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Multiple Dimensions in Poverty Estimation of Gorakhpur District, Uttar Pradesh: A Geographical Perspective

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Abstract

Poverty in agrarian society has multiple dimensions in its origin, nature of existence, extent and magnitude. Recently there is serious debate on poverty estimation which attracts social scientists to start fresh initiative towards the issue of poverty. The evolving methodology for poverty estimation has different perspectives in the quantification of poverty and its multiple layers in society. The concept of poverty line has been questioned on various grounds and needs a bridge for linking the poverty to level of development. The present paper is an attempt towards a critical estimation of existing poverty line criteria and its limitations. The paper also discusses about the concept of human poverty and its suitability for categorization of deprivation in an agrarian economy. The authors also try to elaborate the various rings of poverty, i.e. severe destitute, destitute, poor and just below poor, based on Da Costa methodology and its up gradation on current price index. Moreover, Human Poverty Index (HPI) highlights the multiple dimensions of deprivation and poverty in the agrarian economy of the study area. The paper also deals with the spatial pattern of BPL population with four rings and HPI at block level in Gorakhpur district, UP.

Introduction

Poverty in any agrarian society is complex and multidimensional in nature. Historically, poverty has linkages to colonial exploitation and individual deprivation, which may be identified as core criteria for poverty analysis. The per capita income and nutritional intake are referred as problematic concept for 'poverty', as deprivational issues should also consider resources such as assets, income in kind and subsidies to public services and employment for a comprehensive and accurate measure of relevant components. The population could be considered as poor which is deprived from the basic needs, i.e. nutrition, comfort materials for day to day life, social amenities, health care facilities and knowledge. The understanding and estimation of poverty is a serious concern for all the researchers, policy makers and leader of societies. Numerous attempts have been made by academicians, agencies, institutions and international bodies to find out the rational criteria for poverty in any specific region. The accepted definition of poverty emphasized minimum level of living rather than a share of developmental fruits by poor as a scientific norm. This attitude is borne out of a realization that it would not be possible to provide even a minimum quantum of basic needs for some decades and, therefore, to talk about a reasonable level of living or good life may appear to be wishful thinking at the present stage. Thus, political considerations enter in the definitions of poverty. The entire argument about poverty is for the absolute poverty expressed in terms of minimum requirements of calorie intake, while the issues of relative poverty remained untouched in due course

of poverty estimation and definition. The degree of multiple deprivations in poverty stricken regions needs a fresh attempt to measure the extent and magnitude of poverty in a scientific manner. The present paper is an attempt to evaluate and estimate the extent and magnitude of poverty in a rational manner.

Discussion on Poverty

Studies on poverty in India began with the pioneering work of Dadabhai Naoroji (Naoroji 1899) and it was followed many others in recent years. Some of the noteworthy works are by Ojha (1970), Dandekar and Rath (1971), Minhas (1971), Bardhan (1973), Ahluwalia (1977), Lakadwala (1993), Datt(1996), Datt, Kozel and Ravallion (2003), Guruswamy (2006), Dev et al (2007), Dev and Ravi (2008), and Tendulkar (2009).

