

https://doi.org/10.58419/gbs.v10i1.1012410

# A BRIEF ANALYSIS OF GENDER DEVELOPMENT INDEX OF INDIA

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#### **ABSTRACT**

Gender Development Index (GDI) was introduced by UNDP in 1995 to measure, compare and contrast the HDIs between the two genders due to the failure to launch towards holistic development of several countries. India, one of the rapidly emerging economies is at 134th rank in HDI (UNDP, 2024) and 129th in GDI (Global gender gap report, 2024) globally, and is still behind its neighbouring countries like Bhutan (125) in terms of gender development. Gender and development go hand in hand. Any barrier causing gender inequality is a barrier to balanced development. The lower GDI of the country can be largely attributed to the inequalities and biases existing between the genders owing to gender exclusive socioeconomic set up of the country and the absence of parity of women offering disadvantages in every field and sub field of development.

Keywords - Gender, Development, Inequality, GDI, HDI, Literacy rates, work participation etc.

# 1. INTRODUCTION

Every nation strives for development. Here development encompasses both the development of the economy or generation of wealth and the development of its people in terms of standard of living. Previously and primarily used 'per capita income', a measure of development captured the economic development while seriously failed to measure the level of human development. Human development refers to the process of utilization of the resources for the betterment of the people to bring about welfare. Thus, economic development or utilization of resources can be viewed as the means to the end i.e., human development. In other words, economic efficiencies are means to human capabilities.



The UNDP report of 1990, bought a paradigm shift in the measurement of the nation's development by not simply considering the economic growth and development but giving weightage to that development through the overall wellbeing of the human beings.

The human development index popularly known as HDI was devised by Pakistani economist Mahbub ul-Haq which was adopted by UNDP to measure the human development levels of different nations and rank them accordingly. The HDI is a composite index of three basic components of human development, namely, longevity, Knowledge and standard of living. Longevity is measured in terms of life expectancy, knowledge in terms of adult literacy rate with one- third of the weight & mean years of schooling with two- third of the weight and standard of living through purchasing power parity based on the GDP per capita. The values for each index are calculated on the basis of scaling norms or goalpost set by the UNDP.

Table no 1. showing Goalpost introduced by UNDP- 1990

Indiana	Maximum	Minimum	
Indices	Value	Value	
Life expectancy at	85	25	
birth (years)	85	23	
Adult literacy rate (%)	100	0	
Combined gross	100	0	
enrolment ratio (%)	100	O	
GDP per capita (PPP	40,000	100	
USD)	40,000	100	

Source- UNDP. 2003

Table no 2, showing Goalpost introduced by UNDP- 2010.

Dimension	Maximum value	Minimum value
Life expectancy	83.2 (Japan, 2010)	20.0
A. mean years of schooling	13.2 (United states, 2020)	00
B. expected years of schooling	20.6 (Australia,2002)	00
A+B. Combined education	0.951 (New Zealand,	00
index	2010)	00
Per capita income (PPP \$)	108211 (United Arab	163 (Zimbabwe, 2008)
rei capita income (FFF 3)	Emirates, 1980)	103 (Ziiiibabwe, 2008)



Source- UNDP, 2010

The HDI is then calculated by taking the average of the three indices in terms of their geometric means where the maximum value is 1 while the lowest is 0. Countries having values nearer to one have achieved high rates of human development while the rest are lacking behind. The world's HDI stands at 0.732 as of 2021.

Table no 3. Showing top ten HDI ranking countries 2021.

HDI Rank	Country	HDI
		VALUE
1	Switzerland	0.962
2	Noray	0.0961
3	Iceland	0.959
4	Hong Kong, China	0.952
5	Australia	0.951
6	Denmark	0.948
7	Sweden	0.947
8	Ireland	0.945
9	Germany	0.942
10	Netherlands	0.941

Several countries have failed to achieve the satisfactory levels of human development reflected in their ranks largely because of the underlying intersecting crises. Though, HDI gives an account of the overall development of the nation's people, yet, it does not bring out the existing inequalities in the already established three indices between the two genders. Simply saying, HDI is not gender conclusive, therefore various policies and plans chalked to bring about development becomes lope- sided which hampers the performances of the countries.

Gender and development go hand in hand and are inseparable. Most women are left out of the developmental process by virtue of ungendered policies. Amartya Sen supported the inclusion of women in development by making a compelling statement that countries should not see women as passive recipients of development but rather as an active promoter of development. The basic pillars of human development comprise of equity, productivity,



empowerment and security, reflected in the three indices of the Human development as given by HDI. However, a careful ponderance over these indices display an existing inequality among them. The failure of the developmental policies can be largely attributed to the disparities existing between the various segments of the population. These inequalities are the direct result of the existing socio- economic inequalities and disparities between the two fractions of the population.

