely into poverty rather than whose household decreased. The estimation results indicate that about 13% fell into poverty, 31% escaped from poverty over this extended period of time. The result also indicates that four out of ten households were transitory poor and 18.4% were chronic poor. On average, per adult consumption expenditure for chronic poor was Shs 14,821 while Shs 30,488 for the transitory poor in 1999.

Okidi and McKay (2003) checked the poverty dynamic in Uganda. Dynamics of poverty have been analyzed from 1992 to 2000 by using the national household survey. For this purpose, the whole analysis into three datasets; first dataset analyze the poverty dynamics from 1992 to 1996 which covers 818 households, out of which 13% were poor and 30% were non-poor throughout the period and remaining 57% moved into or out from poverty pool. 82% households were rural that faced the poverty. The second dataset analyze the poverty dynamics of two years 1992 and 1996 which covers 1309 households, the result shows that 46% of the 1992 poor households moved out of poverty by 1996. And the third dataset analyze the poverty dynamics of two years 1992 and 2000 cover 1398 households as a sub sample of the 9924 and 10687 households that were surveyed in 1992/93 and 1999/2000 respectively. The result indicates that absolute income/consumption poverty declined from 56% in 1993 to 30% in 2000. The overall poverty level declined significantly

in all sectors like in food crop, cash crop farming and non-crop agricultural over the extended period.

Siddiqui (2001) checked out that how much intensity of poverty exists due to gender dimension in Pakistan by computing all three FGT measures of poverty separately for both the female and male -headed households, using data from the 1993-94 and 1996-97 rounds of HIES. The results indicates that there is significant of poverty in rural Pakistan for both male and female headed households, which is 25.3% in1993-94 to 37.4% in 1996-97 for male and from 26.3% in 1993-94 to 38.5% in 1996-97 for female-headed households by using head count measure. Another result indicates that this poverty level is declined in urban areas over the period by using this head count measure. In terms of the depth and severity of poverty, the poverty gap index increased in rural areas for both male and female -headed households, While in case of urban areas, both the depth and severity of poverty declined for male and female-headed households during this period.

Arif *etal* (2011) checked the persistence and transition of rural poverty in Pakistan by using the Pakistan socioeconomic survey (PSES) and Pakistan rural household survey (PRHS). Each survey covers two rounds like PSES (1998, 2000) and PRHS (2001, 2004). The study covers the rural areas of the Punjab and Sindh. The result indicates that more chronic poverty exists in PSES rounds (about one fifth) rather than PRHS rounds (11%). And the depth of the study shows that the Sindh and south Punjab are having much deprivation (transitory and chronic) rather than central and north Punjab. Lohano (2009) estimated the poverty dynamics in rural Sindh by using the longitudinal survey of International Food Policy Research Institute (IFPRI) from 1987-88 and 2004-05. The result indicates that the poverty level increased over the extended period. The percentage of households falling into poverty is

three time higher the than percentage of household escaping from poverty. The results shows that the 41.3% poorer households are those who remained poor in both surveyed. Only 15.6% households are those who remained non-poor in both surveys. While 13.3% households are those who moved out of the poverty and 29.8% households are those who moved into poverty over this extended period. This poverty increment was in all the agrarian groups due to weather-related shocks that may be like heavy rains, water storage and drought.

2.3.5. Conclusion

History of reviewing literature in Pakistan starts from income approach/monetary approach which faced a lot of criticism. There exists a diversion in the results of different studies by using the same data sets. Jafri (1999) and Gazdar *etal* (1994) checked the income poverty between two periods of time i.e. 1987-88 and 1990-91 in Pakistan. The result indicates that income poverty decreased over this extended period of time. But Malik (1994), Kemal (1997) highlighted that poverty trend increased over this extended period of time by using the same datasets. Similarly, World Bank indicated that poverty trend has declined in both rural as well as urban areas during 1990 and 1992 in Pakistan but Jafri (1999) highlighted that income poverty trend has increased in urban areas while this trend has declined in rural areas by using same dataset for the same period of time. World Bank (2002) and FBS (2001) presented that absolute poverty trend has declined in Pakistan during 1993 to 1996 but Arif *etal* (2000) indicated that this income poverty trend has increased over this extended period of time.

Due to criticisms, Government of Pakistan changed the official poverty measure (Absolute poverty measure) and adopted a new poverty measure known as multidimensional poverty

measure. This new poverty measure was initiated by Planning Commission of Pakistan with the collaboration of United Nations Development Program (UNDP) and Oxford Poverty and Human Development Initiative (OPHI).

Literature review on multidimensional poverty mostly used the Alkire-Foster methodology. Alkire-Foster methodology usually captures the multidimensional poverty in form of computing the MPI by using different dimensions, differ indicators and different weights. While review of literature on the comparison of absolute poverty measure and multidimensional poverty is limited. Dynamics of absolute poverty measure is done in different studies separately like Okidi and McKay (2003), Arif and Bilquees (2007), Ssewanyana (2009) and Widyanti *etal* (2009). Similarly dynamics of multidimensional poverty measure is also done in different studies separately like Sen (2003) and Alkire *etal* (2014). Some studies represents this comparison between two different poverty measures by using the cross sectional dataset like Wang *etal* (2016).

Finally, the literature review of different studies like Wang *etal* (2016), Tran (2015) and Suppa (2016) enabled us to compare the dynamics of income based poverty measure and multidimensional poverty measure in Pakistan.

Chapter 3

Poverty Profile in Pakistan

This chapter provides the transition of poverty measure from uni-dimensional to multidimensional approach of poverty in Pakistan. Section 3.1 represents the initiative of absolute measure and criticism its modification over the period. Section 3.2 highlights the new methodology of the estimation of Absolute Poverty by the Government of Pakistan 2015-16 i.e CBN approach. Section 3.3 shows a movement toward the estimation of multidimensional poverty in Pakistan by using Alkire and Foster methodology.

3.1. Absolute Poverty Measure

Pakistan face a lot of issues but the major issue which Pakistan's economy face is poverty. A lot of material/research is written on the poverty. In 1963, federal Buru of survey conducts a survey in first time of the history Pakistan. From the period of 1963 to 1967, poverty tremendously increase and the causes of increase in poverty is inclusion of headcounts in rural area. Another reason of increasing of poverty is fall in average annual growth from 7.57 percent to 5.40. However, officials announced that poverty reduced decline from 30 percent to 24 percent.

Despite the international tremor, in 1980, the growth rate of Pakistan was inspiring. The increasing in imbalance of current and capital accounts, government implement 'medium term structural adjustment program' within the framework of International Monterey Funds (IMF) and World Bank (IBRD). In 1980s, poverty was shrinking due to the increase in foreign remittances and high growth rate.

In 1990s, poverty continued to rise. In 1993-94 major cause of increase in poverty is declining in the agriculture growth by 5.4%. The extreme deficiency in poverty in 1997-98 had significant influence on poverty headcount.

Poverty in rural and urban had the similar trend i.e. poverty increases from 1999 to 2001 and decrease following that. Key determinant of the poverty in rural areas are size and distribution of the land and its ownership, social structural, whereas, key determinant of the poverty, in urban areas key determinants of poverty are unemployment, inadequate services and social protection. Rural and urban poverty increased by 4.6% and 2% simultaneously during the period of 1999 to 2001.

Unfortunately, no 'official poverty line' is set by the Pakistan since 2003-04. However, plenty of poverty estimates are available from the policy analysis but that make the analysis more complicated. To estimate the poverty line, some researcher adopt the Calorie Intake Approach whereas, some adopt the Basic Need Base Approach. Another complication to estimate the poverty line is market base approach and price reported by the respondent. For example, researcher assume market price to transform spending into calorie intake Approach whereas, some research use price set by the respondent.

Realizing such issues, government of Pakistan set the poverty line in 2000-01 i.e. Rs. 748.56 based on calories norm of 2350 calories per-adult equivalent per day. Planning commission take a decision first time to combine the data of HIES and PIES in 1998-99. It advocates that poverty increases from 30 to 32 percent from 1998 to 2000. The cause of increase in poverty was catastrophic drought.

However, rural poverty was reduced after the period of 2001. Cause of reduction in the rural poverty was a significantly increase in the agricultural growth and agricultural prices i.e.

double the wheat prices. Hence, income of the rural areas increases and reduction in the poverty.

Due to the raise in poverty in 90s era, government of Pakistan launched the "poverty reduction strategy" in 2001. Major purpose of the strategy was firstly, investing in the human capital, secondly, government intervention to target the market prices and improving governance.