Recently, the discussion on poverty has turned into the gambit of Below Poverty Line (BPL) versus Human Poverty Index (HPI). Most of the policy makers are of the opinion that the concept of HPI is more scientific than that of BPL. The concept of Human Poverty is more inclusive and nearer to multiple deprivational aspects of poverty. Human Development Report (1997) describes it as 'the process of widening peoples' choices and the level of well being they achieved, which are at the core of the notion of human development. Such theories are neither finite nor static. But regardless of the level of development, the three essential choices for people are a) to lead a long and healthy life, b) to acquire knowledge and c) to have access to the resources needed for a decent standard of living. Human development does not end here, however, other choices highly valued by many people, range from political, economic and social freedom to opportunities for being reactive and productive and enjoying self-respect and guaranteed human rights (*UNDP HDR, 1997*). The HDR (1997) introduced the concept of human poverty index, which concentrates on deprivation in three essential elements of human life already reflected in HDI – longevity, knowledge and a decent living standard. The first deprivation is vulnerability to death at a relatively early age and is represented in the HPI by the percentage of people expected to die before age 40. The second deprivation is related to knowledge and is measured by the percentage of adults who are illiterate. The third deprivation relates to a decent standard of living, in particular, overall provisioning. This is reported by a composite of three variables – the percentage of people with access to a) health services, b) to safe water, and c) the percentage of malnourished children under 5 years of age. It would be relevant to understand why income does not figure in Human Poverty Index (HPI). According to the HDR (1997), the logic underlying the construction of economic provisioning is that the GNP included in the HPI is actually a combination of private and public facilities, since public services are paid out of aggregate national income. The problem in assessing the prevalence of income poverty is that the use of the same poverty line in different countries can be very misleading because of the variation in 'necessary' commodities. Depending upon the prevailing pattern of consumption – clothing, accommodation and tools of communication and interaction such as radios and telephones – many provisions are taken to be essential for social participation in one community without being treated as

such in other communities. As a result, the minimum income needed to escape social estrangement can be quite different between communities. For this purpose, the HPI uses the prevalence of malnutrition of children which is relatively easier to measure and for which data are more readily available, along with access to health services and safe water. The combination of health, knowledge and decency in life reflect the level of human development. In this context, HPI is a value of ill-health, illiteracy and hardship in life which have been considered for the estimation of poverty in the study area.

Towards Scientific Poverty Estimation

The debate about redefining and estimating poverty has two schools of thought. Among the first school of thought are those scholars who are of the view that attempts at upgrading poverty line from time to time have followed a wrong notion that reduction of poverty is going at a fairly good pace. A second school of thought includes a group of scholars who argue for redefining the poverty line. Mohan Guruswamy and R.J. Abraham (2006) have raised the question of relative poverty in India. Utsa Patnaik on the basis of NSS data on per capita monthly expenditure and calorie intake per day has challenged the poverty estimates of the planning commission. Patnaik criticizes the planning commission for only using expenditure group data to arrive at the number of persons below the poverty line by ignoring the other significant parameters for multiple deprivations. Patnaik (2007) mentions: 'thus, the current data are being used selectively, with only the distribution of persons by expenditure classes being used, and the associated energy intake part being ignored completely'. Guruswamy and Abraham (2006) have highlighted the distinction between poverty and hunger. Guruswamy observed: "poverty is an economic condition. Hunger is a physical condition that arises out of severe economic condition. While the definition of hunger in terms of calories can remain constant, the definition of poverty is relative to the present levels of general prosperity.... The present official poverty line is based only on calories and hence accounts for little else but the satiation of one's hunger. It would have been more accurate to define this as a *starvation line*, as that is exactly what it is". The official poverty line should be renamed as '*starvation line*' since apart from providing 650 grams of food grains per day, it makes very little provision for the other essentials of life, such as nutrition and balanced diet, provision of health, electricity and cooking fuels, clothing and miscellaneous expenditure pertaining to education, shelter and other minimum levels of expenditure to sustain life, such as travelling, washing and stitching of clothes, durable consumer goods, etc. A realistic and proper definition of poverty line should, therefore, include all the basic needs of human life so as to ensure a minimum level of quality. Thus, a dynamic concept of poverty line should, therefore, incorporate basic human needs and should not limit itself to minimum calorie intake needed for subsistence. Thus, the procedure of upgrading poverty line on the basis of price index needs a review and this should be accompanied by the norm of calorie intake. Since the basis of poverty line was decided four decades ago in 1969, so far a developing economy with an aspiration of becoming a super-economic power by 2020, it is all the more necessary to develop a basic needs approach poverty line, instead of a uni-

dimensional poverty line based on calorie intake from food primarily, which is only a starvation line. Most of the poverty analysis performed by economists and statisticians confined only into arithmatic discussion. The geographical approach comes very closer to the nature of poverty. The present study is an attempt to analyze poverty in the multiple aspects of deprivation in terms of space and time.

