



Multidimensional Poverty in India: Has the Growth been Pro-Poor on Multiple Dimensions?

Uppal Anupama (Punjabi University)

Paper Prepared for the IARIW 33rd General Conference

Rotterdam, the Netherlands, August 24-30, 2014

Session 6B

Time: Thursday, August 28, Afternoon

Multidimensional Poverty in India: Has the Growth been Pro-Poor on Multiple Dimensions?

A Paper for

33rd General Conference

International Association for Research in Income and Wealth

Type of Submission: Sessions – (a)

Session 6B: Multidimensionality and Growth Pro-Poorness

Submitted by:

Anupama Uppal

Department of Economics

Punjabi University, Patiala

Punjab, India.

anupamauppal@yahoo.com

Multidimensional Poverty in India: Has the Growth been Pro-Poor on Multiple Dimensions?

I. Introduction: The concepts of multidimensional poverty and pro-poor growth have recently captured the attention of researchers and policy makers. Actually, it is being widely felt that neither the benefits of growth trickle down automatically to the lower rungs of the income ladder nor the reduction in income poverty is an indicator of general rise in standard of living of the masses. It is being felt that the linkages between income and well being as well as the distribution of income are not straightforward (Sen, 1992; Streeten, 1994; Berenger and Bresson, 2010). The recent studies on pro-poor growth have the shortcoming of not including the non-income indicators. The estimates measuring the pro-poor growth are purely based upon the income indicators and do not reflect any change in the non-income indicators of the pro-poor growth. The shortcoming of the one-dimensional focus on income is that a reduction in income poverty does not guarantee a reduction in the non-income dimensions of poverty, such as education or health (Grosse et.al., 2005). This means that finding income pro-poor growth does not automatically mean that non-income poverty has also been reduced. The outcome of any growth process is needed to be evaluated regarding achievements on front of many dimensions.

The idea of multidimensional poverty has actually started with Sen's capability approach which gives more emphasis to non-income indicators (Sen, 1988). Thus, if the growth is pro-poor, the deprivations on account of non-income indicators must have reduced. We have two different methodologies - one measuring pro-poor growth another measuring the multidimensional poverty. The multidimensional poverty indicators measure the headcount ratio, poverty gap and squared poverty gap (or severity of poverty), while the pro-poor growth indicators show whether the benefits of growth have been larger for the poor or not. Can we have a synergy of two types of indicators? Since we already have a range of methodologies to measure the extent, degree and severity of poverty using the income indicators (e.g. FGT indexes) and the attempts to measure the pro-poorness of growth on multiple dimensions are scanty, here an attempt would be made to compare the pro-poor growth rates on account of income indicators with that of the non-income indicators. In this perspective, this paper discusses the deprivations on account of many cardinal and ordinal measures. This analysis is based upon FGT indices for measuring uni-dimensional poverty, the Alkire and Foster (2008) methodology for multi-dimensional poverty and then Pro-Poor growth rates on non-income indicators have been calculated by using Klasen (2008) approach which is based upon Ravillion and Chen (2003) index. Thus, this paper has been divided into five sections. Apart from this introductory section, section II gives the data and methodology used in this paper, section III analyses the extent of uni-dimensional and multidimensional poverty in India, section IV measures the pro-poor growth indicators and finally section V concludes the paper and gives some policy suggestions.

II. Data and Methodology: This paper uses NSSO data on consumer expenditure for measuring income as well as non-income poverty. The analysis would be restricted to the 61st and 66th Round of NSSO. For measuring multidimensional poverty Alkire and Foster (2008) methodology has been used. This methodology allows measurement of poverty on ten different dimensions. Based upon the availability of data we have tried to identify the poverty/deprivations on account of 8 dimensions. The poverty line of these dimensions has been fixed according to the MDG indicators. An attempt has been made to capture the deprivations on account of the living conditions, the nutritional status, ownership of the assets and attainment of human capital. These indicators are discussed below along with their poverty lines:

1. Expenditure: The expenditure has been taken on monthly per capita basis and the official poverty lines, given by the Planning Commission have been used as a cut-off to identify the poor. The expenditure in 2009-10 has been deflated and the poverty line for year 2004-05 has been used.
2. Cooking Fuel: This dimension has 10 different categories. These are discussed below along with their ranks:
 1. No cooking arrangements
 2. Firewood and Chips
 3. Dung Cake
 4. Charcoal
 5. Coke, Coal
 6. Others
 7. Kerosene
 8. Gobar Gas
 9. Electricity
 10. LPG

We set $Z=7$ and classify those as non-poor who use kerosene, gobar gas, electricity and LPG.

3. Lighting: There are seven different categories.
 1. No lighting arrangements
 2. Candle
 3. Kerosene
 4. Other oils
 5. Gas
 6. Others
 7. Electricity

Here, persons not using electricity for lighting are termed as poor.

4. Dwelling: There are four different categories:
 1. No Dwelling Unit
 2. Others
 3. Hired

4. Owned

The persons without ownership of the dwelling unit and the unspecified categories are identified as poor.

5. Regular Salary/Wage Income: If no person in the family is having a regular source of income, then all the members of the household are identified as poor.
6. Number of Meals per Day: The persons having less than two meals a day are termed as poor.
7. Education: The illiterate persons and those having education below primary are termed as poor.
8. Ownership of Land: The persons without ownership of land are termed as poor.

The methodology proposed by Alkire and Foster (2008) can also be broken down in to individual dimensions to identify which deprivations are driving multidimensional poverty in different regions or groups. This characteristic makes it a powerful tool for guiding policies to address deprivations in different groups effectively. For analysing multidimensional poverty using this methodology, it is important to understand a few concepts. As in the Foster Greer Thorbecke class of income poverty measures, each value can also be squared, to emphasize the condition of the poorest of the poor. So, this methodology proposes a class of measures $M\alpha$, comprising three measures:

M_0 : the measure described below, suitable for ordinal and binary and qualitative data, which represents the headcount and the *breadth* of poverty. This is the adjusted headcount index (H) which shows the weighted sum of average deprivations (A). This can also be represented as $M_0 = H \times A$ or average deprivations can be calculated by dividing M_0 with H i.e. $A = M_0/H$.

