

NEXUS OF MULTIDIMENSIONAL POVERTY AND EDUCATIONAL DEPRIVATION AMONG THE SOCIAL GROUPS: EVIDENCE FROM A DEVELOPING COUNTRY

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Abstract

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The interface between the incidence of multidimensional poverty and its fallout on educational deprivation is often debated in the realm of human development perspective. The paper aims to explore the nexus of multidimensional poverty and educational deprivation among the households belonging to different social groups, namely Scheduled Castes (SC), Scheduled Tribes (ST), Other Backward Castes (OBC), and Forward Castes (FC) in rural areas of a developing country, India (Gaur & Rao, 2020). A decomposition analysis within the human development framework using primary data from selected regions of India, namely Kerala, West Bengal, and Bihar, is attempted to explore whether there is any deprivation gap in education in the selected regions. The multidimensional poverty and educational deprivation of select states are analysed using the Multidimensional Poverty Index (MPI) developed by Oxford Poverty and Human Development Initiatives (OPHI) (Alkire & Foster, 2011; Organisation for Economic Co-operation and Development [OECD], 2022; PIB Delhi, 2020; Ballon & Krishnakumar, 2010). The study identified the determinants of educational deprivation and its nexus with the multidimensional poverty of the households belonging to the social groups of rural India. The paper highlights the influence of disproportional attainment of education, which worsens deprivation leading to unequal outcomes of human development among the different social groups of rural India. The discussion further unfolds the incidence of disproportional multidimensional poverty among social groups in rural India that enables the explanation of the policy implications and interventions in educational entitlements.

Keywords: Educational Deprivation, Multidimensional Poverty, Incidence of Poverty, The Intensity of Poverty, Social Groups, Deprivation Gap

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1. INTRODUCTION

Education, health, resources, and freedom are the basic requirements in human life that help an individual to achieve his “valued functionings”. Human poverty exists in a society where the choices of people are limited, which leads to capability failure. According to Sen (1990), human development is the process of widening people’s choices as well as raising the level of well-being achieved. Alternatively, poverty can be perceived as the denial of opportunities and choices, namely to lead a long and healthy life, “to be educated”, and enjoy a decent standard of living, which are the basic traits of the process of human development.

Many of the major studies on poverty have estimated and highlighted the decline in its incidence in India but do not give much focus to explaining the implications of the intensity of poverty (Ojha, 1970; Dandekar & Rath, 1971; Ahulwalia, 1978; PIB Delhi, 2020; Baiju & Vidya, 2021). Even though the relative proportion of “poor households” is declining, the actual number of “poor households” remains high in India as the size of the population increases with its varied social, economic, and cultural dimensions across the country by region. Thus, the interregional studies on the incidence of multidimensional poverty in India and its impact on educational deprivation among social groups would give further insights to identify the intervention gaps and critical variables thereon in the formulation of the policy framework. However, the conventional income-based poverty measures do not provide sufficient input to policymakers as it fails to underscore a universal value to assess the incidence of poverty and human development. Hence it pinpoints the need for an alternative conceptual approach to development and deprivation, enabling the formulation of multipronged strategies, policy interventions, and collective action.

The human development framework enables one to discuss poverty from its multidimensional perspective. The present study looks into one of the prime dimensions of multidimensional poverty, educational deprivation, among the different social groups across the selected regions of India, namely Kerala, West Bengal, and Bihar, within the human development framework. A decomposition analysis using primary survey data would authentically explain the concepts. The following objectives were set to analyse the primary data.

- To examine the incidence and intensity of educational deprivation across the selected regions of India, namely Kerala, West Bengal, and Bihar.

- To estimate the deprivation gap in education, if any, among the social groups in the study area.

The research questions are as follows:

RQ1: Is there any disparity in the distribution of households based on the education of the main earning member of the family?

RQ2: Is there any persistence of educational deprivation by differing dimensions and magnitude among the social groups across the states?

The present study chose one of the basic dimensions of human life, namely education and tries to explore its impact on the people belonging to different social groups (social context) across the selected regions of India (spatial context).

The study incorporates two specific “indicators” corresponding to the selected dimension, namely years of schooling and school enrolment. Education is the most critical dimension in the human development paradigm. Better education is an important means to a better job, income, and better quality of life. The investment in education helps the country convert its population into human capital, which accelerates the economic and human development of the country. Education helps an individual to get wider opportunities to enlarge his/her functioning. Deprivation in education is the major cause of multidimensional poverty (United Nations Development Programme [UNDP], 2010). Hence, “education” is taken in this study as an important dimension of human development and multidimensional poverty. Two indicators, namely years of schooling and school enrolment, were selected to examine the deprivation in education. The indicator “years of schooling” is the period an individual spends on education, which can be used to understand the basic functioning “to be educated”. Inability to complete five years of schooling is considered deprivation in this indicator corresponding to education. Another indicator used in this study to examine the deprivation in education is “school enrolment”. The status of the school-aged child (children between the age group 6-13 years) is taken to examine the deprivation in this indicator. If any child of a family belongs to the age group 6-13 years either enrolled or not attending school is considered to have deprivation in education.

As the states in India differ in their achieved level of economic growth and human development, the disparity in development between the states remains a truism. This is quite evident from the respective state domestic product (SDP), growth rate, social development, as well as the state’s human development index. It implies that there is an apprehension about the persistence of deprivation by differing dimensions and magnitude, especially among the social groups across the states, primarily those belonging to the low-income ladder.