Study Area

The study area (Gorakhpur District) lies in the backward and underdeveloped region of Eastern Uttar Pradesh, and covering a geographical area of 3,483.8 sq. km (Fig 1). The economy of this district is purely agrarian in nature with the exception of some sugarcane industries. The socio-economic backwardness of this district can be seen as a combined outcome of almost negligible level of industrialization and the feudal agrarian structure of its economy. Gorakhpur district is divided into 7 Tehsils (revenue sub-divisions) and Tehsils are further sub-divided into 19 Development Blocks, Blocks into 191 Nyay Panchayats, and these Nyay Panchayats into 1,233 Gram Sabha, which consists of 3,319 revenue villages. The total population of the study area is 3,769,456 which consist of 1,923,197 (51.02%) males and 1,846,259 (48.98%) females. The level of urbanization in the district is quite low as only 19.59 per cent of the population is living in urban areas whereas more than two-third of the total population are rural inhabitants.

Spatial Analysis of Below Poverty Line (BPL) Population and Human Poverty Index (HPI)

Considering the various ongoing contemporary debates on multiple nature of poverty, an attempt has been made to explain this issue in a geographical perspective. Most of the poverty estimation researches have been performed by the economists and statisticians who tried to evaluate the prevalence of poverty in a crude arithmatic sense. They also ignored the spatial, structural and socio-cultural aspects of poverty. The present paper has focused on poverty analysis in a multiple way, especially in its geographical context. The configuration of poverty and its estimation was made by Da Costa (1971) and revised by Mishra (1988) on the price index of 1980, which revealed meaningful observations on the nature and extent of poverty. The present study is an attempt to estimate poverty into its different rings, i.e. severe destitute, destitute and just below poverty line on the price index of 2010. Though this estimate may create debate on the issue of poverty estimation, however, this endeavour can generate some ground data on the severeness of poverty in an agrarian economy. In this context, the official estimation of below poverty line (BPL) population has also been used for the purpose of analysis, comparison and spatial interpretation Table 1 reveals the spatial pattern of population into different categories of severe destitute, destitute, just below poor and BPL in the different blocks of Gorakhpur district. It highlights that Gola block has maximum concentration of BPL population (42.05 percent, 1st rank) and Campierganj block shows minimum level of BPL population (24.77 per cent, 19th rank). On the basis of severeness of