Another reason for the reduction of poverty is remittances. During the period of 2001 to 2006, remittances play a vital role to the reduction of poverty i.e. over 4$ billion net inflow of remittance per annum. Another major reason to reduce poverty is huge expenditure on the poverty related social program. However, agriculture growth shrinks 2.6 percent in the period of 2001.

The rate of poverty decline in the era of 2004 and both, rural and urban, poverty significantly decline in the same era. Declining in the poverty is only cause is 35 percent increase in the monthly consumption expenditure of the household.

To eliminate the poverty, government expenditure on the social sector was more than doubled in the decade. Government expenditure on the poverty and social sector in 1990s was 114 billion, which become 254 billion in the period of 2003-04. That's the government medium term fiscal policy. According to 2005-06, poverty line was estimated to be 994 as per adult equivalent per month. Poverty was decline from 28 percent to 27 percent in the rural areas, whereas, urban areas decline from 15 percent to 13 percent.

According to the *'UN Inter mission Assessment Mission'* due to the strike in prices of food and almost forty five millions peoples are affected due to this price hike. This circumstance

indicate that the declining in poverty was unaffected by this price hike and purchasing power of the consumer will tremendously fall.

Poverty remained decline in 2010. Government of Pakistan expands its fiscal policy by allocating resource from rich to poor through Benazir Income Support Program (BISP) to finance the poor. Similarly, government took another virtuous initiative to eliminate poverty was Pakistan Poverty Alleviation Fund (PPAF). Inflow of remittances, female participation rate in the rural areas and government support of agricultural product also contribute to break down the poverty.

During the period of 2010-11, growth rate of the Pakistan economy declined to 2.75 percent. Major cause of decline in the growth rate was oil prices shocks in the international market, floods and price shocks of the consumable goods. However, it is also noted that growth rate stayed positive during the period. According to international researcher, south Asian economy was less affected by international crises.

Criticism on the Methodology of Absolute Poverty in Pakistan

Different researcher used income based approach to measure poverty in Pakistan. Moreover, researchers also conclude different observation by using similar data to measure poverty. FBS conduct HIES to collect the data set of Pakistani household so that poverty can be measured. Planning commission, official, calculate the poverty in Pakistan by using calories intake approach since 2010 and commission also made some modification with time.

Measurement of poverty, however, is not the simplest task. While measuring, poverty is very sensitive to the selection of poverty line and indices. The standard of living of the general public cannot be captured easily, similarly, behaviors of the common person also very divergent against the policy. Therefore, it is important that there should be a central

methodology for the whole economy to calculate poverty and to set the poverty line. So that, researcher used common methodology to investigate and comparison of poverty. In 2003-04, Pakistan officials set the poverty line of 2350 calories per adult per day. However, there are numerous issues with this methodology to estimate poverty line.

- Firstly, PSLM is suspicious quality because of population census was taken in 1998 and there are no other census conducted after that. However, in 2006, another census was planned to conduct in KPK and Baluchistan which would reflect true change of population over time.

- Secondly, CPI plays a vital role to estimate the poverty line. Here are some issues with the CPI

    o Firstly, consumer behavior and consumption pattern are change over time and updated poverty line may not reflect these changes.

    o Secondly, another problem face by CPI is same basket of the good to calculate CPI in rural and urban areas. CPI also capture the trend of prices in the rural areas and no price changes are shown in the urban areas.

    o Thirdly, CPI measures the raise in food prices. Hike in the food price has the larger share in the CPI as compare to the other component. Consumption of food has a larger share of consumption of food as compare to the other component of CPI.

- Thirdly, head count ration only describe the how many persons are liver under the poverty line. Whereas, this methodology does not explain the sensitivity and severity of the poverty.

- Lastly, poverty is multidimensional phenomenon and the officials only calculate poverty base on the income approach. This type of valuation of poverty does not reflect the poor education system, absence of medical and health facilities and inadequate water facilities.

Therefore, official methodology and estimation procedure of poverty line which are used since 2001 are criticized by the researcher and policy maker. However, officials of government make a technical committee in 2012 to resolve and review the methodology to solve the issue and estimate correct level of poverty in the economy. Officials raised the following point in the existing methodology.

- Threshold poverty and CPI 2001 based on 1999 data considered outdated. Hence, it does not reflect the true poverty in the economy.

- Officials also highlight the poverty line was based on urban areas which create the biasness in the poverty line and, hence, CPI based on rural areas should be incorporated in the new methodology.

Official committee made his decision on the three basses i.e. based on urban and rural areas considered in views, based on the choice of calories intake and, lastly, based on the choice of true methodology. Due to such critical issues, government of Pakistan introduced new official methodology with the collaboration of UNDP and OPHI and this methodology is known as CBN and estimate multidimensional poverty.

3.2. New Methodology of the Estimation of Absolute Poverty by the Government of Pakistan 2015-16

In the revised methodology, rural household are also covered that lies in the 30 to 40 percent of the distribution of per adult equivalent consumption expenditure. Selection of reference group is finished to establish the higher welfare standard of poverty estimation. Government

also keep the calories intake constant to maintain the consistency i.e. 2350 calories/ per adult. Finally, Planning Commission of Pakistan estimate the new poverty line based on the CBN approach.

Table 3.1

Year	National		Urban		Rural	
	New Estimate	Old Estimate	New Estimate	Old Estimate	New Estimate	Old Estimate
1998-99	57	30	44	20	63	34
2001-02	64	34	50	22	70ble	39
2004-05	51	23	37	14	58	28
2005-06	50.4	22	36.6	13	57.4	27
2007-08	44.1	-	32.7	-	49.7	-
2010-11	36.8	12.4	26.2	7	42.1	15
2011-12	36.3	-	22.8	-	43.1	-
2013-14	29.5	-	18.2	-	35.6	-
2015-16	24.3		12.5		30.7	

Source: Pakistan Economic Survey

Firstly, poverty line is being estimated on the bases of food consumption expenditure of the household. Secondly, non-poverty line is also being estimated on the bases of education, clothing and shelter expenditure of the household. For this purpose, it is emphases on those households who can entirely encounter the food poverty line at the existing level of expenditure on food. To obtain the CBN poverty line, FPL is scaled up to reveal the total spending of these household. For the creation of new absolute poverty line both methods are being used i.e. CBN and FEI.

Finally, new poverty line is estimated by applying CBN approach and HIES 2013-14. The calculated new poverty line is 3030 per adult/per month. Out of total population, almost 30 percent of the population (55 millions) is living below the poverty line (according to new methodology). For the comparison of new and old methodology, planning commission also estimate poverty line based on the old methodology. According to which, 9 percent people are living below the poverty line in 2013-14. That does indicate that almost 17 million people were living below the poverty line (old poverty line).

Poverty line 2001-02 is back-cast by using CPI. It depict that poverty line would have been 64 percent in 2001-02. This implies that poverty estimate is more than double than the old estimate. However, trend of poverty over time continued the same. That's represent the increase and decrease of poverty headcount can be justified. However, comparison of both, old and new estimates, represent that new poverty estimates are double than old and poverty was highly underestimated using old methodology.

3.3. A Move toward the Estimation of Multidimensional Poverty in Pakistan

Government of Pakistan recognizes that poverty is multi-dimensional phenomenon rather than uni-dimensional and, to the effective policy for the alleviation of poverty government should invest and allocate resources in different aspect like health, clothing and shelter. Planning commission of Pakistan also make signed agreement i.e. MOU with oxford poverty & human development initiative (OPHI) and UNDP for the alleviation of multi-dimensional poverty. However, poverty line continued to be estimated on the basis of consumption of the household. The MPI will be used as a deprivation index up to district level. This will be helpful for designing development policy intervention to stimulate growth and SDGs' (Sustainable Development Goals).

Planning commission officials, OPHI and UNDP estimate multi-dimensional poverty in Pakistan i.e. three dimensional poverty. They used 15 indicators of three dimension i.e. education, health and living standard to estimate multidimensional poverty by applying PSLM data. However, weights that are given are not equal. Final outcome of the multidimensional poverty was 38.8 percent whereas; intensity of deprivation is 51 percent. According to back-casting, multidimensional poverty has continuously reduced in Pakistan. Table 3.2 explained that Baluchistan has highest MPI as compared to other providence. Overall decreasing trend of MPI is also being noticed. The decreasing rate which is being noticed is almost one to four percent. In 2004-05 Punjab has lowest intensity of poverty whereas; in the rest of the period Baluchistan has lowest intensity of poverty. Similar trend are also noticed in all provinces. Results indicate that Punjab has the lowest multidimensional poverty whereas; Baluchistan has the highest poverty. Intensity of poverty was highest in the KPK, Sindh, Baluchistan and Punjab, simultaneously. However, intensity of poverty also reduced by 2 percent over time. It is also noted that intensity of poverty has decay trend in Baluchistan. Between the eras of 2004-05 to 2014-15, the ratio of headcounts poverty continuously reduced from 55 percent to 38 percent at national level. However, intensity of deprivation is slightly changed over time i.e. 52.9 percent to 51 percent. This implies the existence of multi-dimensional poverty.

