



## Rural Poverty in India, An Overview Study

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**ABSTRACT:** This paper tries to estimate rural poverty across fifteen major states of India (aggregative level of analysis) using a multi dimensional framework ,encompassing the monetary and nonmonetary indicators. The Expert Group (2012, Indian Planning Commission) under the Chairmanship of Dr C. Rangarajan suggested on the need to explore non monetary indicators to evolve a measure of poverty-the present study makes an attempt in that direction (incorporation of basic capability factors like health and education). Again the commission recommended the need to relate poverty estimation to rural development programmes . The present study thereby utilises some of the major rural development programmes role, in mitigating core poverty in major states of rural India . This paper goes beyond the conventional study of poverty based simply on the poor/non-poor dichotomy defined in relation to some chosen poverty line. Poverty is treated here as a matter of degree determined in terms of the state's position in the muliti dimension distribution. A methodology on multi dimension framework is done ,followed by an empirical illustration with rural India datasets. A comparison with state level Human Development Indices is made to judge the reliability and comparibility of the measure.

**JEL code IE2**

**Keywords:** rural poverty, multi dimension measure,development, India

### I. Introduction

It has been more than two decades since India adopted open market policies in its effort to align itself with the globalized economy. The outcome has been quite significant in ushering high GDP growth, coupled with gradual but definite shift from a predominantly agrarian economy to a service-led economy. However, it has become increasingly clear that this growth has not illuminated the lives of bulk of the population and has actually intensified the divide between the haves and the have-not. Policy planners today are unanimous in their argument that unless this growth is made socially inclusive, the burden of poverty will seriously threaten the holistic development of our country.

In the context of a developing country like India, poverty issues has been researched upon extensively over the last forty years. Poverty is not only a state of existence but also a process with many dimensions and complexities. In understanding poverty and the poor it is essential to examine the context of economy and society. Poverty differences cut across gender, race and geographical location (rural versus urban). The rural poor are more than the urban poor and suffer more. Further across the rural poor there are differences across occupational groups reflecting high complex interactions of culture, market and policies. This paper tries to estimate rural poverty across fifteen major states of India (using state as the unit of observation, aggregative level analysis) using a multi dimensional framework ,encompassing the traditional monetary and nonmonetary indicators. The next section makes a brief review on the existing literature on poverty measurement , particularly in the context of the Planning Commission of India, the major amelioration programmes are also discussed. Section III delves upon the aims and the rationale of the measure developed here. The major sources of data sets and the methodology is also discussed here. The broad results are discussed in Section IV. The conclusion and scope for further research is discussed in section V.

### II. REVIEW OF LITERATURE

#### 2.1 On Measures of Poverty

During the first four decades of development studies (1950-90), poverty was primarily measured in money metric form, either from household income or consumption expenditure. The limitation of money-metric poverty to capture the multiple deprivations of human life and the development of the capability approach (Sen, 1985) led to growing interest to measure poverty in a multidimensional space. The evolution of the human development paradigm in 1990 led to a strong theoretical foundation to measure multidimensional poverty. The United Nations

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Development Programme (UNDP) in its annual publications devised a set of composite indices, the Capability Poverty Measure (CPM), the Human Poverty Index 1 (HPI 1) and the Human Poverty Index 2 (HPI 2) to measure multidimensional poverty (UNDP 1996, 1997) using aggregate data. The Millennium Declaration has outlined eradication of poverty in its all forms - hunger, ill health, illiteracy. The goals, targets and indicators of the Millennium Development Goals (MDGs) are included in national and local planning (United Nations, 2000). In recent years, the UNDP has disseminated the multidimensional poverty index (MPI) for 104 countries (UNDP, 2010). While the HPI measures poverty at the macro level, the MPI is unique as it identifies individuals (at the micro level) deprived in overlapping multiple dimensions and captures both the extent and intensity of poverty (Alkire and Santos, 2010). Following the UNDP's methodology, several researchers have contributed towards measurement of multidimensional poverty. Most of these studies used the dimensions of education, health and standard of living and a few studies included subjective well-being such as fear of facing hardship. (Mohanty and Dehury,2015)

## **2.2 Poverty measurement in India**

### **Evolution of The Indian Poverty Lines**

The official Indian poverty measures, released by the Indian Planning Commission (IPC), are based on consumer expenditure surveys conducted by the National Sample Survey Organization (NSS) and are measured as headcount ratios (HCR) – the ratio of the number of poor to the total population. A poor household is defined as a household with an expenditure level below a specific poverty line. The IPC has changed its methodology for constructing these poverty lines several times since the 1960s. From the late-1970s to the mid-1990s they relied upon a methodology proposed by The Task Force 1979 (Government of India 1979), which derived poverty lines from an assumed minimum requirement for calories, separately for the rural and the urban sector. In view of broad and fierce critics of the official measures, the IPC made substantial changes to their methodology, adopting most of the recommendations from a new expert group chaired by Professor Tendulkar (Government of India 2009,2011). The most pronounced methodology changes could be summarized as follows: First, the new approach no longer anchors the poverty lines to any form of calorie intake. Perhaps the most powerful normative critic against the old poverty measures is that they fail to preserve the original calorie norms. Second, the consumer expenditure figures are based on the NSS data with mixed reference period (MRP), as opposed to the earlier use of the uniform 30-days reference period (URP). Third, the reference poverty line is disaggregated to the state-level in both sectors with a new set of price indices, calculated directly from the expenditure data. This potentially corrects another major source of critic. Fourth, the new poverty lines are calculated for all Indian states, separately for the rural and the urban sector, versus the old approach which only calculated poverty lines for 23 large states.