To bring out the inequalities and disparity in development between the genders, the UNDP in 1995 introduced Gender Development Index (GDI). This index helps in bringing out the gaps in the human development by making a gender sensitive distribution analysis.

Gender development Index (GDI) is calculated by calculating the HDI levels of both male and female individually and then taking its ratio. The major objectives of GDI as against HDI are as follows: -

- 1. GDI brings out the existing gender inequalities in the nation
- 2. The differential HDI levels of men and women reveals the gender exclusiveness of the developmental policies and processes.
- 3. Differential rates of development of men and women.
- 4. Socio- economic biases existing in the nation.
- 5. Biases in resource allocation.
- 6. Level of women empowerment
- 7. The progress of women in the nation.
- 8. Can make a comparative note of women's position

#### 2. AIMS AND OBJECTIVE

The paper has been produced keeping in mind three inter- related aims & objectives. Firstly, to calculate individual HDI levels of male and female population which unearths –

- 1. The overall progress of the development of the population
- 2. The absence of parity between the men and women in the socio- economic welfare.

Secondly, using the calculated individualistic HDIs, the Gender Development Index (GDI) is calculated using the UNDP goalpost of 2010, to make a comparison with the other countries and to analyse India's progress in bridging the inequality gaps between the two genders.



Lastly, the paper aims at unearthing the factors responsible for current levels of GDI of the country and provide some suggestions and recommendations to overcome the situation.

### 3. METHODOLOGY

- 1) UNDP reports of 2021 "Uncertain Times, Unsettled lives: Shaping our Future in a World in Transformation", from the report the goal posts or the minimum criteria required for the calculation of HDI is derived using which the if so required, the HDIs are calculated.
- 2) The census data of India are used extensively to gather statistical data on demographic and economic spectrums for both male and female population of India, using which the HDIs for male and female is calculated.
- 3) The HDIs are calculated using the formula –

$$HDI = (\sqrt[3]{LEI \ X \ EI \ X \ GDPI})$$

Where, *LEI* refers to Longevity Index, *EI* to Education Index and *GDPI* to Gross Domestic Product Index (GDPI) (Per capita PPP \$). Similarly, the mentioned three indices are calculated using the formula-

$$LEI = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$

$$EI = \frac{\sqrt{MYSI \times EYSI}}{Combined \ education \ Index}$$

(MYSI = Mean years of schooling index, = 
$$\frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$
)  
&  
(EYSI= Estimated years of schooling index=  $\frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$ 

• 
$$GDPI = \frac{Log(Xi) - Log\{Min(Xi)\}}{Log\{Max(Xi)\} - Log\{Min(Xi)\}}$$

Note- The maximum and minimum values of each respective indices denoted by *Min (Xi)* and *Max (Xi)* are obtained from UNDP 2010 Goalpost mentioned as below-

Dimension	Maximum value	Minimum value
Life expectancy	83.2 (Japan, 2010)	20.0
A. mean years of schooling	13.2 (United states, 2020)	00



B. expected years of	20.6 (Australia,2002)	00
schooling		
A+B. Combined education index	0.951 (New Zealand, 2010)	00
Per capita income (PPP \$)	108211 (United Arab	163 (Zimbabwe, 2008)
	Emirates, 1980)	

a. After the completion of the calculation of HDIs for both the genders, Gender Development Index (GDI) has been calculated using the formula

GDI= HDI (Female)/ HDI (male),

[Where, GDI value of 1 indicate perfect equality between the two genders, GDI Value lower than 1 indicate HDI higher for men, While GDI value higher than 1 indicate HDI higher for women]

### 4. LITERATURE REVIEW

Believing in Amartya Sen's concept of 'entitlement' and 'capacities', Dr. Ratan Kumar Samanta writes, entitlements are individuals' totality of rights while capacities are opportunities generated by entitlement or individual's freedom to choose (Samanta). According to Dr. Samanta, economic developments are expansion of freedoms and its positive products. HDI is the most popular measure of human development, however, fails to identify the disparities existing between the sexes in socio- economic development. "Capability deprivation results in gender inequality". This deprivation of capabilities can be measured and addressed through UNDP introduced Gender Development Index (GDI). According to (Santosh, Suresh, & Indumathi, 2022), gender development is a sustainable inclusive development. Women's disadvantageous position is due to the historical development (social and cultural foundations) of societies. Development has always made an exclusion of half of the population in the process, though they are the dynamic promoters of social transformation. This biasness and inequality is captured by Gender Development Index (UNDP 1995). In India, Kerala, Mizoram and Goa has high GDI rankings due to much parity in education between men and women in contrast to Madhya Pradesh, Jammu & Kashmir, Bihar, Uttar Pradesh and Rajasthan having lowest GDI rankings. Overall, India has witnessed growth in GDI from 0.738 (2000) to 0.829 (2018) with significant improvement in education sector yet, regional imbalances still persist. According to (Gaye, Klugman, Kovacevis, Twigg, & Zambrano, 2010), the shattering of gender inequality can be done through three improvements- firstly, equal access to economic resources. Secondly, equal economic participation: labour participation, wage generation. And lastly, equal participation in



