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# **Evaluating Human Development Trends in Chhattisgarh after Economic Reforms in India**

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#### ABSTRACT

This paper delves into a comprehensive assessment of Chhattisgarh's human development trajectory, with a specific focus on the influence of economic reforms spanning from 1993-94 to 2020-21. Using the Human Development Index (HDI) and its constituents—Income, Health, and Education indices—the study scrutinizes the state's progress in per capita income, life expectancy, and educational parameters.

The economic landscape of Chhattisgarh has undergone a transformative journey, with per capita income witnessing a substantial increase. Despite this economic upswing, the study reveals the need for sustained growth to reach optimal levels. Health indicators portray positive advancements, yet challenges persist in achieving the desired life expectancy. The education sector has witnessed commendable growth, although opportunities for further enhancement exist.

The Human Development Index, as a composite measure, reflects Chhattisgarh's balanced development, evolving from 0.334 in 1993-94 to 0.589 in 2020-21. While celebrating achievements, the paper emphasizes the importance of addressing disparities and prioritizing sustained investments in healthcare, education, and economic infrastructure for inclusive and sustainable development. The findings presented provide a roadmap for policymakers and stakeholders to navigate the future of human development in Chhattisgarh.

Keywords: Human Development Index, HDI, Chhattisgarh, Health, Education, Life Expectancy, Income Index

#### INTRODUCTION

The formation of Chhattisgarh in the year 2000 marked a significant chapter in India's administrative landscape, separating it from Madhya Pradesh. Before this, the region's economy relied heavily on agriculture, with a substantial tribal population shaping its socio-political fabric. Post-liberalization, Chhattisgarh underwent transformative changes, particularly in its economic, social, and political spheres, aligning itself with national development goals.

Economically, liberalization saw Chhattisgarh shift towards industrialization, capitalizing on its abundant mineral resources. The state's economic growth was evident in the establishment of industries, notably in steel and power. This not only created jobs but also positioned Chhattisgarh as a significant player in India's industrial map.

In the social arena, challenges in education and healthcare accessibility were addressed. Efforts were made to improve the education system, focusing on reducing dropout rates and enhancing quality. Healthcare infrastructure also expanded, reflecting a commitment to human development.

Politically, local leaders emerged, navigating regional complexities and contributing to policies tailored to Chhattisgarh's unique needs. This political dynamism played a crucial role in shaping the state's developmental trajectory.

Geographically, Chhattisgarh's diverse terrain, from dense forests to fertile plains, influenced economic activities, especially in agriculture. The state's demographic mix of tribal communities, scheduled castes, and various ethnic groups added to its cultural richness.

Post-liberalization progress is evident in various human development indices. Evaluating these indices is essential to gauge policy effectiveness and identify areas needing attention. The Human Development Index (HDI), considering life expectancy, education, and per capita income, provides insights into overall well-being.

The need to evaluate human development in Chhattisgarh arises from the imperative to ensure inclusive and sustainable progress. A comprehensive evaluation helps policymakers identify gaps and prioritize interventions, aligning development strategies with the state's unique socio-economic and cultural context.

In conclusion, Chhattisgarh's journey from formation to post-liberalization progress reflects resilience and dynamism. The economic, social, political, geographical, and demographic aspects contribute to its identity. Evaluating human development indices acts as a compass, ensuring Chhattisgarh continues on a path of inclusive and sustainable growth.

#### LITERATURE REVIEW

The literature review provides a comprehensive overview of key research articles related to human development in Chhattisgarh and neighboring states. These studies contribute valuable insights into various aspects of human development, including disparities across districts, health indicators, socio-economic well-being, and the impact of economic reforms. Each article sheds light on different dimensions, collectively enriching the understanding of the overall human development scenario in the region.

Tiwari et al. (2016) analyze inter-district disparities in human development in Chhattisgarh from 2001-02 to 2011-12. Using Principal Component Analysis (PCA), the study computes a composite index of human development, identifying highly developed districts such as Durg, Dhamtari, Raipur, Korba, and Rajnandgaon. It also highlights the low development in districts like Jajgir-Champa and Raigarh, with extremely backward districts including Dantewada, Bastar, Surguja, Kawardha, and Jashpur.

