

Human Development and Poverty – a Perspective Across Indian States

Sonu Madan¹ | I. G. P. G. Regional Centre, Mirpur, M. D. University, Rohtak, Haryana, India

Abstract

The ultimate objective of development planning and policies is to increase social welfare and well-being of the society. As income alone is an incomplete measure of well-being of any society, human development attempts to capture quantitative as well as qualitative aspects of human well-being by encapsulating indicators of longevity, literacy and a decent standard of living. Human development is about enlarging choices, whereas poverty implies denial to the opportunities and choices most basic to human development. The main concern of this paper is to examine the transformation of development efforts into the well-being of the society, with special reference to India. Here an attempt has been made to find complementary between Human Development Index (HDI) and Multidimensional Poverty Index (MPI) across major Indian states using regression analysis. The negative relationship between the two underlines the need of raising economic and educational opportunities and their equitable distribution among all the sections of the society.

Keywords

Human well-being, human development index, poverty, multi-dimensional poverty index

JEL code

I320, I380

INTRODUCTION

For a long time, development had been conceived as economic development and often related to the level and structure of income. Though economic growth, increasing trade and investment, technological advance - are very important, but development process tends to focus on more and more people rather than mere economic growth of any nation or state in all. Subsequently, focus has shifted to human development (HD), which is about people, about expanding their choices to live full and creative lives with freedom and dignity. The concept of human development has got wide acceptance among academicians, researchers, planners and policy makers and is equally accepted among developing and developed countries. The genesis of the term human development as popularized by the United Nations Development Programme (UNDP) may be found in the writings of the Nobel laureate, Amartya Sen and Mahbub ul Haq. In 1990, the UNDP brought out its first global Human Development Report (HDR). Ever since its publication, under the guidance of Mahbub ul Haq, efforts have been made to devise and further refine the measures of human development (McGillivray, 1991, McGillivray, White 1994, Srinivasan, 1994,

¹ Asst. Professor, I. G. P. G. Regional Centre, Mirpur, M. D. University, Rohtak, Haryana, India. E-mail: sonumadan15@gmail.com, phone: (+91)8685911117.

Streeten, 2000, Neumayer, 2001, Noorbakhsh, 1998a, 1998b, 2002, Malhotra, 2006). The report ranks countries on the basis of composite index, popularly known as Human Development Index (HDI)² for most of the countries in the world.

The process of human development can be seen as a 'process of expanding the capabilities of people' (Sen, 1984). Capabilities refer to the alternative combinations of functioning the person can achieve, and from which a person can choose a collection. The notion of freedom is embodied in the term 'capabilities' – the range of options a person has in deciding what kind of a life to lead (Muellbauer, Kanbur, Williams, 1987, Sen, 1992, 1993). Human development has also been defined as the process of 'enlarging the range of people's choices' (UNDP, 1990) as fundamental to expanding human choices is building human capabilities and increasing the range of accessible things. Acquisition of knowledge, the need to lead a long and healthy life and the need to have access to resources required for a decent standard of living have been identified as three essential choices for the attainment of human development. Additional choices valued by people include political, economic and social freedom to opportunities for being creative, productive and also to enjoy personal self-respect and guaranteed human rights. Therefore, the development must be more than just an expansion of income and wealth. Its focus must be people (UNDP, 1990). In this line, the introduction of ethical considerations has been the hallmark of human development approach. Pushing the frontiers of measurement has always been a keystone of this approach. The approach has enabled innovative thinking about progress by capturing the simple but powerful idea that the development is about much more than income. Seen in this perspective, main goal of development is- people free from poverty as high poverty level is synonymous with poor quality of life, deprivation, malnutrition, illiteracy, indicating low level of human development. Over the years the HDI has introduced new measures to evaluate progress in reducing poverty (<<http://hdr.undp.org/en/reports/global/hdr2010/summary/measures>>).

As far as poverty is concerned, 'poors' are identified as those unable to get minimum required calorie per day to keep body and soul together. The proportion of population not able to attain the specified level of expenditure is segregated as poor (Bhagawati, 1988). Using such an approach, the Planning Commission, Government of India, has been establishing the head-count ratio (HCR) of the poor at state level, separately for rural and urban areas, for over three decades. The Planning Commission has defined poverty line as a minimum consumption expenditure requirement for an average per capita food energy norm of 2400 and 2100 calories per day for rural and urban areas, respectively (Minhas, Kansal, Jagdish, Joshi, 1986, Bagchi, Choudhury, 1989). The required per capita income, to get minimum food to meet the required calorie, is rupees (Rs.) 328 (\$ 8) and Rs.456 (\$11) per month in rural and urban areas, respectively, at 1999–2000 prices. That is, a family of five requires at least Rs. 1640 and Rs. 2280 income per month, respectively. The Planning Commission recently (March 20th, 2012) has revised the required per capita income to Rs. 22.42 (\$.44) and Rs. 28.35 (\$.56) per day i.e. Rs. 672.6 (\$13.32) and Rs. 850.5 (\$16.84) per month in rural and urban areas, respectively, to meet minimum consumption expenditure. Those who have less income than this are considered the people living below poverty line (BPL). This is much less than the World Bank's internationally comparable measure of extreme poverty i.e. \$ 1.25 / day. The wide difference between national and international measures of income poverty is due to the objective criteria, generally evolved by national policy makers and planners, to measure poverty at a given point of time. Such criteria's differ in context with socio-economic conditions, expenditure required to meet minimum consumption needs, availability of resources and the set objectives to be achieved at a given point of time.

² The Human Development Index (HDI) measures the average achievements of a country in basic human capabilities. The HDI indicates whether the people lead a long and healthy life, are educated and knowledgeable and enjoy a decent standard of living. The HDI examines the average condition of all people in a country.