In the human development framework, poverty reduction is assessed through the changes in the disadvantages of the deprived people belonging to all groups in each community. Empirical studies on poverty deal with various aspects of poverty which include the measurement of poverty, the extent of the shift in poverty, the identification of the poor, and inconsistency between official estimates and other estimates of poverty. Caste discrimination has become one of the enabling factors in explaining the intensity of poverty in India (Ray & Lancaster, 2005). Poverty statistics of India underlies this fact as the incidence of poverty is very high among households belonging to Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Castes (OBC) in India (Government of India [GoI], 2011).

Further, it is supplemented by the incidence of wealth inequality as a few people in India hold a major portion of the wealth of the country (Baiju & Vidya, 2021). For instance, 20 percent of people at the bottom in India get only 8.1 percent of the national income, whereas the top 20 percent of people hold 45.3 percent of the national income (UNDP, 2008). India’s richest 1 percent hold more than four times the wealth held by 953 million

people who make up the bottom 70 percent of the country's population, while the total wealth of all Indian billionaires is more than the full-year union budget of India, revealing the intensity of the skewness of income and wealth distribution. Unfortunately, the major proportions of the bottom 20 percent of the income ladder by social groups belong to the socially and economically backward communities: SCs, STs, and OBCs. Hence, a social group-wise examination of the incidence of poverty becomes pertinent in identifying the real target groups afflicted by poverty.

This paper aims to explore the nexus of the incidence of "multidimensional poverty" and "educational deprivation" among the households belonging to different social groups, namely SCs, STs, OBCs, and Forward Castes (FCs) in rural India through decomposition analysis within the human development framework using primary data from select regions of India namely Kerala, West Bengal, and Bihar. The states are selected on the basis of the different levels of achievements in human development. For the micro-level analysis of interregional variations in the incidence of human deprivation, social groups namely, SCs, STs, OBCs, and FCs were analysed. Hence, an inter-state and intra-state analysis using the Multidimensional Poverty Index (MPI) developed by the Oxford Poverty and Human Development Initiative (OPHI) is further decomposed to identify the determinants of educational deprivation to explore its nexus with the multidimensional poverty of the households.

The structure of this paper is as follows. Section 1, the Introduction, sets the backdrop of the study with objectives, research questions, conceptual framework, significance, and relevance of the problem and the method used. Section 2, the Literature review, explores the research gap. Section 3 analyses the methodology and details the procedure of the study. Section 4 presents the data and results and Section 5 discusses the results in light of the conceptual framework. Section 6 concludes with major findings, policy implications, suggestions, and limitations of the study.

2. LITERATURE REVIEW

The poverty measures developed and debated are varied and quite exhaustive, including income and consumption expenditure approaches. Various researchers have reported the different dimensions of poverty along with its impact on different spheres of human life. The methods and techniques for accurately measuring income inequality and poverty vary with different approaches and conditions. The studies reviewed in this paper reflect global, national, and local perspectives on poverty and its estimation.

The measurement of poverty with household income as the indicator of household welfare argues that consumption can be an appropriate indicator to estimate poverty from the welfare perspective (Chotikapanich, 1994). Theoretically, human development is seen as the process of expanding people's choices, it becomes the process of elimination of obstacles to the things hindering well-being in a person's life such as illiteracy, morbidity, lack of access to resources as well as civil and political freedoms (ul Haq, 1995). The most critical in this argument is that it places people's choices at

the centre and approaches human development as the ability to lead a long and healthy life, to be educated, and to enjoy a decent standard of living. In practice, the process of human development is seen as a "process of expanding the capabilities of people" (Sen, 1984; Dreze & Sen, 1991). 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. UNDP (2000) analysed the relationship between poverty, inequality, and human development poverty and inequality disempowered people and open them to discrimination in many aspects of life and violation of their rights. The eradication of poverty was treated as more than a major development challenge — it is a human rights challenge.

The Planning Commission Expert Group (GoI, 1993) used these variables in their assessment. But the Task Force in 1977 recommended calorie criteria to measure poverty. Various studies, including Dandekar and Rath (1971), Bardhan (1973), and Ahluwalia (1978), defined poverty based on calorie criteria. In their study, Ravallion and Datt (1996) used Head Count Ratio, Poverty Gap Index, and Squared Poverty Gap Index to estimate poverty in India for the period 1950-1990. The same approach has been followed by Sundaram and Tendulkar (2003) in their study, which measures the change in the poverty ratio during 1994-2000. Sen and Chakaraborty (2005) have computed the Human Poverty Index and Capability Poverty Index of India for the period 1993-2000. Gupta (2005), Organisation for Economic Co-operation and Development (OECD, 2022), and PIB Delhi (2020) also used both measures to estimate poverty. These studies have stressed the need to develop a comprehensive poverty index based on income and non-income variables.

National-level research conducted in the Indian context underscored the lack of access to information, education, skill, land, and capital endowments is the cause of impoverishment, which are the function of one's socio-religious belongings (Suryanarayana, 2008; Thorat, 2010). Further, researchers have examined inclusive outcomes in terms of relative distributional measures based on estimates of per capita nominal consumption distribution using National Sample Survey (NSS) data for 17 major states from 1993-1994 to 2011-2012 (Suryanarayana & Das, 2014).