Within one and a half years of the acceptance of the recommendations of the Expert Group (Tendulkar), the Planning Commission in June 2012 constituted an Expert Group under the Chairmanship of Dr. C. Rangarajan to suggest a methodology for measurement of poverty with the following Terms of reference: (a) To comprehensively review the existing methodology of estimation of poverty and examine whether the poverty line should be fixed solely in terms of a consumption basket or whether other criteria are also relevant, and if so, whether the two can be effectively combined to evolve a basis for estimation of poverty in rural and urban areas. (b) To examine the issue of divergence between consumption estimates based on the National Sample Survey Organisation methodology and those emerging from the National Accounts aggregates; and to suggest a methodology for updating consumption poverty lines using the new consumer price indices for rural and urban areas state-wise. (c) To review alternative methods of estimation of poverty which may be in use in other countries, including their procedural aspects; and indicate whether on this basis, a particular method can be evolved for empirical estimation of poverty in India, including procedures for updating it over time and across states. (d) To recommend how the estimates of poverty, as evolved, should be linked to eligibility and entitlements for schemes and programmes under the Government of India. Reviewing the method of estimation of poverty in other countries, the Expert Group (Rangarajan) arrived at the conclusion that neither their methodological nor procedural aspects are superior to what is being used in India at present. The estimates of poverty in India are based on a methodology which stands far apart for it is able to measure the incidence of poverty by capturing the demographic pattern and consumer behaviour separately in rural and urban areas and also by capturing the state-wise variation in the prices of goods and services. The very first of the Terms of Reference (TOR) for this Expert Group (Rangarajan) requires to examine, inter-alia 'whether the poverty line should be fixed solely in terms of consumption basket or whether other criteria are also relevant and, if so, whether the two can be effectively combined to evolve a basis for estimation of poverty, rural and urban areas.' The search for other criteria possibly stems from a view that, in terms of the capabilities approach to the concept and measurement of poverty, some of the 'capabilities', or, rather, the lack thereof may not be tightly linked to the privately purchased consumption basket in terms of which the poverty lines are currently drawn. A few such key capabilities are; (i) to be (at least minimally) educated; (ii) to escape avoidable diseases; and (iii) to be adequately sheltered.

At present, substantial amount of investment of the Department of Rural Development, which are meant

for income generation of the poor do not go through the Below Poverty Line ( BPL ) regimentation. In fact, as much as ninety two per cent of the funds flowing to the rural areas through the of Department of Rural Development do not require the BPL list since these programmes are no longer exclusively for the poor, and are universalized. For example, the wage employment programme Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), by far the single most important programme for the poor is not exclusively for the poor; it is universalized. The MGNREGA do not need a BPL list since both the poor and the non-poor access the employment equally. Targeted Public Distribution System (TPDS) was one of the important programmes linked to poverty ratio. Now, the Government has embarked on a large-scale food security programme for its citizens by bringing in two-third of the country's population (three-fourth of the rural population and half of the urban population) under its cover. In both rural and urban areas, therefore, poverty is no longer the criterion to access food from the public distribution system. However, the food security programme makes it imperative to draw up a list of households, from which it could be possible to identify the bottom 75 percent of the rural households and bottom 50 percent of the urban households. Therefore, BPL list in some form retain not only its relevance, but seem to gain in importance due to the supply of highly subsidized food grains to ensure food security. The National Rural Livelihood Mission (NRLM), which is a self-employment programme for rural poor, Indira Awas Yojana (IAY), the housing programme in rural areas and National Old Age Pension Scheme (NOAPS), a welfare programme for rural poor are the three programmes that remain target-group oriented (i.e. for the poor only) and require the BPL list. But, these programmes have other criteria for selection of beneficiaries. For example, homelessness is used as a criterion to select and prioritize the poor families in IAY. NRLM is a self-help group movement based scheme. NOAPS has other pre-requisites such as minimum age. The Expert Group (Rangarajan) deliberated on the issue of use of poverty ratio for determining the eligibility and entitlements for a wide range of poverty alleviation programmes and social welfare schemes implemented by various Ministries and Departments of the Government of India in association with the State Governments.

### **2.3 The Poverty Alleviation Strategy**

The Expert Group under the Chairmanship of Dr. C. Rangarajan constituted by the Planning Commission in 2012 deliberated on the need and urgency to relate Rural Development Programmes to Poverty ratios in rural areas of the states of India in the preceding section. However over the last fifty years, India's strategy for poverty alleviation has consisted of a mix of poverty alleviation programmes that directly attack poverty, activation of the Panchayati Raj institutions, in providing access to basic minimum services.. The anti-poverty programmes of the Government of India are designed to generate selfemployment and wage employment and provide safety nets through, for example, food subsidy programmes. The Economic Survey (2000) lists the major poverty alleviation programmes which are in operation in rural areas as follows:

Swarna Jayanti Gram Swarozgar Yojana (SGSY): a self employment programme aimed at promoting micro enterprises and helping the rural poor ,form self help group (SHG). Persistent efforts made by the government to fine-tune the self employment programmes during various Plan periods, especially oriented towards improving the implementation quality, yielded some new concepts that emerged at various times and got consolidated. The need to integrate the cluster approach, capacity building, skill upgradation, infrastructure including marketing development and technology penetration were felt more acutely with every passing year. Emphasis also was necessary to be laid on micro enterprise development with effective forward and backward linkages, so as to ensure best returns on the investment. The SHG approach helps the poor to build their self-confidence through community action. Group processes and collective decision were to enable them in the identification and prioritization of their needs and resources. This process would ultimately lead to the strengthening and socio-economic empowerment of the rural poor as well as improve their collective bargaining power. The SGSY scheme has been successful in delivering the outcomes in terms of poverty alleviation wherever capacity building and beneficiary mobilization have been carried out. National Social Assistance Programme (NSAP): provides social assistance benefit to poor households affected by old age, death of the primary breadwinner or need for maternity care, through National Old Age Pension Scheme, National Family Benefit Scheme and National Maternity Benefit Scheme. The poor require comprehensive access to strengthened public health system and facilities. In addition, they need suitable instruments in the form of health insurance in cases involving serious illness requiring hospitalization, which are not provided in institutions of public health. In the execution of NSAP, greater professional support is needed for ensuring quality, delivery and for suitable monitoring and evaluation purposes, both at the Centre and State levels. The National Rural Employment Guarantee Act, 2005 (NREGA) guarantees 100 days of wage employment in a financial year to any rural household whose adult members are willing to participate in unskilled manual work. The Act is an important step towards realization of the right to work and aims at arresting out-migration of rural households in search of employment simultaneously enhancing people's livelihood on a sustained basis, by developing the economic and social infrastructure in rural areas. The Public Distribution System (PDS) is the key element of the Government's food security system in India. It is an instrument for ensuring availability of certain essential commodities at easily affordable prices especially for the poor. Under the Targetted Public Distribution System

(TPDS) w.e.f. 1st June, 1997 foodgrains are being issued at highly subsidised rates to the States on the basis of the number of BPL families. In the present form, Indira Awaas Yojana (IAY): is one of the very popular schemes of the Ministry of Rural Development. The popularity can be attributed to the fact that the scheme enables beneficiaries to participate and involve themselves in construction of their home. The role of the State Government is confined to mere facilitating use of local, low cost, environment-friendly, and disaster resistant technology and also in encouraging construction of sanitary latrine and smokeless chulha. The beneficiaries construct the houses as per their own choice of design, technology, and requirement. Not surprisingly, evaluation studies reveal high levels of occupancy and satisfaction.

In sum the poverty alleviation programmes can be classified into (i) self-employment programmes; (ii) wage employment programmes; (iii) food security programmes; (iv) social security programmes; and (v) asset generation programme. The parameter used for evaluation included utilization of allocated funds, change in poverty level, employment generation and number or proportion of beneficiaries. Several of these schemes have undergone reforms, rationalization and better targeting with a greater role to local government for implementation and for beneficiary selection and monitoring. The reforms also lay stress on transparency, making information about the programmes public at the village level, and on the importance of physical, financial, and social audits. (Economic Survey, 2000).

### **III. AIM AND RATIONALE**

Though eradication of multidimensional poverty has been at the centre stage of development agenda, there are only a few studies that estimated multidimensional poverty in India. This paper aims at providing estimates of multidimensional poverty (aggregated level) at state (major fifteen) (rural) level. This is an improvement on existing literature as it has measured multidimensional poverty by including direct economic variables rather than economic proxies. Further the Expert Group under the Chairmanship of Dr C. Rangarajan suggested on the need to explore non-monetary indicators to evolve a measure of poverty—the present study makes an attempt in that direction (incorporation of basic capability factors like health and education). Again the commission recommended the need to relate poverty estimation to rural development programmes. The present study thereby utilises some of the major rural development programmes role, in mitigating core poverty in major states of rural India— as policy initiation variable to reduce deprivation. The parameter used for evaluation included, employment generation and number or proportion of beneficiaries.

This paper goes beyond the conventional study of poverty based simply on the poor/non-poor dichotomy defined in relation to some chosen poverty line. Poverty is treated here as a matter of degree determined in terms of the state's position in the multi-dimension distribution. In order to illustrate the richness of this approach, discussion of five types of measures of poverty and deprivation in relation to each other is made here: (1) income poverty as conventionally viewed in the form of a poor/non-poor dichotomy; (2) poverty (reverse of development) viewed as a propensity to be better off to which all states are subject to at a greater or lesser degree in terms of indebtedness and (un) casualisation of employment; (3) life-style deprivation in two dimensions determined by the lack of access to non-monetary facilities and opportunities (namely health and education), (4) 'dormant/(persistent) deprivation' representing the presence of either (both) monetary or non-monetary dimension, and (5) 'manifest deprivation' representing the situation of states in relation to policy initiation—role of Rural Development Programmes. Finally a composite indicator based on all the basic dimensions is attempted.

#### **3.1 Data sets**

This paper utilises secondary source of data, compiled from, Rural Development Statistics (2011-12), ed by Dr. Hanumantha Rao. This annual issue of Rural Development Statistics, the twenty second in the series is a compilation of data on selected key socio-economic and demographic parameters of people living in rural areas. The achievements of Anti-Poverty Programmes implemented by the Ministry of Rural Development, Government of India are highlighted with specific reference to the National Flagship Programmes of Rural Development. It also shows the present status of various States/UTs in regard to development issues such as poverty and unemployment. An explanatory note of contents is given at the beginning of each section. The reference years for presentation of data relate to mostly 2009-10, 2010-11 and 2011-12.

