Correlation of Human Development Index (HDI) of the Parents with Learning Quality of Graduate Students

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ABSTRACT The United Nations Development Program (UNDP) created the Human Development Index (HDI), a composite metric for health, education and income, which measures a nation's degree of human development. The prime aim of this study is to correlate the human development index values of the parents with the learning quality of the graduate students in Uttar Pradesh and Madhya Pradesh in India. For this research, the descriptive survey method is used to collect data from 117 graduate students in Uttar Pradesh and 115 from Madhya Pradesh using random sampling. The human development tool is used to collect the data and results showed the non-significant difference between HDI value of Uttar Pradesh and Madhya Pradesh but there is a positive correlation (0.947) between the HDI values and learning quality of the graduate students of the two states.

INTRODUCTION

The well-being of any population is often measured in terms of income (Ul Haq 1989; Anand and Sen 1994; Chakravarty 2003). For a long time, economists and policy makers have questioned the use of per capita gross national product (GNP/N) as a measure of national development. Because per capita gross national product fails to capture the various dimensions of human development such as health, education, and political and social freedom (Kelley 1991). Some researchers have emphasised the inadequacy of income as the sole indicator of well-being and have suggested adding other indicators of well-being such as health, education, etc. to the composite index of well-being. The overall level of human development is considered for the construction of a composite index of well-being as a meaningful exercise (Mosler 1994; Tsui 1999; Chakravarty 2012).

Subsequently, in the 1970s, a large series of literature came to support this proposal to measure development, which focused mainly on the construction and usefulness of socio-economic indicators (Noorbakhsh 1998). Moreover, the United Nations proposed the Human Progress Index in 1990 as a way to gauge national human progress. Immediately after the report of the Human Development Index by the United Nations Development Program in 1990, there was a lively debate on improving this index in the first few years (Desai 1991; Kelley 1991; Anand and Sen 2000).

The Human Development Report aimed to examine the conditions and progress of human life in the dimensions chosen by it. It is an increase in the ability to live a better and prosperous life through increasing people's choices and opportunities, which is the central theme of the Human Development Report (Ul Haq 1995; Anand and Sen 2000). The HDI is formulated based on the work and capabilities approach of Sen (1997). The Human Development Index recognises education, health and physical well-being as the main human functions for measuring the level of development of any country (Herrero et al. 2012; Singh 2020). The HDI focuses on three essential things for people at all levels of development, that is, living a long and healthy life, acquiring knowledge, and having access to resources for a decent living standard (UNDP 1990).

Definitions and Measurement of HDI

The HDI measures access to education through anticipated adult literacy rates, a reasonable standard of living by per capita gross national income, and a long and healthy life by life expectancy at birth (United Nations Development Program 2023).

The geometric mean of standardised ratings for each of the three dimensions are employed to calculate the Human Development Index.

The Human Development Index uses scores between 0 and 1 to indicate the level of development, where 0 is the lowest and 1 is the highest. The Human Development Report specifically assesses how the Human Development Index differs from per capita GNP measure of development, what are its strengths and weaknesses, and how it can be improved (Kelley 1991). The Human Development Index highlights the contribution of countries to overall human well-being by focusing on the needs for improvement in human development while measuring overall human well-being, and it is meaningful to eliminate the factors and weaknesses that cause deficiency in the Human Development Index (Lind 2019).

Life expectancy, education, and income level are used to split the index of human growth into three categories (GNI per capita in US dollars in PPP terms). Using the human development index, any nation is divided into one of three groups:

1. Low-developing countries with HDI 0-0.4999
2. Developing countries with HDI 0.4999-0.7999
3. Developed countries with HDI 0.7999-1.000

HDI in India

India has a population of more than 1.30 billion and in 2021 India ranked 132nd among 189 countries in the HDI. India's overall HDI value is 0.633. India is found in the group of countries with medium human development. At present, HDI has become one of the most commonly used indicators to measure and compare the level of international discrimination and evaluation of access development in a specific country or region. Many states in India have low HDI such as Bihar, Uttar Pradesh and Madhya Pradesh, which means that HDI indicates low development in these states. Many tribes lived in these states. The governments of these states work for the development of tribal people as well as especially tribal women and to connect them with the mainstream of society (UNDP 2021).