At the global level, it is seen that researchers have attempted to create a MPI for impoverished households (Lastuti & Khoirunurrofik, 2022). The development of multidimensional poverty measures was motivated to not only capture multiple but also overlapping deprivations faced by the poor, which was not sufficiently reflected in monetary poverty measures (Seth & Alkire, 2021). The NITI Aayog identified 12 indicators in these three sectors and calculated the weighted average of deprivations in each of these 12 indicators for all men and women surveyed for National Family Health Survey (NFHS)-4 (Srinivasan & Durai, 2022). Studies that have probed demographic datasets have concluded that financial inclusion plays an important role in preventing a household's exposure to future poverty while also aiding in sustained escapes from poverty, especially in female-headed households (Koomson et al., 2020). Kaibarta et al. (2022), in their study, display

a decomposed multidimensional poverty picture in terms of overall condition, socioeconomic groups, and household age. Asselin (2009) proposes an operational methodology for measuring multidimensional poverty and developed a theoretical rationale for it followed by empirical validation by taking a case from Vietnam.

In another study, the multidimensional poverty among Nigerian households was analysed, and it was found that Nigeria currently has the highest number of people living on less than USD1.90 a day, becoming what some analysts labelled, “the poverty capital of the world” (Abubakar, 2022). Reducing multidimensional poverty requires improving electricity supply and human development interventions in education, water, sanitation, and healthcare, targeting deprived households. These are essential for achieving sustainable development. The study by Espasandin et al. (2022) proposes a valid, reliable, and parsimonious poverty index, named Municipal Poverty Index-Urban Audit (MPI-UA) to describe the evolution of the multidimensional poverty risk of the Spanish municipalities.

Post-reform India has generated high economic growth, yet progress in income poverty and many other key development outcomes has been modest. The paper by Seth and Alkire (2021) primarily examines how inclusive economic growth has been in India between 2005–2006 and 2015–2016 in reducing multidimensional poverty captured by the MPI. The analyses and findings show how a constellation of elasticity and semi-elasticity measures used to examine vertical, horizontal as well as dimensional inclusiveness of economic growth may be used in practical applications to measure inclusive growth and recommend policy suggestions (Seth & Alkire, 2021).

Human deprivations in core components of life like health, education, and standard of living are multidimensional in nature, also the means and ends of economic well-being. The causes of multidimensional deprivations and poverty have important policy bearing, particularly for a geographically isolated, economically backward, and poverty-ridden state like Tripura, in Northeast India (Shah & Debnath, 2021). Composite measures such as multidimensional poverty indices depend crucially on the weights assigned to the different dimensions and their indicators. A recent strand of the literature uses endogenous weights, determined by the data at hand, to compute poverty scores (Dutta et al., 2021).

An assessment of the multidimensional status of poverty among the social groups in India based on the National Family Health Survey, 2015–2016 (NFHS-4) was done on 579,698 households’ well-being (Pradhan et al, 2022). In this study, Alkire–Foster technique was also applied to decompose the MPI across its dimensions and indicators for all the social groups. The present study also follows the path and used the same technique for the analysis of multidimensional poverty.

3. RESEARCH METHODOLOGY

3.1. The research method and sampling

This descriptive cross-sectional study mainly relies upon the primary data collected through multi-stage random sampling. Initially, three regions in India are selected from *high*, *moderate*, and *low* Human Development Index (HDI) states, Kerala (0.78), West Bengal (0.64), and Bihar (0.57), respectively (UNDP, 2021). In the second stage of sampling, two districts each were selected from these states, with district-level values of the respective indicators of MPI being closer to the state average. Likewise, at the third and fourth stages, following the indicators published in the Primary Census Abstract (GoI, 2011), one block and from that a village each were selected at random from the selected districts having due representation of all social groups, namely SCs, STs, OBCs, and FCs. From each chosen village, an equal number of households from the four major social groups were randomly selected.

3.2. The sample

Three states in India with *high*, *medium*, and *low* HDI (Kerala with an HDI of 0.78; West Bengal with an HDI of 0.64, and Bihar with an HDI of 0.57) formed the first stage of sample regions. Two districts each were selected, and a block from each selected district was taken. From these blocks, six villages representing rural regions of the study area were selected, having due representation of all social groups, namely SCs, STs, OBCs, and FCs. From each chosen village, 60 households from the 4 major social groups were randomly selected with 240 households from each selected village, making the total sample size of the study 1440 (6 × 240) households (see Table 1 for details of sample selection).

Table 1. Region and district-wise distribution of sample households

Sample size (N = 1440)			
Country regions	Kerala (n = 480)	West Bengal (n = 480)	Bihar (n = 480)
Districts	Kasaragod (n = 240)	Nadia (n = 240)	Gaya (n = 240)
	Palakkad (n = 240)	Jalpaiguri (n = 240)	Nalanda (n = 240)

3.3. Techniques of analysis

Measuring deprivation in education, health, and standard of living: The MPI helps to understand the relative deprivation position of the regions and social groups, whereas the *incidence* (H) and *intensity* (A) give an overall idea of the number (or proportion) of people who are multidimensional poor due to the concentration of deprivation in specified indicators of MPI. The composite nature

of the *dimensions* of MPI and the question of segregating deprivation indices of each *indicator* under a given *dimension* would help the policymakers evolve indicator-specific policy measures and their selection to reduce the incidence and intensity of the multidimensional poverty of the households in different regions. Hence, indicator-specific, dimension-wise breakdown analysis has been attempted to grab the determinants of multidimensional poverty among selected regions and social groups under

study. Multidimensional poverty assessment is based on the three basic dimensions of human life, namely *education*, *health*, and *standard of living*. There are ten indicators in the frame corresponding to the specified dimensions of multidimensional poverty. All dimensions and the indicators within the dimension are equally weighted. Deprivation of the household is the function of its deprivation in *health*, *education*, and *standard of living*.