This is the traditional way to capture poverty, which requires two components—distributions of household expenditure and poverty line, and is often linked to the amount of money that households need to fulfil their nutritional requirements. Despite the strong articulation of a multi-dimensional view of human poverty, it is not able to capture the multiple dimensions of poverty.

Poverty prevails everywhere and poverty alleviation has been the main concern of human development. Though human development is much more than mere poverty eradication, still poverty and human development remains two sides of the same coin; one presupposes and challenges the other. Moreover, it is not only poverty, but also the proportion of the poor's and intensity of poverty, which determine success of development programmes. A significant negative relationship between human development and poverty underlines a successful development strategy. Moreover, human development may not have equal effect on all the dimensions of poverty. Hereby, it may help to split out which of dimensions of poverty are significantly affected by the human development and which one has remained untouched. This may further help to revise the methodology to construct HDI.

Objectives of the Study

- To analyse differences in poverty levels across major Indian states.
- To examine the inter-state variation in multiple dimensions of poverty and human development in India.
- To explore the relationship between human development and various dimensions of poverty adopted by global MPI.

Research Hypothesis

H0: Human development and multi-dimensional poverty are independent i.e. Human development is not correlated with any of the parameters of multi-dimensional poverty.

H1: Human development and multi-dimensional poverty are negatively correlated i.e. low level of human development reflects high level of deprivation indicated by the multi-dimensional poverty parameters of health, education and standard of living.

1 REVIEW OF LITERATURE

The real aim of development is not the development of a section, but of whole gamut wherein maximum people are out of vicious trap of poor quality of life, deprivation, malnutrition, illiteracy and low level of human development (HD). Thus, the main goal of development is to free people from poverty as high poverty levels are synonymous with poor quality of life, deprivation, malnutrition, illiteracy indicating low level of human development. Poverty alleviation programmes can not work unless understanding who the poor's are (Mehta, Venkataraman, 2000)? There is, however, consensus at a global level that without eradication of poverty from society human development, in whatever way one defines, remains pretence. This however requires equal distribution of growth benefits among all sections of the society. To this end, the Government of India has been concerned about rising inequalities and uneven distribution of the benefits of growth (Suryanarayana, Agrawal, Prabhu, 2011).

For the successful poverty alleviation programmes, in accordance with development, it is very important to define poverty appropriately. The poverty line, as defined by Planning Commission, considers only minimum nutritional requirements to survive and work, but does not consider other necessities such as fuel, housing, clothing, health services that are also required to survive and work. Moreover, not only the conventional poverty line, but also intensity and dimensions of poverty are a matter of concern. There is a sizeable stratum of the households – casual farm and non-farm labourers, artisans, small and marginal farmers, petty traders, hawkers etc. struggling very hard to live above poverty line. In adverse situations such as illness in family, accident, death or natural calamity like heavy rain, flood, cyclone etc. and / or non-availability of work, their income sink to the level below the poverty line (Anirudh, 2003).

Broadly, poverty status must include certain other dimensions like approachability towards educational, health, housing and sanitation facilities to incorporate a decent standard of living. As the basic purpose of human development is to go beyond mere income resources, the poverty measurement should go far beyond mere inadequate income to encapsulate poor health, inadequate nutrition, low education and skills, bad housing and sanitation conditions, inadequate livelihoods, social exclusion and lack of participation (UNDP, 2010). For this reason, since 1997, Human Development Reports (HDRs) have been measuring poverty in ways different than traditional income based measures. The Human Poverty Index (HPI) was the first such measure which used country averages to reflect aggregate deprivations in health, education and standard of living, was replaced by the Multidimensional Poverty Index (MPI) in 2010 as the former could not identify specific individuals, households or larger groups of people as jointly deprived. The MPI addresses this shortcoming by capturing how many people experience overlapping deprivations and how many deprivations they face on average. The MPI can be broken down by indicator to show how the composition of multidimensional poverty changes for different regions, ethnic groups and so on – with useful implications for policy (Alkire and Santos, 2010a, p.48).

Kakwani and Pernia (2000) defined pro-poor growth as one that enables the poor to actively participate in economic activities and benefit from it significantly. If economic growth, which is an essential component of human development, brings in a sharp increase in inequality, it is possible that the incidence of poverty rises over time because the beneficial effects of growth get offset by the adverse effects of rising inequality, which means that the inequality effect may dominate over the growth effect. Bhagwati (1988) had described this phenomenon as ‘immiserizing’ growth. Hence, it is important to assess the impact and significance of human development and inequality separately on poverty, which has been attempted in a large number of studies in the past in terms of decomposition exercise (Kakwani, 2000, Jain, Tendulkar, 1990, Sundaram, Tendulkar, 2003).

So far as the relationship between development and poverty is concerned, the study of Kakwani et.al. (2000) brought out the fact that the development process do not benefit the poors’ directly, rather the fruits of development received by them remains proportionately less than that of the rich section of the society. Sachs, Bajpai and Ramiah (2002) also observed that the human development across Indian states in the nineties have shown a tendency of divergence rather than convergence, implying that states with a higher per capita income have grown faster than the states with less per capita income. Therefore, it is not only the overall growth but also the composition of growth which is important for poverty reduction.

2 METHODOLOGY

The Planning Commission is a nodal agency for estimating the number and proportion of people living below the poverty lines at national and state level. Hereby, poverty estimations provided by Planning Commission and reports of Working Groups of eminent economists, set up by the Planning Commission, Government of India, have been used to examine the level of poverty in India. Besides, National Sample Survey (NSS) of 61st Round (July 2004 to June 2005) has also been reviewed to access data on consumer expenditure. In order to know various dimensions of poverty, inter-state Multidimensional Poverty Index (MPI) 2010, provided by Oxford Poverty & Human Development Initiative (OPHI), Oxford Department of International Development, Queen Elizabeth House (QEH), University of Oxford, has been used. Besides, UNDP Human Development Index (HDI) 2010 of India and 18 major states have been used to explore the complementary between HDI and MPI. Inter-state HDI is regressed on MPI to obtain the significance of relationship between the two. At the same time HDI is regressed, using step-wise regression method, on various dimensions of MPI i.e. standard of living, education and health dimension of poverty, to explore the significant dimensions affected by HDI.

