Health and Education Development Level Disparities in Indian States

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ABSTRACT: *The level of development of different states of Indiawas obtained with help of composite index based on optimum combinations of five educationas well as health development indicators. The study utilizes very recent time point for measurement of development for seventeen non-specific states of India.It is found thatGujaratscores first rank in the health development whereas Odishastands on the last position. In case of educational development, Maharashtra occupies first position while Andhra Pradesh performs very poor in the indicator. Wide disparities have been observed in the level of development between different states of India. Also, Health facilities of the people were found to be positively associated with educationdevelopment.*
Keywords: composite index, health and education development, Indian states.

I. INTRODUCTION

India is a constitutional republic in South Asia, with world′s second largest population, an economy currently ranked 9th in terms of GDP (nominal), a rapidly developing country which yet has significant amount of poverty and world largest democracy. Education in India is provided by the public sector as well as the private sector, with control and funding coming from three levels: central, state and local. Under various articles of the Indian constitution, free and compulsory education is provided as a fundamental right to children between the ages of 6 and 14. The ratio of public schools to private schools in India is 7:5.India has made progress in terms of increasing the primary education attendance rate and expanding literacy. India′s improved education system is often cited as one of the main contribution to its economic development. While enrolment in higher education has increased steadily over the past decade, reaching a gross enrolment ratio of 24% in 2013.The National Council of Educational Research and Training (NCERT) is the apex body makes the curriculum related matters for school education across India.However, due to shortage of resources and lack of political will, this system suffers from massive gaps including high pupil to teacher ratios, shortage of infrastructure and poor levels of teacher training. There have been several efforts to enhance quality made by the government. The District Education Revitalization Programme (DERP) was launched in 1994 with an aim to universalize primary education in India. The main governing body at the tertiary level is the University Grants Commission, which enforces its standards, advice the government and helps coordinate between the Centre and state. The constitution of India makes health in India the responsibility of state governments, rather thanthe central federal government. It makes every state responsible for "raising the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties". The National Health policy was endorsed by the parliament of India in 1983 and updated in 2002. The National Health Policy is being worked upon further in 2017. There are great inequalities in health between states. Infant mortality in is 12 per thousand live births, but in aim it is 56.Due to their lower social status, girls are for more at risk of malnutrition than boys their age. Partly as a result of this cultural bias, up to one third of all adult women in India are underweight. Despite health improvements over last thirty years, lives continueto be lost to early childhood diseases. HIV/AIDS in India is ranked third highest among countries with HIV-infected patients. National AIDS Control Organization, a government 'APEX BODY' is making efforts for managing the HIV/AIDS epidemic in India. These diseases can be attributed to poor sanitation and inadequate safe drinking water. India has the world's highest incidence of rabies. In 2012 India was polio-free for the first time in its history. This was achieved because of the pulse polio programme started in 1995-96 by the government. As more than 122 million households have no toilets and 33 percent lack access to latrines, over 50 percent of the population defecates in the open. This is relatively higher than Bangladesh and Brazil (7 percent).

II. LITERATURE REVIEW

In the existing literature, no. of studies tried to measure the regional disparities by the socio-economic, health and educational indicator. The prominent work by Narain (1991, 92, 94,2003&2005) studied for estimating the level of development at district level had so for been made for the states of Orissa, Andhra Pradesh, Kerala, UttarPradesh, Maharashtra. He was found that disparities among different regions were prominent, but the underdeveloped region did not mean all its indicators were underdeveloped. Singh (2004) examined inter-state disparities in rural infrastructure in India and its impact on agricultural development and rural poverty through a cross sectional study of 16 major states. Composite indices of rural economic and social infrastructure had prepared for the selected states for 1980-81, 1990-91 and 2000-01 covering 16 indicators of economic infrastructure and 7 indicators of social infrastructure. The technique of Principal Component Analysis (PCA) was used to prepare the composite index of infrastructure development. The analysis revealed that extreme disparities continue to persist with respect to the availability of economic and social indicators in rural areas at the state level. Economic and social infrastructure was found to have a strong positive effect on agricultural productivity and a strong negative effect on rural poverty.Dubey (2009) examined the intra-state disparities in five states in India; Gujarat, Haryana, Kerala, Orissa and Punjab were used three indicators, consumption, inequality and the incidence of poverty, to examine this issue. These indicators taken together reflected overall well-being of the population as they were the outcome of the interplay of a large set of economic and policy variables. The states chosen for the analysis of intra-state disparities had a relatively homogeneous initial level of poverty in 1973-74, the coefficient of variation (counting the headcount ratio (HCR) being about 20% in 15 major states).Thaker (2009) identified the levels of socio-economic development of the districts of Gujarat. The development was measured with the help of 57 indicators in the fields of agriculture, industry, human resources and infrastructure. The data considered for the study pertain to the two period's viz. the pre-reform period i.e. 1991 and post-reform period i.e. 2001, using factor analysis technique.Ramphul(2012)investigated pattern of regional disparities in socio-economic development in India at district level in northern and central region of India on the basis of 43 indicators of agriculture, industrial and infrastructural sector. The study is an effort for evaluating the status of development at state level separately for health sector and educational sector for Indian states. It would be of interest to estimate the status of development at statelevel, since there has been growing consensus about the need of state level planning in the country. Under these are following objectives.

III. OBJECTIVES

- To measure the relative performance of health and educationaldevelopmentforIndian states.
- To identify the relationship between health and education development level for India.