A decomposition analysis enables the identification of the deprivation of the households corresponding to each indicator and dimension.

$$C = f(D_E, D_H, D_{DSL}) \quad (1)$$

where, C is a deprivation score of the household; D_E is educational deprivation; D_H is health deprivation, and D_{SL} is deprivation of standard of living. Hence, overall deprivation of society is the function of total deprivation in health, education, and the standard of living of society. It can be estimated either by region or social groups.

Deprivation of the society:

$$\left(\sum_1^q C\right) = f\left(\sum_1^q D_E, \sum_1^q D_H, \sum_1^q D_{SL}\right) \quad (2)$$

Educational deprivation (D_E) is the function of the deprivation of two weighted indicators, namely, years of schooling (D_{SS}) and school attendance (D_{SA}).

$$D_E = f(D_{SS}, D_{SA}) \quad (3)$$

Health deprivation (D_H) is the function of the deprivation of two weighted indicators, namely, child mortality (D_M) and nutrition (D_N).

$$D_H = f(D_M, D_N) \quad (4)$$

Deprivation of standard of living (D_{SL}) is the function of the deprivation of six weighted indicators, namely, electricity (D_{EL}), improved sanitation (D_{SN}), improved drinking water (D_{DW}), housing (D_{FL}), cooking fuel (D_{CF}), and ownership of the asset (D_{OA}).

$$D_{SL} = f(D_{EL}, D_{SN}, D_{DW}, D_{FL}, D_{CF}, D_{OA}) \quad (5)$$

Therefore, equation (1) can be expanded as follows:

$$C = f(D_{SS}, D_{SA}, D_M, D_N, D_{EL}, D_{SN}, D_{DW}, D_{FL}, D_{CF}, D_{OA}) \quad (6)$$

Measuring human development: The MPI is a measure of acute global poverty developed by the OPHI, which was subsequently introduced by UNDP in its Human Development Report (UNDP, 2010). The index belongs to the family of measures developed by Alkire and Foster (2007, 2011). It is called M_0 or "adjusted headcount ratio". M_0 is the appropriate measure to be used whenever one or more of the dimensions considered are ordinal in nature, meaning that their value has no cardinal measure. In this study, the mathematical structure insisted on measuring MPI, where M_0 was measured with a particular selection of dimensions, indicators, and weights.

There are 10 indicators in MPI. A weight of 33.3 percent is given to its three dimensions *health*, *education*, and *standard of living*. To identify

the multidimensional poor, the deprivation scores for each household are summed up to obtain the household deprivation, k . A cut-off of 33.3 percent, the equivalent of one-third of the weighted indicators, is used to distinguish between the poor and the non-poor. If k is 33.3 percent or greater, that household is considered multidimensionally *poor*. Households with a deprivation score greater than or equal to 20 percent but less than 33.3 percent are considered *vulnerable* and are at risk of becoming multidimensional poor. Households with a deprivation score of 50 percent or higher are considered *severely multidimensional poor*. Thus, MPI can be expressed as the product of two intuitive measures: the (multidimensional) headcount ratio (H) and the average deprivation share among the poor (A), of which H is the proportion of people who are poor. That is, $H = q/n$ where "q" is the number of poor people; it represents the incidence of multidimensional poverty, and $C_i(k)/d$ indicates the fraction of weighted indicators in which the poor person "i" is deprived. The average of that fraction among those who are poor (q) is precisely A , where its expression is given by: $A = \sum_{j=1}^d C_i(K) = dq$ where A represents the intensity of multi-dimensional poverty.

The intensity of poverty: The conventional methods of poverty estimation cannot provide the intensity of poverty in households. Therefore, in this study, the methodology of OPHI is used to estimate the intensity of poverty A .

$$A = \sum_1^q c/q \quad (7)$$

where, c gives the deprivation score of households and q , the number of multidimensionally poor people.

Incidence of poverty: Estimation of both *incidence* and *intensity* of poverty becomes important as it helps to measure the real magnitude and dimensions of poverty, helping indicator specific policy recommendations, unlike in the conventional methods, in which an income or consumption expenditure is used to calculate head count ratio to trace out the incidence of poverty. In the multidimensional framework, the head count ratio H took the number of people who are multidimensional poor:

$$H = q/n \quad (8)$$

where, q is the number of people who are multidimensionally poor, and n is the total population.

Estimation of MPI: The MPI value is the product of the intensity of poverty (equation (1)) and the multidimensional headcount ratio (equation (2)).

$$MPI = H \times A \quad (9)$$

where, H represents the multidimensional head count ratio and A , the intensity of poverty.

Besides the indicators of MPI, the indicators of educational deprivation in the study area are also discussed.

Educational deprivation: Sen's (1984) capability approach highlights the importance of education for achieving the ability- *the substantive freedom* of

people to lead lives they *reason to value* and to enhance the *real choices* they have. It suggests that education goals must be linked to enriching human lives and making human deprivation less acute. Education, particularly for vulnerable groups, is likely to be a priority and the subject of policy recommendations contributing to overcoming chronic poverty (Alkire, 2010). Hence, education assumes importance as a prime dimension in the human development framework. Deprivation of education creates long-lasting social damage, which creates negative spill-overs to other basic dimensions of human life. The indicators corresponding to *education* in the multidimensional poverty framework are *years of schooling (SS)* and *school attendance (SA)*. A household is said to be deprived of *years of schooling (SS)* if no member has completed five years

of schooling and the weight given in the estimation is 0.16 (1/6). A household is said to be deprived of *school attendance (SA)* if any school-aged child in the house is not attending school up to class 8; the assigned weight in estimation is 0.16 (1/6). The combined effect of deprivation of these two indicators gives the magnitude of *educational deprivation* as in equation (3).