The advantage of using the Rural Development Statistics (2011-2012), in estimating multidimensional poverty is that it provides comprehensive information on key dimensions of poverty, work/employment, rural indebtedness; health, education; utilization of allocated funds, employment generation and number or proportion of beneficiaries in National Rural Development Programmes, particularly— Swarna Jayanti Gram Swarozgar Yojana (SGSY), National Social Assistance Programme (NSAP), National Rural Employment Guarantee Act (NREGA), and Indira Awaas Yojana (IAY).

#### **3.1 (a) Dimensions and Indicators**

In measuring multidimensional deprivation four dimensions are chosen—1.economic, 2.education, 3.health

and 4.effectiveness of Rural Development policies in India (four categories). The Box I below illustrates the indicators associated with each dimension and the choice of weights if any.

**Box I about here**

**3.2 Methodology**

*On Measuring Mulidimension deprivation related to poverty*

Steps for computing the multidimension poverty index

**The index is build following the stages below**

**i) Normalisation**

Let  $X = \{x_{ij}\}$  be the matrix with n rows (states,here 15) and m columns (deprivation or poverty indicators, here 12 indicators), let  $\mu_{xj}$  and  $\beta_{xj}$  denote the mean and standard deviation of the jth indicator respectively then

$$\mu_{xj} = \frac{1}{n} \sum_{i=1}^n x_{ij}; \quad (1) \quad \beta_{xj} = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_{ij} - \mu_{xj})^2} \quad (2)$$

$$Z = (z_{ij}) \text{ where } z_{ij} = 100 \pm \frac{1}{\beta_{xj}} [x_{ij} - \mu_{xj}] \times 10 \quad (3)$$

Where the sign  $\pm$  depends on whether the concerned indicator is a depriving indicator or favourable indicator in terms of capability generation.

**ii) Aggregation**

Let  $\alpha_i$  be the coefficient of variation for the ith state across the indicators

$$\alpha_i = \frac{\beta_{zi}}{\mu_{zi}} \quad (4)$$

$\beta_{zi}$  is the standard deviation (normalized across the indicators)

$\mu_{zi}$  is the mean (normalized across the indicators)

$$\text{Where } \beta_{zi} = \sqrt{\frac{1}{m} \sum_{j=1}^m (z_{ij} - \mu_{zi})^2} \quad (5)$$

$$\text{where } \mu_{zi} = \frac{1}{m} \sum_{j=1}^m z_{ij} \quad (6)$$

The multidimensional index of deprivation (MID)/ multi dimension index of development gap (MID)

$$MID = \mu_{zi} \pm \beta_{zi} \times \alpha_i \quad (7)$$

Putting + stands for poverty measure and – stands for development gap measure

iii) Further a step wise aggregation is made between the dormant (persistent ) deprivation and manifest deprivation to show a case of decomposibility between the two,using equal weights,here a geometric mean is proposed ,keeping the long term alleviation impact in mind

$$\text{Overall poverty indicator (OPI)} = (MID_{\text{dormant/persistent}})^{1/2} \times (MID_{\text{manifest}})^{1/2} \quad (8)$$

**The following aspects are considered while computing the index Equation (7)**

- a) The composite multidimensional index (MID) ,considers a set of indicators generating capability/or deprivation that are not substitutable;
- b) The task of normalisation eliminates the criterion of use of units of measurement and the variability effect;
- c) Synthesis of a composite measure which is unequivocal and comparable overtime;
- d) Simplicity of understanding;
- e) The normalisation of indicators across the states is developed such that it is possible to convert each indicator to a common scale of mean 100 and standard deviation 10,this actually generates a range within which the normalized value obtained will vary;
- f) The final arregation across indicaotrs ,horizontally takes care of horizontal variability and the composite indicator is directly proportional to the coefficient of variation;
- g) Standardisation of the measure generates robustness;
- h) The summation over the two dimnsions of poverty using geometric mean is done to allow time dimension of healing of poverty and ,the case of nonsubstitution between policy variable based poverty measure and monetary and nonmonetary based indicators of poverty.

#### IV. RESULTS

This section discusses the major observations based on -Table (I) ,Table I(A), Table I(B), Table I(C),Table II and Table III. The Box (2) summarises in detail the list of variables utilised in the analysis, further a legend of symbols of the variables are made, which are used in the subsequent tables.

##### **Box 2: List of individual indicators of human development and poverty --- here**

##### **Table(I): Poverty a multi deprivation some broad statistics -- here**

The Section (1) of Table (1) summarises the state wise behaviour of traditional income poverty (measured by head count ratio), the reference year as mentioned in the source is 2009/10. Almost fifty percent of the rural population are below poverty line in rural Bihar. Assam, Uttar Pradesh and Madhya Pradesh have above thirty five percent of rural population below poverty line. The Section 2(A) of Table (1) and Section 2 (B) of the same table explains the behaviour of the states with respect to the variable-poverty as a propensity to be better off .It must be observed that poverty (reverse of development) is a process whereby the concerned population is trying to improve their capability. Indebtedness is a propensity to improve the condition of living ,states with low percentage of population as well as high percentage of population below poverty line have comparable incidence of indebtedness across households (eg. Kerela and Bihar),( the concerned year of reference is 2004/2005 according to the source for data on indebtedness). Table (1) ,Section 2(B) (year of reference 2009/2010) explains the extent of employment across states of India with focus on casualization. Madhya Pradesh and Bihar are poverty stricken states and these states have high incidence of casualization of labour, implying the poor responding to the labour markets as a propensity to improve their living .