Table 3.2

		Pakistan	Punjab	Sindh	Balochistan	KPK
2004-05	Incidence (H)	55.2%	49.7%	57.3%	83.4%	65.8%
	Intensity (A)	52.9%	51.1%	55.3%	57.4%	53.2%
	MPI	29.2%	25.4%	31.7%	47.8%	35.0%
2006-07	Incidence (H)	52.5%	46.4%	53.7%	79.8%	66.1%
	Intensity (A)	53.4%	51.4%	56.3%	47.1%	59.0%
	MPI	28.1%	23.9%	30.2%	47.1%	35.0%
2008-09	Incidence (H)	49.3%	43.2%	51.2%	78.9%	60.5%
	Intensity (A)	52.6%	50.6%	54.6%	45.9%	58.2%
	MPI	26.0%	18.8%	28.0%	45.9%	32.1%
2010-11	Incidence (H)	46.5%	40.0%	49.5%	76.7%	57.0%
	Intensity (A)	51.0%	49.5%	52.6%	41.5%	54.7%
	MPI	22.8%	18.8%	25.2%	41.5%	28.0%
2012-13	Incidence (H)	40.8%	34.7%	44.6%	71.9%	49.1%
	Intensity (A)	50.7%	48.5%	53.0%	40.4%	56.2%
	MPI	20.7%	16.8%	23.6%	40.4%	24.9%
2014-15	Incidence (H)	38.8%	31.5%	43.2%	71.0%	49.1%
	Intensity (A)	50.9%	48.4%	53.5%	39.4%	55.3%
	MPI	19.7%	15.2%	23.1%	39.4%	25.0%

Source: Pakistan Economic Survey

Chapter 4

Methodology

4.1. Introduction

This chapter explains the methodology used for the estimation of poverty. Section 4.2 explains the methodology used for uni-dimensional poverty or income poverty i.e multivariate analysis. Section 4.3 indicates the methodology used for the estimation of poverty in multidimensional perspective i.e. Alkire and Foster technique.

4.2. Estimation of Money Metric Poverty:

Absolute/Uni-dimensional poverty is estimated in two aspects i.e. consumption approach and income approach. Laderchi *etal* (2003) has argued that poverty is a better way to measure the well-being by either income level or consumption level. This paper use the consumption approach for the measurement of poverty level by using PPHS dataset.

While a multivariate analysis has been used to estimate the dynamics of poverty on the basis of money metric approach. This equations has been used to estimates the dynamics of poverty.

$$PD\ 01\text{-}10\ i = \alpha i + \alpha 1\ Ii + \alpha 2\ Hdi + \alpha 3\ Rgi + \mu 2i$$

In this equation the dependent variable poverty dynamics is represented on the left side of the equation which is represented as PD. PD 01-10i indicates the change in poverty profile from 2001 to 2010. Poverty dynamics has been divided into four different categories i.e. poor in both round, never poor, slipped into poverty and slipped out of poverty.

In literature, two approaches are highlighted to distinguish chronic poor from transitory poor i.e. 'spell' and 'component'. Spell approach uses the number of spells or transition from one

well-being to another well-being. While component approach uses the permanent part income or consumption to distinguish between chronic and transitory poor. According to component approach chronic poor are those whose average income or consumption always lies below the poverty line and transitory poor are those whose average income or consumption lies above the poverty line but their consumption or income falls below the poverty line in at least one time period [Mckay and Lawson (2002)].

There are different vectors have been used in these equations like I_i, H_{di} and R_{gi}. In these equations vector I_i contains the characteristics of head of household like age, gender education etc, H_{di} contains the characteristics of household like family size, agriculture ownership, household structure, livestock ownership, dependency ratio etc while R_{gi} indicates the locational impact of the household in the province on poverty dynamics.

The results of dynamics of poverty have been compared with the official poverty measure of all three years. Official poverty line of 2001 and 2004 was given but official poverty line for 2010 was not given. The official poverty line for 2010 was inflated on the basis of previous data. For 2001 the official poverty line was Rs 723.4 per adult per month, for 2004 the official poverty line was Rs 878.64 per adult per month and for 2010 the official poverty line was Rs 1671.89 per adult per month.

Discrepancies and transition rate among two different approaches (3rd and 4th objectives of the study) will be captured by using these two types of dynamics approaches i.e. spell approach and component approach. Dynamics of poverty will be categorized in different aspects like chronic poor, transitory poor, never poor, moved into poverty pool, moved out of poverty pool etc.

4.3. Estimation of Multidimensional Poverty

Alkire and Foster (2007, 2011) introduced a new measure of poverty which is known as Alkire and Foster methodology. According to this technique, poverty profile is checked in the context of different dimensions. That's a reason this technique is used to measure the poverty as multidimensional poverty. MPI gives the information about the incidence as well as intensity of the poverty, these two aspects are very necessary to capture the acute poverty. The word incidence indicates that how much people are experiencing the poverty in different dimensions while intensity indicates that how deeply poverty is affected.

Suppose that there are n individual in an economy and the well-being of each individual is captured through l dimension. Each dimension is separated into m indictors. $X_{ij} \epsilon R$ for all i=1…n and j=1…m represents that there are ith individual and well-being is evaluated through jth indicators. According Alkire-Foster methodology, there are two cut-off and two weights that are used in this methodology: one cut-off is used to distinguish between deprived and non-deprived on the basis of indicator and other cut-off is used to distinguish the between poor and non-poor on the basis of dimension, similarly one weight is assigned for each dimension and other weight is assigned for each indicator. According to Alkire-Foster methodology, weight for each dimension is same and weight for each indicator can be same or varies. The important thing is that the weights are positive and sum of weights either in dimensions or indicators is always equal to one.

Distinguish between poor and non-poor rely on achievement of scores in any dimension based on cut-off. Alkire-Foster methodology distinguish poor and non-poor in two steps.

First Step: In first step, a cut-off is used to distinguish between deprived and non-deprived. Vector k denotes the deprivation cut-off for each indicators while g denotes the deprivation

cut-off for each dimension. If Xij > kj then an individual ith will be non-deprive in an indicator j and deprive, otherwise. Deprivation in dimension indicates the sum of score (weights) attained in each indicator. If $g_{\acute{i}}m = 1$ then an individual ith will be deprive and $g_{\acute{i}}m = 0$, otherwise.

Second Step: In second step, a cut-off g is used to distinguish between poor and non-poor on the basis of dimension. The weighted deprivation status score for each unit (household) in an economy is used for identification of poor and non-poor. Deprivation score lies between zero and one i.e. $c_i \in [0,1]$ for each individual. Which is represented by

$$c_i = \sum_{g=1}^{G} WgIgi$$

In this equation Igi is the value of component g of ith household, wg is the weight of Igi. Igi is the binary indicator, if 1 then it denotes deprivation and 0 otherwise. A person i is identified as poor if ci greater equal to g, where g $\in$ (0, 1]; and non-poor, otherwise. Vector c summarizes the deprivation scores of all persons. In case of Pakistan official poverty measure the value of second cut-off is set 33.3% which distinguish between multidimensional poor and non-poor.

Headcount Ratio (H): The headcount ratio indicate the percentage of people who remain multidimensional poor within the whole population.

$$H = \frac{q}{n}$$

Here q indicates the multidimensional poor and n indicates the whole population.

Intensity (A): Intensity can be defines as "The average % of weighted dimensions in which average multidimensional poor is deprived". In other word intensity is defined as the share of deprivations faced by each poor individual on average.

Computing the MPI: Multidimensional poverty index is the product of headcount poverty and the intensity of poverty.

$$MPI = H \times A$$

Chapter 5

Data and Variables

5.1. Introduction

This chapter explain the data source and variables used for the estimation. Section 5.2 explain the data source. Section 5.3 explain the dimensions of poverty used for the estimation of multidimensional poverty [Alkire and Foster (2007, 2011)]. Section 5.4 explain the cut-off and weights used for multidimensional poverty.