4. RESULTS

The present study took 480 households, which were selected from Kerala, West Bengal, and Bihar. The stratification of the households based on the level of education of the principal earning member is detailed in Table 2.

Table 2. Distribution of the households based on the level of education of the principal

Education level	Country regions (States)					
	Kerala		West Bengal		Bihar	
	No.	%	No.	%	No.	%
Illiterates	10	2	130	27	197	41
Primary	100	21	254	53	177	37
Middle	77	16	53	11	77	16
SE/HSE	221	46	33	7	24	5
HE	72	15	10	2	5	1
Total	480	100	480	100	480	100

Source: Primary data; SE = Secondary education; HSE = Higher secondary education; HE = Higher education.

The regions selected for the study are designated and placed at the top, middle, and bottom levels of human development. The majority of the principal earning members of the families in Kerala (61%) have their level of education secondary or above. In contrast, the corresponding level of education in West Bengal and Bihar are 9 percent and 6 percent, respectively. This reveals the disparity in the level of education among the principal earning members in the high, middle, and low-performing states. On the other hand, the families with illiterate principal earning members of these states are 2 percent (Kerala), 21 percent (West Bengal), and 41 percent (Bihar). This further explains the gravity of the disparity prevailing among the selected states

and its implications on human development. Table 2 further explains that only 1 percent of the earning members in Bihar and 2 percent in West Bengal are endowed with higher education compared to 15 percent in Kerala. It reveals the disparity persisting in the level of education having larger implications on the human development front and deprivations of the regions under study. As the study focuses on the nexus of multidimensional poverty and educational deprivation in the study area, incidence (*H*), intensity (*A*), and MPI of households across the selected regions based on the education level of the principal earning member were estimated and detailed (Table 3).

Table 3. Level of education of the principal earning member of the families and incidence (*H*), intensity (*A*), and MPI of the sample households

Education	Kerala			West Bengal			Bihar		
	H	A	MPI	H	A	MPI	H	A	MPI
Illiterate	0.835	0.749	0.625	0.654	0.842	0.550	0.802	0.814	0.652
Primary	0.480	0.541	0.259	0.461	0.639	0.294	0.846	0.721	0.609
Middle	0.338	0.375	0.127	0.562	0.427	0.239	0.753	0.547	0.411
SE/HSE	0.335	0.218	0.073	0.347	0.461	0.159	0.524	0.452	0.236
HE	0.028	0.212	0.006	0.128	0.245	0.031	0.271	0.314	0.085
Combined	0.329	0.469	0.154	0.508	0.581	0.295	0.781	0.673	0.456

Source: Own calculations from primary data; H: Incidence; A: Intensity; MPI: Multidimensional Poverty Index; SE = Secondary education; HSE = Higher secondary education; HE = Higher education.

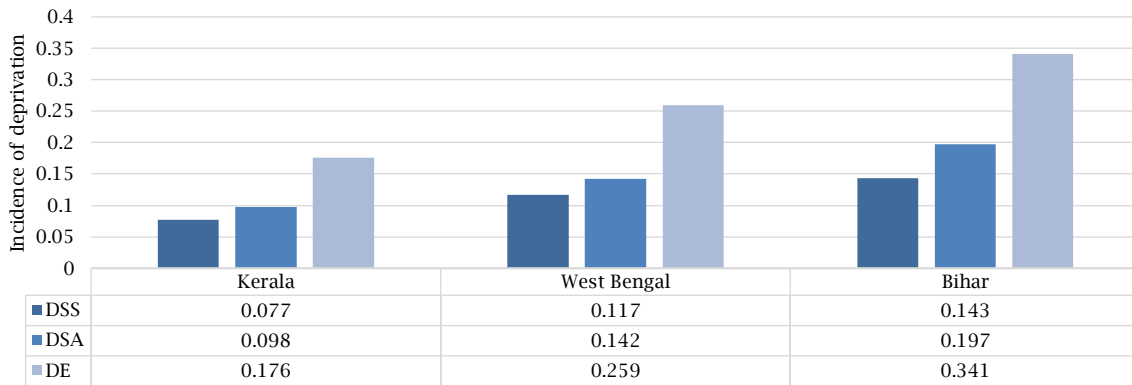
The estimated magnitudes of multidimensional poverty show that the incidence of deprivation is the highest in Bihar (MPI=0.456), where both incidence (0.781) and intensity (0.671) are very high. It reveals that about 78 percent of households in Bihar are multidimensionally poor in 67 percent of the basic facilities essential for maintaining a minimum standard of living, health, and education (Table 3). The incidence of multidimensional poverty is the lowest in Kerala (MPI=0.154), where 33 percent of multidimensional poor households are deprived

of 47 percent of the mentioned essential basic facilities, whereas 51 percent of multidimensional poor households in West Bengal are deprived of 58 percent of the same. In Kerala and Bihar, more than 80 percent of illiterate households are found to be deprived of more than 75 percent of the essential facilities of human life, whereas the proportion of illiterate multidimensional poor households is relatively low in West Bengal (65 percent) compared to that of Kerala and Bihar while the intensity of deprivation in West

Bengal (0.842) is almost same to Bihar (0.814) bearing the fact that the number of illiterates in Kerala is only 10 and that of Bihar is 197 and West Bengal is 130 out of the given sample size (N = 480) (see Tables 2, 3). Also, the incidence of deprivation (A) is lower among the households with principal earning members having secondary level and higher education than that of the households with principal earning members having primary level and illiterate irrespective of regional differences, whereas intensity (H) of deprivation is higher among the households with the principal earning member having a secondary level in West Bengal (0.461) and Bihar (0.452) than that of households of Kerala (0.218). It indicates a lack of adequate opportunities appropriate enough to strengthen the capabilities of individuals even after the attainment of their “valued functioning”, education leaving further room for exploring inter and intra-analysis of the incidence and intensity of deprivation concurrent with the social groups.