M_1 : M_0 times the average normalized gap (G), this is represented as HAG or $M_1 = M_0 \times G$ i.e. $G = M_1/M_0$.

M_2 : M_0 times the average squared normalized gap (S), represented as HAS . Thus, $M_2 = M_0 \times S$ i.e. the severity of poverty or $S = M_2/M_0$.

Measuring Poverty and Pro-Poor Growth: As discussed in the introductory section, for calculation of uni-dimensional poverty, the head count ratio, poverty gap and the severity of poverty (squared poverty gap) are calculated using the FGT indices. Although, growth of income generally leads to decline in poverty rates, yet it may not have benefitted the poor and rich in a similar way. Growth may result in to increase in income inequalities which push the marginalized sections of the society in to deeper morass of poverty. Therefore, for past many years there is a general consensus that growth alone is a rather insufficient tool for poverty reduction. Therefore, for the past decade, the poverty analyses are largely dealing with the relationship between economic growth and rising inequality with reference to the concept of “pro-poor growth.” The concept of pro-poor growth has been defined in a variety of ways: the growth can be termed as pro-poor when the increase in gross domestic product simply reduces the poverty (Ravallion, 2004); if the poor benefit proportionately more than the non-poor (Pasha and Palanivel, 2004 and Zepeda, 2004) or if the relative shares of poor in income, population and variance of poor’s share of income have favourably changed (White and Anderson, 2001). Clearly, different definitions of pro-poor growth lead to different assessments of growth

processes using a different measurement tool. Recent studies employ different concepts and thus define varying tools to quantify the impact of growth on poverty. Among the most widely used concepts and hence the indices are those used by Ravallion and Chen (2003) and Kakwani and Pernia (2000). Ravallion and Chen measures the rate of pro-poor growth (RPPG) which is based upon the concept of “growth incidence curve” (GIC) and marks the area under the GIC up to the headcount ratio. If the RPPG exceeds the mean growth rate, growth is judged to be pro-poor in its relative meaning. On the other hand Kakwani and Pernia (2000) measure the Poverty Equivalent Growth Rate (PEGR) which captures the change in poverty when inequality changes without affecting the real mean income. Thus, the estimated growth rate gives more weight to the incomes of the poor.

Thus, we have two different sets of methodologies- one, calculating the multidimensionality of poverty and another, the pro-poorness of growth. However, it is being felt that the pro-poor growth may or may not be multi-dimensional. Similarly, reduction in multidimensional poverty may or may not be pro-poor. Thus, improving income situation of households need not automatically imply an improving non-income situation (Klasen, 2000). Hence, there is a need to have a rational synergy between the pro-poor growth indicators and multi-dimensional poverty indicators. Although, Grosse, Harttgen and Klasen (2008) have suggested making use of the tools developed for pro-poor growth on non-income indicators as well but there are several limitations of using these upon the same. A useful tool for measuring growth rate is GIC, which can also be applied to non-income indicators which helps us in examining whether the growth has been pro-poor or not in case of multiple dimensions. In case of non-income indicators, we rank the individuals by each respective non-income variable and calculate the population centiles based upon this ranking which further enables us to calculate the pro-poor growth index in case of each dimension. This type of exercise gives us an indication that how growth has behaved for each dimension which may further specifies the direction of public spending for any poverty removal strategy. However, there are certain limitations of using the GIC on non-income indicators. As we know that the calculation of non-income indicators is mainly based upon the ranking of different scales of attainments. Two types of problems may arise in this case, first, shifting of one rank in the lower orders may not mean the same thing as shifting of one rank in higher orders e.g. in case of education, the shift from below primary to primary may not improve the living standard of a person as compared to the shift from graduation to post-graduation. This problem can be corrected by assigning higher weights to the higher order of education. Secondly, some variables of non-income indicators do not vary much i.e. the variables are bounded. These variable show very small variations and so for these variables and dummy variables, the use of GIC is barely feasible. This problem can be solved by using conditional GIC in which the population is first ranked by income indicator and then by the non-income indicator. Further,

Lastly and more importantly, the problem is that of a composite index. Whereas, UNDP has recently added multidimensional poverty index (MPI) which looks at overlapping deprivations in health, education and standard of living, Grosse, Harttgen and Klasen (2008)

have also proposed a composite welfare index which is based upon the same methodology used by UNDP. The question is do we really need a composite index? This is an important question particularly when in order to target the policy stance, our aim is to identify (and also to quantify) whether, the growth is pro-poor or not. Moreover, in case of developing economies, for different dimensions, we have to depend upon different data sets e.g. in case of India, though many dimensions of poverty are met through the National Family Health Survey (NFHS) data set and even Consumer Expenditure Survey by NSSO (National Sample Survey Organisation) can also be used with some proxy variables but for employment related variables we have to depend upon the NSSO surveys on 'Employment-Unemployment Situation in India'. This poses a problem as we would be dealing with different reference units. As we have seen that multidimensional poverty analyses are based upon a mix of deprivations and their sources which vary across groups/regions. Here we take note of two possible situations:

1. The data regarding income, expenditure and source of living of the family is given in consumer expenditure survey, these can also be found in survey on employment-unemployment situation which gives additional information on other employment characteristics such as whether the person is employed on full-time basis or part-time basis; has a job contract or not; entitled to paid leave or not; is covered by job security or not etc. These two data sets do not provide any information on other deprivations such as sanitation, access to drinking water, nutritional status etc. Now, the question is if it would be rational to calculate different deprivations from different sources? and also would it be rational to drop these sources of deprivations?
2. The growth may not be pro-poor for marginalized social groups (categorized according to gender, caste, ethnicity etc) on various dimensions and clubbing them together would not be a rational option. Moreover, the status of a person being in a particular group cannot be changed; we can only deal with his/her specific deprivation targeting that group only. Deprivations on different dimensions such as health, education, employment characteristics etc. need involvement of different departments so a composite index may only show an overall situation or trends over a period of time but for poverty removal strategy we need to calculate the size, degree of poverty and its pro-pooriness on different dimensions separately. Thus, whereas framing a composite welfare index can be important for analyzing overall changes in pro-pooriness of multidimensional poverty, for targeting policy, the separate calculations of these indicators across groups and across dimensions are more important.