Objective of the Study

The primary goal of this study is to calculate the parents' Human Development Index (HDI)

score and relate it to the graduate students' learning outcomes in Uttar Pradesh and Madhya Pradesh, India. It is hypothesised, based on this research purpose, that there may not be any meaningful correlation between graduate students' learning quality in these two Indian states and their parents' HDI values. This will gain a proper insight into the socioeconomic context in which the graduates are upraised.

Literature Review

Varatharajan (2006) analysed 'India's Human Development: Gaps and Prospects'. This paper discusses the human development index developed by the United Nations Development Program. Further, the paper examines the status and outcomes of human development in India between 1981 and 2001, and also identifies the factors that affect human development. The paper also compares the performance of human development in India with other countries and discusses the opportunities for improvement in human development.

Khodabakhshi (2011) has explored "The Relationship between GDP and Human Development Indices in India". The paper describes the relationship between three indicators of India's GDP and human resources. In addition, a new formula developed by the United Nations is used to evaluate the relationship and interaction effect of the three indicators of human resource development in the Indian economy.

Harttgen and Klasen (2012) studied 'A Household-Based Human Development Index' and in this paper the investigators introduced a new method of calculating the human development index that is based on micro data from household surveys. The main objective of the paper is to provide different measures of human development at the household level using individual data on education, income and life expectancy. The paper compares the household-based human development index with the human development index developed by UNDP and also highlights its advantages and limitations.

Patra and Paul (2016) examined 'Determining the status and disparity of human development in rural India using multidimensional Human Development Index (M HDI)'. This paper evaluates the status and inequality of human development in rural India using M HDI based on the data from

Census 2011 of India. The paper compares M HDI with HDI and discusses its benefits and limitations. The paper concludes that M HDI is a more comprehensive and consistent measure of human development than HDI, as it captures more dimensions and indicators of human well-being.

Lind (2019) studied 'A development of the human development index' that focuses on the human development index (HDI). The author discusses a different features of human development index. The paper mentions some alternative indices along with some revisions in the human development index with its criticisms and the main objective of the paper is to include the improvement level in human income and health.

Scherbov and Gietel-Basten (2020) investigated 'Measuring inequalities of development at the sub-national level: From the human development index to the human life indicator'. This paper points out several flaws in the HDI even after improvement in per capita gross domestic product, which affects the reliability of the HDI. The main objective of the paper is to develop and apply a new indicator HLI. The authors consider HLI to be more realistic in human development and they also acknowledge some of its limitations and challenges.

Raj et al. (2023) analysed "Economic Growth and Human Development in India". This paper mainly focuses on three factors related to human development and economic growth in India. First, the pattern of relationship between economic growth and human development in India at the national and state levels. Second, whether economic development is being transferred to the state level, and third, whether human development is changing at the state level.

Research Gap

The household HDI values and its impacts as cited by Harttgen and Klasen (2012) have not been researched in Uttar Pradesh and Madhya Pradesh in India. Consequently, the household HDI data are collected through this research to determine its impacts on the academics of their children.

Need for the Study

The household HDI data of the parents residing in Madhya Pradesh and Uttar Pradesh is the key prerequisite for analysing the persuasive im-

pacts of these values on the learning quality of the graduates, which has not been studied so far. Further, the influence of the HDI of parents on quality learning of the graduate students was necessary to be analysed in order to find the socioeconomic impacts on learning. With these perceptions, the current study was framed and entitled "Correlation of human development index (HDI) of the parents with learning quality of graduate students".

RESEARCH METHODOLOGY

The study was conducted through the survey method and random sampling technique was used to collect the data from the graduate students in Uttar Pradesh and Madhya Pradesh.

Variables of the Study

HDI value is denoted by the total existing sum of life expectancy, education and income levels.

Population

The population of the study comprised of graduate students of Lucknow District, Uttar Pradesh and Amarkantak, Annuppur district, Madhya Pradesh.

Sample

The graduate students were requested to give the suitable data on their parental age, education and family income per month to collect the HDI value of their respective families. A total of 117 participants from Gautam Buddha Degree College of Lucknow District of Lucknow Uttar Pradesh and 115 from Indira Gandhi National Tribal University Amarkantak, district of Annuppur, Madhya Pradesh were the sample for this study.

Research Procedure

The researchers are accessible to this sample as they hail from Lucknow, Uttar Pradesh state and are pursuing their doctoral program from the Indira Gandhi National Tribal University located in the Amarkantak, Annuppur district, Madhya Pradesh.