5.2. Data Source

Pakistan Panel Household Survey (PPHS) has been used for the purpose of estimation which is collected with the collaboration of Pakistan Institute of Development Economics (PIDE) and World Bank. This dataset covers a wide range of socio-economic variable. This survey is consisted over three rounds. The first round covers the rural areas of four provinces (Punjab, Sindh, NWFP and Balochistan) which named as PRHS-I (2001). The second round also covers rural areas of only two provinces (Punjab and Sindh) due to security issues which named as PRHS-II (2004). The last round covers both rural and urban areas of all four provinces which named as PPHS (2010).

This survey was conducted in 16 districts around Pakistan. Punjab covers six districts which are Faisalabad, Attock, Hafizabad, Vehari, Muzaffargarh and Bahawalpur; Sindh covers four districts which are Badin, Nawab Shah, Mir PurKhas and Larkana; KPK covers three districts which are Dir, Mardan and LakiMarwat; and Balochistan covers three districts which are Loralai, Khuzdar and Gawadar. Over the period this dataset has been increased due to splits households. This total size increased from 2721 households in 2001 to 4142 households in 2010. A split household is characterized on the basis where at least one

member of an original household is separated permanently due to marriage of an individual. If split households are not taken under observation than it will affect the whole analysis. There are some features of this three rounds survey which are; First urban household are not panel household because they are included only last survey (2010). The urban household can be treated as cross-sectional dataset. Second, all four provinces are representing rural panel dataset only in two rounds: PRHS-I (2001) and PPHS (2010). Third, Punjab and Sindh are representing rural panel dataset in all three rounds: PRHS-I (2001), PRHS-II (2004) and PPHS (2010). Last, splits households are not panel data sets because the second round PRHS-II does not cover all splits households it covers only 293 splits household. The third round PPHS (2010) covers all splits households which were 602 households.

Table 5.1: No of Households Covered During Three Rounds of Panel Survey									
		PRHS- II			PPHS- III				
	PRHS- I	Panel HH's	Splits HH's	Total	Panel HH's	Split HH's	Total Rural	Urban HH's	Total Sample
Pakistan	2721	1614	293	1907	2198	602	2800	1342	4142
Punjab	1071	933	146	1079	893	328	1221	657	1878
Sindh	808	681	147	828	663	189	852	359	1211
KPK	447	----	----	----	377	58	435	166	601
Balochistan	395	----	----	----	265	27	292	160	452

Source: PRHS 2001, 2004, and PPHS 2010 micro-datasets.

This survey captures information in different aspect like education, employment, livestock ownership, expenditure and consumption, health, migration, housing, transfers and other assistance etc at household level. This survey is used in different studies for different purposes like Arif *etal* (2011), Arif and Bilquees (2007).

5.3. Dimension for MPI

The sustainable development goals launched by the united nation which are almost 17 interrelated goals including poverty and hunger. The core objectives of the SDG are name as "No Poverty", "Zero Hunger", "Good Health & Well-being", "Quality Education" and "Gender Equality". Numerous study has been done to examine the poverty which are exaggerated by the different variables including education (Alkire and Santos 2014), health (Dehury and Mohnaty 2015, Dehury and Mohnaty 2015), Housing Servicies (Saboor *etal* 2015), Social Participant (Supa 2015), labor condition (Diaz *etal* 2015), insurance and social participation (Phung and Wguyen 2015).

Alkire and Santos (2014) used education and health as a key variable to examine the multidimensional impact on poverty in developing countries. He argues that by increasing the education standard and health poverty can be reduced in the developing countries because in developing countries basic health facility and education are not provided. Quality of education and health facility can reduce maternal death, boost economic growth and increase income in the nations. Dehury and Mohnaty (2015) used economic condition and household living condition as measurement to consider the multi-dimensional poverty in India. He argues that poverty is multi-faceted phenomena and the poverty status may affected by the social condition such as health and nutrition.

Similarly, "in case of Pakistan", education, health, living conditions and asset holding are considered important measurements to influence the poverty status (Naveed and Ali (2012). Saboor *et al.* (2015) also took 'education', 'health' and 'housing services' as an important factors to examine multi-dimensional poverty in Pakistan. On the other hand, literature also explain that different developing nations like Germany, Grenda and Vietnam used some

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other variables like social participation, labor condition and insurance as a key variables as a dimension of the poverty which cannot be used in case of Pakistan due to the unavailability of data. Supa (2015) took social participation as a key factor to examine the multi-dimensional poverty in case of Germany. Diaz *et al.* (2015) used labor conditions to examine the influence on poverty, Whereas, Phung and Wguyen (2015) used Insurance and social participation, in case of Grenda and Vietnam respectively.

At globally level the MPI has three dimensions which are; health, education and living standard. Each dimension is captured with the help of different indicators. These indicators are mainly set on the basis of SDGs which are necessary for the development of any country. At international level, MPI is composed on the basis of ten indicators: education has two, health has two and living standard has six indicators. These dimensions and indicators are set or selected on the base of expertise. But these dimensions and indicators vary from country to country. In case of Pakistan, MPI is calculated at national level using three dimension and fifteen indicators.

5.3.1. Education

Education is one of the most important component of human well-being. The basic aim of SDGs is "to ensure inclusive and equitable quality education and promote lifelong opportunities for all". According to MPI, dimension of education is captured with the help of three indicators. First indicator captures the years of schooling, second indicator captures the school attendance and third indicator captures the quality of schooling. MDGs goal i.e. "Universal primary education for all" highlights the validity of first two indicators of this dimension. First indicators "years of schooling" shows that if anyone in a family (above 10 years of age) has not completed 5 years of schooling will be considered as deprived. Second indicator "child Attendance" shows that if any one (between 6 and 11 years of age) in the

family is not attending school will be considered as deprived. Last indicator of this dimension "Quality of Education" shows that if anyone in the family is not receiving education due to quality issue (lack of teachers, schools are far away, too costly etc.) or receiving education but remains dissatisfied with services. This indicator reflect the difference between rural areas and urban areas on the basis of unavailability of quality of education in rural areas.

These indicators were used as a proxy of the education; but they were imperfect proxies. One nature of MPI indicators is that if there is a household in which at least one child is not attending the schooling than whole household will be considered as a deprived in that indicator. Similarly, if there is a household in which at least one child has completed the five years education than the whole household will be considered as a non-deprived even if he/she may not be educated.

5.3.2. Health

Three out of eight goals (4, 5 and 6) of MDGs and third goal of SDGs highlights the importance of health. According to MPI, dimension of health is captured with the help of four indicators i.e. access to Health Facilities, immunization, ante-natal care and assisted delivery. First indicator "Access to Health Facilities" indicates that any family is not using health facilities at all, or used just for once a time because of access constraints (lack of staff/tool/facilities, too far away, too costly) will be considered as deprived. Second indicator "Immunization" indicates that any child (under the age of 5) in family is not fully immunized will be considered as deprived; (family with no child under age of 5 will be considered as non-deprived). Third indicator "Ante-natal care" indicates that any woman in a family has not got ante-natal care during the last pregnancy will be considered as deprived; (family with no baby birth will be considered as non-deprived). Fourth indicator "Assisted delivery"

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indicates that any woman in a family has given birth by untrained attendant (friend, family member, traditional birth attendant, etc.) will be considered as deprived; family with no baby birth will be considered ass non-deprive.

5.3.3. Living Standards

According to MPI, dimension of living standard is captured with the help of eight indicators i.e. water, sanitation, walls, overcrowding, electricity, cooking fuel, assets and land & livestock. In which three are taken from the SDGs which are access to clean drinking water, access to improved sanitation and the use of clean cooking fuel. Access to safe drinking water and sanitation are associated with the sixth goal of SDGs. A household will be considered as deprived if it doesn't have access to safe drinking water and sanitation. Well-being of household is associated with the condition of the house which may be in form of overcrowding, electricity, land and livestock, assets, walls and cooking fuel. "Cooking Fuel" indicator indicates a household will be considered as deprived if solid fuel is used for cooking in household (wood, dung cakes, coal/charcoal other). This indicator also linked with climate action (goal 13 of SDGs). "Assets" indicator indicates a household will be considered as deprived if household does not contain more than 2 small assets (radio, air cooler, video cassette player, watch, sewing machine, tv, bicycle) or no large asset (air conditioner, motorcycle, refrigerator, computer). "Electricity" indicator indicates a household will be considered as deprived if household has no access to electricity. This indicator helps the comparison between rural and urban areas on the basis of access of electricity. "Walls" indicator indicates a household will be considered as deprived if household has unimproved walls (wood, mud, bamboo, uncooked/mud bricks). "Overcrowding" indicator indicates a household will be considered as deprived if household is overcrowded (4 or more people per room). "Land and Livestock" indicator indicates a

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household will be considered as deprived on the basis of livestock and land. If household has less than 2.25acres of non-irrigated and less than1.125 acres of irrigated land or has less than 2 cattle, less than 3 sheep/goats, less than 5 chicken and no animal for transportation. This indicator is only for rural areas because source of earning mostly associated with land and livestock in rural areas.