III. Uni-dimensional and Multidimensional Poverty in India: By using the FGT indices on each dimension, we have calculated the headcount ratio of the population which is deprived of a particular dimension which is shown in Table 1. The table shows that the proportion of population living below poverty line is the highest in case of regular salary income, followed by education, lighting and consumption expenditure. As compared to 2004-05, the population living below poverty line in all the dimensions (except in case of regular salary income) has declined and in percentage terms, this decline is the highest in case of education in rural areas and dwelling unit in urban areas. Now moving to the multidimensional poverty rates, it can be observed (table: 2) that in 2004-05, 98.9 per cent of total population in rural areas and 89.5 per

cent in urban areas was deprived of at least one dimension. This ratio declined to 97.9 and 89.3, respectively in the year 2009-10. The table shows that as we increase the number of dimensions in which the people are deprived of, the head count ratio falls. In 2004-05, 52.4 per cent of population in rural areas and 16.9 per cent in urban areas were deprived of 4 dimensions and this ratio declined to 31.9 and 8.9 per cent respectively by the year 2009-10. Thus, we can say that as the economy is growing, the share of deprived population is declining. Using the same methods, we can also see the changes in uni-dimensional and multidimensional indicators of poverty gap ($\alpha = 1$) and severity of poverty ($\alpha = 2$).

Table: 1 Uni-dimensional Poverty Rates (FGT Indices)

Dimensions	Percentage of Population					
	2004-05		2009-10		Change in Poverty Rate	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas	Rural Areas	Urban Areas
Expenditure	26.57	16.54	17.32	11.57	-9.25 (34.81)	-4.97 (30.05)
Number of Meals Per Day	1.88	1.51	1.28	1.32	-0.60 (31.92)	-0.18 (11.92)
Education	89.11	69.01	56.76	35.68	-32.35 (36.30)	-33.33 (48.30)
Dwelling	2.04	4.08	1.72	0.20	-0.33 (16.18)	-3.88 (95.08)
Ownership of Land	4.41	25.81	3.35	24.00	-1.07 (24.26)	-1.81 (7.01)
Regular Salary Income	88.39	57.11	90.19	59.86	+1.80 (2.04)	+2.74 (4.80)
Cooking Fuel	90.40	32.24	87.65	27.30	-2.75 (3.04)	-4.93 (15.29)
Lighting	45.74	7.96	35.68	6.05	-10.06 (21.99)	-1.91 (23.99)

Figures in bracket show percentage change.

Table: 2 Multidimensional Poverty Rates

Number of Dimensions	Percentage of Population			
	2004-05		2009-10	
	Rural Areas	Urban Areas	Rural Areas	Urban Areas
1	98.9	89.5	97.9	82.3
2	94.8	64.7	89.7	48.4
3	83.8	37.0	65.5	23.8
4	52.4	16.9	31.9	8.9
5	17.1	5.2	8.3	2.3

6	1.3	0.8	0.6	0.2
7	0.1	0.2	0.00	0.00
8	0.00	0.00	0.00	0.00

Table 3 shows that in case of uni-dimensional poverty, the poverty gap as well as severity of poverty has declined for most of the dimensions. But, in case of regular salary income, the poverty gap as well as the severity of poverty has increased. We can also see from the table that in rural areas, the severity of poverty has also increased in case of dwelling unit. However, if we observe the poverty gap as well as the severity of poverty in case of multiple dimensions, it can be observed from the table that both have increased over a period of time. We can also see that as the number of deprivations increases to 6 dimensions, the poverty as well as severity of poverty reaches to its maximum, particularly in rural areas (note that the head count ratio was very low for 6 deprivations as shown in table 2). Thus, over a period of time the degree of poverty has increased for the poorest segment of the population. Thus, we have contrasting results as compared to the uni-dimensional FGT indices of poverty gap as well as severity of poverty. This poses the question- has the growth been pro-poor on multiple dimensions?

Table: 3 Changes in Degree of Poverty

Dimensions	Rural				Urban			
	2004-05		2009-10		2004-05		2009-10	
	Poverty Gap	Severity of Poverty	Poverty Gap	Severity of Poverty	Poverty Gap	Severity of Poverty	Poverty Gap	Severity of Poverty
	Uni-dimensional							
Expenditure	0.075	0.030	0.044	0.017	0.050	0.021	0.032	0.013
Number of Meals Per Day	0.019	0.019	0.013	0.013	0.015	0.015	0.013	0.013
Education	0.629	0.524	0.418	0.387	0.424	0.318	0.244	0.221
Dwelling	0.007	0.002	0.007	0.003	0.014	0.005	0.001	0.001
Ownership of Land	0.021	0.010	0.016	0.008	0.122	0.058	0.114	0.054
Regular Salary Income	0.419	0.198	0.427	0.202	0.271	0.128	0.284	0.134
Cooking Fuel	0.609	0.423	0.599	0.420	0.208	0.143	0.180	0.128
Lighting	0.228	0.114	0.179	0.090	0.040	0.020	0.031	0.016
	Multi-dimensional							
1	0.576	0.378	0.580	0.387	0.534	0.328	0.541	0.348
2	0.575	0.378	0.580	0.389	0.536	0.338	0.552	0.370
3	0.576	0.380	0.579	0.394	0.545	0.347	0.558	0.385

4	0.568	0.372	0.567	0.386	0.543	0.348	0.563	0.375
5	0.550	0.358	0.547	0.358	0.529	0.353	0.533	0.333
6	0.600	0.400	0.750	0.500	0.429	0.286	0.500	0.500

Here only 6 dimensions have been taken as for 7 and 8 dimensions the population facing multiple deprivations is negligible.