Tool

The following research tools have been used for the current study:

1. A tool on parental education, parental health and parental income was developed and standardised by the investigators to collect the relevant data.
2. The influence of these three factors on the quality of learning was also collected through the Factors of Human Development on Quality Learning tool. The validity of these research tools is 0.907 based on Cronbach's alpha.

Statistical Method

The statistical formula for calculating the HDI is as follows:

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

- Health Index: To develop the health index the age of the parents was measured by the research tool.
- Education Index: To derive the educational index the basic school years or graduation of the parents were measured from the all the sample by research tool.
- Income Index: The basic income was collected from the sample who noted on their respective research questionnaire.
- Mean of the HDI values were calculated through the SPSS software.

RESULTS

The data analysis was performed by measuring the health index, education index, income index and learning quality of the graduate students (Table 1).

Table 1 depicts that the means of health index significantly differ between the samples from M.P (0.4136) and U.P (0.4150) as the p value (0.001) is lesser ($P<0.05$) than the table value. This smallest variation between the means shows that the medical facilities are available more in U.P than in M.P. Likewise, the education index differs between M.P (0.7529) and U.P (0.7323) where M.P is surpassing U.P with least difference as the p value (0.027) is lesser ($P<0.05$) than the table value. Further it is worth mentioning that these two Indian states do not differ significantly in both, the Income Index ($P=0.224$, $P>0.05$) and Human Development Index ($P=0.073$, $P>0.05$). The similarity in the income index in M.P (0.4367) and U.P (0.4309) apparently predicts that poverty still exists with lowest income. This social condition is substantiated as the lowest level of HDI in M.P (0.2516) and in U.P (0.2417) are recorded without any significant mean difference ($P=0.073$, $P>0.05$). Convincingly, the significant difference ($P=0.021$, $P<0.05$) between the means of M.P (292.94) and U.P (302.15) shows an evident indication that learning quality of the graduates of U.P is better than M.P with minimum variation. The learning quality of the graduates was compared with their parental HDI values as seen in Table 2.

Table 2 envisages correlational analysis between the HDI value of the parents and learning quality of the graduates of the two states in India. In statistical terms, a correlation coefficient measures the strength and direction of a linear relationship between two variables. A positive correlation (0.488) indicates that as the HDI value of parents' increases, the learning quality of graduates tends to increase as well. However, a coefficient of positive r value (0.603) proposes that this

Table 1: The 't' value of the Health Index, Education Index, Income Index , Human Development Index and learning quality of graduate students of Madhya Pradesh and Uttar Pradesh

Variables	State	N	Mean	Standard deviation	Std. error	t' value	P' value
Health Index	M.P.	115	0.4136	0.0782	0.0072	0.115	P=0.001,(P<0.05)Significant
	U.P.	117	0.4150	0.1107	0.0102		
Education Index	M.P.	115	0.7529	0.1933	0.0180	0.878	P=0.027, (P<0.05)Significant
	U.P.	117	0.7323	0.1628	0.0150		
Income Index	M.P.	115	0.4367	0.1695	0.0158	0.272	P=0.224 (P>0.05)Non-Significant
	U.P.	117	0.4309	0.1521	0.0140		
Human Development Index	M.P.	115	0.2516	0.1458	0.0135	0.565	P=0.073 (P>0.05)Non-Significant
	U.P	117	0.2417	0.1199	0.0110		
Learning Quality	M.P.	115	292.94	33.817	3.153	2.221	P=0.021 (P<0.05)Significant
	U.P	117	302.15	29.094	2.690		

(M.P - Madhya Pradesh; U.P. - Uttar Pradesh)

Table 2: The Pearson correlation r' value of the human development index and learning quality of graduate students in Madhya Pradesh and Uttar Pradesh

Graduate students	Variables	N	Mean	S.D.	Correlation value	p value
Madhya Pradesh	HDI	115	0.2516	0.1458	0.603	0.049 (p<0.05) Significant
	Learning quality		292.94	33.81		
Uttar Pradesh	HDI	117	0.2417	0.1199	– 0.635	0.044 (p<0.05) Significant
	Learning quality		302.15	29.09		
In Total	HDI	232	0.2524	0.13407	0.947	0.004(p<0.05)Significant
	Learning quality		297.56	31.269		

relationship is reasonably strong in Madhya Pradesh.