decision making processes. GDI is not a measure of gender inequality rather it portrays "How much gender inequality reduces a country's level of human development".

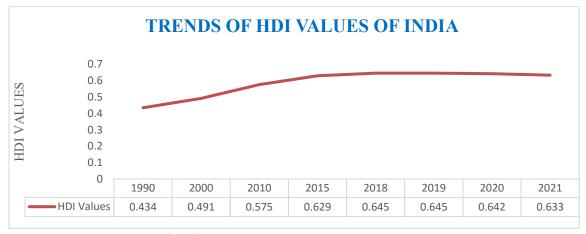
## **Gender Development Index of India**

"Development consists of the removal of various types of unfreedoms that leave people with little choice and little opportunity of exercising their reasoned agency. The removal of substantial unfreedoms, it is argued here, is constitutive of development."

— Amartya Sen in his book 'Development as Freedom, 2020'.

The HDI reports are released by United Nation Development Program (UNDP). According to 2020- 2021 report under the theme "Uncertain Times, Unsettled lives: Shaping our Future in a World in Transformation", India holds  $132^{\rm nd}$  rank (2021) in the HDI ranking in the world. It falls under the category of medium human development country. As of 2021 report, several countries have witnessed a decline in their HDI ranking due to shifting geopolitical dynamics, changing ecological systems and more adversely due to Covid 19 pandemic, which have tremendously reversed the human development process. Addressing the Covid- 19 pandemic, UNDP report of 2020- 2021 states that- "It is a long detour from normal, it is a window with a new reality, a painful glimpse into deep, emblematic contradictions, exploring a confluence of fragilities".

Likewise, India too witnessed a drop in its HDI value and rank due to the Covid-19 and its allied consequences.



Source- UNDP Human development report 2020- 2021

Salient features of India's HDI 2020-2021: -



- 1. There was a significant drop in the HDI values from 0.645 pre covid period to 0.642 in 2020 and currently stands at 0.633 as per 2021 UNDP report.
- 2. Life expectancy at birth has dropped from 70.15 years in 2020 to 67.24 years in 2021.
- 3. Expected years of schooling dropped from 12.2 years in 2020 to 11.9 years in 2021.
- 4. Mean years of schooling stands at 6.7 years.
- 5. While India's Gross National Income per Capita (GNI) at \$6590 (2017 PPP \$).

As mentioned earlier, the HDI values do not reflect the disparities between the two genders, the effect of the changing dynamics of the world owing to the pandemic too is different for the two genders. UNDP report 2020- 2021 states that- "Women and girls have shouldered even more household and caregiving responsibilities, while violence against them worsened".

The following section will deal with the calculation of the HDIs of the two genders and Gender development index

HDI Calculations for male and female population following goal post 2010 (see table no 2)

1. Life expectancy index (LEI)

$$LEI(male) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$

$$LEI(male) = \frac{65.8 - 20}{83.2 - 20} = 0.725$$

$$LEI(female) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$

$$LEI(female) = \frac{68.9-20}{83.2-20} = 0.774$$

- 2. Education Index (EI)
  - a. Mean years of schooling Index (MYSI)

$$MYSI(male) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$
$$MYSI(male) = \frac{7.2 - 0}{13.2 - 0} = 0.545 \text{ years}$$

$$MYSI(female) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$



$$MYSI(female) = \frac{6.3-0}{13.2-0} = 0.477 \text{ years}$$

b. Expected years of schooling Index (EYSI)

$$EYSI(male) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$

$$EYSI(male) = \frac{11.8-0}{20.6-0} = 0.573 \ years$$

$$EYSI(female) = \frac{Xi - Min(Xi)}{Max(Xi) - Min(Xi)}$$

$$EYSI(female) = \frac{11.9 - 0}{20.6 - 0} = 0.578 \ years$$

Thus, 
$$EI(male) = \frac{\sqrt{MYSI \times EYSI}}{Combined \ education \ Index}$$