3 RESULTS AND DISCUSSION

3.1 Poverty Estimates in India

India has been overwhelmingly concerned with income poverty since early in the 1960s when a Working Group of eminent economists was set up by the Planning Commission, Government of India, to assess the extent of poverty in the country. This Group used a nationally desirable minimum level of consumption expenditure to define India's poverty line and based it on a standard balanced diet prescribed by the Nutrition Advisory. The estimation of conventional income poverty was revamped based on the recommendations of the 'Report of the Task Force on Projection of Minimum Needs and Effective Consumption Demand' 1979 and later modified on the basis of the recommendations of the 'Report of the Expert Group on Estimation of Proportion and Number of Poor' 1993. Subsequent studies on poverty in India continued to use either income or consumption as a basis for defining and measuring poverty (Minhas, 1970, Bardhan, 1970, Ahluwalia, 1978).

Currently, key features of poverty estimates in India are the following:

- The poverty measure is a head-count ratio (HCR) based on expenditure poverty line.
- Poverty line is based on the absolute measure of poverty, not on relative measure.
- The starting point for estimating the poverty line is a normative nutritional requirement per person a day at some base point i.e. 2 400 calories per person a day in rural areas and 2 100 calories per person a day in urban areas.
- Nutritional requirements are translated into monetary terms to arrive at a certain level of household / per capita expenditure to obtain the desired calories serves as the poverty line.
- The poverty line over the time period is adjusted keeping in consideration the price variation and selecting an appropriate price deflator.

On the basis of National Sample Survey (NSS) data on consumer expenditure of 61st Round (July 2004 to June 2005), the poverty ratio at the national level is estimated as 28.3 per cent in the rural areas, 25.7 per cent in the urban areas and 27.5 per cent for the country as a whole in 2004–05 using the Uniform Recall Period (URP).³ The poverty estimates in 2004–05 i.e. 27.5 per cent is comparable with the poverty estimates of 1993–94, which was 36 per cent (Planning Commission, Annual Report, 2010–11). The Planning Commission used to upgrade the per capita expenditure periodically, required to meet the above stated consumption requirements, adopting specific consumer price indices. In this line, two committees are constituted one under the chairmanship of Prof. Suresh D. Tendulkar to conduct BPL census in rural areas and the other under the chairmanship of Prof. S. R. Hasim for the identification of BPL families in urban areas (Kapila, 2011). Hereby, as per Expert Group Report, submitted in December 2009, all India rural poverty head-count ratio for 2004–05 was estimated at 41.8 per cent, 25.7 per cent in urban and 37.2 per cent in rural areas. The report estimated Rs. 446.68 and Rs. 578.8 as poverty line in rural and urban areas respectively (Table 1).

Further, as per Tendulkar Committee recommendations, the state wise urban poverty lines of 2004–05 are updated for 2009–10 based on price rise during this period using Fisher Price Indices.⁴ The state wise rural-urban price differential in 2009–10 has been applied on state specific urban poverty lines to get state specific rural poverty lines. As per the revised figures, the all-India HCR has declined by 7.4 per-

³ Uniform Recall Period (URP): Under URP based poverty estimation methodology, consumer expenditure data for all the items are collected from 30-day recall period.

⁴ Fisher Price Indexes- for states relative to All-India rural prices, for states relative to All-India urban prices and within state, rural relative to urban prices, are calculated for 15 commodity groups (as in the NSS Consumption Expenditure Survey): cereals, pulses, milk, oil, egg-fish-meat, vegetables, fresh-fruit, dry-fruit, sugar, salt-spices, other-food, intoxicants, fuel-light, clothing, footwear. At this stage all population figures used for states and sectors are census populations as given by Planning Commission (Planning Commission, 2009, p. 20).

Table 1 Poverty Estimates in India

Poverty Estimates / Year	1993-94			1993-94			2009-10		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Planning Commission* (URP based Estimates)	37.3	32.4	36.0	28.3 (21.8)	25.7 (21.7)	27.5 (21.8)	-	-	-
Expert Group Report** (MRP based estimates) ⁵	50.1	31.8	45.3	41.8	25.7	37.2	33.8	20.9	29.8

Note: Figures in Parenthesis Shows Mixed Recall Period (MRP) Based Poverty Estimates.

Source: *Planning Commission (2011, pp.11-12), **Planning Commission (2009, p. 17), **Planning Commission (2012, p. 6)

centage points (from 37.2 per cent in 2004-05 to 29.8 per cent in 2009-10), with rural poverty declining by 8.0 percentage points (from 41.8 per cent to 33.8 per cent) and urban poverty declining by 4.8 per cent points (from 25.7 per cent to 20.9 per cent).

The figures on poverty, showing a decline in it, may be misleading until and unless the poor (people living below poverty line) from all social strata have not been equally benefited by the downward trend. Among poor, the worse sufferers may continue to be from the socially disadvantaged groups e.g. scheduled castes, scheduled tribes, women and their process of coming out of the poverty line might be slower than other groups. Here, it is worth to correlate poverty and overall human development of people. Moreover, these poverty estimates provides, per-capita income/consumption expenditure based, head-count ratio and do not provide any information on various dimensions of poverty.

3.2 Human Development in India

The Human Development Index, 2010 of India and major states, is shown in Table 2. India has a HDI value of 0.504 (Suryanarayana, Agrawal and Prabhu, 2011, p.8). The highest HDI is recorded for Kerala (0.625) followed by Punjab (0.569) and the lowest for Orissa (0.442), preceded by Bihar (0.447) and Chhattisgarh (0.449). The overall HDI score across Indian states shows a variation of 0.183 ranging between 0.442 (Orissa) and 0.625 (Kerala). Among dimensions of HDI, education and health dimensions have shown a greater degree of variation than that of income dimension (Table 2).