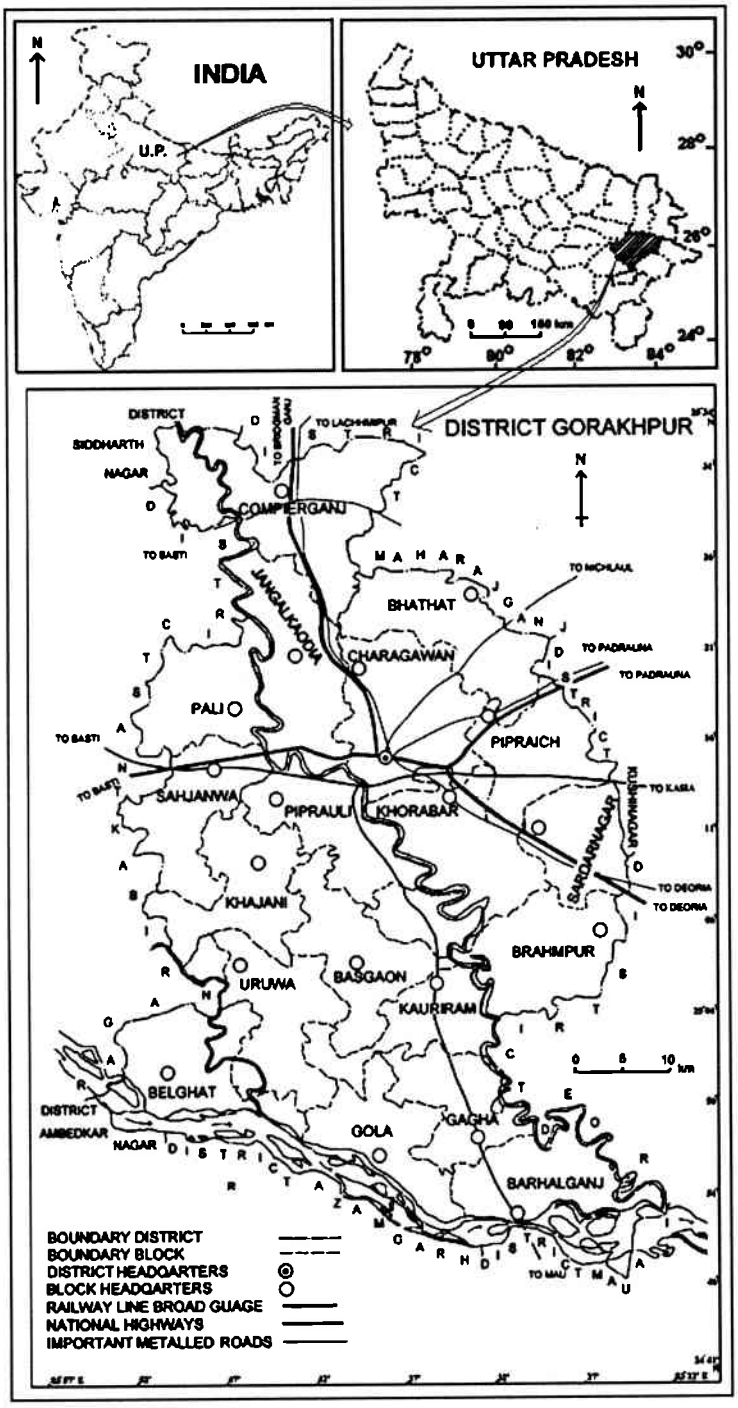

Fig. 1: Location Map of Gorakhapur

Table 1: Poverty structure

Block	Severe Destitute	Destitute	Poor	Just Below Poor	BPL	Ranking
Pali	10.12	6.76	19.01	64.11	40.67	4
Sahajanawan	6.78	8.21	18.75	66.26	26.02	18
Piprauli	9.76	7.98	19.82	62.44	39.37	5
Jangal kauriya	7.08	8.78	17.36	66.78	32.00	12
Charagawan	7.81	6.17	17.03	68.99	33.14	10
Bhatahat	7.01	7.14	19.21	66.64	31.02	13
Pipraich	6.92	8.02	20.45	64.61	27.96	17
Sardarnagar	7.10	9.19	16.83	66.88	32.08	11
Khorabhar	6.96	7.52	18.09	67.43	28.12	16
Brahmpur	6.99	5.34	20.13	67.54	29.06	15
Kauriram	7.00	6.71	20.47	65.82	29.37	14
Bansgaon	9.61	8.07	19.21	63.11	37.10	8
Uruwa	9.71	10.18	16.97	63.14	38.26	6
Gagaha	10.19	9.25	16.16	64.40	41.01	3
Khajani	9.45	6.78	21.02	62.75	36.54	9
Belghat	10.21	9.16	17.51	63.12	41.90	2
Gola	10.36	11.05	18.91	49.32	42.05	1
Barhalganj	9.74	8.85	20.53	60.88	37.28	7
Campierganj	5.42	7.46	22.46	64.66	24.77	19
Total	8.33	8.03	18.94	64.15	34.09	