5.4. Dimensions, Indicators, Cut-offs and Weights for Multidimensional Poverty

According to this measurement approach, the unit of analysis is household; the deprivation of each individual will based on household scoreboard. There is no fix list of the dimension and indicators. These dimension and indicators can vary country to country. This list is open; means indicators can be added or dropped on the basis of strong arguments.

- **Choosing the indicators deprivation cut-offs**

While calculating the MPI, there is need of deprivation cut-off for each indicator. Deprivation cut-off for any indicator can be used like "***z_i***" such that any individual "***i***" will be deprived in some indicator "***x***" will below that cut-off that is ***$x_i < z_i$.***

- **Choosing weights**

After selecting an indicator and their cut-off, the next important step is the weight assigning to each dimension and each indicator. According to MPI, each dimension is equally weighted but weights for indicators can be same or vary according to well-justified reason. The important thing is that the sum of weights will be equal to one.

- **Choosing the Poverty cut-off**

Each individual with respect to his/her household will be assigned a deprivation score. These scores will be according to deprivation in each indicator. The deprivation score will be weighted sum of deprivations in each indicator; which will lie between 0

and 1. The digit one indicates the maximum deprivation and zero means no deprivation. An individual is considered as a poor if its deprivation score is equal or greater than the poverty cut-off. It is known as MPI poor; which means this type of poverty is due to weighted sum of all indicator not only one indicator.

5.2 Dimensions, Indicators, Cut-offs and Weights for Multidimensional Poverty:

Dimension	Indicator	Deprivation Cut-off	Weights
Education	Year of Schooling	Deprived if anyone in the HH (above 10 years of age) has not completed 5 years of schooling.	16.67%
	Child Attendance	Deprived if any one (between 6 and 11 years of age) in the HH is not attending school.	12.5%
	Quality of Education	Deprived if anyone in the household is not receiving education due to quality issue (lack of teachers, schools are far away, too costly etc) or receiving education but remains dissatisfied with services.	4.17%
Health	Access to Health Facilities	Deprived if HH is not using health facilities at all, or used just for once a time because of access constraints (lack of staff/tool/facilities, too far away, too costly)	16.67%
	Immunization	Deprived if any child(under the age of 5) in HH is not fully immunized; (HH with no child under age of 5 will be considered as non-deprived)	5.56%
	Ante-natal care	Deprived if any woman in HH did not get ante-natal care during the last pregnancy; (HH with no baby birth will be considered as non-deprived)	5.56%
	Assisted delivery	Deprive if any woman in HH has given birth by untrained attendant (friend, family member, traditional birth attendant, etc); HH with no baby birth will be considered ass non-deprive	5.56%

Living Standard	Water	Deprived if household has no access to an improved source of water according to MDG standards (motor pump, tap water, mineral/ protected water, hand pump) and considering distance (less than 30 minutes return trip)	4.76%
	Sanitation	Deprived if household has no access to adequate sanitation (flush system) according to MDG	4.76%
	Walls	Deprived if household has unimproved walls (wood, mud, bamboo, uncooked/mud bricks)	2.38%
	Overcrowding	Deprived if household is overcrowded (4 or more people per room)	2.38%
	Electricity	Deprived if household has no access to electricity	4.76%
	Cooking Fuel	Deprived if solid fuel is used for cooking in household (wood, dung cakes, coal/charcoal other)	4.76%
	Assets	Deprived if household does not contain more than 2 small assets (radio, air cooler, video cassette player, watch, sewing machine, tv, bicycle) or no large asset (air conditioner, motorcycle, refrigerator, computer)	4.76%
	Land & Live stock Only for Rural areas	Household will be deprived on the basis of livestock and land. Deprived in land: if HH has less than 2.25acres of non-irrigated and less than1.125 acres of irrigated land Deprived in livestock: if HH has less than 2 cattle, less than 3 sheep/goats, less than 5 chicken and no animal for transportation	4.76%

These dimensions, indicators, cut-off and weights vary from country to country according to their demographic, cultural and social logistics. Like in case of Pakistan, these indicators

are extended up to fifteen instead of ten which are globally stated. According to Alkire and Foster (2007, 2011), there is no hard and fast rule for weighting to dimensions and indicators. A lot of studies used equal weight method for dimensions and indicator due to simplicity. This method was criticized because education poverty can't be equally weighted as health poverty [(Ferreira 2011), (Ravallion 2011)]. OPHI discussed different methods for weight assigning like survey based methods, statistical methods, participatory and expert-based approaches etc. These techniques have their own advantage as well as disadvantage. Recently Government of Pakistan in collaboration with UNDP and OPHI used the same weights for dimensions and different weights for indicators while estimating the national multidimensional poverty in Pakistan [Economic Survey (2015-16)].

Chapter 6

Estimation Results

6.1 Introduction

This chapter describes the detailed account of the estimation results based on money metric poverty/income poverty measure as well as multidimensional poverty measure and also explains their dynamics. This chapter is divided into four sections. Section 6.2 reports the results for poverty based on income poverty approach or money metric approach. Multivariate analysis has been used to estimate the poverty. Section 6.3 reports the results of multidimensional poverty of Pakistan of two different years i.e. 2001 and 2010 by using the modern approach of poverty measure which is known as Alkire-Foster methodology. This poverty measure recently approved as national poverty measure for Pakistan with the collaboration of UNDP, OPHI and planning commission of Pakistan. According to this measure, the dimensions are equally weighted and indicators are unequally weighted but sum of weights is equal to one. Section 6.4 highlights the comparison of both poverty measures i.e. money metric approach/income poverty and multidimensional approach by using cross sectional analysis and dynamics analysis.

6.2 Income Poverty Measure Results for Pakistan

This section reflect the results based on the income poverty by using Pakistan Panel Household Survey for the period of 2001 and 2010. This section concludes the income poverty into three sections. Section 6.2.1 represents the cross sectional analysis based on income poverty. Section 6.2.2 provides the dynamics of poverty based on income poverty and last section 6.2.3 highlights the determinants of income poverty.

6.2.1 Incidence of Income Poverty: A Cross-sectional Analysis

This section have a glimpse on the income poverty based on the cross-sectional analysis. Cross sectional analysis indicates the trend of poverty instead of dynamics of poverty. The result highlights the fluctuations in poverty trend over this extended period of time but when poverty score for the period 2010 is compared with poverty score of year 2001, it indicates the reduction in poverty score. Table 6.1 represent the incidence of income poverty by comparing the two waves of panel survey. The results indicates that the poverty level has declined at national level about 6.8 percent over this extended period of time i.e. 27.5% in 2001 to 22.4% in 2010 by using the Pakistan Panel Household Survey (PPHS). This trend of poverty indicates that incidence of income poverty in Punjab increased from 20.2 % in 2001 to 20.7% in 2010. But this trend of income poverty in Sindh has significantly declined from 40.2% in 2001 to 32.6% in 2010.

Table 6.1

Incidence of Income Poverty: A Cross-sectional Analysis

By comparing Two Waves of the Panel Survey (2001 and 2010)

Survey Year (covering all provinces)	Incidence of Poverty (in percentage)
2001	27.5
2010	20.7

6.2.1 Dynamics of Income Poverty

This section highlights the dynamics of poverty based on income poverty. Pakistan Panel Household Survey (PPHS) covers only rural dynamics instead of urban dynamics. Only two rounds of this survey covers the rural dynamics of all four

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provinces i.e.2001 and 2010. While only Punjab and Sindh are covered in all three rounds of this survey.

The dynamics of rural poverty has been tackle down into three steps. First step captures household that moved into or out of poverty pool by using the spell approach and component approach. The second step captures the bivariate analysis based on spell approach which highlights the effect of different socio-demographic characteristics. While in third step multivariate analysis has been used for the comparison of different rounds to check the dynamics of rural poverty.