IV. Pro-Poor Growth and Multidimensional Poverty: As we have already discussed in the methodology section that Ravallion and Chen index measures the area below GIC curve up to head count ratio, therefore, the values of these indices are the same for all poverty measures as the index is not linked to give social order. The indices would only be different if there was first order pro-poor dominance (Duclos, 2009), which is not the case for our distribution. However, for measuring the poverty gap and severity of poverty, we have to rely upon the PEGR indices. The table 4 shows that in rural areas, the growth has been pro-poor in absolute sense in case of expenditure, education, ownership of land, cooking fuel and lighting but in relative sense, it remains pro-poor only in case of ownership of land and lighting. The indicator of regular salary also joins this group even though its mean growth rate is negative. Actually, in case of regular salary income the average growth rate has declined by a lesser rate for poor as compared to the total population. This result is again justified by the fact that the poverty gap as well as the severity of poverty has also been favourable to the poor in case of this indicator. In case of expenditure, education and cooking fuel, we have seen earlier that the head count ratio, the poverty gap as well as the severity of poverty has declined between 2004-05 and 2009-10 (table 1 and 3). However, the table 4 shows that the growth had not been pro-poor in case of these dimensions and the poorest of the poor are further deprived of the benefits of growth in both of these indicators. In urban areas, the growth had not been pro poor in case of expenditure, education and regular salary income and the degree of deprivation increases for the poorest of the poor in urban areas.

Table: 4 The Degree of Poverty and Pro-Poor Growth Indices

Dimensions	Average Growth Rate (g)	Ravallion and Chen Index	Ravallion and Chen Index - g	Poverty Gap			Severity of Poverty		
				Kakwani and Pernia	PEGR	PEGR-g	Kakwani and Pernia	PEGR	PEGR-g
Rural									
Expenditure	0.217	0.157	-0.059	0.789	0.171	-0.046	0.702	0.152	-0.065
Number of Meals Per Day	0.006	-0.443	-0.449	51.54	0.325	0.319	26.176	0.165	0.158
Education	1.065	0.423	-0.642	0.517	0.550	-0.515	0.328	0.349	-0.716
Dwelling	0.001	-0.002	-0.003	17.56	0.021	0.020	-18.010	-0.021	-0.022
Ownership of Land	0.006	0.155	0.150	21.095	0.115	0.110	10.61	0.058	0.052
Regular Salary Income	-0.016	-0.013	0.003	0.589	-0.010	0.007	0.289	-0.005	0.012

Cooking Fuel	0.061	0.015	-0.046	0.222	0.014	-0.048	0.066	0.004	-0.057
Lighting	0.077	0.148	0.071	1.518	0.117	0.040	0.802	0.062	-0.015
	Urban								
Expenditure	0.303	0.147	-0.156	0.571	0.173	-0.130	0.529	0.160	-0.143
Number of Meals Per Day	0.001	0.209	0.208	130.04	0.118	0.117	64.79	0.059	0.058
Education	0.793	0.439	-0.354	0.629	0.499	-0.295	0.402	0.319	-0.474
Dwelling	0.012	0.358	0.346	26.558	0.307	0.296	12.207	0.141	0.130
Ownership of Land	0.010	0.045	0.035	3.230	0.034	0.023	1.633	0.017	0.007
Regular Salary Income	-0.019	-0.031	-0.012	1.162	-0.022	-0.003	0.569	-0.011	0.008
Cooking Fuel	0.061	0.239	0.179	1.542	0.094	0.033	0.701	0.043	-0.018
Lighting	0.010	0.130	0.119	10.281	0.106	0.096	4.437	0.046	0.036

We can further add new dimensions to our analysis by measuring the multidimensional poverty and pro-poor growth indicators for various dimensions across groups. Table 5 shows the profile of multi-dimensional poverty across social groups. We can see from the table that in the rural areas, the relative contribution of the Scheduled Castes (SCs) and Scheduled Tribes (STs) in adjusted headcount ratio (M_0), poverty gap (M_1) and severity of poverty (M_2) is much higher as compared to their share in total population. Their combined share in 2004-05 in total population was about 31 per cent while their share in above poverty indices was about 39 per cent. On the other hand the relative contribution of 'others' in all the poverty indices is much lower as compared to their share in total population. The average number of deprivations (A), the poverty gap (G) and Severity of Poverty (S) are also very high for SCs and STs. In 2009-10, the situation worsened for the SCs while in case of STs the increase in their share in poverty is equally matched by the increase in their share in population while for SCs, the increase in the share in the poverty indicators is higher than the increase in population share. Thus, more of them have joined the category of the poor. In contrast to it, the social group of 'others' have improved their situation as the decline in their share in extent and degree of poverty is higher vis-à-vis the decline in share in total population. On the whole, we can observe that although, the average number of deprivations has declined for all of the social groups, the poverty gap has increased for SCs and OBCs while the severity of poverty has increased for STs, SCs and OBCs. It is only, the 'others' category, which has shown improvement on all fronts. Thus, the growth seems to be favouring only one-fourth of total rural population. Looking at the urban figures, we can see that all the lower social classes have greater share in poverty vis-à-vis their share in population. Their combined share (combined of STs, SCs and OBCs) in total urban population is about 54 per cent