In terms of education dimension of HDI, 11 states have not been able to attain an average score (0.400) and needs special concern towards raising educational facilities by their respective states. In this concern, Kerala again ranks first (0.534) and Rajasthan stands at the last (0.333) showing a variation of 0.201 points. Inter-state variation in health dimension of HDI is maximum i.e. 0.201 points, with Kerala (0.854) at the top position and Madhya Pradesh and Chhattisgarh (0.601) at the last among major states. Income dimension of HDI reveals that 9 out of the 18 major states have better income index than the nation as a whole (0.465). Kerala comes up with first rank (0.535) and Bihar (0.398) preceded by Orissa (0.400) stands at the last. Inter-state variation in income index is observed to be minimum i.e. 0.137. The point to be noticed is that the position of India in health dimension of HDI is better than that of income and education dimension because of favourable environmental conditions.

⁵ Mixed Recall Period (MRP): In MRP based poverty estimates, consumer expenditure data for five non-food items, namely clothing, footwear, durable goods, education and institutional medical expenses, are collected for a 365-day recall period and the consumption data for the remaining items are collected for a 30-day recall period.

⁶ HDI: The HDI is geometric mean of the Dimension Indices of income, education and health (using the goalposts discussed in HDR 2010 discussed in Suryanarayana, Agrawal, Prabhu, 2011, pp. 26-27).

$$HDI = \sqrt[3]{income\ index \times education\ index \times health\ index}$$

Globally, India ranks 119 out of 169 countries with a global HDI value of 0.504 and falls in the category of countries with Medium HD.⁷ It falls short of the world average, which is 0.624 (UNDP, 2010, p. 155). The Indian states fall either in the category of Medium HD or Low HD as per the HDR 2010 classification. Kerala, with a global HDI of 0.625, is in the 'Medium HD' category. Other major states in this group are Punjab, Himachal Pradesh, Haryana, Maharashtra, Tamil Nadu, Karnataka, Gujarat and West Bengal. Other nine states, namely Andhra Pradesh, Assam, Uttar Pradesh, Rajasthan, Jharkhand, Madhya Pradesh, Chhattisgarh, Bihar and Orissa fall in the 'Low HD' category.

Table 2 Human Development Index, 2010: India and States

India / States	Dimensions of HDI			HDI	Rank
	Income Index	Education Index	Health Index		
Kerala	0.535	0.534	0.854	0.625	1
Punjab	0.523	0.452	0.782	0.569	2
Himachal Pradesh	0.499	0.468	0.744	0.558	3
Maharashtra	0.489	0.453	0.747	0.549	4
Haryana	0.513	0.432	0.731	0.545	5
Tamil Nadu	0.486	0.454	0.731	0.544	6
Gujarat	0.484	0.403	0.698	0.514	7
West Bengal	0.468	0.397	0.710	0.509	8
Karnataka	0.461	0.396	0.717	0.508	9
Andhra Pradesh	0.467	0.347	0.703	0.485	10
Assam	0.442	0.392	0.616	0.474	11
Rajasthan	0.462	0.333	0.665	0.468	12
Uttar Pradesh	0.444	0.365	0.633	0.468	12
Jharkhand	0.421	0.361	0.658	0.464	14
Madhya Pradesh	0.431	0.355	0.601	0.451	15
Chhattisgarh	0.420	0.358	0.601	0.449	16
Bihar	0.398	0.340	0.658	0.447	17
Orissa	0.400	0.345	0.627	0.442	18
India	0.465	0.400	0.688	0.504	

Source: Suryanarayana, Agrawal, Prabhu (2011, pp. 17–18)

Human development presupposes smaller proportion of the 'poors' among its achievements. Hereby, the states with better HDI (categorised as Medium HD) should have lower percentage of people living below poverty line than the states with Low HD. Thus, human development needs to be analysed in terms of multidimensional poverty indicators. While the HDI measures the achievement in the average progress, the MPI measures deprivation in human development as a focus on deprivation is fundamental to human development.

3.3 Multidimensional Poverty Index – A New Perspective to Measure Poverty

The Human Development Report, 2010 presented Multidimensional Poverty Index (MPI), covering 104 developing countries. The MPI presented in the 2011 adds five additional countries (Alkire and Santos, 2011, p. 4) using the same dimensions, indicators, cut-offs, and weights in as in 2010 and updated MPI values for all countries as per newly released data. The MPI is an international measure of acute poverty which identifies deprivations across health, education and standard of living that people face at the same

⁷ Countries with HDI value in the range 0.788–0.938 are categorised as countries with Very High HD; Countries with HDI value in the range 0.677–0.784 are categorised as countries with High HD; Countries with HDI value in the range 0.488–0.669 are categorised as countries with Medium HD; Countries with HDI value in the range 0.140–0.470 are categorised as countries with Low HD (Suryanarayana, Agrawal, Prabhu, 2011, pp. 22–23).

time at the household level, and shows the number of multi-dimensionally poor people. (<<http://www.ophi.org.uk/multidimensional-poverty-index/mpi-faqs>>).

The MPI combines two sets of data to measure poverty (Alkire and Santos, 2011): *First one* is the *prevalence* of poverty, or the proportion of people (within a given population) who experience multiple deprivations, also known as *multidimensional head-count ratio (H)*:

$$H = q / n, \quad (1)$$

here q is the number of people who are multi-dimensionally poor and n is the total population. *The second* component is the *intensity* of their deprivation – the average proportion of (weighted) deprivations they experience:

$$A = \sum_{i=1}^n Ci(k) / q, \quad (2)$$

where $Ci(k)$ is the censored deprivation score of individual i and q is the number of people who are multi-dimensionally poor. The MPI is the product of both: $MPI = H \times A$.