Table 6.2 represent the dynamics of rural poverty by comparing the two waves of panel survey (2001-10) based on both spell approach and component approach. Dynamics of rural poverty covers the 2146 number of households by using the first and third round of Pakistan Panel Household Survey (PPHS). The results are separated on the basis of spell and component approach. According to Spell approach, dynamics of rural poverty is distributed into four parts i.e. poor in both rounds, fell out of poverty pool, fell into poverty pool and never poor. While according to component approach, dynamics of rural poverty is distributed into three parts i.e chronic poor, transitory poor and never poor.

The results indicates that there is a same percentage of population about 61.8 percent that lie in the category of never poor by using the both approaches of dynamics of poverty. While the percentage of population felling out of poverty pool (15.9%) is greater than percentage of population felling out into poverty pool (13.3%) by using the spell approach. Similarly the percentage of population lies in the category of

transitory poor (21.7%) is greater than the chronic poor (16.5%) by using the component approach.

Table 6.2

Dynamics of Rural Poverty: Income Approach

By comparing Two Waves of the Panel Survey (2001 and 2010)

Dynamics of Rural Poverty	2001-10 (All four Provinces)
Spell Approach	
Poor in both rounds	9.1
Fell out of poverty pool	15.9
Fell into poverty pool	13.3
Never poor	61.8
Total	100
Component Approach	
Chronic Poor	16.5
Transitory poor	21.7
Never Poor	61.8
Total	100

Results gained by using different approaches of dynamics of poverty i.e spell approach and component approach highlights that major proportion of population face chronic poverty by using component approach rather than spell approach. Other results indicates that the proportion of population that is moving into poverty pool and moving out of poverty pool is higher in Sindh and Southern Punjab than in central-north Punjab. This situation is alarming in rural Sindh among Southern Punjab and Sindh where about two third of the total population living below the poverty line in minimum one wave of panel dataset by using the income poverty approach.

6.2.2 Determinants of Income Poverty Dynamics

Multinomial logit models have been used to estimate the determinants of income poverty dynamics. Four independent set of variables (characteristics of head of households, demographic and health factors, economic status of households and Regional and provincial) are regressed on the poverty dynamics.

Table 6.3 indicates the effects of 2001 Socio-economic characteristics on rural income poverty dynamics (2001-10). The result indicates that there is no significant association between the gender of household head and the dynamics of poverty. While the age of the household head is negatively associated with the poverty dynamics. As the age of the household head increases then it helps the household to remain out of poverty pool through economics actives/empowers. But at old age, as the economics actives/empowers decreases then the chances of household increases to fell into poverty pool. The result highlights that education is an important factor that help the household to move out of poverty pool. There is a significant and negative association between the education of the household head and dynamics of poverty. Similarly, household size and dependency ratio which have been used as demographic variables indicates that there exists a significant and positive relationship with the dynamics of poverty.

Household assets that captures the well-being of the any identity like ownership of livestock, ownership of the land, housing structure have significant and negative relationship with the chronic poverty. The results of regional dummies highlights that the proportion of population of Southern Punjab is more persistent to lie in the chronic poverty than the Central Punjab.

Table 6.3
Multinomial Logit Model
Effects of 2001 Socio-economic Characteristics on
Rural Income Poverty Dynamics (2001-10)

Correlates (2001)	Chronic Poor/Non-poor	Moved out / Non-poor	Moved into/ Non-poor
Sex of the Head (male=1)	–0.95	–0.694	0.499
Education of the Head	–0.08*	–0.038**	–0.049*
Age of the Head	–0.03	0.031	–0.044**
Age2 of Head	0.00	0.000	0.000**
Household size	0.14*	0.139*	0.037**
Household with one member abroad (yes=1)	–2.69	–0.246	–0.670
Electricity Connection (yes=1)	–0.56*	0.096	0.161
House Structure (PACCA=1)	–0.94*	–0.443*	–0.451*
Toilet facility (yes=1)	–0.62**	–0.778*	–0.202
Land Holdings (acres)	–0.12*	–0.034*	–0.029*
Presence of disable person (yes=1)	0.21	0.057	–0.404
Animals (Nos)	–0.04*	–0.118*	0.002
Number of rooms per person	–2.11*	–2.295*	0.137
South Punjab/North Punjab	1.55*	0.139	1.469*
KP/North Punjab	–1.06**	–1.147*	–0.649**
Sindh/North Punjab	1.94*	0.744*	1.397*
Baluchistan/North Punjab	1.52*	0.993*	0.865*
Constant	–1.81	–1.477**	–2.112*
LR chi-2		678.13 (54)	
Log likelihood		–1827.00	
Pseudo R2		0.1565	
N		2124	

Source: Authors' estimation from the micro-data of PRHS 2001and PPHS 2010.
*denote significant at 5 percent, **denote significant at 10 percent.

6.3 Multidimensional Poverty Measure Results for Pakistan

This section reflects the results based on the multidimensional poverty by using Pakistan Panel Household Survey for the period of 2001 and 2010. This section concludes the multidimensional poverty into six sections. Section 6.3.1 indicates the multidimensional poverty at national level. Section 6.3.2 indicates the multidimensional poverty at province level. Section 6.3.3 highlights the dynamics of multidimensional poverty by using the first and last round of Pakistan Panel Household Survey (PPHS). While last section 6.3.4 represent the determinants of the multidimensional poverty.

6.3.1   Multidimensional Poverty at National level

Table 6.4 indicates the multidimensional poverty and its components i.e. incidence of poverty and the intensity of poverty for the year 2001 and 2010 at national level. The result of Pakistan Panel Household Survey (PPHS-2001) indicates that headcount ratio (% of people who are declared as multidimensional poor) is 75.46% and intensity of poverty (average number of deprivations in which each poor people is deprived) is 50%. Multidimensional poverty index (MPI) is a product of incidence of poverty (H) and intensity of poverty (A) which yields a value of 37.76%. While the result of Pakistan Panel Household Survey (PPHS-2010) indicates that headcount ratio (% of people who are declared as multidimensional poor) is 35.98% and intensity of poverty (average number of deprivations in which each poor people is deprived) is 41.73%. Multidimensional poverty index (MPI) is a product of incidence of poverty (H) and intensity of poverty (A) which yields a value of 15%. By comparing the result of Pakistan Panel Household Survey (PPHS) datasets of these two years indicates that the incidence

of poverty (H) is declined by 39.47%, intensity of poverty is declined by 8.3% and multidimensional poverty index (MPI) is declined by 22.74%.

Table 6.4: Multidimensional Poverty Index at National level

Index	2001	2010
Multidimensional poverty index (MPI)	0.377607	0.150192
Incidence (H)	0.754665	0.359877
Intensity (A)	0.500364	0.417342

Source: Authors" estimation from the micro-data of PRHS 2001 and PPHS 2010

6.3.2 Multidimensional Poverty at Province level

Table 6.5 indicates the multidimensional poverty and its components i.e. incidence of poverty and the intensity of poverty for the year of 2001 and 2010 at province level. The estimation result indicates that poverty is not equally disseminated across and within the provinces. The result of Pakistan Panel Household Survey (PPHS-2001) indicates that headcount ratio (incidence of poverty) for the province of Balochistan is highest (87%) followed by Sindh (82%). Headcount poverty in Punjab and KPK, being 64% and 76% respectively. Similarly the intensity of poverty in Punjab is low as compared to other provinces. While the intensity of poverty in KPK, Sindh and Balochistan for the year of 2001 is almost equal i.e 50%. Balochistan and Sindh have the highest MPI score of 0.44 and 0.42 respectively. While Punjab province has the least MPI score 0.30 for the year of 2001.

The result of Pakistan Panel Household Survey (PPHS-2010) indicates that headcount ratio (incidence of poverty) for the province of Sindh is highest (44%) followed by Balochistan (42%). Which means 44% households in Sindh and 42% households in

Balochistan are falling below the poverty line. While headcount poverty in Punjab and KPK, being 32% and 25% respectively. Similarly the intensity of poverty in Sindh is high as compared to other provinces which means poor households in Sindh, on average, face scarcity in the access of facilities in 42% of weighted dimensions. While the intensity of poverty in KPK, Punjab and Balochistan for the year of 2010 is almost equal i.e 41%. KPK province has the least MPI score of 0.10 as compared to all other provinces according to the estimation results for the year of 2010. While Sindh province has the highest MPI score 0.19.

By comparing the results of these two years indicates that the KPK province has got significant improvement in the reduction of headcount ratio i.e. 76% in 2001 to 25% in 2010 as well as in the reduction of MPI score 0.38 in 2001 to 0.10 in 2010 among all other provinces. According to estimation results, in 2001, province of Balochistan was ranked at the top in which about 87% of households which were falling below the poverty line. But in 2010, province of Sindh was ranked at the top in which about 44% of households which were falling below the poverty line.