In the capability approach, the well-being of a person is the totality of his “functionings”. In the human development framework, education plays a vital role in achieving the “valued functionings” of an individual, which helps to improve human development and reduce the incidence of poverty. According to Sen (1984), poverty is a lack of capability to function which is called capability failure. Inadequate education can thus be considered a form of poverty, upholding the entitlements of education in society (van der Berg, 2008). Therefore, the provision of education is relatively low in such regions, which adversely affects the capabilities of people to utilise opportunities in society. Estimated magnitudes of deprivation reveal that deprivation in education is the highest in Bihar (0.341) and lowest in Kerala (0.176). It indicates that 17.6 percent of the sample households in Kerala are deprived of education. They are either not completed “five years of schooling” or a “school-aged child” in the family not attending school (Figure 1).

Figure 1. Deprivation indices of education



Source: Own calculations from primary data; DSS = Deprivation of schooling; SA = Deprivation of school attendance; DE = Deprivation of education.

Kerala is a region acclaimed at national and international levels for its educational achievements. As per the quality assessment of NITI Aayog (PIB Delhi, 2020), Kerala is placed first among the states in India in terms of quality of school education elicited from the School Education Quality Index (SEQI) of Kerala, 0.766 (76.65 percent). The index prepared based on 30 indicators is divided into two broad categories — one is the “outcome” and the other is the “governance processes aiding outcome”. Outcomes consist of “learning access”, “access outcomes”, “infrastructure and facilities for outcomes” and “equity outcome”. The estimated magnitude of education deprivation in Kerala is 17.6 percent among the sample households. The deprivation of “years of schooling” in Kerala is 0.077 (see Figure 1 and Table 4). It indicates that 7.7 percent of the sample households in Kerala have not completed five years of schooling. At the same time, the deprivation of “school attendance” in Kerala is 0.098. That is, 10 percent of the school-aged children in the sample households from Kerala are not attending school up to class *eight*.

In Bihar, 34 percent of the sample households are found to be deprived of education, wherein 14.3 percent are in *years of schooling* and

19.7 percent in *school attendance*. It is observed that most households in Bihar consider children as a source of income. They engage children in low-paid jobs in agricultural and non-agricultural sectors, denying their entitlements under the Fundamental Rights and Child Labour Act (Burra, 2005; Mukhopadhyay et al., 2020). This happens due to the lack of public awareness of the socio-economic gains of education, lack of accessibility to even the primary level institutions in rural areas and poor infrastructure facilities in the available institutions. Hence, it could be inferred that the deprivation of education remains one of the major reasons behind the “capability failure” of the people in Bihar. Better opportunities and choices include access to goods and services, including “public transport”, “education”, and health care, helping people to develop their capabilities to function. Unfortunately, access to “public transport” is very scarce in rural Bihar, isolating the area and leading to “capability failure” in the accessibility to public services, including education and health. This further aggravates the situation as the people in rural Bihar have a deterioration in “financial capability” due to insufficient income and employment opportunities.

In West Bengal, 25.9 percent of households are deprived of education, 11.7 percent in *years of schooling*, and 14.2 percent in *school attendance*. The lack of educational institutions within an accessible distance to the children, especially in rural areas, is the main reason for the high incidence of educational deprivation in this region as per the literature reviewed.

The empirical evidence of educational deprivation shows that the relative share of it in *school attendance* is more than 55 percent in all regions. Therefore, deprivation of *school attendance* has become a leading determinant of educational deprivation in all regions selected for the study (Table 4).

Table 4. The relative share of indicators: Deprivation in education

Indicators	Kerala		West Bengal		Bihar	
	Deprivation		Deprivation		Deprivation	
	C	%	C	%	C	%
SS	0.077	44	0.117	45	0.143	42
SA	0.098	56	0.142	55	0.197	58
DE	0.176	100	0.259	100	0.341	100

Note: SS = Schooling; SA = School attendance; DE = Deprivation in education.

Source: Own calculations from primary data; C = Deprivation score; Share (%) indicates the proportion of deprivation within the dimension.

Among the households who are deprived of education in Kerala (17.6%), the majority (56%) become deprived due to the absence of school enrolment of the children at the age of six, which is termed as deprivation of school attendance (SA) whereas 44 percent of them become deprived due to “dropout” from the school before completing five years of education, termed as deprivation of years of schooling (SS). In Bihar, the proportion of overall educational deprivation is 34.1 percent. That means, in Bihar, among households with deprivation in education of 34.1% of which 58 percent are deprived of SA, and the remaining households (42%) are deprived of SS. In West Bengal, 25.9 percent of households have educational deprivation, of which 55 percent are deprived of SA, and the remaining households (45%) are deprived of SS. These discrepancies could be further analysed in

estimating deprivation in education among the different social groups in the selected regions and, thereon, its causality.