Source: Computed from District Statistical Hand Book, Gorakhpur (2009) and Field survey (2010)

poverty in different blocks, the estimation of three rings of poverty, i.e. severe destitute, destitute, poor and just below poverty line may be helpful in identifying the extent and magnitude of poverty across different blocks of Gorakhpur district. The level of severe destitute conditions of poverty indicates its highest proportion in Gola block (10.36 per cent). The proportion of destitute population varies from a maximum of 11.05 per cent in Gola block to a minimum of 5.34 per cent in Brahmpur block. On the basis of poor category of poverty, Campierganj shows its maximum concentration (22.46 per cent) and Gagaha its minimum concentration (16.16 per cent). The spatial pattern of BPL population reveals different trends of poverty as it depicts the maximum concentration in Gola block (42.05 per cent) and minimum in Campierganj (24.77 per cent). Thus, the different layers of poverty have multiple dimensions in the study area. On the basis of severness of deprivation Gagaha (10.19 per cent), Belghat (10.21 percent), Gola

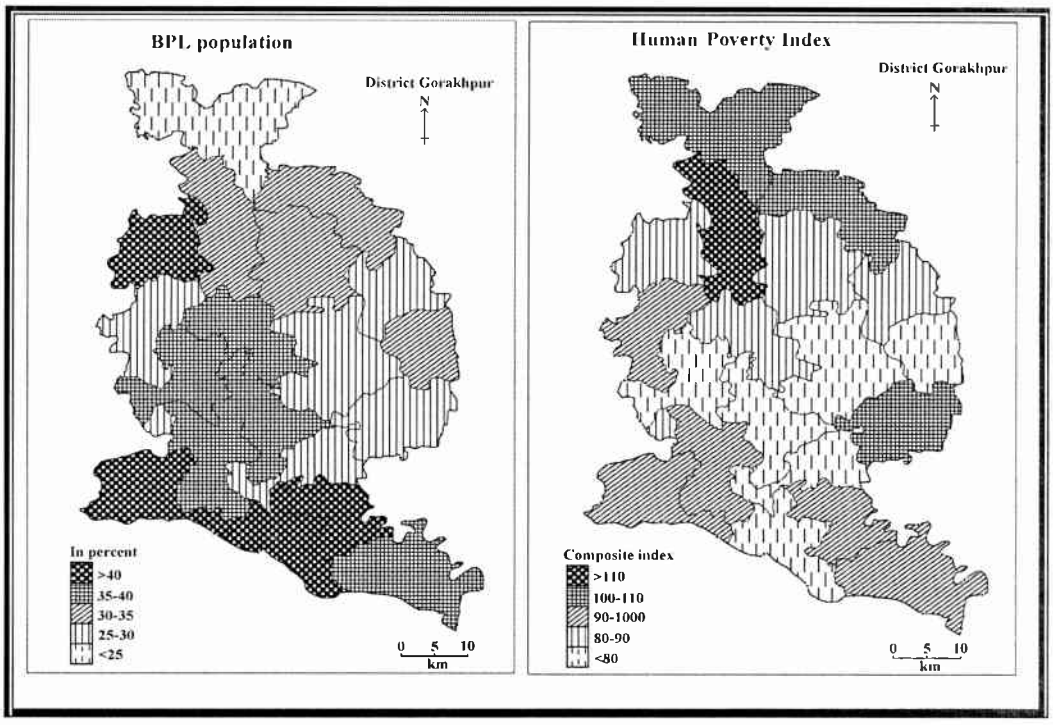

Fig. 2: Spatial Distribution of BPL and HPI

(10.36 per cent) and Pali (10.72 percent) have revealed acute form of deprivation which further needs a thorough analysis. The population under BPL category shows its spatial trend in the extent of poverty in the study area, such as Gola (42.05 per cent), Belghat (41.90 per cent), Gagaha (41.01 per cent), Pali (40.67 per cent), Piprauli (39.37 per cent), Uruwa (38.26 per cent), Barhalganj (37.28 per cent), Bansgaon (37.10 per cent), Khajani (36.54 per cent), Chargawan (33.14 per cent), Sardarnagar (32.08 per cent), Jangal Kauriya (32.00 per cent), Bhatahat (31.02 per cent), Kauriram (29.37 per cent), Brahmpur (29.06 percent), Khorabhar (28.12 percent), Pipraich (27.96 percent), Sahajanawan (26.02 per cent) and Campierganj (24.77 per cent).

