



State-wise Analysis of Human Development Index in India

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Abstract:

The Human Development Index (HDI) has emerged as a holistic measure of development that goes beyond economic growth to incorporate social well-being. This paper examines state-wise HDI its dimensions in India for the years 2011–12 and 2017–18, focusing on three dimensions: health, education, and income. Using secondary data from the Ministry of Statistics and Programme Implementation (MoSPI) and Human Development Reports, the study highlights improvements and disparities across states. While India's national HDI improved from medium to high during this period, stark inequalities persist. Southern and western states, along with Delhi and Goa, perform significantly better than the national average, reflecting stronger investments in education and healthcare. In contrast, states like Bihar, Uttar Pradesh, Madhya Pradesh, and Odisha continue to lag, primarily due to weaker educational outcomes and limited income opportunities. The findings underscore the uneven nature of human development in India and stress the importance of targeted policies addressing regional disparities.

Keywords: Human Development Index, Health, Education, Income, India.

Introduction

The measurement of development has traditionally been dominated by economic indicators such as Gross Domestic Product (GDP) and per capita income. However, these measures fail to capture the qualitative dimensions of human well-being. Recognizing this limitation, the United Nations Development Programme (UNDP) introduced the Human Development Index (HDI) in 1990 under the leadership of Mahbub ul Haq and Amartya Sen. The HDI combines three core dimensions: a long and healthy life, knowledge, and a decent standard of living, operationalized through life expectancy at birth, mean and expected years of schooling, and gross national income (GNI) per capita (UNDP, 1990).

India, with its vast geographical expanse and socio-cultural diversity, provides a unique context for examining human development. Some states, such as Kerala, Himachal Pradesh, and Delhi, have historically maintained high HDI scores, reflecting better health systems, higher literacy rates, and stronger economic bases. Others, particularly in central and eastern India—such as Bihar, Madhya Pradesh, and Odisha—have consistently recorded medium to low HDI levels, indicating structural challenges. These disparities raise concerns about the inclusiveness of India's growth trajectory.

The period between 2011–12 and 2017–18 is particularly significant as it corresponds with India's rapid economic expansion alongside increasing efforts in social sector investment, including the Right to Education (RTE) Act, National Health Mission (NHM), and poverty alleviation schemes. An analysis of this period allows us to assess the extent to which social and economic policies translated into improved human development outcomes across states.

This paper seeks to explore variations in HDI across selected states, comparing their performance in 2011–12 and 2017–18. It not only evaluates absolute progress but also relative disparities. The analysis aims to highlight strengths, weaknesses, and persistent inequalities that inform India's broader development challenges.