Table 6.5: Multidimensional Poverty Index at Province level

Province	2001			2010		
	MPI	Incidence (H)	Intensity (A)	MPI	Incidence (H)	Intensity (A)
Punjab	0.3086	0.6450	0.4784	0.1341	0.3260	0.4114
Sindh	0.4242	0.8275	0.5126	0.1908	0.4442	0.4295
KPK	0.3877	0.7619	0.5088	0.1025	0.2544	0.4032
Balochistan	0.4387	0.8714	0.5034	0.1738	0.4204	0.4133

Source: Authors" estimation from the micro-data of PRHS 2001 and PPHS 2010

6.3.3 Poverty Dynamics in Perspective of Multidimensional Approach

Table 6.6 shows dynamics of poverty by using the multidimensional approach. The dynamics of poverty have been divided into three categories. First category "chronic poor" indicates those households which are poor in both rounds. Second category "transitory poor" indicates those households which are poor in only one round of the survey. While the third category is the "never poor". The estimation result highlights that around 23.6 percent of total sampled population was characterized as chronic poor, whereas approximately 24.5 percent of total sampled population was characterized never poor. While the remaining 51.9 percent households lie in the category of transitory poor, furthermore this category of "transitory poor" was divided into two sub-categories i.e. moved into poverty and moved out of poverty. During 2001-2010, maximum number of poor households moved out of poverty pool (83.9%) than those who fell into poverty pool (16.1%).

Table 6.6: Poverty Dynamics in perspective of Multidimensional Approach

Poverty Dynamics	2001-10 (all provinces)
Chronic Poor	23.65
Transitory Poor	51.81
Never Poor	24.54
All	100

Source: Authors" estimation from the micro-data of PRHS 2001 and PPHS 2010

When the dynamics of poverty are checked at province level in perspective of chronic and transitory poor by using multidimensional poverty approach than results are surprising i.e Sindh represents the highest proportion of population (about 33.27%) which exists in the category of chronic poor as compared to all other province.

Similarly, KPK represents the lowest proportion of population (about 16.44%) which exists in the category of chronic poor as compared to all other province. Punjab ranked as top which has the minimum proportion of population (about 48.17%) that lie in the category of transitory poor.

6.3.4 Determinants of Multidimensional Poverty

Table 6.7 highlights the determinants of multidimensional rural poverty dynamics. Gender of household head has insignificantly effect the poverty dynamics. Coefficient of gender of household head is larger than move into poverty or move out from poverty. Education of household has significant and negative impact on the poverty dynamics. Which implies that the person who have higher education indicate the poverty elimination from society. These results are also coinciding with the Arif et al. (2012). Educated peoples are less likely to escape in circle of poverty. They have more knowledge to break the vicious circle of poverty. The coefficient of move out from poverty is more significant than the other scenario.

While the presence of disable person in the household has positively affects poverty dynamics. Coefficient of presence of disability in the case of chronic poverty is larger than the other cases. Room per Person, Electricity connection and Toilet facility has no significant impact on poverty dynamics. Surprisingly, household whose one family member was abroad will insignificantly effect to reduction of poverty. It is general believe that, family whose one member is abroad will help to eliminate the poverty but in this study it has no significant impact to reduce poverty.

Land Holding, Animals and Household structure has negatively affects the poverty dynamics. Coefficient of land holding and animals are larger in case of move out from

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poverty pool. Age of the household head has insignificant effect on poverty dynamics. This indicated that age doesn't matter. Household working in any age can eliminate the poverty.

Size of household has significant and negative impact on the poverty dynamics. Coefficient of move in is much larger than the move out situation. This indicates that if a household has larger size then he will move into the poverty if the dependency ratio will not decrease. Similarly, coefficient of household in the case of chronic poverty, it is not much easier to the family to move out from the poverty. These results are coinciding with the Arif et al. (2012).

Table 6.7
Multinomial Logit Model
Effects of 2001 Socio-economic Characteristics on
Multidimensional Rural Poverty Dynamics (2001-10)

Correlates (2001)	Chronic Poor/Non-poor	Moved out / Non-poor	Moved into/ Non-poor
Sex of the Head (male=1)	-0.6225778	0.3143473	-0.1215032
Education of the Head	-0.1042574	-0.0502779	-0.1711063
Age of the Head	0.0221737	-0.0294116	-0.0107615
Age2 of Head	-0.0005268	-0.0000114	-0.0001635
Household size	0.3939907	0.2114915	0.4046973
Household with one member abroad (yes=1)	2.022558	2.128514	1.450547
Electricity Connection (yes=1)	-0.296115	15.84077	-0.1275378
House Structure (PACCA=1)	-1.189043	-0.5497584	-0.6089518
Toilet facility (yes=1)	-1.187531	0.0455976	-0.2641268
Land Holdings (acres)	-0.0101578	-0.035684	-0.0141028

Presence of disable person (yes=1)	0.8732982	0.3763068	0.8371116
Animals (Nos)	-0.0034842	0.0142874	-0.0255431
Number of rooms per person	-0.4016726	-1.013528	-0.6614317
Constant	-1.183763	-17.42768	-0.2000675
LR chi-2	165.58		
Log likelihood	-433.34		
Pseudo R2	0.16		
N	1891		

6.4. Comparison of Income Poverty and Multidimensional Poverty

This section highlights comparison between the dynamics of two different poverty measures i.e. income poverty and multidimensional poverty. Income poverty has been measured by using the multivariate analysis and multidimensional poverty has been measured through Alkire and Foster methodology. While the dynamics analysis is captured through Pakistan Panel Household survey (PPHS) by using the two years dataset i.e. PRHS-I (2001) and PPHS (2010).this comparison is divided onto two parts. First part reveals the comparison between income and multidimensional poverty by using the cross sectional analysis. Second part reveals the comparison between income and multidimensional poverty by using the dynamics analysis.

6.4.1   Comparison between Income Poverty and Multidimensional Poverty: A Cross Sectional Analysis

Table 6.8 outlines the cross sectional comparison of income poverty approach and multidimensional poverty approach. The results indicates that incidence of multidimensional poverty is higher than the incidence of income poverty. Estimation results provides the evidence that about 75.46 percent households of total sample that face the multidimensional deprivation which is three times higher than the income

poverty during first round of the survey. Similarly, about 36 percent households of total sample are multidimensional poor which is higher than income poor households.

Table 6.8
A Cross-sectional Analysis
Comparison b/w Income poverty and Multidimensional poverty

Survey year (All province)	Income poverty Approach (%)	Multidimensional poverty (%)
2001	27.5	75.46
2010	20.7	35.98

6.4.2 Comparison between Income Poverty and Multidimensional Poverty: A Dynamic Analysis

Table 6.9 provides the comparison between the dynamics of income poverty and Multidimensional poverty by using the two years datasets of Pakistan Panel Household Survey (PPHS) i.e.2001 and 2010. Proportion of population that lie in the category of poverty pool is higher in multidimensional poverty approach instead of income poverty approach. The result indicates that there are 23.65 percent households of total population facing multidimensional poverty are chronic poverty which is higher than those households who are facing income poverty (16.5%) over this extended period of time. Several studies and reports showed that poverty estimates calculated in multidimensional perspective are higher than the income/uni-dimensional [Suppa (2016), Wang *etal* (2016), and Tran *etal* (2015)]. Similarly there are 51.81 percent households of total population facing multidimensional poverty are transitory poverty which is higher than those households who are facing income poverty (21.7%) over this extended period of time. While estimating the income poverty approach the proportion of population that lie in the category of never poor is higher than multidimensional approach.

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Table 6.9

A Dynamics Analysis

Comparison b/w Income poverty and Multidimensional poverty

Poverty Dynamics	Multidimensional Poverty	Income poverty
Chronic Poor	23.65	16.5
Transitory Poor	51.81	21.7
Never Poor	24.54	61.8
All	100	100

Chapter 7

Conclusion

7.1. Conclusion

Regarding the relationship between income poverty and multidimensional poverty, poverty can be summarized as not the mere lack of income but the deprivation of human basic capability, covering both monetary and non-monetary poverty. Generally it is accepted that poverty is a multidimensional phenomenon and intricately linked with the income level at national and international level. To tackle down the acute poverty in perspective of multidimensional, there is a need to select the reliable dimensions and indicators presenting the rural areas as well as urban areas.