Table (IA) discusses the statewise behaviour with respect to life style indicators namely health and education. Kerela and Punjab have low head count ratio as far as percentage of population below poverty line is concerned ,they further have good health conditions among the population.(Table (I) and Table I(A) Sec 3(A). Kerela also enjoys ninety percent rural literacy rate, followed by seventy percent literacy (for literacy rates the reference year is 2011) in Punjab. Bihar ,Uttar Pradesh and Madhya Pradesh have high head count ratio as far as percentage of population below poverty line is concerned. These states also have high incidence of malnourished children. (Table(I) and Table (IA),Section (3B) (for malnourishment data the reference year is 2005/2006). The states thus suffer from a vicious cycle of poverty (income) failure and life style deprivation .

##### **Table( IA) and Table (IA: Poverty a multi deprivation some broad statistics here**

##### **Table (IB) : Poverty a multi deprivation Dormant deprivation (deprivation of either monetary ,or Non monetary variables)/ Persistent deprivation (deprivation in both) about here**

This table (Table (IB) ) classifies the major states of rural India in terms of dormant (deprivation either in monetary indicator or non monetary indicator)and persistent deprivation (deprivation in both monetary and non monetary indicator). Uttar Pradesh and Madhya Pradesh suffer from persistent deprivation. The following diagram tries to explain the exact position of persistent deprivation across the population.

##### **Diagram I : Explaining Persistent Poverty in venn diagram here**

The Table ( IC) summarises the states' behaviour across rural India in terms of manifest deprivation (availability) explained through utilisation of Rural Development Programmes of Government of India. Kerela and Punjab have high non utilisation of Rural Development Programmes. From the earlier discussion it is evident ,these states enjoy high capabilities in health and education. Again the states have low levels of poverty, so they are non beneficiaries of the programmes of the government. Bihar , Uttar Pradesh and Madhya Pradesh (as discussed earlier) demonstrate capability failure in non monetary and monetary indicators and these are major recipients of the benefits of Rural development Programmes (here it is relevant to mention the years of reference of the data source of the various programmes,NSAP 2011/2012,IAY 2009/2010,SGSY 2011/2012 and NREGA 2009/2010). Thus they demonstrate low levels of manifest poverty. These results amply demonstrate the expected behaviour that manifest poverty should be inversely related to persistent poverty. Such database is useful in designing index of manifest poverty and explores the possibility of linking poverty results with eligibility and entitlements of programmes of Government of India, as proposed by the Expert Group of 2012, under the chairmanship of Dr. Rangarajan.

##### **Table( IC): Poverty a multi deprivation, some broad statistics Manifesting opportunities in Utilisation of Major rural development Programmes about here .Table (II): On Normalisation of the Indicators [ matrix Z] about here Table (III) :Aggregation Multidimension Index of Development here**

The table (II) summarises the normalised indicators basically the matrix Z across the states of rural India. As explained under the section on methods due to conversion of indicators to common scale the normalised values vary within a range of 75-150. Such exercise makes the variables free from units of measurement and reduces the degree of variability. The next table Table (III) reviews the Multi Dimension Index of Development (MID) (along with ranks) across states of rural India and the rank order of Human Development Index (HDI). There is a close

similarity in the rank order of MID and HDI except two major variations. This exercise thus justifies the computational ease and acceptance of the measure developed. The paper justifies that the new measure is elegant than the HDI –since it explores development along income dimension, propensity to better of dimension and life style dimension. It also discusses manifest dimension. Again the measure can be suitably converted to Multi Dimension poverty measure or Multi dimension development (gap) measure depending on additive (subtractive) property follow equation .....(7). The results in Table (III) illustrates the multi dimension development (gap) measure for availing the scope of comparison with HDI, one major index developed in the multi dimension framework in the literature.

### V. CONCLUSION

The research from unidimensional to multidimensional development and poverty measurement is without any doubt an important theoretical progress and presents many advantages for policy-making. However, there is also a constraint, because multidimensional measurement implies many theoretical, methodological and empirical problems. The international literature on composite indices of development and poverty offers a wide variety of aggregation methods. The measure developed in this paper have taken into consideration the desirability of the standard measure of multi dimension on poverty/ development gap, it has considered the scope of non-substitutability across the indicators. The measure has utilised a contributory dimension or diminutive dimension of the indicator by additive or subtractive behaviour. It has broadened the meaning of poverty by expanding on dimension choosing twelve indicators and explored results based on major states of rural India (this indeed is a major task). The method and the results discusses some recommendations of the recent Expert Group on poverty (2012) though there are limitations in integration. In India, there are a limited number of studies that estimated multidimensional poverty. This paper is an improvement on earlier studies with respect to dimension, variable and coverage. Using MID's data, we have presented a comparison among HDI (Human Development Index). The short coming of this exercise is the inability to utilise unit level data on rural India for empirical illustration. Another major limitation of this exercise is the inability to consider poverty along the longitudinal framework by including time dimension-this exercise would show whether development gap persists or perishes. The paper explained the need to combine the two dimensions of poverty (development) particularly poverty (development)of income and life style opportunities and development policy utilisation or failure. However the measure lacks rigour in aggregation.