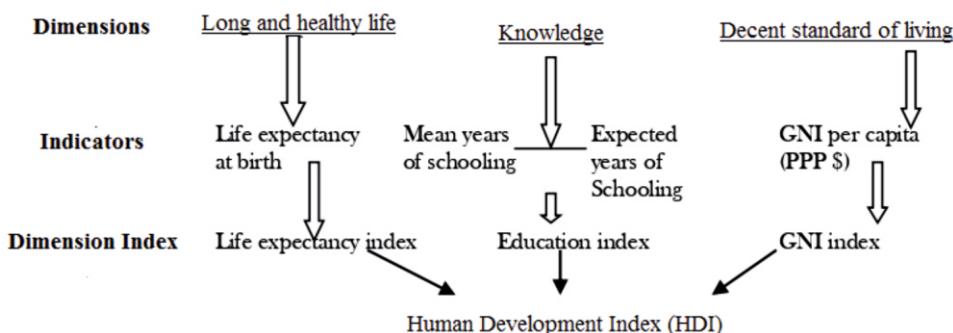
Objectives

1. To examine the state-wise HDI and its dimensions for 2011–12 and 2017–18.

Data base Methodology

Present study is based on secondary data which is obtained from working paper for computing HDI, GDI and GII for states of India, social statistics division, national statistics office, Ministry of Statistics and Programme implementation Govt. of India. HDI is composed of geometric averages of three core dimensions: (1) Long and healthy life, measured by life expectancy at birth; (2) Knowledge, measured by arithmetic mean of expected years of schooling and mean years of schooling; (3) Decent standard of living, measured by the logarithm of GNI (PPP\$) per capita. Because the data units of each indicator are different, it is necessary to standardize the data of each indicator before aggregating it into HDI. In the previous method (before 2010), the HDI was calculated as the mean arithmetic value of the dimension indicator. Now multiplicative aggregation method is used, where aggregations are made using the geometric mean value of each dimension indicators, which reduces the level of interchangeability between dimensions.

The dimensions indicators are calculated as follows:



Following formula was used for measurement of all three primary indices:

$$\frac{(I - I_{min})}{(I_{max} - I_{min})}$$

Where:

'I' represents the actual value in the country.

min and max represents the minimum and maximum values of individual indices.

The Human Development Index (HDI) is a simple arithmetic mean of all three primary indices:

$$HDI = \frac{I_1 + I_2 + I_3}{3}$$

Where:

I1 represent life expectancy index, I2 education index and I3 GNI index.

On the basis of HDI values selected states were classified into following three groups, which indicate the level of human development achieved:

- $0.00 < HDI < 0.55$ – low level of human development
- $0.55 < HDI < 0.70$ – medium level of human development
- $0.70 < HDI < 0.80$ – high level of human development and
- $0.80 < HDI < 1.00$ – very high level of human development

Result and Discussion:

A. The performances of states in each dimension (2011-12)

The Fig.1 shows the Human Development dimensions—Health, Education and Income for

selected Indian states..

Dimension I: Health Index (Long and Healthy Life)

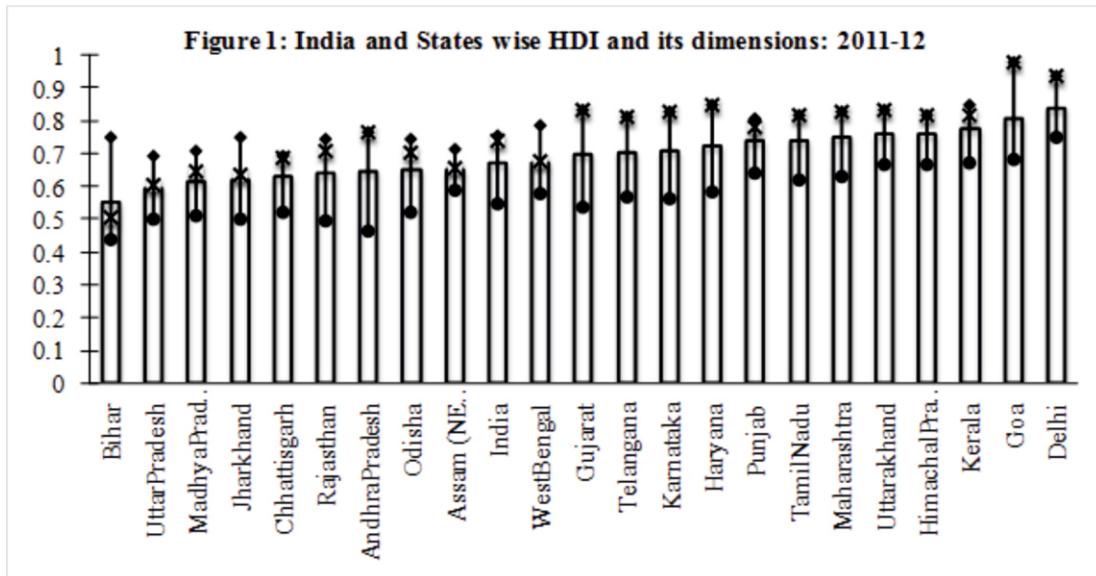
India's health Index is 0.754, with most states performing fairly well. Kerala (0.849), Himachal Pradesh (0.809), and Maharashtra (0.808) rank highest, reflecting strong healthcare and life expectancy. However, Uttar Pradesh (0.692) and Chhattisgarh (0.695) remain below, indicating weaker health outcomes.