while their share in poverty indicators is about 75 per cent. Thus, the upper social classes constitute about 46 per cent of total urban population and only 25 per cent of poor population. As far as the average number of deprivations, the poverty gap and severity of poverty is concerned, the table clearly indicates that these are the highest for the STs, followed by SCs in case of average number of deprivations and OBCs in case of poverty gap and severity of poverty. By the year 2009-10, very interesting changes can be observed from table 5. For STs, the share in population increased but their share in poverty declined; for OBCs both these shares increased but the increase in share in poverty is smaller than the increase in their share in total population; for SCs, the share in population declined but their share in all poverty indices increased and for others, the decline in share in adjusted headcounts (M_0) is higher but this decline is lower in case of M_1 and M_2 vis-à-vis the decline in their share in total urban population. Interestingly, in urban areas, the average number of deprivations have declined for all social groups, except the 'others' while the poverty gap as well as the severity of poverty has increased for all social groups in urban areas. Thus, in rural as well the urban areas, the condition of the poorest of the poor has actually worsened even though the average number of deprivations has declined in both the areas.

Further, table 6 shows the profile of multidimensional poverty by household type. In rural areas, 35 per cent of all households belong to the category of labour (agricultural as well as in non-agricultural sectors) but their share in poverty indices is close to 42 per cent. On the other hand, the households in others category have relatively lower share in poverty than their share in total rural population. The labour households are experiencing highest number of average deprivations and the poverty gap as well as severity of poverty is also the highest among them. By the year 2009-10, we can see that the situation of this type of households worsened as increase in their share in total number of rural households is accompanied by a relatively higher increase in their share in poverty indices. The average number of deprivations has declined for all types of households, yet the poverty gap and severity of poverty has increased for each category except a marginal decline in poverty gap in case of self-employed in agriculture. In urban areas, the conditions of casual labour seems to be most pitiable as their share in total population is about 12 per cent as compared to 35 per cent share in all poverty indicators. While for regular salary/wage earners these shares are 40 per cent and 9 per cent, respectively. However, in 2004-05, the average number of deprivations and poverty gap was the highest for casual labour but the severity for poverty was the highest among regular salaried/wage workers. By the year 2009-10, for the self-employed as well as the regular salaried/wage workers, the share in poverty declined at a greater rate vis-à-vis the decline in the share in total population while for casual labour the share in poverty increased at a greater rate vis-à-vis the increase in their share in total population. However, the average number of deprivations declined, the gap and severity of poverty for all household types increased in 2009-10 as compared to 2004-05. This again indicates that the growth of income during 2004-05 and 2009-10 would not have favoured the poorest population, particularly in case of multidimensional poverty. This gives as inducement to verify if the growth had really been pro-poor on all dimensions? For this purpose,

the pro-poor growth rates (PPGR) are calculated using the Ravallion and Chen (2003) methodology and then these are compared with average growth rates (g) to see whether the growth had been pro-poor or not on each dimension for each social group and household type. We can see these values in Table 7 and 8. The table shows that the dimension of expenditure had not been pro-poor for any social group and household type in both the rural and urban areas (except for self-employed in non-agriculture in rural areas). Same is the case with education (without any exception), even though the average rate of growth of this particular dimension is the highest among all the dimensions for all social groups. As far as number of meals is concerned, the growth had not been pro-poor for STs rural areas, OBCs in both rural and urban areas and others in rural areas. By household type, the poor persons in the category of self-employed in non-agriculture and others in rural areas and casual labour in urban areas, have not improved much in case of number of meals as compared to the mean growth for this dimension in each category. Therefore, the growth had not been pro-poor in these cases. Considering the type of dwelling unit, it has been observed, the growth had favoured the poor in urban areas in all social groups and all household types but in urban areas, this had not been pro-poor for SCs, OBCs and self-employed (both in agriculture and non-agriculture). In most of the cases, the growth of mean value had been positive while that of the PPGR been negative. Thus, growth has been pro-poor neither in absolute nor in the relative sense. Interestingly, we can see pro-poor growth in case of ownership of land and lighting facilities for all categories in rural as well as urban areas. On the other hand, the dimension of cooking fuel had shown pro-poor growth for all categories in the urban areas while in rural areas, it had not been pro-poor for any social group and household type. This is due to the fact that in rural areas, the coverage of LPG is very low and people largely depend upon firewood and chips, coal or other locally and cheaply available fuel. Finally, the dimension of regular salary gives a very different result. It had not been pro-poor in urban areas for all household types except the self-employed where it had been pro-poor as the PPGR is greater than the growth in mean value. In rural areas, we also observe that the growth had been pro-poor for all categories in case of the dimension of 'regular salary', but actually both the PPGR and growth in mean value had been negative. The growth seems to be pro-poor because the decline in PPGR had been lower than that of growth of mean value. Thus, we have observed that even though, the overall poverty rates have declined and growth seems to be pro-poor for the population in case of income indicator, yet it had not been pro-poor for all population groups and in all dimensions. Therefore, for any policy stance there is a need to target these areas. For this purpose, first of all, here an attempt has been made to see the relative contribution of each dimension in overall multidimensional poverty. These proportions are shown in Table 9.

Table: 5 Profile of Poverty by Social Group; k = 4.