The Multidimensional Poverty Index (MPI), presented by Human Development Report 2011, covering 109 countries, complements income based poverty measures. It has three dimensions mirroring the HDI – health,⁸ education⁹ and standard of living¹⁰ (Alkire, Santos, 2011, p. 5) – which are reflected in 10 indicators of multi-dimensional poverty and intensity of deprivations at the household level, each with equal weights within its dimension. It has been estimated to reflect the deprivational perspective of development. Deprivation in health is captured essentially through the nutritional level and child mortality. Deprivation in educational attainments is captured through years of schooling and children enrolled. Similarly, to capture a decent standard of living, six indicators namely cooking fuel, toilet, water, electricity, floor and assets are considered – a household is multi-dimensionally poor if it is deprived in at least two to six indicators, depends on the weight of the specific indicator in the overall measure making 1/3 of the total weight. In other words, a person is identified as poor if he or she has a deprivation score higher than or equal to 1/3 of the (weighted) considered indicators. (UNDP 2010, p. 95). Eight of the ten indicators are connected to Millennium Development Goals (MDG)¹¹ indicators.

⁸ Health: Health dimension includes two parameters weighted equally at 1/6. A) Child Mortality: Deprived if any child has died in the family. B) Nutrition: deprived if any adult or child from whom there is nutritional information is malnourished.

⁹ Education: Education dimension includes two parameters weighted equally at 1/6. A) Years of Schooling: Deprived if no household member has completed five years of schooling. B) School Attendance: Deprived if any school age child is not attending school in years 1–8.

¹⁰ Standard of Living: Standard of living dimension includes six parameters weighted equally at 1/18. A) Electricity: Deprived if household has no electricity. B) Drinking Water: Deprived if household has no access to clean drinking water or clean water is 30 minutes' walk from home. C) Sanitation: Deprived if household not having access to adequate sanitation. D) Flooring: Deprived if household has a dirt, sand or dung floor. E) Cooking Fuel: Deprived if household is using dung, charcoal or wood as cooking fuel. F) Assets ownership: Deprived if household does not more than one of radio, TV, telephone, bicycle, motorcycle, refrigerator, and does not own a car or a tractor.

¹¹ MDGs are a set of numerical and time-bound targets to measure achievements in human and social development. A) Goal-1: Eradicate extreme poverty and hunger. B) Goal-2: Achieve universal primary education. C) Goal-3: Promote gender equality and empower women. D) Goal-4: Reduce child mortality. E) Goal-5: Improve maternal health. F) Goal-6: Combat HIV/AIDS, Malaria and other diseases. G) Goal-7: Ensure environmental sustainability. H) Goal-8: Develop a global partnership for development.

The other two indicators¹² (flooring and electricity) provide some rudimentary indication of the quality of housing.

As far India is concerned, poverty estimates provided by Oxford Poverty and Human Development Initiative (OPHI) of Oxford University and the Human Development Report Office of the United Nations Development Programme (UNDP) in July, 2010 provides an insight that 55% of the Indian population is poor – deprived in 30% indicators. It is much higher than the official figure of 32.7%. About 39% population is poor in 40% indicators; 30% Indians are poor in 50% indicators, 20% people are deprived on 60% indicators, and 10% population is deprived on 70% of the 10 indicators.

The same results are presented in Table 3 showing the multi-dimensional poverty reflected through various indicators (Table 3). It is clear that about 52% population is deprived of cooking fuel, 49% people lack proper sanitation, and 39% are undernourished. The MPI analysis also reveals that three largest deprivations in India are: Nutrition (biggest) followed by school enrollment and child mortality.

The figures on MPI shown in Table 4 give a clear picture of severity of the problem of poverty, especially in Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Rajasthan, Orissa and West Bengal. These eight states occupy last ranks, assigned to the states in ascending order of multi-dimensional poverty, i.e. 11–18 (Table 4). The 'MPI poor' people in these states are even more than that of in the 26 poorest African countries combined (410 million). The above stated states have also shown their relatively poor performance on human ground also as indicated by their positioning in terms of HDI.

Table 3 MPI in India: Dimensions and Indicators

Dimensions of MPI	Indicators of MPI	Occurrence of poverty indicators (in %)	Contribution of Indicators to the MPI (in %)	Relative weight	Connection with to MDG indicators
Education	Schooling	18	10	1/6 = 16.7%	MDG 2
	Enrolment	25	14	1/6 = 16.7%	MDG 2
Health	Child Mortality	23	13	1/6 = 16.7%	MDG 4
	Nutrition	39	22	1/6 = 16.7%	MDG 1
Standard of Living	Electricity	29	5	1/18 = 5.6%	MDG 7
	Sanitation	49	9	1/18 = 5.6%	MDG 7
	Drinking Water	12	2	1/18 = 5.6%	MDG 7
	Floor	40	8	1/18 = 5.6%	MDG 7
	Cooking Fuel	52	10	1/18 = 5.6%	MDG 7
	Assets	38	7	1/18 = 5.6%	MDG 7

Source: Alkire, Santos (2010a, p. 17), Alkire, Santos (2010b, pp. 3–4)

3.4 Interconnection between Human Development and Multidimensional Poverty

In an attempt to find statistical relationship between HDI and MPI, Table 5 summarises the results and confirms a significant negative relationship between the two. The negative value of coefficient of correlation i.e. -0.899 confirms the negative relationship between HDI and MPI and is significant at 0.01 levels (Table 5). The value of t and F statistics also confirms the significance of MPI in explaining HDI. High poverty levels have resulted in low level of human development.

¹² Flooring and electricity are the only indicators not explicitly listed as MDG indicators. However, they are closely related to MDG 7 – Achieve Environmental Sustainability. As access to safe drinking water serves directly to satisfy the need of hydration and hygiene, hereby hygiene is also facilitated by the access flooring material. Electricity being a safer means of lighting, allows people to be independent during the night time, contributes to a healthy home environment.