Dimension II: Education Index (Knowledge)

The Education Index is the weakest dimension, with India at 0.545. States like Bihar (0.438), Andhra Pradesh (0.464), and Rajasthan (0.493) lag significantly, showing challenges in literacy and schooling. On the other hand, Delhi (0.749), Goa (0.684), and Kerala (0.671) perform strongly, demonstrating better access and outcomes in education.

Dimension III: Income Index (Decent Standard of Living)

India's Income Index 0.739, but disparities are stark. Goa (0.979) and Delhi (0.936) lead due to high economic index, while Bihar (0.507) and Uttar Pradesh (0.603) remain at the bottom, reflecting poverty and limited livelihoods. Southern states like Tamil Nadu, Karnataka, and Kerala maintain balanced progress in income alongside health and education.



B. The performances of states in each dimension (2017-18)

The Fig.2 shows the three dimensions of Human Development Index (HDI) for selected Indian States. The national average for India in 2017-18 stands at 0.737 (Health Index), 0.515 (Education Index), and 0.675 (Income Index), serving as a benchmark to assess state-level performance.

Dimension I: Health Index (Long and Healthy Life)

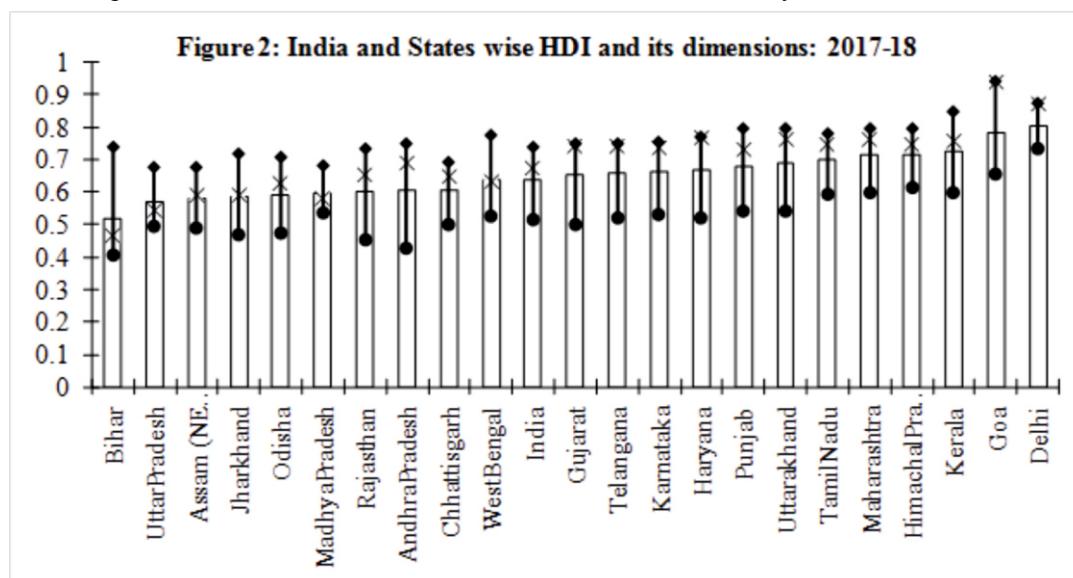
The states Kerala (0.845), Delhi (0.818), Uttarakhand, Punjab, Maharashtra, and Himachal Pradesh (all around 0.794) recorded top performance. These states report higher life expectancy and relatively better access to health care services. The states Assam (0.675), Madhya Pradesh (0.680), Chhattisgarh (0.689), and Uttar Pradesh (0.678) recorded lowest performers. These states fall below the national average, reflecting challenges such as weaker health infrastructure, higher maternal and child mortality, and prevalence of communicable diseases. Most of the southern and developed states perform better, while central and eastern states lag.