Social Group	Percentage contribution to Population	H	Relative Contribution	M ₀ (HA)	Relative Contribution	M ₁ (HAG)	Relative Contribution	M ₂ (HAS)	Relative Contribution	A	G	S
Rural (2004-05)												
Scheduled Tribes	10.6	0.674	13.6	0.374	13.9	0.217	14.2	0.145	14.5	0.555	0.580	0.388
Scheduled Castes	20.9	0.607	24.2	0.332	24.4	0.189	24.4	0.124	24.6	0.547	0.569	0.373
Other Backward Classes	42.8	0.518	42.3	0.281	42.1	0.159	42.2	0.104	42.2	0.542	0.566	0.370
Others	25.7	0.405	19.9	0.218	19.6	0.120	19.1	0.077	18.7	0.538	0.550	0.353
All	100.0	0.524	100.0	0.285	100.0	0.162	100.0	0.106	100.0	0.544	0.568	0.372
Rural (2009-10)												
Scheduled Tribes	10.8	0.408	13.8	0.218	13.8	0.125	13.9	0.085	14.1	0.534	0.573	0.390
Scheduled Castes	22.2	0.394	27.4	0.212	27.6	0.121	27.6	0.082	27.7	0.538	0.571	0.387
Other Backward Classes	43.0	0.314	42.2	0.168	42.3	0.096	42.4	0.065	42.3	0.535	0.571	0.387
Others	24.0	0.220	16.5	0.116	16.3	0.065	16.0	0.043	15.9	0.527	0.560	0.371
All	100.0	0.319	100.0	0.171	100.0	0.097	100.0	0.066	100.0	0.536	0.567	0.386
Urban (2004-05)												
Scheduled Tribes	2.9	0.284	4.9	0.159	5.0	0.090	5.2	0.059	5.3	0.560	0.566	0.371
Scheduled Castes	15.6	0.273	25.3	0.151	25.6	0.083	25.6	0.053	25.6	0.553	0.550	0.351

Other Backward Classes	35.6	0.209	43.9	0.113	43.8	0.063	44.4	0.041	44.7	0.541	0.558	0.363
Others	45.8	0.096	25.9	0.051	25.6	0.027	24.8	0.017	24.3	0.531	0.529	0.333
All	100.0	0.169	100.0	0.092	100.0	0.050	100.0	0.032	100.0	0.544	0.543	0.348
	Urban (2009-10)											
Scheduled Tribes	3.5	0.123	4.8	0.066	4.8	0.038	4.9	0.026	5.0	0.537	0.576	0.394
Scheduled Castes	15.1	0.160	27.1	0.086	27.3	0.049	27.3	0.033	27.2	0.538	0.570	0.384
Other Backward Classes	38.5	0.106	45.8	0.056	45.7	0.032	45.6	0.021	45.6	0.528	0.571	0.375
Others	43.0	0.046	22.3	0.025	22.2	0.014	22.2	0.009	22.2	0.543	0.560	0.360
All	100.0	0.089	100.0	0.048	100.0	0.027	100.0	0.018	100.0	0.539	0.563	0.375

Table: 6 Profile of Poverty by Household Type; k = 4.

Household Type	Percentage contribution to Population	H	Relative Contribution	M ₀ (HA)	Relative Contribution	M ₁ (HAG)	Relative Contribution	M ₂ (HAS)	Relative Contribution	A	G	S
	Rural (2004-05)											
Self-Employed in non-agricultural Sector	16.5	0.493	15.5	0.268	15.5	0.150	15.3	0.097	15.2	0.544	0.560	0.362
Agricultural	35.3	0.610	41.0	0.335	41.4	0.191	41.7	0.126	42.1	0.549	0.570	0.376

Labour and Other Labour												
Self-Employed in Agriculture	39.4	0.525	39.5	0.283	39.1	0.160	39.1	0.104	38.9	0.539	0.565	0.367
Others	8.7	0.229	3.8	0.125	3.8	0.069	3.7	0.045	3.7	0.546	0.552	0.360
	Rural (2009-10)											
Self-Employed in non-agricultural Sector	16.3	0.296	15.1	0.158	15.1	0.089	14.9	0.060	14.8	0.534	0.563	0.380
Agricultural Labour and Other Labour	39.8	0.379	47.2	0.204	47.4	0.117	47.7	0.079	47.8	0.538	0.574	0.387
Self-Employed in Agriculture	35.3	0.306	33.8	0.163	33.6	0.092	33.5	0.062	33.4	0.533	0.564	0.380
Others	8.6	0.144	3.9	0.077	3.9	0.044	3.9	0.030	3.9	0.535	0.571	0.390
	Urban (2004-05)											
Self-Employed	42.9	0.204	51.7	0.111	51.5	0.060	51.3	0.039	51.3	0.544	0.541	0.351
Regular Wage/Salary Earning	39.4	0.041	9.7	0.022	9.4	0.012	9.2	0.008	9.2	0.537	0.545	0.364
Casual Labour	11.7	0.482	33.3	0.267	33.9	0.148	34.3	0.096	34.6	0.554	0.554	0.360
Others	5.8	0.146	5.0	0.079	5.0	0.043	4.9	0.026	4.7	0.541	0.544	0.329
	Urban (2009-10)											
Self-Employed	42.0	0.104	49.1	0.056	49.2	0.031	48.2	0.021	47.6	0.538	0.554	0.375

Regular Wage/Salary Earning	37.3	0.014	5.8	0.007	5.6	0.004	5.7	0.003	5.8	0.500	0.571	0.429
Casual Labour	14.1	0.249	39.5	0.134	39.8	0.077	40.4	0.052	40.6	0.538	0.575	0.388
Others	6.6	0.075	5.6	0.039	5.4	0.023	5.7	0.016	5.9	0.520	0.590	0.410

Table:7 Pro-Poor Growth on Multiple Dimensions across Social Groups

Dimensions	Scheduled Tribes			Scheduled Castes			Other Backward Classes			Others		
	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g
	Rural											
Expenditure	0.233	0.227	-0.007	0.194	0.122	-0.072	0.188	0.153	-0.035	0.295	0.170	-0.125
Number of Meals Per Day	0.004	-0.685	-0.689	0.002	0.035	0.033	0.006	-0.335	-0.340	0.011	-0.955	-0.966
Education	1.324	0.415	-0.910	1.133	0.418	-0.715	1.095	0.423	-0.672	0.974	0.433	-0.541
Dwelling	0.001	0.083	0.081	0.001	-0.049	-0.050	0.001	-0.047	-0.049	0.001	0.059	0.058
Ownership of Land	0.003	0.080	0.077	0.008	0.226	0.218	0.006	0.181	0.175	0.003	0.091	0.087
Regular Salary Income	-0.016	-0.012	0.004	-0.016	-0.013	0.004	-0.011	-0.009	0.002	-0.022	-0.019	0.003
Cooking Fuel	0.088	0.027	-0.061	0.039	-0.004	-0.043	0.066	0.013	-0.053	0.082	0.045	-0.038
Lighting	0.145	0.207	0.061	0.093	0.144	0.052	0.073	0.143	0.070	0.055	0.143	0.088
	Urban											
Expenditure	0.746	0.132	-0.614	0.302	0.134	-0.168	0.354	0.172	-0.182	0.279	0.140	-0.140