**BOX I: On Dimensions and Weights**

Dimension	Indicator	Weights
1. Health	A)Life Expectancy At Birth,Persons,Statewise.	Equal Weight Given To Each Indicator On Health Dimension
	B) Prevalence Of Malnutrition Among Children,Statewise,Underweight And Stunting.	
2.Education	A)Literacy Rates,Persons ,Statewise	Equal Weight Given To Each Indicator On Education Dimension
	B) Gross Enrolment Ratio,Persons ,Statewise At Elementary Level	
3.Economic	A)Employment –Self Employed,Salaried And Casual,Persons ,Statewise	Weights On Casual Labour Is Maximum,0.5,Followed By Self Employed 0.33and Salaried Are Given Least Weight 0.17,This Is Done To Reflect The Casualisation And Vulnerability Of Employment,Then The Three Components Are Summed With The Weights
	B)Incidence Of Indebtedness Among Rural Labour Households,Statewise	
	C)Percentage Of Population Below Povertyline,Statewise	
4.Rural Development Policies	A) Swarna Jayanti Gram Swarozgar Yojana ( <i>Proportion Of Swarozgaris Assisted</i> )	Equal Weights Are Given To Each Indicator On Rural Development Policies
	B) National Social Assistance	

	Programme (Proportion Of Beneficiaries)	
	C) National Rural Employment Guarantee Act (Proportion Of Households Provided Employment)	
	D) Indiraawaas Yojana (Proportion Of Sactioned To Annual Targets Met Is Chosen)	

**Box II : List of individual indicators of human development and poverty**

<b>Human Development (Capability Generating)</b>	
<b>Description</b>	
1. Health: Life Expectation at birth	
2. Education: Adult Literacy Rate	
3. Education: Gross Enrolment Ratios (GER) in Elementary Education	
<b>Poverty (CAPABILITY FAILURE)</b>	
<b>Description</b>	
4. Economic: Head Count Ratio of the poor	
5. Economic: Indebtedness across households	
6. Economic: Casualisation of labours	
7. Health: Malnutrition among children	
<b>Policy Variables for human opportunities</b>	
<b>Description</b>	
8. Self Employment Illustration: Swarna Jayanti Gram Swarozgar Yojana (SGSY)	
9. Wage Employment Programme and social Security Illustration National Rural Employment Guarantee Act, (NREGA)	
10 Social assistance and social security programme illustration National Social Assistance Programme (NSAP)	
11 Asset Generation Programme illustration Indira Awaas Yojana (IAY)	
<b>Legend</b>	
A1 (for Sl. 1)	
A2 (for Sl.2)	
A3 (for Sl. 3)	
E1 (for Sl. 4)	
E2 (for Sl.5)	
E3 (for Sl. 6)	
Y4 and Y41(for Sl.7 )there are two components	
X1 (for Sl. 8)	
X2 (for Sl. 9)	
X3 (for Sl.10)	
X4 (for Sl.11)	

**Table I : Poverty a multideprivation some broad statistics ( Economic dimensions)**

States	Section I		Section II(A)
	Income Poverty		Poverty as a propensity degree to be better of
	Head Count Ratio(%age of population below poverty line)		% of indebtedness among households
Andhra Pradesh	21.1 (5)		66.6 (15)
Assam	37.9 (13)		59.3 (12)
Bihar	53.5 (15)		34.6 (3)
Gujarat	23 (8)		56 (11)
Haryana	20.1 (3)		51.1 (9)
Karnataka	23.6 (6)		35.4 (4)



Kerala	12 (1)	64.3 (14)
Madhya Pradesh	36.7 (14)	34.2 (2)
Maharashtra	24.5 (10)	42 (6)
Odisha	37 (11)	29.3 (1)
Punjab	15.9 (2)	46.9 (8)
Rajasthan	24.8 (7)	38.8 (5)
Tamil Nadu	17.1 (4)	53 (10)
Uttar Pradesh	37.7 (12)	42.9 (7)
West Bengal	26.7 (9)	61.5 (13)
<b>States</b>	<b>Section II (B)</b>	
	<b>Poverty as a propensity degree to be better of</b>	
	<b>Weighted Employment with maximum weights on casual labour</b>	
Andhra Pradesh	421.14 (2)	
Assam	353.35 (12)	
Bihar	409.99 (4)	
Gujarat	390.09 (8)	
Haryana	348.39 (14)	
Karnataka	408.76 (6)	
Kerala	350.39 (13)	
Madhya Pradesh	410.07 (3)	
Maharashtra	409.23 (5)	
Odisha	392.13 (7)	
Punjab	336.72 (15)	
Rajasthan	372.52 (10)	
Tamil Nadu	421.61 (1)	
Uttar Pradesh	358.48 (11)	
West Bengal	384.6 (9)	

**Note:** The figures in the parenthesis denote the rank order of states (ascending order for Section I&SectionII (A) and descending order for Section II(B)),