Dimension II: Education Index (Knowledge)

The states Delhi (0.731), Goa (0.654), Himachal Pradesh (0.613), Maharashtra and Kerala (0.598) recorded highest education index. These states benefit from higher literacy rates, strong enrolment ratios, and effective educational institutions. The states Bihar (0.404), Andhra Pradesh (0.427), Rajasthan (0.450), and Odisha (0.471) recorded lowest education index. These remain well below the national average (0.515), highlighting persistent issues of school enrolment, literacy, and quality of education. Educational attainment remains the weakest dimension for many states, with Bihar at the bottom despite average progress in health and modest improvements in income.

Dimension III: Income Index (Decent Standard of Living)

The states Goa (0.939), Delhi (0.871), Haryana (0.767), Maharashtra and Uttarakhand (0.762), Kerala (0.754) recorded highest values of income index. Goa, in particular, outpaces all states, reflecting very high per capita income and living standards. The states Bihar (0.465), Uttar Pradesh (0.545), Madhya Pradesh (0.579), and Jharkhand (0.589) recorded lowest performers. These states indicate structural economic underdevelopment with lower income levels and higher poverty rates. Income disparities between states are stark—Goa's income index is nearly double that of Bihar.



Notes for the Fig.1 and 2: Vertical bars indicate the HDI, dark black circles (inside the bars) indicate the education dimension index, cross indicate income dimension index and dark black diamonds (outside the bars) indicate the health dimension index; and the states are arranged in ascending order of their HDIs.

5. State-wise HDI Categories (2011–12 and 2017–18)

The categorization of Indian states based on HDI scores for the years 2011–12 and 2017–18 reflects significant shifts in human development achievements over the period. The table-1, presents four categories—Very High, High, Medium, and Low HDI—allowing for a comparative understanding of progress among states.

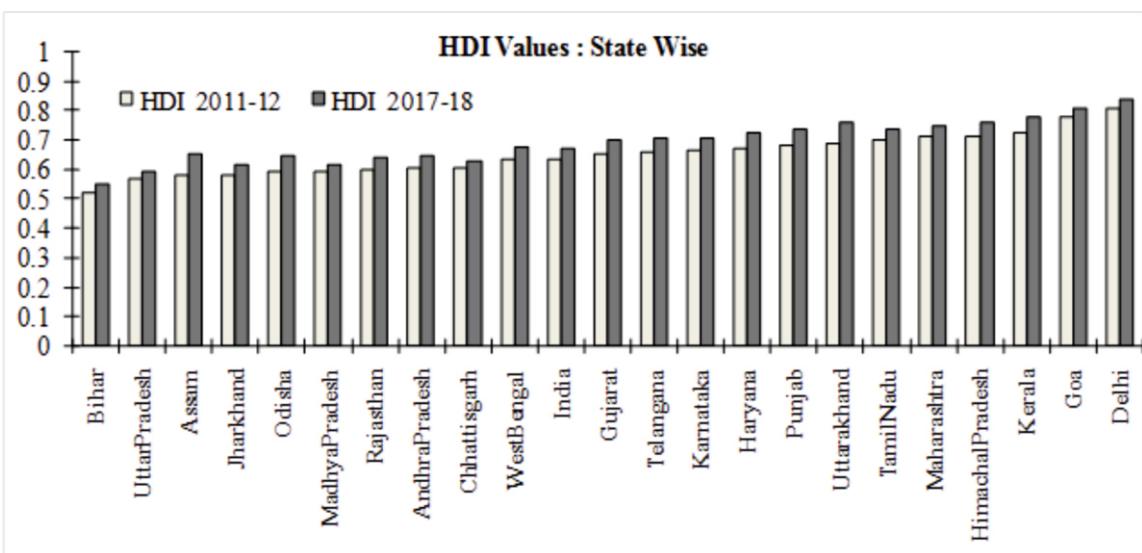
Very High HDI

In 2011–12, only Delhi fell in the Very High HDI category (0.800 and above), showcasing its advanced performance in health services, education levels, and per capita income compared to other states. However, by 2017–18, Goa also joined this category alongside Delhi. This upward movement indicates that Goa made substantial improvements in human development indicators, particularly in