Table 4. MPI – Components, Dimensions and Indicators and HDI – India and States, 2011

India /States	MPI	MPI Rank	Components of MPI		Education Dimension of MPI		Percentage Deprivations in Education		Health Dimension of MPI		Percentage Deprivations in Health		Standard of Living Dimension of MPI						Percentage Deprivations in Standard of Living	HDI*	Rank
			H (Proportion of poor)	A (Average intensity of deprivations)	Schooling	School Attendance	Mortality	Nutrition	Electricity	Sanitation	Drinking Water	Floor	Cooking Fuel	Assets							
Kerala	0.065	1	0.159	0.409	0.01	0.07	20.3	0.04	0.12	40.4	0.05	0.04	0.09	0.03	0.15	0.11	39.3	0.625	1		
Punjab	0.120	2	0.262	0.460	0.08	0.13	30.0	0.09	0.17	36.1	0.02	0.20	0.01	0.16	0.23	0.11	33.9	0.569	2		
Himachal Pradesh	0.131	3	0.310	0.423	0.04	0.07	13.6	0.09	0.25	43.3	0.01	0.28	0.08	0.15	0.19	0.20	43.1	0.558	3		
Tamil Nadu	0.141	4	0.324	0.436	0.09	0.08	19.4	0.11	0.21	37.5	0.07	0.31	0.05	0.12	0.30	0.24	43.2	0.544	6		
Maharashtra	0.193	5	0.401	0.481	0.08	0.15	20.0	0.14	0.30	37.8	0.13	0.36	0.08	0.27	0.34	0.28	42.2	0.549	4		
Haryana	0.199	6	0.416	0.479	0.08	0.20	23.8	0.15	0.30	37.6	0.08	0.34	0.08	0.24	0.39	0.25	38.6	0.545	5		
Gujarat	0.205	7	0.415	0.492	0.12	0.13	20.3	0.17	0.33	40.6	0.09	0.36	0.10	0.24	0.36	0.29	39.2	0.514	7		
Andhra Pradesh	0.211	8	0.447	0.471	0.19	0.13	25.1	0.16	0.29	35.0	0.08	0.41	0.06	0.19	0.42	0.35	39.9	0.485	10		
Karnataka	0.223	9	0.461	0.483	0.12	0.21	24.9	0.17	0.33	36.9	0.08	0.41	0.12	0.19	0.42	0.32	38.2	0.508	9		
Assam	0.303	10	0.576	0.525	0.19	0.21	22.0	0.19	0.37	31.0	0.41	0.45	0.23	0.50	0.55	0.42	47.0	0.474	11		
West Bengal	0.317	11	0.583	0.543	0.25	0.23	25.4	0.19	0.42	32.0	0.39	0.47	0.07	0.48	0.57	0.43	42.7	0.509	8		
Orissa	0.345	12	0.640	0.540	0.23	0.19	20.3	0.24	0.45	33.3	0.43	0.62	0.20	0.51	0.63	0.39	46.4	0.442	18		
Rajasthan	0.351	13	0.642	0.547	0.21	0.32	25.0	0.28	0.44	34.2	0.31	0.60	0.24	0.36	0.61	0.47	40.8	0.468	12		
Uttar Pradesh	0.386	14	0.699	0.552	0.18	0.36	23.4	0.37	0.46	35.8	0.48	0.62	0.07	0.58	0.66	0.41	40.8	0.468	12		
Chhattisgarh	0.387	15	0.719	0.539	0.21	0.29	21.6	0.31	0.52	35.8	0.24	0.69	0.22	0.64	0.70	0.48	42.5	0.449	16		
Madhya Pradesh	0.389	16	0.695	0.560	0.22	0.32	22.9	0.31	0.50	34.7	0.25	0.65	0.31	0.57	0.67	0.52	42.4	0.451	15		
Jharkhand	0.463	17	0.770	0.602	0.26	0.45	25.3	0.30	0.56	31.0	0.55	0.73	0.42	0.63	0.76	0.55	43.7	0.464	14		
Bihar	0.499	18	0.814	0.613	0.35	.52	29.0	0.35	0.61	32.0	0.65	0.74	0.04	0.70	0.79	0.57	39.0	0.447	17		
India	0.296		0.554	0.535	0.18	0.25	24.0	0.23	0.39	34.7	0.29	0.49	0.12	0.40	0.52	0.38	41.3	0.504			

Source: Alkire, Santos (2010a, pp. 124–125)

Table 5 HDI and MPI – Model Statistics

Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	R	R Square	F	Durbin-Watson
		B		Beta					
1	(Constant)	.605	.014		44.689**				
	MPI	-.371	.045	-.899	-8.210**	-.899*	.808	67.407**	1.385

Note: A) Predictors: (Constant), MPI, B) Dependent variable: HDI, *Significant at 0.01 levels (2 tailed), **Significant at 0.00 level.
 Source: Obtained from the information provided in Table 4 using SPSS 12.0

In order to understand the relative significance of various dimensions of poverty in determining human development, step-wise regression has been used to develop three models (Table 6). The model-1, estimates the effect of standard of living dimension of MPI, and then model-2 and model-3 adds education and health dimension of MPI respectively. The information on change in R Square explains the effectiveness of the variables added in the subsequent models. Variable entered in model-1 i.e. standard of living dimension of MPI, predicts only 18 per cent variation in HDI, whereas model-2 with added education dimension of MPI, predicts 52 per cent variation. Variable added in model-2 has significantly changed the values of R Square and F and is significant at .01 levels of significance. It underlines the fact that the standard of living and education dimension of MPI are helpful in determining the value of HDI up to 52 per cent. Model-3 explains the relative significance of health dimension of MDI, which is not found statistically significant as this dimension explains only .047 per cent variation in determining HDI value.