IV. RESEARCH METHODOLOGY

As development is a multi -dimensional process, so its impact cannot be fully captured by any single indicator. A number of indicators when analyzed individually do not provide an integrated picture of reality. Hence, there is a need for building up of a composite index of development based on optimum combinations of various education and health development indicators. Some states have faced situational factors of development unique to it as well as common and environmental factors. Common indicators to all the states have been included in the analysis for evaluating the level of development. Composite indices of development have been obtained for different states by using the data on the following development indicators:-

Health development indicators:
1. Percentage expenditure on medical and public health and family welfare as ratio to aggregate expenditure.
2. Percentage access safe drinking water in household
3. Per capita availability of milk(gram)
4. Infant mortality rate
5. Death rate

Education development indicators:
1. Literacy
2. Gross enrolment ratio in classes (1-8)
3. Percentage expenditure on education as ratio to aggregate expenditure
4. No. of universities
5. No. of colleges

A total of ten education and health development indicators have been taken for the analysis. These indicators may not form an all-inclusive list but these are the major interacting components of development.

Outof tenindicators, five indicators are directly related with the health sector and five are concerned with education development in the states of India.

Sample Design

Current study is based on the secondary data derived from the Reserve bank of India, "Hand book statistics on Indian states" and Economic Survey Reports of the state and official websites ofthe states. The secondary data has been collected for a year 2013-14.The composite index for education and health performance of the different states of India has been calculated on the basis of Wroclaw Taxonomic method which has been explained in detail.

Research Method

The composite index of development is constructed applying Wroclaw Taxonomic Method developed by Florek et al. (1952) and Narain et al. (1991) have also used this statistical method for calculating the Composite index which can include any number of indicators. Let $[X_{ij}]$ be the data matrix, i = 1, 2, …, n (Number of unit) and j = 1, 2, … k (number of indicators). $[X_{ij}]$ are transformed to $[Z_{ij}]$ as follows:

$[Z_{ij}] = (X_{ij} - \overline{X}_j) / S_j$

$\overline{X}_j$= mean of the jth indicator, S_j = standard deviation of the jth indicator and $[Z_{ij}]$ is the matrix of standardized indicators. From $[Z_{ij}]$, identify the best value of each indicator, maximum value or minimum value depending upon the direction of the impact of indicator on the development.

$P_{ij} = (Z_{ij} - Z_{oj})^2$ and $(C_i) = \left[\sum_{j=1}^{k} P_{ij} / (C.V.)_j \right]^{\frac{1}{2}}$

Where P_{ij}= pattern of development, Z_{oj}=Best value for indicator, and $(C.V.)_j$ is the coefficient of variation of the jth indicator in X_{ij}.

D_i (Composite Index) = C_i/C

Where C = (Mean Value of C_i + 3* (Standard deviation of C_i)

V. RESULTS AND DISCUSSION

Development level

The composite indices of health and education development have been worked out for nonspecific state of India in respect of health sector and education sector. The states have been ranked on the basis of composite indices. The values of composite indices along with the rank of states are given in table 1.It may be seen from table 1 that in case of education development, the state of Maharashtra was ranked first the state of Andhra Pradesh was ranked last. The composite indices varied from 0.414 to 0.890.Health facilities play a very important role in enhancing the level of development in the state. With respect to these facilities, the state of Gujarat was ranked first and the state of Odisha was ranked last. The composite indices varied from 0.28 to 0.82 across states.

Table1. Composite index (C.I.) and rank for Nonspecific States of India

Sr. No.	States	Education Development		Health Development	
		Index Value	Rank	Index Value	Rank
1	Andhra Pradesh	0.890	17	0.680	15
2	Bihar	0.798	16	0.620	13
3	Chhattisgarh	0.526	4	0.650	14
4	Goa	0.522	3	0.310	2
5	Gujarat	0.604	8	0.280	1
6	Haryana	0.713	13	0.540	9
7	Jharkhand	0.745	15	0.570	10
8	Karnataka	0.580	6	0.490	7
9	Kerala	0.588	7	0.610	12
10	Madhya Pradesh	0.609	9	0.780	16
11	Maharashtra	0.414	1	0.410	5
12	Odisha	0.712	12	0.820	17
13	Punjab	0.612	10	0.390	4
14	Rajasthan	0.717	14	0.350	3
15	Tamilnadu	0.487	2	0.520	8
16	Uttar Pradesh	0.707	11	0.590	11
17	West Bengal	0.539	5	0.450	6

Source: Authors' Calculation

Inter-relationship among education and health sector in the Indian Economy:-

For proper development, it is essential that two sectors of the economy should flourish together. The association between the level of development of health sector of economy and education level is worked out and presented in table 2.It may be seen from the below table.

Table-2correlation coefficient

Factors	Education Development	Health Development
Education Development	1	0.37
Health development	0.37	1

Source: Authors' Calculation

It is found from the above table the educationdevelopment is positively correlated with health development (+0.37).

VI. CONCLUSION

The study concludes that with respect education development, the state of Maharashtra and Tamilnadu are found to be better developed in comparison toother states. The states of Andhra Pradesh and Bihar are low developed. Special care should be taken for the implementing the developmental programmers in these state. Health facilities are found to be better in states of Gujarat and Goa. These facilities are poor in the statesof Odisha, Madhya Pradesh and Andhra Pradesh. Health development is associated with education development. Health facilities are also found to be positively affected the education level.

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