Contrary to BPL (Below Poverty Line) analysis of deprivation, HPI (Human Poverty Index) reflects more rationality towards the prevailing conditions of poverty. Table 2 and 3 represent the multiple variables of poverty at block level, which are as: health care facilities per lakh population, daily per capita availability of food grains in kg., percentage of agricultural workers, electrified villages in per cent, length of metalled roads per thousand sq. km area and level of knowledge and education. On the basis of these variables, table 3 reveals the rank orders of different variables and also the arranged order of their composite index and ultimately into its composite rank. The composite rank of human poverty variables is more rational in highlighting the nature of poverty in the study area. As per the

Table 2: Human poverty variables

Block	Health care facilities per lakh population (in numbers)		Daily per capita availability of food grains (in kg)	Agricultural workers (in percent)	Electrified villages (in per cent)	Metalled roads per thousand sq. km area (in km)	Educational facilities per lakh population (in numbers)		
	Beds	Doctors					Primary	Secondary	Higher
	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
Pali	33.9	6.45	0.739	73.2	79.7	733.7	85.6	5.6	1
Sahajanawan	9.1	4.56	0.735	69.8	76.4	883.5	91.2	3.8	2
Piprauli	10.2	3.17	0.563	52.3	94.2	928.2	71.8	5.7	4
Jangal Kauriya	9.9	2.46	0.583	71.3	78.5	668.8	63.5	7.9	1
Chargawan	9.8	3.67	0.469	47.4	94.3	895.5	52.0	6.1	6
Bhatahat	10.2	3.18	0.759	73.3	92.7	866.9	59.2	3.8	1
Pipraich	7.5	6.28	0.613	66.8	90.7	915.3	64.1	6.9	2
Sardarnagar	10.4	2.60	0.600	54.7	97.4	987.8	61.9	5.9	5
Khorabar	12.8	3.84	0.526	51.5	100.0	809.4	55.8	10.9	1
Brahmpur	10.1	3.15	0.804	77.8	97.5	696.2	70.6	5.0	1
Kauriram	10.5	3.27	0.660	60.1	87.0	867.5	85.0	5.9	2
Basgaon	11.0	1.37	0.685	68.2	99.5	804.3	99.4	6.2	3
Uruwa	9.7	3.63	0.696	67.0	68.4	734.4	90.2	6.7	2
Gagaha	10.3	2.57	0.605	71.1	90.2	840.0	86.3	7.7	1
Khajani	25.6	6.09	0.735	65.3	79.5	790.3	75.0	6.1	2
Belghat	10.1	1.90	0.739	80.6	65.2	595.3	96.4	7.0	3
Gola	8.4	4.19	0.629	71.9	88.9	983.9	95.1	8.4	2
Barhalganj	7.7	3.21	0.660	67.3	83.2	954.9	85.6	4.5	2
Campierganj	18.6	3.55	0.642	82.7	100.0	507.6	71.9	4.9	1
Total	12.3	3.64	0.655	68.2	84.5	794.9	76.1	6.3	42

Source: Computed from District Statistical Handbook, Gorakhpur (2008) and field survey (2010)

rank order of HPI, block Jangal Kauriya has 1st rank in the prevalence of poverty followed by Brahmpur (2nd), Bhatahat (3rd), Campierganj (4th), Belghat (5th), Barhalganj (6th), Gagaha (7th), Sahajanawan (8th), Uruwa (9th), Pali (10th), Pipraich(11th), Charagawan (12th), Piprauli (13th), Kauriram (14th), Khorabhar (15th), Sardarnagar (16th), Gola (17th), Khajani (18th) and lastly, Bansgaon (19th).