Education deprivation among social groups: The magnitude of educational deprivation among the social groups and the corresponding “deprivation gaps” were estimated. It enables an understanding of the most deprived social category in the study area and the indicators gauging educational deprivation. The “deprivation gaps” among social groups help to understand the shortfall and magnitude of deprivation in education. The social group-wise analysis of educational deprivation reveals that SC/ST households are more deprived of education than other social groups, where ST households seem to be the most deprived group (Table 5).

Table 5. Estimated values of educational deprivation indicators

Social groups	Kerala			West Bengal			Bihar		
	SS	SA	D _E	SS	SA	D _E	SS	SA	D _E
SC	0.096	0.121	0.217	0.129	0.156	0.285	0.184	0.199	0.383
ST	0.110	0.158	0.268	0.165	0.227	0.392	0.222	0.294	0.516
OBC	0.067	0.075	0.142	0.127	0.137	0.264	0.161	0.181	0.342
FC	0.039	0.039	0.078	0.048	0.049	0.097	0.006	0.064	0.124
All groups	0.077	0.098	0.176	0.117	0.142	0.259	0.143	0.185	0.341

Source: Own calculations from primary data; SS = Schooling; SA = School attendance; D_E = Deprivation in education.

In Kerala, the highest deprivation in education is identified among ST households (26.8 percent), whereas the figures estimated for SC, OBC, and FC are 21.7 percent, 14.2 percent, and 7.8 percent, respectively. Deprivation of *school attendance* is higher than that of *years of schooling* among all social groups in the study area; that too is highest among ST households of Bihar (0.294), where the highest deprivation in education (0.516) has coincided. Deprivation of education among SC/ST households is higher among all regions revealing the lack of endowment in their opportunities and choices, causing further vulnerability and deprivation to them.

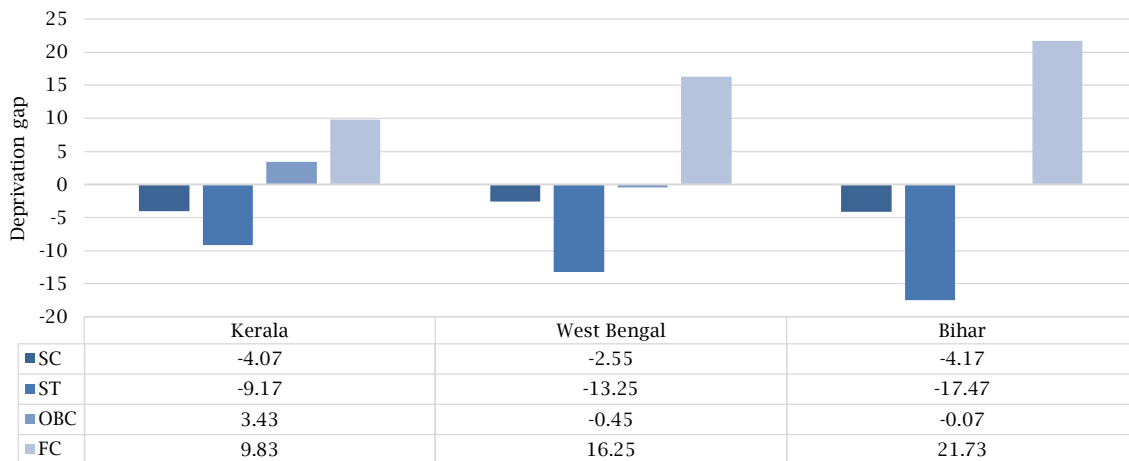
Deprivation in education among OBC households is higher in Bihar (34.2 percent) than that in Kerala (14.2 percent) and West Bengal (26.4 percent). In Kerala, 10.6 percent of OBC household’s come under any one of its members not completed five years of schooling category, whereas this is estimated at 15.9 percent in West Bengal and 34.2 percent in Bihar. Deprivation of school attendance among OBC households is estimated at

16.6 percent in Kerala, whereas it is 24.9 percent in West Bengal, and 33.2 percent in Bihar. The households belonging to FC are less deprived in the regions under study (Kerala 7.8 percent, West Bengal 9.7 percent, and Bihar 12.4 percent) irrespective of their performance in human development. Only three percent of FC households are deprived of *years of schooling* in Kerala, whereas it is 6 percent in West Bengal and 8 percent in Bihar. Deprivation of *school attendance* is the lowest in Kerala (7 percent), and the corresponding estimated value is 12 percent in West Bengal and 16 percent in Bihar. It pinpoints the persistence of disparity and discrimination evinced in the skewed resource endowment among disadvantaged social groups in all regions of the study area, irrespective of the state’s performance in human development. The estimated deprivations among the backward communities in the selected regions display a lagging tendency in their educational entitlements and thereby the march towards human development despite the rollout of numerous target-specific initiatives.

Deprivation gap in education among social groups: The “deprivation gaps” displayed in Figure 2 explain the educational deprivation, which helps to understand the average deviations of each social group in terms of educational deprivation from the overall deprivation of the region. A “positive gap” implies a lower magnitude of deprivation, whereas a “negative gap” reads a higher magnitude of deprivation. The inter-social group analysis reveals

that households belonging to SC/ST category are more deprived in the dimension of education, supported by the negative values of the deprivation gaps of all SC/ST households in the study area. On the other hand, the intra-analysis of the “deprivation gap” in the education of ST households in the selected regions indicates that Bihar is the highest deprived in this category (-17.47) followed by West Bengal (-13.25), and Kerala (-9.17).

Figure 2. Deprivation in education among social-category groups



Source: Calculated from primary data.