Galhotra et al. (2014) focus on mapping health indicators in Chhattisgarh, offering a public health perspective. The study discusses challenges related to maternal and child mortality, communicable diseases, and the burden of chronic noncommunicable diseases. It underscores the need for interventions to address these health issues and provides a detailed overview of various health indicators, including birth rate, infant mortality rate, malnutrition, and diseases like malaria.

Baghel et al. (2018) explore the spatial pattern of socio-economic well-being in Chhattisgarh, using data from the economic survey of 2013-14. The study employs Knox's method to calculate a well-being index based on indicators such as drinking water, electric light, latrine facilities, and more. The spatial distribution of well-being across districts reveals variations, with districts like Durg, Raipur, and Rajnandgaon exhibiting high levels of well-being, while others like Gariyaband and Bijapur face challenges.

The studies by Singh (2022) and Singh and Aneja (2022) examine human development in Haryana and Assam, respectively, after economic reforms. Singh's study on Haryana assesses the impact of economic growth on human development, indicating improvements but highlighting the need for further progress in health and education sectors. Singh and Aneja's study on Assam analyzes trends and patterns in human development from 1993-94 to 2017-18, emphasizing the state's overall improvement but noting that the HDI is still below the national average.

Lastly, Singh and Rusat (2022) explore the dynamics of human development in Tamil Nadu, estimating the HDI for various years. The study highlights significant progress in education, income, and health outcomes, with recommendations for further improvements.

## Need of the Study

Against the backdrop of economic reforms, the need to scrutinize Chhattisgarh's human development becomes imperative. The existing literature, while offering valuable insights into specific dimensions of development, underscores the necessity for a dedicated study focusing on the comprehensive impact of economic reforms on the state's standard of living, health indicators, education sector progress, and overall human development. Chhattisgarh, with its unique socio-economic context, demands a nuanced examination to inform policy formulations and ensure inclusive and sustainable development. As the state continues to evolve, understanding the dynamics of human development is fundamental for steering Chhattisgarh towards a path of holistic wellbeing.

#### **OBJECTIVES OF THE PAPER**

- Assess the influence of economic reforms on Chhattisgarh's standard of living by examining the substantial increase in per capita income (PCY) based on purchasing power parity (PPP) from 1993-94 to 2020-21.
- Analyze trends in life expectancy for the years (1993-94 to 2020-21) to identify factors influencing the overall health of Chhattisgarh's population.
- Examine the progress in the education sector by assessing trends in Mean Years of Schooling (MYS) and Expected Years of Schooling (EYS) over the study period.
- Assess the holistic impact of economic reforms on human development in Chhattisgarh, utilizing the Human Development Index (HDI) and its components (Health, Education, and Income Indices).

#### DATA AND METHODOLOGY

The Human Development Index (HDI) is a commonly used tool to evaluate the overall quality of life of a population. It takes into account three critical aspects of human development: a long and healthy life, access to knowledge, and a decent standard of living. The HDI uses various metrics such as life

expectancy, expected years of schooling, average years of schooling, and gross national income per capita to create a single index that captures the overall performance of a nation in these areas.

A long and healthy life, as measured by life expectancy at birth;

Education as measured by expected years of schooling for children at school age and by the mean years of schooling that adults aged 25 and above have undertaken:

A decent standard of living as measured by Gross National Income (GNI) per capita in terms of purchasing power parity (PPP) in US dollars.

**TABLE 1 Human Development Index Parameters Ranges** 

Dimensions	Indicator	Minimum	Maximum
Health	Life expectancy (years)	20	85
Education	Expected years of schooling(years)	0	18
Education	Mean years of schooling(years)	0	15
Standard of living	Gross national income per capita (2011 PPP \$)	100	75000

#### Formulae for estimation of HDI

#### 1. Health Index

Health Index = \frac{\text{Life expectancy at birth - Min.value}}{\text{Max.value - Min.value}}

#### 2. Education Index

Mean years of schooling (MYS) index =  $\frac{\textit{Mean Year of Schooling - Min.value}}{\textit{Max.value - Min.value}}$ 

Expected years of schooling (EYS) index =  $\frac{Expected\ Year\ of\ Schooling\ - Min.value}{Max.value\ - Min.value}$ 

On the basis of MYS and EYS, we calculate Education Index:

Education Index =  $\frac{MYS \ index + EYS \ index}{2}$ 

#### 3. Income Index

Income Index =  $\frac{\ln PCY(PPP) - \ln (Min.PCY)}{\ln (Max.PCY) - \ln (Min.PCY)}$ 

## 4. Human Development Index

HDI=  $[[Health\ Index].[Education\ Index].[Income\ Index]]^{\frac{1}{3}}$ 

## **DATA SOURCES**

This study relies on secondary data specific to Chhattisgarh for various indicators of human development. To assess life expectancy at birth, data from the Sample Registration System (SRS) Abridged Life Tables, published by the Office of the Registrar General of India, is used. This dataset is considered a reliable source for death statistics in India, incorporating information from multiple years of the ORGI SRS-abridged life tables and some segments from the RBI's official website. For evaluating expected and mean years of schooling, self-estimation is drawn from the Employment and Unemployment survey of the National Sample Survey Office (NSSO) and Periodic Labor Force Survey (PLFS). The mean year of schooling is estimated by averaging the schooling years of the population aged 24 and above in Chhattisgarh. Expected years of schooling are determined by averaging the schooling years of individuals aged 21-24, assuming a continuation of the present education status. Regarding per capita income, the study utilizes purchasing power parity (PPP) based data, converting it into international currency using the PPP exchange rate of India estimated by the World Bank for different years. Notably, for years preceding 2000, data for the 16 districts of Madhya Pradesh (now part of Chhattisgarh) is employed. The Directorate of Economics and Statistics, Government of Chhattisgarh, along with district-level teams of government officials, has calculated the District Domestic Product (DDP), forming the basis for constructing the Income Index for these earlier years.

## FINDINGS OF THE STUDY

## Trends in Basic Parameter of HDI in Chhattisgarh

Table 2 provides a detailed overview of Human Development Index (HDI) parameters values for the state of Chhattisgarh over different years. The indicators include per capita income based on purchasing power parity (PCY), life expectancy, mean years of schooling (MYS), and expected years of

schooling (EYS). These indicators are crucial for understanding the overall development in Chhattisgarh, and a comparison with the optimal values specified in the table sheds light on the progress yet to be achieved.

TABLE 2 Human Development Index Parameters Data in Chhattisgarh

Year	PCY(\$) based on PPP	Life expectancy	MYS	EYS
1993-94	946	55.2	2.7	4.1
1999-2K	1090	58.0	3.2	5.2
2004-05	1774	60.2	3.8	6.2
2011-12	3110	64.8	4.8	7.5
2017-18	4344	65.2	6.0	10.2
2020-21	4817	63.7	6.7	10.7

#### Per Capita Income (PCY) based on PPP:

Chhattisgarh has undergone significant economic transformation, exemplified by the consistent increase in per capita income. From \$946 in 1993-94, the PCY surged to \$4817 in 2020-21. This upward trajectory suggests an improvement in the standard of living and the economic well-being of the population. However the PCY is much below the optimal value of \$85000. It need sustained economic growth in Chhattisgarh.

#### Life Expectancy:

The life expectancy trend demonstrates positive advancements in overall health. Starting at 55.2 years in 1993-94, it increased steadily, reaching 63.7 years in 2020-21. Although there was a marginal decline in 2017-18, the overall trend indicates progress. However, the current life expectancy remains much below the optimal value of 85 years, indicating a need for sustained healthcare efforts.

#### Mean Years of Schooling (MYS):

Chhattisgarh has witnessed a commendable rise in mean years of schooling, reflecting improvements in the education sector. From 2.7 years in 1993-94, MYS increased to 6.7 years in 2020-21. While this demonstrates positive momentum, there is still room for growth, as the current value is below the maximum of 15 years.

## **Expected Years of Schooling (EYS):**

The data reveals a substantial increase in expected years of schooling, rising from 4.1 years in 1993-94 to 10.7 years in 2020-21. This positive trend signifies enhanced educational opportunities for the population. However, with the maximum value set at 18 years, there is lot of potential for further improvement.

## Trends in Data:

The trends observed in Chhattisgarh's HDI parameters underscore a commendable trajectory in economic, health, and educational dimensions. The consistent rise in per capita income reflects the state's economic resilience. Although life expectancy experienced a slight dip in 2017-18, the overall upward trend indicates improved healthcare. The noteworthy increase in mean and expected years of schooling highlights advancements in the education sector. Despite these positive trends, the data emphasizes the need for continued efforts to align with the optimum values outlined in the table. Addressing the disparities and building on these positive trends will be crucial for Chhattisgarh's sustained progress in human development.