Number of Meals Per Day	-0.006	0.541	0.547	-0.001	-0.305	-0.305	0.001	0.281	0.280	-0.003	0.192	0.195
Education	1.088	0.441	-0.647	1.011	0.438	-0.573	0.896	0.437	-0.459	0.703	0.442	-0.261
Dwelling	0.025	0.297	0.271	0.013	0.362	0.349	0.010	0.394	0.383	0.011	0.333	0.322
Ownership of Land	0.005	0.019	0.014	0.011	0.045	0.035	0.006	0.026	0.020	0.015	0.068	0.052
Regular Salary Income	0.030	0.051	0.021	-0.024	-0.039	-0.015	-0.023	-0.033	-0.010	-0.014	-0.025	-0.011
Cooking Fuel	0.105	0.291	0.186	0.093	0.139	0.046	0.097	0.272	0.176	0.038	0.326	0.287
Lighting	0.040	0.264	0.224	0.021	0.121	0.100	0.016	0.194	0.177	0.002	0.018	0.016

Table: 8 Pro-Poor Growth on Multiple Dimensions by Household Type

Dimensions	Self-employed in non-agriculture			Labour			Self-employed in agriculture			Others		
	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g	Average Growth Rate (g)	PPGR	PPGR-g
	Rural											
Expenditure	0.133	0.173	0.040	0.293	0.176	-0.117	0.200	0.163	-0.037	0.402	0.198	-0.205
Number of Meals Per Day	0.003	-3.617	-3.620	0.006	0.355	0.349	0.012	0.227	0.215	0.008	-0.931	-0.939
Education	1.065	0.426	-0.639	1.367	0.423	-0.944	1.072	0.428	-0.644	0.831	0.430	-0.401
Dwelling	0.001	-0.166	-0.167	0.0003	0.125	0.125	-0.002	-0.279	-0.277	0.006	-0.020	-0.026
Ownership of Land	0.009	0.202	0.193	0.003	0.054	0.051	0.001	0.238	0.236	0.010	0.099	0.090
Regular Salary Income	-0.003	-0.002	0.001	0.039	0.030	-0.010	-0.017	-0.012	0.005	-0.027	-0.074	-0.047

Cooking Fuel	0.067	0.023	-0.044	0.176	0.058	-0.118	0.096	0.032	-0.064	0.047	0.025	-0.022
Lighting	0.050	0.110	0.060	0.111	0.184	0.073	0.085	0.159	0.074	0.032	0.119	0.087
	Urban											
	Self-employed			Regular salary/wage earnings			Casual labour			Others		
Expenditure	0.219	0.132	-0.087	0.277	0.182	-0.095	0.181	0.166	-0.015	0.624	0.255	-0.369
Number of Meals Per Day	-0.008	0.298	0.307	-0.001	0.120	0.122	0.022	-0.429	-0.451	0.010	0.506	0.496
Education	0.835	0.436	-0.399	0.765	0.446	-0.319	1.201	0.434	-0.767	0.685	0.448	-0.236
Dwelling	0.006	0.301	0.295	0.013	0.365	0.352	0.022	0.394	0.372	0.014	0.389	0.375
Ownership of Land	0.012	0.075	0.063	0.007	0.022	0.015	0.025	0.096	0.071	-0.010	-0.041	-0.031
Regular Salary Income	0.001	0.001	-0.0002	-0.011	-0.308	-0.297	-0.019	-0.014	0.005	0.021	0.017	-0.004
Cooking Fuel	0.085	0.235	0.151	0.057	0.455	0.398	0.194	0.143	-0.051	-0.013	0.672	0.685
Lighting	0.009	0.126	0.117	0.008	0.239	0.231	0.054	0.232	0.178	-0.012	-0.420	-0.408

Table 9 shows that the dimension of expenditure has only fifth largest share in overall incidence of multidimensional poverty with eight dimensions. The dimensions of education, regular salary and cooking fuel have almost equal share in total poverty and they together contribute about 67 per cent of overall poverty. However, we can see that the relative contribution of regular salary falls while that of the education and cooking fuel increases as the degree of poverty increases. This shows that for poorest persons, the deprivation of education and cooking fuel are the largest contributor to their poverty. This seems to be equally applicable to both the rural as well as urban areas. This gives us an important policy direction.

Table: 9 Marginal Contributions of Various Dimensions in Extent, Gap and Severity of Poverty

Dimensions	Rural						Urban					
	2004-05			2009-10			2004-05			2009-10		
	M ₀	M ₁	M ₂	M ₀	M ₁	M ₂	M ₀	M ₁	M ₂	M ₀	M ₁	M ₂
Expenditure	10.61	5.33	3.28	10.27	4.74	2.69	12.90	7.59	5.27	13.42	7.37	4.65
Number of Meals Per Day	0.74	1.29	1.97	0.82	1.43	2.11	1.00	1.81	2.81	1.43	2.51	3.70
Education	22.70	29.83	39.30	21.28	28.44	39.42	22.45	29.21	38.23	20.98	28.16	38.91
Dwelling	0.81	0.49	0.26	0.94	0.64	0.40	3.36	2.07	1.10	0.07	0.08	0.08
Ownership of Land	1.39	1.16	0.84	1.34	1.12	0.79	9.06	7.85	5.81	8.04	6.75	4.73
Regular Salary Income	22.50	18.82	13.62	23.06	19.21	13.49	21.10	18.27	13.52	22.41	18.81	13.18
Cooking Fuel	22.87	26.85	28.33	23.23	27.63	28.57	21.12	24.96	26.76	22.30	25.97	26.75
Lighting	18.39	16.21	12.40	19.05	16.79	12.54	9.01	8.23	6.50	11.36	10.35	8.0