literacy, health care, and living standards. The entry of Goa into the very high category represents a notable achievement, as it highlights the capacity of smaller states with relatively better governance and resource management to achieve high human development levels.

Table1: Categorizing States based on HDI Scores—2011-12 and 2017-18

HDI Category	2011-12	2017-18	Positive Change 2011-12 to 2017-18
Very High HDI (0.800 and above)	Delhi	Delhi, Goa	Goa
High HDI (0.700 to 0.799)	Goa, Himachal Pradesh, Kerala, Maharashtra, Tamil Nadu	Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu, Telangana, Uttarakhand	Haryana, Karnataka, Punjab, Telangana, Uttarakhand
Medium HDI (0.550 to 0.699)	Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Punjab, Rajasthan, Telangana, Uttar Pradesh, Uttarakhand, West Bengal	Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, West Bengal	Bihar
Low HDI (below 0.550)	Bihar	-	-



The High HDI category (0.700–0.799) demonstrates the most dynamic changes. In 2011–12, it consisted of Goa, Himachal Pradesh, Kerala, Maharashtra, and Tamil Nadu. By 2017–18, this group

expanded considerably to include Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu, Telangana, and Uttarakhand. The inclusion of five new states—Haryana, Karnataka, Punjab, Telangana, and Uttarakhand—illustrates the widening of developmental gains across diverse regions. Importantly, most of these states represent either emerging industrial hubs (Haryana, Karnataka, Telangana) or regions with strong social development indicators (Punjab, Uttarakhand). This suggests that a combination of economic growth and targeted welfare programs can help states transition into higher HDI categories.

Medium HDI

The Medium HDI category (0.550–0.699) in 2011–12 was the largest, comprising 15 states including Andhra Pradesh, Assam, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Punjab, Rajasthan, Telangana, Uttar Pradesh, Uttarakhand, and West Bengal. By 2017–18, however, the number of states in this group decreased to 10. States such as Haryana, Karnataka, Punjab, Telangana, and Uttarakhand moved upward into the high HDI category, leaving behind a relatively smaller group that included Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh, and West Bengal. The reduction in the size of this group highlights a positive trend, as several states managed to move up the ladder of human development. However, it is also notable that states like Bihar continued to lag and remained in this category despite showing some improvement.

Low HDI

The Low HDI category (below 0.550) was represented only by Bihar in 2011–12. Encouragingly, by 2017–18, no state fell into this category, reflecting an overall uplift in minimum human development standards across India. Bihar managed to move up into the Medium HDI group, signaling gradual improvement, although it still remained one of the lowest performers among states.

Conclusion

The analysis highlights two broad trends. First, India witnessed a general upward mobility in HDI across states, with no state remaining in the lowest category and more states joining the high and very high groups. Second, regional disparities continue to persist: while states such as Delhi, Goa, Kerala, and Himachal Pradesh demonstrate advanced levels of human development, others like Bihar, Uttar Pradesh, Madhya Pradesh, and Odisha remain concentrated in the medium range. This underlines the uneven pace of development and the continuing challenge of reducing inter-state disparities. The state Bihar slow progress indicate that targeted interventions in education, health care, and income generation remain essential to ensure more equitable human development across the country. Strengthening education systems, healthcare access and inclusive economic opportunities remains vital for states like Bihar, Uttar Pradesh, and Madhya Pradesh. A balanced approach integrating social and economic dimensions will be essential for India to achieve equitable and sustainable human development.

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