Table 6 HDI and Parameters of Multi-dimensional Poverty – Model Summary

Model	R	R Square	Std. Error of the Estimate	R Square Change	F Change	Sig. F Change	Durbin-Watson
1	.424	.180	.0483	.180	3.503	.080	
2	.723	.523	.0380	.343	10.780	.005	
3	.755	.569	.0374	.047	1.515	.239	1.143

Note: A) Predictors: (Constant), Standard of living dimension of MPI, B) Predictors: (Constant), Standard of living dimension of MPI, Education dimension of MPI, C) Predictors: (Constant), Standard of living dimension of MPI, Education dimension of MPI, Health dimension of MPI, D) Dependent variable: HDI.
 Source: Obtained from the information provided in Table 4 using SPSS 12.0

Table 7 provides the statistical significance of variables excluded from each variable. Model-2 provides information on the excluded variable i.e. health dimension of MPI, whose t value 1.231 is not statistically significant at .05 level of significance and hereby does not meet the criteria for inclusion, so estimation stops at model-2 with two variables as predictors (Table 8).

Table 7 Excluded Variables

Model		Beta In	t	Sig.
1a	Education dimension of MPI	-.689	-3.283	.005
	Health dimension of MPI	.623	3.313	.005
2b	Health dimension of MPI	15.672	1.231	.239

Note: A) Predictors in the model: (Constant), Standard of living dimension of MPI, B) Predictors in the model: (Constant), Standard of living dimension of MPI, Education dimension of MPI. Dependent variable: HDI.
 Source: Obtained from the information provided in Table 4 using SPSS 12.0

Table 8 HDI and Coefficients Associated with the Dimensions of MPI

Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	T	Sig.	Correlations (Zero-order)	VIF
		B		Beta				
1	(Constant)	.795	.156		5.094	.000		
	Standard of living dimension of MPI	-7.060	.004	-.424	-1.872	.080	-.424*	1.000
2	(Constant)	1.261	.188		6.716	.000		
	Standard of living dimension of MPI	-1.312	.003	-.788	-3.750	.002	-.424*	1.386
	Education dimension of MPI	-9.428	.003	-.689	-3.283	.005	-.274	1.386

Note: A) Dependent variable: HDI, *Significant at 0.05 level.

Source: Obtained from the information provided in Table 4 using SPSS 12.0

The value of coefficients shows the relative effectiveness of each dimension of MPI in determining HDI (Table 8). Standard of living dimension of MPI is significantly negatively correlated with HDI. The value of t-statistics associated with this is not significant at 0.05 levels as it does not explain, as a single variable, significant variation in HDI (model-1). The same variable when associated with education dimension of MPI explains its significant negative effect on HDI. Both dimensions included in model-2 i.e. standard of living and education dimensions of MPI explain the negative impact of poverty in determining the value of HDI.

CONCLUSION

Poverty head-count ratio in India, a conventional measurement of poverty has reduced by 8.5 percentage points, from 36.0 per cent 1993–94 to 27.5 per cent in 2004–05, as per figures provided by the Planning Commission. The revised figures in this regard, provided by Expert Group, Planning Commission, though present different figures but confirm a decline in this. The poverty head-count ratio, which was 45.3 per cent in 1993–94 reduced to 37.2 percent in 2004 and further estimated 29.8 per cent in 2009–10. These data has provided clear-cut evidence on a decline in poverty in India and seems to correspond with development. The same figure when explored with a new perspective, which is multi-dimensional poverty, brings out anti-development growth process of the economy and calls for immediate attention of policy planners. The MPI represents significant progress in the measurement of poverty in an internationally comparable way, wherein attention has shifted from solely income to include other essentially important dimensions. The inclusion of some essential indicators under various dimensions provides an insight that 55 per cent of the Indian population is poor. These many poor people are a treat to the harmony of any society as the ultimate objective of development planning is human development or increased social welfare and well-being of the people. In an attempt to find the role of poverty as a determinant of HD, regression analysis confirms the negative relationship between the two. Hereby, we may reject null hypothesis as the analysis brings out the fact that among poverty dimensions, standard of living and education dimensions are found to be the significant determinants of HD. At the same time the study indicates that the fruits of development have not been distributed equally among all the persons in society as even the states with better HDI have not shown much advantage over the states with high poverty levels as indicated by their MPI. It underlines the need of expansion of economic activities and educational facilities along with their equitable distribution. Thus, it can be concluded that to raise the level of human development concrete efforts at grass root level, not only towards raising economic resources and developmental opportunities but also to ensure their equal distribution, should be made.