No doubt, these exists a significant decline in the poverty level by using both poverty measures either multidimensional poverty measure or income poverty measure over this extended period of time (2001-2010). The statistical analysis on income poverty and multidimensional poverty measurement shows that proportion of population that face deprivations in multidimensional poverty is higher than the incidence of income poverty. First round of survey (PRHS-I) estimation results highlights that about 75.46 percent population face the multidimensional poverty measure which is about three times higher than income poverty measure. Similarly, results for last round of survey (PPHS-2010) indicates that about 36 percent population of total sample examine the multidimensional deprivations which is higher than income deprivations.

Dynamics perspective results highlight that incidence of multidimensional poverty is also higher than the incidence of income poverty. The result indicates that there are about 75 percent households of total population facing multidimensional poverty (either chronic

poverty or transitory poverty) which is higher than those households who are facing income poverty (38%) over this extended period of time (2001-2010).

Multidimensional poverty approach results revealed that there is a significant decline in the headcount poverty rather than intensity of poverty. Which indicates that percentage of population who are facing poverty (incidence of poverty) is declining more than percentage of deprivations of poorest households (intensity of poverty) over this extended period of time. There exists a significant improvement in each indicator and dimension of the multidimensional poverty during this time period. But there is a need of improvement in education related indicators which contribute a major share while computing multidimensional poverty i.e child attendance (31.6%), quality of education (23.6%) and years of education (27.7%).

Results of dynamics of multidimensional poverty approach reveals that there is more than 50 percent households of the total sample are transitory poor during 2001-10. A little attempt can reduce the multidimensional poverty significantly by focusing on child school attendance, quality of education, assisted delivery and sanitation issues.

The result indicates that there is no significant association between the gender of household head and the dynamics of poverty according to both poverty approaches. Age of the household head is significantly associated with poverty dynamics according to income poverty dynamics while, in multidimensional poverty dynamics, it is insignificantly associated with poverty dynamics. According to both poverty approaches, there is a significant and negative association between the education of the household head and dynamics of poverty. Family size is significantly associate with poverty dynamics, but this

association is positive in case of income approach while this association in negative according to multidimensional approach.

7.2. Recommendations

- Measuring deprivation is necessary but not enough. Similar policies will not be useful for both deprived and non-deprived regions. Deprived regions of country (Southern Punjab and Balochistan) are required more attention instead of non-deprived regions of Pakistan.

- The key component of MPI is intensity of poverty. The policy makers should focus to reduce the intensity of poverty. About 50 percent of total sample faced the transitory poverty during 2001-10 which can be reduced by improving the indicators of child school attendance, quality of education, assisted delivery and sanitation. Resources should be allocated accordingly to the intensity of poverty of regions.

- Policy maker should focus on the dynamics of poverty rather than trends of poverty. Similarly new surveys/projects should be introduced by the GoP based on panel data set instead of time series or cross section data set.

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Appendix

A.1 Poverty Dynamics at province level in perspective of Multidimensional Approach

Poverty Dynamics	Punjab (2001-10)
Chronic Poor	18.32
Transitory Poor	48.17
Never Poor	33.51
All	100

A.2 Poverty Dynamics at province level in perspective of Multidimensional Approach

Poverty Dynamics	Sindh (2001-10)
Chronic Poor	33.27
Transitory Poor	49.82
Never Poor	16.91
All	100

A.3 Poverty Dynamics at province level in perspective of Multidimensional Approach

Poverty Dynamics	KPK (2001-10)
Chronic Poor	16.44
Transitory Poor	60.55
Never Poor	23.01
All	100

A.4 Poverty Dynamics at province level in perspective of Multidimensional Approach

Poverty Dynamics	Balochistan (2001-10)
Chronic Poor	29.91
Transitory Poor	54.91
Never Poor	15.18
All	100

A.5 No of HH deprived or non-deprived/incidence/Intensity and MPI at National level

	Total HH	Poor HH	Non-poor HH	Poor in %	Non-poor in %	H	A	MPI
2001	2,611	1,764	847	67.56	32.44	0.754665	0.500364	0.377607
2010	3,729	1,081	2,648	28.99	71.01	0.359877	0.417342	0.150192

A.6 No of HH deprived or non-deprived/incidence/Intensity and MPI at Province level for PRHS-2001

	Total HH	Poor HH	Non-poor HH	Poor in %	Non-poor in %	H	A	MPI
Punjab	1,024	585	439	57.13	42.87	0.645052	0.478414	0.308602
Sindh	794	592	202	74.56	25.44	0.82751	0.512687	0.424253
KPK	438	311	127	71.00	29.00	0.761954	0.508866	0.387733
Balochistan	353	274	79	77.62	22.38	0.871423	0.503485	0.438749

A.7 No of HH deprived or non-deprived/incidence/Intensity and MPI at Province level for PPHS-2010

	Total HH	Poor HH	Non-poor HH	Poor in %	Non-poor in %	H	A	MPI
Punjab	1,707	437	1,270	25.60	74.40	0.326096	0.411499	0.134188
Sindh	1,004	372	632	37.05	62.95	0.444273	0.429532	0.190829
KPK	593	127	466	21.42	78.58	0.254443	0.403213	0.102595
Balochistan	422	144	278	34.12	65.88	0.420482	0.413399	0.173827

A.8 Number of households deprived and non-deprived in each indicator for PRHS-I (2001)

Indicators	Non-poor	Poor	% of Non-poor	% of Poor
Year of Schooling	1,238	1,373	47.41	52.59
Child Attendance	1,421	1,190	54.42	45.58
Quality of Education	1,203	1,408	46.07	53.93
Access to Health Facilities	2,583	28	98.93	1.07
Immunization	2,054	557	78.67	21.33
Ante-natal care	1,703	908	65.22	34.78
Assisted delivery	1,022	1,589	39.14	60.86
Water	1,991	620	76.25	23.75
Sanitation	165	2,446	6.32	93.68
Walls	995	1,616	38.11	61.89
Overcrowding	1,261	1,350	48.3	51.7
Electricity	1,720	891	65.88	34.12
Cooking Fuel	1,969	642	75.41	24.59
Assets	348	2,263	13.33	86.67
Land & Live stock	1,609	1,002	61.62	38.38

A.9 Number of households deprived and non-deprived in each indicator for PPHS -2010

Indicators	Non-poor	Poor	% of Non-poor	% of Poor
Year of Schooling	2,316	1,413	62.11	37.89
Child Attendance	1,938	1,791	51.97	48.03
Quality of Education	1,531	2,198	41.06	58.94
Access to Health Facilities	3,618	111	97.02	2.98
Immunization	3,536	193	94.82	5.18
Ante-natal care	3,138	591	84.15	15.85
Assisted delivery	3,006	723	80.61	19.39
Water	3,374	355	90.48	9.52
Sanitation	412	3,317	11.05	88.95
Walls	2,362	1,367	63.34	36.66
Overcrowding	2,197	1,532	58.92	41.08
Electricity	3,270	459	87.69	12.31
Cooking Fuel	3,682	47	98.74	1.26
Assets	3,648	81	97.83	2.17
Land & Live stock	2,949	780	79.08	20.92

A.10 Uncensored Headcount Ratio

Dimensions	Indicators	% of deprivations in each indicator (2001)	% of deprivations in each indicator (2010)
Education	Years of Schooling	52.59	37.89
	Child Attendance	45.58	48.03
	Quality of Education	53.93	58.94
Health	Access of Health Facilities	1.07	2.98
	Immunization	21.33	5.18
	Ante-natal Care	34.78	15.85
	Assisted Delivery	60.86	19.39
Living Standard	Water	23.75	9.52
	Sanitation	93.68	88.95
	Walls	61.89	36.66
	Overcrowding	51.7	41.08
	Electricity	34.12	12.31
	Cooking Fuel	24.59	1.26
	Assets	86.67	2.17
	Land & live stock	38.38	20.92

A.11 Censored Headcount Ratio

Dimensions	Indicators	% of deprivations in each indicator (2001)	% of deprivations in each indicator (2010)
Education	Years of Schooling	54.83	27.70
	Child Attendance	51.05	31.60
	Quality of Education	45.32	23.66
Health	Access of Health Facilities	0.78	2.68
	Immunization	23.06	2.52
	Ante-natal Care	36.44	11.05
	Assisted Delivery	60.13	11.56
Living Standard	Water	20.68	3.78
	Sanitation	72.45	32.98
	Walls	50.70	15.86
	Overcrowding	51.26	22.08
	Electricity	26.55	6.31
	Cooking Fuel	22.57	0.54
	Assets	65.20	1.72
	Land & live stock	26.50	8.00