**Source:** Rural Development Statistics,2011-2012

**Table I(A):** Poverty a multi dimension some broad statistics,( non monetary dimensions)

States	Section III (A)		
	Life style opportunities (non monetary indicators)		
	Education (Literates)	Education (Gross Enrolment in Elementary Education)	Health( Life Expectancy at birth)
Andhra Pradesh	61.14 (15)	82.49 (12)	63.1 (8)
Assam	70.44 (9)	98.87 (7)	57.9 (14)
Bihar	61.83 (14)	80.45 (14)	60.7 (10)
Gujarat	73 (4)	106.47 (2)	62.7 (9)
Haryana	72.74 (6)	80.58 (13)	65.4 (3)
Karnataka	68.86 (10)	100.78 (5)	63.7 (6)
Kerala	92.92 (1)	89.71 (10)	73.8 (1)
Madhya Pradesh	65.29 (12)	124.14 (1)	56.6 (15)
Maharashtra	77.09 (2)	90.79 (9)	65.2 (4)
Odisha	70.78 (2)	106.41 (3)	58.8 (13)
Punjab	72.45 (7)	74.99 (15)	68.5 (2)
Rajasthan	62.34 (13)	103.39 (4)	60.6 (11)
Tamil Nadu	73.8 (3)	99.9 (6)	64.5 (5)
Uttar Pradesh	67.55 (11)	97.86 (8)	59.2 (12)
West Bengal	72.97 (5)	83.64 (11)	63.5 (7)

**Note :** Figures in the parenthesis denote rank in descending order.

**Source:** Rural Development Statistics,2011-2012

**Table I(A):** Poverty a multi dimension some broad statistics,( non monetary dimensions)

Contd Section III (B)	
Life Style Deprivation Non monetary indicators (Health)	
States children(Stunting/underweight)	Malnutrition among
Andhra Pradesh	42.7 (4) / 32.5(4)
Assam	46.5 (11)/36.4 (5)
Bihar	55.6 (14)/ 55.9 (14)
Gujarat	51.7 (13)/ 44.6(13)
Haryana	45.7 (9)/ 39.6 (9)

<b>Karnataka</b>	43.7 (5) /37.6 (7)
<b>Kerala</b>	24.5 (1) /22.9 (1)
<b>Madhya Pradesh</b>	50 (12)/ 60 (15)
<b>Maharashtra</b>	46.3 (10)/ 37(6)
<b>Odisha</b>	45(8)/ 40.7 (11)
<b>Punjab</b>	36.7 (3)/ 24.9 (2)
<b>Rajasthan</b>	43.7 (6)/ 39.9 (10)
<b>Tamil Nadu</b>	30.9 (2)/ 29.8 (3)
<b>Uttar Pradesh</b>	56.8 (15)/ 42.4 (12)
<b>West Bengal</b>	44.6 (7)/38.7 (8)

**Note :** Figures in the parenthesis denote rank in ascending order. Source: : Rural Development Statistics,2011-2012

**Table I(B) :** Poverty a Multi deprivation Dormant Deprivation vis-a vis Persistent Deprivation States with low rank ordering

<b>Income Poverty</b>	<b>Indebtedness</b>	<b>Casual Labour</b>
Assam	Andhra Pradesh	Andhra Pradesh
Bihar	Assam	Bihar
Madhya Pradesh	Gujarat	Karnataka
Odisha	Kerala	Madhya Pradesh
Uttar Pradesh	West Bengal	Tamil Nadu
<b>Literacy</b>	<b>Life Expectancy</b>	<b>Malnutrition</b>
Andhra Pradesh	Assam	Bihar
Bihar	Madhya Pradesh	Madhya Pradesh
Madhya Pradesh	Odisha	Uttar Pradesh
Rajasthan	Rajasthan	Gujarat
Uttar Pradesh	Uttar Pradesh	

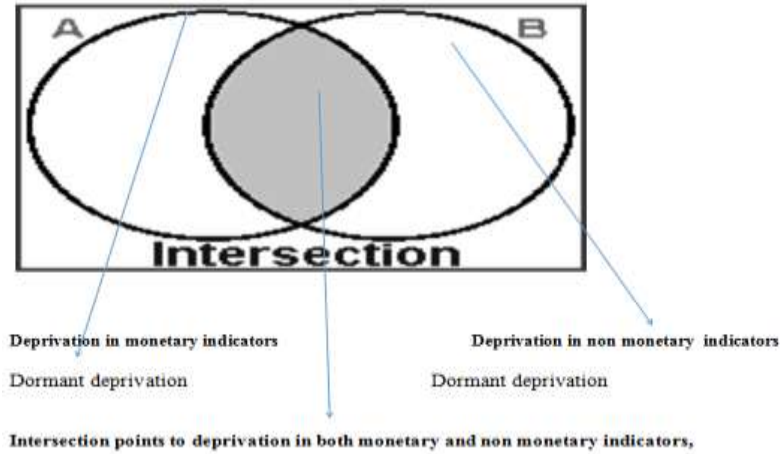
**Table I(C):** Poverty a multideprivation some broad statistics Manifesting Opportunities,Utilisation of Major Rural Development Programmes