Thus, the comparative analysis of BPL population, its different rings of poverty and Human Poverty Index (HPI) highlights the need for more scientific methodology towards the measurement of poverty. Fig. 2A and 2B represent the spatial patterns of poverty which are obtained by adopting different methodologies. These two techniques of poverty estimation have put the entire spatial outcome in context to the poverty level which reveal contradictory spatial pattern in its distribution of poverty level in the study area (Fig. 2A and 2B). Thus, a fresh understanding towards the issue of poverty and its spatial dynamics is required for planning purpose.

Table 3: Ranking of human poverty variables

Block	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	Composite index	Composite rank
Pali	1	1	3.5	15	14	13	7.5	14	16	85	10
Sahajanawan	16	4	5.5	11	17	7	4	18.5	9	92	8
Piprauli	9.5	13	17	3	7	4	12	13	3	81.5	13
Jangal Kauriya	13	17	16	13	16	16	15	3	16	125	1
Chargawan	14	7	19	1	6	6	19	9.5	1	82.5	12
Bhatahat	9.5	12	2	16	8	8	17	18.5	16	107	3
Pipraich	19	2	13	7	9	5	14	6	9	84	11
Sardarnagar	7	15	15	4	4	1	16	11.5	2	75.5	16
Khorabar	4	6	18	2	1.5	10	18	1	16	76.5	15
Brahmpur	11.5	14	1	17	5	15	13	15	16	107.5	2
Kauriram	6	10	9.5	5	12	7	9	11.5	9	79	14
Basgaon	5	19	8	10	3	11	1	8	4.5	69.5	19
Uruwa	15	8	7	8	18	14	5	7	9	91	9
Gagaha	8	16	14	12	10	9	6	4	16	95	7
Khajani	2	3	5.5	6	15	12	10	9.5	9	72	18
Belghat	11.5	18	3.5	18	19	17	2	5	4.5	98.5	5
Gola	17	5	12	14	11	2	3	2	9	75	17
Barhalganj	18	11	9.5	9	13	3	7.5	17	9	97	6
Campierganj	3	9	11	19	1.5	18	11	16	16	104.5	4

Source: Computed from District Statistical Hand Book, Gorakhpur (2008)

Conclusion

Poverty in underdeveloped agrarian economy as a problem puts multiple challenges before people, society, economy and political stability. Its nature is multidimensional and requires multivariable analysis in order to understand the developmental dynamics of a backward economy. Recently, one-dimensional analysis and estimation and other forms of quantification of the poverty related issues have shown their limitations in identifying the poor and their extent of deprivation. The concept of below poverty line (BPL) population on the basis of bare minimum needs for the survival of poor people based on calorie intake has serious lacunae in its process of formation which, in the periods of high GDP growth, has become irrelevant. The ongoing debate on poverty line and its relation to the level of development will attract the scholars and policy makers to re-orient their line in contemporary development studies. The present study supports the concept of HPI rather than BPL. Through present study, many new points have emerged which give new insights for the estimation of multiple dimensions of poverty. Some major and important aspects of poverty estimation are as:

1) The spatial pattern of BPL (Below Poverty Line) population superficially

depicts the nature of poverty in the study area. While, on the other hand, four rings of poverty based on Da Costa methodology and its up-gradation at current price index may represent the ground reality of the study area more accurately (Table 1).

2) The concept of Human Poverty Index (HPI) is more scientific and rational methodology in quantifying the multiple levels of deprivation in poverty ridden society and region.

3) These two concepts of poverty estimation, i.e., BPL and HPI have shown entirely different spatial patterns of poverty and deprivation which have separate linkages towards the emerging dynamics of spatial identity and its relation to geographical space. The multiple dimensions of poverty estimation are quite visible in Tables 1, 2, 3 and Fig. 2 A and 2 B.

Lastly, it may be concluded that the quantification of poverty and deprivation requires multiple strategy. In this context, BPL criterion is not suitable for poverty estimation as it failed to express the real pattern of poverty in the study area and, thus, HPI has a significant role to play in the estimation of poverty and other related human deprivations.

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