References

- AHLUWALIA, M. S. Rural Poverty and Agricultural Performance in India. *Journal of Development Studies*, 1978, 14(13), pp. 298–323.
- ALKIRE, S., SANTOS, M. E. *Acute Multidimensional Poverty: A New Index for Developing Countries*. Oxford Poverty & Human Development Initiative (OPHI), Working Paper No. 38, 2010a.
- ALKIRE, S., SANTOS, M. E. *India Country Briefing* [online]. Oxford Poverty & Human Development Initiative (OPHI) Multidimensional Poverty Index Country Briefing Series, 2010b. [cit. 20.8.2012]. <www.ophi.org.uk/policy/multidimensional-poverty-index/mpi-country-briefings>.
- ALKIRE, S., SANTOS, M. E. *The Multidimensional Poverty Index, Training Material For Producing National Human Development Reports* [online]. Oxford Poverty & Human Development Initiative (OPHI), 2011. [cit. 20.8.2012]. <<http://www.ophi.org.uk/wp-content/uploads/OPHI-RP-31a.pdf.pdf?cda6c1>>.
- ANIRUDH, K. Falling into Poverty: Other Side of Poverty Reduction. *Economic and Political Weekly*, 2003, 38(6), pp. 533–542.
- BAGCHI, A., CHOUDHURY U. D. R. Poverty Measures as an Index of Backwardness and their Relevance to Tax Devolution. *Economic and Political Weekly*, 1989, 14(23), pp. 1831–36.
- BARDHAN, P. K. On the Minimum Level of Living and the Rural Poor. *Indian Economic Review, New Series*, 1970, 5(1), pp. 129–136.
- BHAGAWATI, J. N. Poverty and Public Policy. *World Development*, 1988, 16(5), pp. 539–654.
- JAIN, L. R., TENDULKAR, S. D. Role of Growth and Distribution in the Observed Change in Headcount Ratio Measure of Poverty: A Decomposition Exercise for India. *Indian Economic Review*, 1990, 25(2), pp. 165–205.
- KAKWANI, N., PERNIA, E. M. What is Pro-Poor Growth? *Asian Development Review*, 2000, 18(1), pp. 1–16.
- KAKWANI, N., BRAHM PRAKASH, HYUN SON. Growth, Inequality, and Poverty: An Introduction. *Asian Development Review*, 2000, 18(2), pp. 1–21.
- KAKWANI, N. On Measuring Growth and Inequality Components of Poverty with Application to Thailand. *Journal of Quantitative Economics*, 2000, 16(1), pp. 67–79.
- KAPILA, U. *Indian Economy-Performance and Policies*. Academic Foundation, New Delhi, 2011, pp. 180–184.
- MALHOTRA, R. Towards Implementing the Right to Development: A Framework for Indicators and Monitoring Methods. In ANDREASSEN, A. B., MARKS, S. P. Eds. *Development as a Human Right*, Harvard University Press, Cambridge, 2006, pp. 203–26.
- MCGILLIVRAY, M. The Human Development Index-Yet Another Redundant Composite Development Indicator? *World Development*, Elsevier, 1991, No. 19, pp. 1461–68.
- MCGILLIVRAY, M., WHITE, H. Measuring Development? The UNDP's Human Development Index. *Journal of International Development*, John Wiley and Sons, 1994, 5(2), pp. 183–92.
- MEHTA, J., VENKATARAMAN, S. Poverty Statistics. *Economic and Political Weekly*, 2000, 35(27), pp. 2377–85.
- MINHAS, B. S., KANSAL, S. M., JAGDISH, K., JOSHI, P. D. On Reliability of the Available Estimates of Private Consumption Expenditure in India. *The Journal of Income and Wealth*, 1986, 9(2).
- MINHAS B. S. Rural Poverty, Land Redistribution and Development Strategy. *Indian Economic Review*, 1970, 5(1), pp. 97–128.
- MUELLBAUER, J., KANBUR, R., HART, K., WILLIAMS, B. The Standard of Living: Lecture II, Lives and Capabilities. In SEN, A., Eds. *The Standard of Living*. The Tanner Lectures, 1985, Cambridge University Press, Cambridge, 1987, pp. 20–38.
- NEUMAYER, E. The Human Development Index and Sustainability – A Constructive Proposal. *Ecological Economics*, Elsevier, 2001, 39(2), pp. 101–14.
- NOORBAKHS, F. Human Development and Regional Disparities in Iran: A Policy Model. *Journal of International Development*, John Wiley and Sons, 2002, 14(2), pp. 927–49.
- NOORBAKHS, F. A Human Development Index: Some Technical Issues and Alternative Indices. *Journal of International Development*, John Wiley and Sons, 1998b, 10(5), pp. 589–605.
- NOORBAKHS, F. A Modified Human Development Index. *World Development*, Elsevier, 1998a, 26(3), pp. 517–32.
- PLANNING COMMISSION. *Economy and the Plan: An Overview*. Annual Report, Chapter-2, New Delhi: Government of India, 2011.
- PLANNING COMMISSION. *Press Note on Poverty Estimates*, New Delhi: Government of India, 2012.
- PLANNING COMMISSION. *Report of the Expert Group to Review the Methodology for Estimation of Poverty* [online]. New Delhi: Government of India, 2009. [cit. 25.7.2012]. <http://planningcommission.nic.in/reports/genrep/rep_pov.pdf>.
- SACHS, J. D., BAJPAI, N., RAMIAH, A. Understanding Regional Economic Growth in India. *CID Working Paper*, No. 88, Center for International Development, Harvard University, 2002.
- SAMPLE REGISTRATION SYSTEM (SRS). Office of Registrar General and Census Commissioner. *Planning Commission and Economic Survey*, New Delhi, 1999–2000.

- SEN, A. Capability and Well-Being. In NUSSBAU, M., SEN, A. *The Quality of Life*. A Study Prepared for the World Institute for Development Economics Research (WIDER) of the United Nations University, New Delhi: Oxford University Press, 1993, pp. 30–53.
- SEN, A. *Inequality Reexamined*, Russell Sage Foundation. Oxford, New York: Harvard University Press, 1992, pp. 102–114.
- SEN, A. *Resources, Values & Development*. New Delhi: Oxford University Press, 1984, p. 497.
- SRINIVASAN, T. N. Human Development: A Paradigm or Reinvention of the Wheel? *American Economic Review*, 1994, 84(2), pp. 238–43.
- STREETEN, P. Looking Ahead: Areas of Future Research in Human Development. *Journal of Human Development*, 2000, 1(1), pp. 25–48.
- SUNDARAM, K., TENDULKAR, S. D. Poverty in India in the 1990s: An Analysis of Changes in 15 Major States, *Economic and Political Weekly*, 2003, 38(14), pp. 1385–1393.
- SURYANARAYANA, M. H., AGRAWAL, A., PRABHU, S. *Inequality Adjusted Human Development Index for India's States*. New Delhi: UNDP, 2011.
- UNDP. *Human Development Report. The Real Wealth of Nations: Pathways to Human Development*. New York: UNDP, 2010.