It is interesting to notice that the deprivation gaps in the education of the households belonging to forward communities in all regions under study are positive. In contrast, all the other categories in the select regions assume negative values except the OBC category in Kerala (Table 4). The inter and intra-analysis of social groups pertaining to deprivation in education further elicits the incidence and intensity of the same among the regions and the difference between the social groups within the region, hinting at larger policy implications and initiatives.

5. DISCUSSION

Kerala has made its leverages under the Nava Kerala Mission of 2016 in rejuvenating the accomplished improvement in *school enrolment ratio* and *quality education*. Significant modifications were made to the school curriculum, and numerous programmes were implemented to uplift public educational institutions to international standards through infrastructure development and experiments in the teaching-learning process. The outcome-based experiments through national flagship programmes, Sarva Shiksha Abhiyan (SSA) and Integrated Child Development Services (ICDS), with provisions for free textbooks, uniforms, and mid-day meals, attract children to the schools and help the region to reduce the drop-out ratio (PIB Delhi, 2020). The achievements of Kerala in the realm of education have made a positive spill-over to the health sector and job market, thereby the standard of living of people leading to human development.

Depriving children of primary education creates enduring *capability failure*, which makes them unable to achieve their *valued functioning* and forces

them into the vicious trap of poverty (Rana et al., 2003). The region needs to go forward with necessary adaptations in its education policy. The picture of educational deprivation is evident and supports the related studies (Drèze & Kingdon, 2001; Bajju & Shibu, 2018; Kaibarta et al., 2022).

Kerala, the region with high human development, has a low incidence of educational deprivation and the states of West Bengal and Bihar, with low human development, have registered a high incidence of educational deprivation, underpinning the causal relationship between the incidence of educational deprivation and human development.

The social group-wise analysis indicates that deprivation in the education of the ST households assumed the prime focus of discussion in overcoming the deprivation gaps among the social groups in the study area within the broad dimensions of multidimensional poverty and human development. Deprivation in the education of ST households contributes around 40 percent to the overall deprivation in the education of the respective regions. It emphasises the need to trace out the reasons at grass root level behind the abstinence of school-aged children of ST households in the regions. In contrast, the proportion of the forward caste in the overall contribution to the deprivation gap in education is around 10 percent, which is the least compared to the other social groups. This explains the emergence of a dichotomy in the incidence of deprivation in education between the social groups; ie, an upward convergence in the incidence of deprivation among the backward communities, particularly SC/ST, while a downward convergence of the same happens within the forward castes among the regions widening the disparity.

6. CONCLUSION

The study reveals that the households of SC/ST categories are more deprived of education than the other social groups in the study area. Deprivation of school attendance is the major factor contributing to this deprivation of the region than the deprivation in years of schooling. Deprivation in the education of SC/ST households in all the selected regions has a prominent role in determining the overall deprivation in education. Among the selected states, Bihar is the only state with households of the ST category registered with more than 50 percent deprivation in education. Even in the region with the highest human development in the country, Kerala, the deprivation in the education of SC/ST households is higher than that of the overall educational deprivation of the region. Educational deprivation of the forward castes is the lowest in all the regions under study, which is estimated lower than the overall educational deprivation of the respective regions. The magnitude of deprivation in the education of OBC households in the study area is higher than that of the respective regional average except in Kerala. In Kerala, the deprivation in school attendance is greater than that in years of schooling.

The main earning members of the family in Bihar and West Bengal do not have sufficient educational entitlements, and they remain more or less illiterate. Most illiterate family members in both Bihar and West Bengal are quite unaware of the benefits of education and its spill-over effects on human development.

The study stresses the need for concerted public efforts to instil access, awareness, and outreach of educational initiatives through national and sub-national-centric programmes, including SSA, ICDS, Rashtriya Madhyamik Shiksha Abhiyan (RMSA), Rashtriya Uchchar Shiksha Abhiyan (RUSA), and the like. At the same time, special efforts may be evolved to reckoning the issue and need of specific requirements of households at the micro level as well as regional level through participatory and integration modes. Along with that, holistic approaches with long-term perspectives on learning access, infrastructure, and governance process for having SEQI are to be formulated at the state as well

as local self-government institutions (LSGIs) level to address the varied requirements to overcome the educational deprivation of the different segments of the region ensuring its access and outreach including the provision of adequate public transport connectivity.

The inability of the households to enrol their school-aged children is the main reason found behind the deprivation in the education of the region. This type of deprivation is high among ST households, followed by SC households in all the regions under study. The monitoring and surveillance of region-specific and target-specific interventions by schemes and programmes enabling enrolment and retention of school-aged children is required to rejuvenate the capabilities of the disadvantaged social groups and make them inclusive in the process of marching towards the Sustainable Development Goals 2030 in India.

The compilation of a scientific database of the educational deprivation indices at the LSGI level in the rural region would further help an upward convergence of educational entitlements of the rural households through effective decentralised planning and local governance along with competitiveness in quality of education upholding co-operative federalism and inclusiveness of human development in the country. Hence, the discussion of deprivation of social groups in totality and the essential granular details provided in the study would be helpful for making significant sectoral and special policies and programmes.

The intra-regional and intra-social group variations may be studied in this method by taking data and adopting a suitable sampling frame. However, it is seen that the non-poor may be deprived in a few of these indicators. Hence, alternatively, the intensity of poverty across the entire social group is to be assessed instead of a targeted approach as is followed in this study. Even though programmatic interventions may be adopted in tune with ground realities at cutting edge level, the methodology adopted in the present study has its limitations to group-specific and region-specific studies in accommodating the unique endowments, legacies, and environments of each region and each social group.

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