#### **Human Development Index Progress in Chhattisgarh**

The data presented in Table 3 outlines the trends of the Human Development Index (HDI) and its associated components in Chhattisgarh over a span of nearly three decades, from 1993-94 to 2020-21. Each index - Income, Health, Education, and the overall HDI - provides valuable insights into the state's progress across key dimensions of human development.

TABLE 3 Trends of Human Development and its Associate Index in Chhattisgarh

Year	Income Index	Health Index	Education Index	HDI
1993-94	0.339	0.542	0.204	0.334
1999-2K	0.361	0.585	0.249	0.374
2004-05	0.434	0.618	0.297	0.430
2011-12	0.519	0.689	0.368	0.508
2017-18	0.569	0.695	0.483	0.576
2020-21	0.585	0.672	0.520	0.589

#### **Income Index:**

The Income Index reflects the standard of living and economic well-being in Chhattisgarh. The observed trend reveals a consistent improvement, with the index growing from 0.339 in 1993-94 to 0.585 in 2020-21. This substantial rise indicates significant economic progress, suggesting increased purchasing power and a better quality of life for the residents.

#### **Health Index:**

The Health Index signifies improvements in healthcare and life expectancy. Chhattisgarh has witnessed a generally positive trend, with the Health Index increasing from 0.542 in 1993-94 to 0.672 in 2020-21. While there was a marginal decline in 2017-18, the overall trajectory suggests advancements in healthcare infrastructure, leading to enhanced life expectancy for the population.

#### **Education Index:**

The Education Index reflects the state's commitment to providing quality education. From 0.204 in 1993-94, the index rose to 0.520 in 2020-21, showcasing substantial progress. This upward trend suggests improvements in educational access, infrastructure, and outcomes, contributing to the overall development of human capital in Chhattisgarh.

#### **Human Development Index (HDI):**

The HDI, a composite measure of income, health, and education, provides a holistic view of Chhattisgarh's human development. The data indicates a noteworthy progression, with the HDI increasing from 0.334 in 1993-94 to 0.589 in 2020-21. This implies that Chhattisgarh has experienced comprehensive development across economic, health, and educational dimensions over the years.

#### **Interpretation and Progress:**

The trends in Table 3 collectively suggest that Chhattisgarh has made significant strides in human development. The rising Income Index indicates economic prosperity, while improvements in the Health and Education Indices underscore advancements in healthcare and education. The consistent growth in the HDI reaffirms a holistic approach to development, reflecting a balanced enhancement in the standard of living, health outcomes, and educational attainment.

The data not only portrays past achievements but also serves as a guide for future policy interventions. While Chhattisgarh has demonstrated commendable progress, identifying areas of improvement is crucial for sustained development. Continued investments in healthcare, education, and economic infrastructure are imperative to further elevate the state's human development outcomes and ensure inclusive progress for all its residents.

#### POLICY RECOMMENDATIONS

Improving the Human Development Index (HDI) in Chhattisgarh requires a comprehensive approach addressing various aspects of human well-being. Here are some policy recommendations:

- 1. <u>Naxalism and Internal Security:</u> Chhattisgarh has been grappling with Naxalite insurgency for years, particularly in tribal and forested areas. This poses a significant security challenge and hampers development efforts. The State govt. should take extensive measures to fix this issue.
- Education: Despite improvements, the state still faces challenges in providing quality education, especially in remote and tribal areas. Access
  to quality education, teacher shortages, and infrastructure gaps remain issues.
- 3. <u>Healthcare:</u> Access to quality healthcare, especially in rural and remote areas, remains a concern. Infrastructure, availability of trained medical staff, and access to essential medicines are areas that need attention.
- 4. <u>Poverty and Unemployment:</u> Chhattisgarh has a significant population living below the poverty line. Addressing poverty and creating sustainable employment opportunities, especially for the youth, is crucial.
- 5. <u>Agriculture and Rural Development:</u> While agriculture is a significant sector, challenges like land fragmentation, lack of modern techniques, and market access persist. Droughts and other climate-related issues also impact agriculture. If these issues are resolved, a greater population would benefit in the State n terms of standard of living.
- 6. <u>Tribal Development:</u> A large part of Chhattisgarh's population comprises tribal communities. Issues like land rights, displacement due to industrial projects, and socio-economic development of these communities are vital.
- 7. <u>Infrastructure:</u> Inadequate road connectivity, especially in remote and hilly areas, can hinder economic development. Ensuring basic infrastructure like roads, electricity, and water supply is essential.
- 8. <u>Environmental Conservation:</u> Balancing economic development with environmental sustainability is a critical challenge. Ensuring responsible exploitation of natural resources and forest conservation is crucial.
- 9. <u>Women's Empowerment:</u> Gender inequality, especially in rural areas, remains a challenge. Issues like access to education, healthcare, and economic opportunities for women need attention.