A coefficient (–0.635) implies a relatively strong negative correlation in Uttar Pradesh. However, it is important to reiterate that correlation does not imply causation. The relationship between parental HDI and learning quality could be influenced by various other factors and may not necessarily be a direct cause-and-effect relationship. This is resulted as graduate students habitually play a vital role in determining their own academic success, and their efforts can indeed sustain their academic life, regardless of their parents' HDI value in U.P.

To be decisive through this research, the higher correlation value (0.947) envisages that the learning quality of the graduates increases with the increased HDI value of the parents, which is directly influential. Hence it is inferred that good health, worthy education and higher income of the parents can be a pivotal factor of the quality learning of the graduates in these two Indian states.

Further, Table 2 explicitly represents that while the HDI value of parents can be associated with economic and social factors, they might indirectly influence a student's educational opportunities. It is crucial to recognise that individuals can overcome socioeconomic barriers and succeed in their academic pursuits through hard work, determination, and access to appropriate resources and teacher support.

DISCUSSION

With regard to these findings, it is relevant to highlight that Uttar Pradesh and Madhya Pradesh have Multi-dimensional Poverty Index (MDPI) values of 22.93 percent and 20.63 percent respectively, according to the National Family Health Survey (NFHS-5 2019-2021). The highest MPI values listed in the Government of India's Niti Ayog (2021) may have a significant impact on the income, education, and health of the parents in these states. Furthermore, the majority of graduates come from the Uttar Pradesh districts of Barabanki (MDPI 31.68%), Herdoi (MDPI 34.14%), and Sitapur (MDPI 40.15%), where multi-level poverty and a regular way of life are still blatantly prevalent.

In the same line of thought, the Anuppur (MDPI 20.04%) and Shadhol (MDPI 23.5%) districts in Madhya Pradesh are represented in the Niti Ayog (2021) as the poverty level is higher. These MDPI in these two Indian states could have an impact on undergraduate students' quality of learning.

Based on the Human Development Index, India ranked 132nd out of 191 countries in the UNDP report of 2022. The HDI value decreased (-0.009) between 2020 and 2022 (to 0.633). However, the HDI mean values in this sample are recorded in M.P. (0.2516) and U.P. (0.2417), which are less than the national average (0.633) so the earnest efforts must be carried out to improve these people by various schemes. The investigators of this study solely realise that the government funding on education is an essential factor to improve these two Indian states as in the researches done by Biao et al. (2014), Mailassa'adah and Burhan (2019), Yogiantoro et al. (2019), Nawawi et al. (2021), Amalia (2022) and Sanusi et al. (2023) in which the essence of government funding have been postulated. The faster pace of developmental schemes are very important and this is cited by Singh (2018), and if not, the inequality will exist (Maasoumi 1989).

CONCLUSION

Based on the Human Development Index, the governments of both states have taken the initiative to create policies aimed at improving income, health, and education (HDI). Both states have

implemented initiatives to increase resourcefulness in order to improve rural health facilities, schooling, and industry. They have also established the MANREGA Scheme, which raises income levels in rural areas and helps them achieve a decent standard of living.

RECOMMENDATIONS

A comprehensive understanding about the unique opportunities and challenges in Uttar Pradesh (U.P.) and Madhya Pradesh (M.P.) is necessary to conduct additional research to improve Human Development Index (HDI) values in these states. The following recommendations are of great value for further research that could help shape focused methods:

1. At the district or sub-district level, perform a thorough, localised analysis of HDI indicators to pinpoint particular areas with greater levels of deprivation.
2. To conduct studies that are sector-specific to comprehend the difficulties facing the healthcare, education, and other important sectors that contribute to HDI.
3. To examine the variables affecting social welfare program efficacy, healthcare accessibility, and educational quality.
4. To examine how gender impacts variation in access to healthcare, education, and work opportunities in order to create focused interventions for gender equality.
5. To assess the U.P. and M.P. economies' structures with an emphasis on areas where economic diversification and sustainable development may be achieved.
6. To investigate the dynamics of youth employment and evaluate how well employability is improved by skill development initiatives.
7. To evaluate how current social welfare initiatives affect marginalised communities and economically disadvantaged groups, among other vulnerable populations.
8. To investigate how effective local administration and governance contribute to the execution of development initiatives.

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