Finally, here an attempt is made to find the impact of a constant lump-sum amount on overall poverty reduction. For this purpose, the data has been taken from the latest round only. The results of such targeting scheme have been shown in table 10 and 11. The targeting by social groups shows that expenditure of one currency unit (rupee in present case) reduces the poverty for all groups and the impact on the proportion of total population below poverty line is nearly the same in rural as well as urban areas. However, in both the rural and urban areas, expenditure of one rupee reduces the poverty rate by a greater amount in case of scheduled tribes as compared to all other social groups. Similarly, by household type, we can see that the impact of

spending one rupee upon population is same by all social groups but if we observe the impact upon individual groups, then it can be the largest in case of other labour in rural areas and casual labour in urban areas. In urban areas, targeting the casual labour has the ability to reduce the poverty of population by the largest amount.

Table: 10 Targeting by Social Group and Poverty

Social Group	Rural			Urban		
	FGT Index	Impact on Group	Impact on Population	FGT Index	Impact on Group	Impact on Population
Scheduled Tribes	21.80	-0.011	-0.0012	14.69	-0.0142	-0.0005
Scheduled Castes	21.39	-0.005	-0.0010	17.19	-0.0038	-0.0006
Other Backward Classes	17.11	-0.002	-0.0008	13.98	-0.0012	-0.0004
Others	11.83	-0.003	-0.0006	7.19	-0.0007	-0.0003
Population	17.32	-0.001	-0.001	11.57	-0.0004	-0.0004

Table: 10 Targeting by Household Type and Poverty

Household Type	Rural			Household Type	Urban		
	FGT Index	Impact on Group	Impact on Population		FGT Index	Impact on Group	Impact on Population
Self-employed in non-agriculture	15.41	-0.0053	-0.0009	Self-Employed	15.16	-0.0012	-0.0005
Agricultural Labour	20.29	-0.0039	-0.0009	Regular Salary/Wage Earning	5.25	-0.0006	-0.0002
Other Labour	17.60	-0.0063	-0.0009	Casual Labour	20.64	-0.0046	-0.0006
Self-employed in agriculture	18.75	-0.0025	-0.0009	Others	4.98	-0.0021	-0.0001
Others	5.93	-0.0044	-0.0004				
Population	17.32	-0.001	-0.001	Population	11.57	-0.0004	-0.0004

Conclusions and Policy Suggestions: To sum up, it can be stated that both the uni-dimensional and multidimensional poverty in India had declined between 2004-05 and 2009-10. But, it had not been pro-poor across all the dimensions and for all social groups. It has been observed that the dimensions of education, expenditure and regular salary had not been pro-poor in most of the cases. Among the social groups, the SCs and the STs are the poorest categories and by household types, the labour households are the poorest one. These households suffer from the deprivations of multiple dimensions. It has been observed that the dimension of education and cooking fuel are the biggest contributors to overall poverty rate and the poorest suffer the most from these deprivations. Therefore, it is suggested that the government should spend more on education and cooking fuel for which appropriate subsidy should be provided and if the subsidy is of lump sum type, the SCs, STs and Labour households should be targeted on priority basis. Targeting these groups is very necessary as average number of deprivations as well as poverty gap and severity of poverty is the highest among these groups. Moreover, by targeting these groups, the overall poverty rate of population can be reduced at a greater speed and the time to achieve the MDG goals of removal of poverty can be reduced.

References:

Alkire, Sabina and James Foster (2008), “Counting and Multidimensional Poverty Measurement”, *OPHI Working Paper Series*, Working Paper No. 7, Oxford Poverty and Human Development Initiative, Department of International Development, Oxford.

Berenger, Valerie and Florent Bresson (2010), “On the Pro-Poorness of Growth in a Multidimensional Context”, Paper presented in 31st General Conference of The International Association for Research in Income and Wealth, St. Gallen, Switzerland, August 22-28.

Duclos, J-Y (2009), “What is Pro-Poor?”, *Social Choice and Welfare*, Vol. 32, No. 1, Pp.37–58.

Grosse, Melanie, Kenneth Harttgen and Stephen Klasen (2005), *Measuring Pro-Poor Growth with Non-Income Indicators*, University of Göttingen, Department of Economics, Göttingen, Germany.

Pasha, Hafiz A. and Thangavel Palanivel (2004), “Pro-Poor Growth and Policies –The Asian Experience”, Asia-Pacific Regional Program on the Macroeconomics of Poverty Reduction, United Nations Development Program.

Planning Commission (2012), *Press Note on Poverty Estimates, 2009-10*, Government of India, New Delhi, March.

Ravallion, Martin (2004), "Pro-poor Growth: A Primer Policy", Research Working Paper No. 3242, The World Bank, Washington D.C.

Sen, A. (1988), "The Concept of Development." In Chenery, H. and T. Srinivasan (eds) *Handbook of Development Economics*, Volume 1, pp. 9–26.

Sen, A. (1992), *Inequality Re-examined*, Harvard University Press.

Streeten, P. (1994), "Human Development: Means and Ends", *American Economic Review*, Vol. 84, pp 232-237.

White, Howard and Edward Anderson (2001), "Growth versus Distribution: Does the Pattern of Growth Matter?" *Development Policy Review* 19, No. 3, pp. 267-289.

Zepeda, Eduardo (2004), "Pro-Poor Growth: What is It?" One Pager No. 1, International Poverty Center, UNDP.