- 10. <u>Corruption and Governance:</u> Ensuring transparent and accountable governance is important for effective service delivery. Addressing issues of corruption and improving administrative efficiency are ongoing concerns.
- 11. <u>Industrial Development:</u> While there has been industrial growth, there's a need to ensure it's sustainable and benefits local communities. Balancing industrial growth with environmental concerns and social development is crucial.
- 12. <u>Education and Skill Development:</u> Improving the quality of education and providing skill development opportunities to match market needs is essential for improving employment prospects, especially for the youth.

It's important to note that the situation may evolve over time, and new challenges may arise. Addressing these issues requires concerted efforts from the government, civil society, and the private sector, with a focus on inclusive and sustainable development.

#### CONCLUSION OF THE STUDY

In assessing the multifaceted impact of economic reforms on Chhattisgarh's human development, this study has provided a comprehensive analysis of key indicators spanning over two decades. The findings underscore a notable trajectory of progress, yet they also illuminate areas demanding sustained attention for the state's continued advancement.

Economic Transformation: Chhattisgarh's economic landscape has undergone a transformative journey, as evident in the substantial surge in per capita income (PCY) from \$946 in 1993-94 to \$4817 in 2020-21. This economic upswing signifies an enhanced standard of living and improved economic well-being for the populace. However, the PCY remains significantly below the optimal value of \$85000, signaling the need for persistent and targeted economic growth initiatives.

**Healthcare Dynamics:** Positive strides in overall health are discernible through the steady increase in life expectancy from 55.2 years in 1993-94 to 63.7 years in 2020-21. Despite a marginal decline in 2017-18, the overall trend indicates progress. However, with the current life expectancy still below the optimal value of 85 years, continued and intensified healthcare efforts are imperative for sustained improvements.

**Educational Advancements:** Chhattisgarh's education sector has experienced commendable growth, reflected in the rise of mean years of schooling (MYS) from 2.7 years in 1993-94 to 6.7 years in 2020-21. Additionally, expected years of schooling (EYS) surged from 4.1 to 10.7 years over the same period. These positive trends signify increased educational opportunities, yet there remains room for further growth, especially considering the maximum values of 15 and 18 years for MYS and EYS, respectively.

**Holistic Human Development:** The composite measure of human development, the Human Development Index (HDI), demonstrates Chhattisgarh's comprehensive progress. The HDI rose from 0.334 in 1993-94 to 0.589 in 2020-21, indicating balanced improvements in income, health, and education. The income index witnessed significant growth, reaching 0.585 in 2020-21, while the health and education indices also displayed positive trajectories.

**Guiding Future Interventions:** While celebrating Chhattisgarh's achievements, this study serves as a guide for future policy interventions. Identified disparities and areas for improvement, especially in healthcare and education, underscore the need for continued investments. Tailored economic policies, targeted healthcare initiatives, and educational reforms are essential for sustaining and enhancing human development outcomes.

**Inclusive and Sustainable Development:** To ensure inclusive progress for all residents, policy interventions should focus on addressing disparities among districts and communities. Inclusivity, community engagement, and sustainable development practices, including environmental considerations, should be integral to future strategies.

In conclusion, Chhattisgarh's journey toward enhanced human development is commendable, but it is an ongoing process. The state has the potential to further elevate its human development outcomes through a strategic and sustained focus on economic growth, healthcare, and education. The findings presented here provide a roadmap for policymakers, stakeholders, and the community to collaboratively work towards a future where every citizen of Chhattisgarh can enjoy an improved quality of life and well-being.

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