States	NSAP		IAY		SGSY		NREGA	
Andhra Pradesh	1476977	[8]	1.184512	[3]	49785	[ 4 ]	2161395	[ 4 ]
Assam	649912	[11]	1.03266	[10]	27565	[ 7 ]	792270	[8]
Bihar	3574239	[2]	0.905036	[14]	61857	[ 2 ]	1688899	[ 5 ]
Gujarat	325484	[12]	1.044664	[8]	10043	[12 ]	226269	[12 ]
Haryana	174730	[15]	1.130178	[5]	6819	[14 ]	50765	[14 ]
Karnataka	1203434	[9]	1.675831	[1]	21912	[10 ]	545185	[10 ]
Kerala	235246	[13]	0.865186	[15]	9948	[1 3 ]	99107	[13 ]
Madhya Pradesh	1745728	[5]	0.946134	[13]	46390	[ 5 ]	2866349	( 2 )
Maharashtra	1626000	[6]	1.646612	[2]	43605	[ 6 ]	384944	[11 ]
Odisha	2161945	[4]	1.10168	[6]	55267	[ 3 ]	1394169	[ 6 ]
Punjab	177412	[14]	0.997873	[11]	3968	[ 15 ]	31648	[15 ]
Rajasthan	836783	[10]	1.034362	[9]	20519	[11]	1175172	[ 7 ]
Tamil Nadu	1504140	[7]	1.140201	[4]	26674	[ 8 ]	683481	[ 9 ]
Uttar Pradesh	4091879	[1]	0.960558	[12]	132676	[ 1 ]	2573245	[ 3 ]
West Bengal	2221645	[3]	1.052248	[7]	25326	[ 9 ]	3083757	( 1 )

**Note:** Figure in the parenthesis denote rank in descending order

**Source:** Rural Development Statistics,2011-2012

**Diagram I :** Explaining Persistent Poverty In Venn Diagram



**Table II : On Normalization of the indicators (Matrix Z)**

State	A1	A2	A3	E1	E2	E3	Y4	Y41
<b>Andhra Pradesh</b>	99.79	86.59	90.37	105.93	83.84	98.30	101.93	106.65
<b>Assam</b>	87.46	98.48	103.29	90.79	90.09	98.28	97.31	102.57
<b>Bihar</b>	94.10	87.47	88.76	77.15	111.23	98.30	86.25	82.18
<b>Gujarat</b>	98.84	101.75	109.28	102.48	92.91	98.29	90.99	94.00
<b>Haryana</b>	105.24	101.42	88.86	109.65	97.11	98.28	98.29	99.23
<b>Karnataka</b>	101.21	96.46	104.79	103.01	110.55	98.30	100.72	101.32
<b>Kerala</b>	125.14	127.23	96.06	115.50	85.80	98.28	124.05	116.69
<b>Madhya Pradesh</b>	84.38	91.89	123.22	88.93	111.58	98.30	93.06	77.89
<b>Maharashtra</b>	104.76	106.98	96.92	100.00	104.90	98.29	97.56	101.95
<b>Odisha</b>	89.60	98.91	109.24	91.41	115.77	98.29	99.14	98.08
<b>Punjab</b>	112.58	101.05	84.46	113.20	100.70	98.28	109.23	114.60
<b>Rajasthan</b>	93.86	88.12	106.85	102.75	107.64	98.29	100.72	98.91
<b>Tamil Nadu</b>	103.10	102.77	104.10	107.35	95.48	98.30	116.28	109.48
<b>Uttar Pradesh</b>	90.55	94.78	102.49	91.23	104.13	98.28	84.79	96.30
<b>West Bengal</b>	100.73	101.71	91.28	100.62	88.20	98.29	99.62	100.17

Note : Legends (A1 to Y41) are explained in Box II.

**Table II : On Normalization of the indicators (Matrix Z) (Continued)**

States	X1	X2	X3	X4
<b>Andhra Pradesh</b>	104.36	109.53	100.09	103.06
<b>Assam</b>	97.25	96.18	92.88	96.47
<b>Bihar</b>	108.21	104.92	118.35	90.94
<b>Gujarat</b>	91.65	90.66	90.06	96.99
<b>Haryana</b>	90.62	88.95	88.74	100.70
<b>Karnataka</b>	95.45	93.77	97.70	124.36
<b>Kerala</b>	91.62	89.43	89.27	89.21
<b>Madhya Pradesh</b>	103.27	116.40	102.43	92.72
<b>Maharashtra</b>	102.38	92.21	101.38	123.10
<b>Odisha</b>	106.11	102.05	106.05	99.47
<b>Punjab</b>	89.71	88.77	88.77	94.96
<b>Rajasthan</b>	95.00	99.92	94.51	96.55
<b>Tamil Nadu</b>	96.97	95.12	100.32	101.14
<b>Uttar Pradesh</b>	130.85	113.55	122.86	93.35
<b>West Bengal</b>	96.54	118.52	106.57	97.32

Note: Legends (X1 to X4) are explained in Box

**Table (III): Aggregation : Multi dimensional Index of Development (MID)**

States	MIDdormant/persistent	rank	HDI rank	MIDmanifest	rank
Andhra Pradesh	95.99	11	9	104.15	3
Assam	95.72	12	10	95.67	11
Bihar	89.60	15	14	104.70	2
Gujarat	98.25	9	6	92.26	12
Haryana	99.43	6	4	91.99	13
Karnataka	101.89	4	8	101.30	8

Kerala	109.18	1	1	89.87	15
Madhya Pradesh	94.17	14	13	103.02	7
Maharashtra	101.29	5	3	103.55	5
Odisha	99.40	7	15	103.34	6
Punjab	103.38	3	2	90.48	14
Rajasthan	99.27	8	12	96.45	10
Tamil Nadu	104.25	2	5	98.33	9
Uttar Pradesh	94.94	13	11	113.45	1
West Bengal	97.35	10	7	103.99	4

Note :Ranks are in descending order, Souce HDI rank,Suryanarayana(2011),rest of the columns (col3,5)self compiled

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