$$EI(male) = \frac{\sqrt{0.545 \times 0.573}}{0.951} = 0.445 \text{ years}$$

$$EI(female) = \frac{\sqrt{0.573 \times 0.578}}{0.951} = 0.460$$

3. Gross Domestic Product Index (GDPI) (Per capita PPP \$)

$$GDPI(male) = \frac{Log(Xi) - Log\{Min(Xi)\}}{Log\{Max(Xi)\} - Log\{Min(Xi)\}}$$

$$GDPI(male) = \frac{Log (10633) - Log\{163\}}{Log \{108211\} - Log\{163\}} = 0.797$$

$$GDPI(female) = \frac{Log(Xi) - Log\{Min(Xi)\}}{Log\{Max(Xi)\} - Log\{Min(Xi)\}}$$

$$GDPI(female) = \frac{Log(Xi) - Log\{Min(Xi)\}}{Log\{Max(Xi)\} - Log\{Min(Xi)\}}$$

$$GDPI(female) = \frac{Log(2277) - Log\{163\}}{Log\{108211\} - Log\{163\}} = 0.406$$

Therefore,

$$HDI(male) = (\sqrt[3]{LEI \times EI \times GDPI}) = 0.64$$

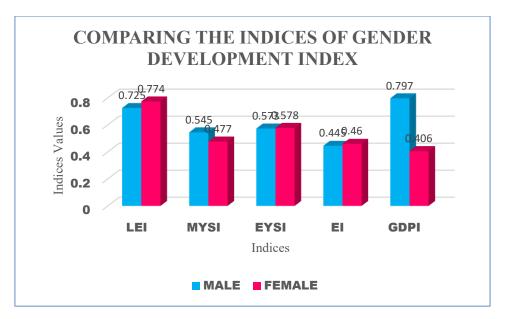
$$HDI (FEmale) = (\sqrt[3]{LEI \times EI \times GDPI}) = 0.52$$



Indices	Male	Female	
Life expectancy Index (LEI)	0.725	0.774	
Education Index (EI)	0.445	0.460	
Mean years of school Index (MYSI)	0.545	0.477	
Expected years od schooling Index (EYSI)	0.573	0.578	
Gross Domestic Product Index (GDPI)	0.797	0.406	
HUMAN DEVELOPMENT INDEX (HDI)	0.64	0.52	
GENDER DEVELOPMENT INDEX (GDI)	HDI (Female) / HDI (male) = 0.52/0.64 =0.8125, indicating higher HDI for men than women.		

## 5. ANALYSIS AND OBSERVATION-

According to Amartya Sen, 'Entitlement' & 'Capacities' are two spheres of influence opening the door to individuals' freedom to achieve various functioning combinations (Sen, 2020). The Indian constitution does provide opportunities and privileges to its people seamless of gender. Nonetheless, the lived realities provide a contradiction in the enjoyment and exercise of those opportunities and privileges causing disadvantages to the larger proportion of girls and women by virtue of their sex.



The GDI of India stands at 129<sup>th</sup> position (Global gender gap report, 2024) though India is on the path of rapid economic development, yet, the gender inequalities on various grounds is still under improved and at increase. When compared with the neighbouring countries like Bhutan (0.937), Nepal (0.942), Bangladesh (0.898) and Sri Lanka (0.949), the GDI of India is still trailing behind.

From the above diagram it becomes evident that the cause for India's low GDI is low levels of mean years of schooling index and Gross domestic product index of women.

At the national level, the male female literacy gap is 12.9 % with male literacy rate at 84.7 % and female literacy at 70.3% (Swargiary, 2023). Though the rates of literacy amongst female children have increased from 56.23% (1991) to 86.78% (2011), the uprising rates are still unsatisfactory largely arising because of the regional disparities. The educational landscape of India exhibits a disparity between regions. While states like Kerala have the highest literacy rate of 96.2 5, state like Andhra Pradesh (66.4 %), Bihar (70.9%) and Rajasthan (69.7%) have low levels of literacy. Within the regional disparities, the overwhelming presence of gender disparities have further deteriorated the educational landscape of the country.



Table No 4- State wise variation in male and female literacy rate.

State Wise variati	Male Male	Female	Average
314163 & 313	Literacy	Literacy	Literacy
	Rate %	Rate %	Rate %
A&N islands	90.11	81.84	86.27
All-India	84.7	70.3	77.7
Andhra Pradesh	73.4	59.5	66.4
Arunachal Pradesh	73.69	59.57	66.95
Assam	90.1	81.2	85.9
Bihar	79.7	60.5	70.9
Chandigarh	90.54	81.38	86.43
Chhattisgarh	85.4	68.7	77.3
Dadra and Nagar Haveli	86.46	65.93	77.65
Daman & Diu	91.48	79.59	87.07
Delhi	93.7	82.4	88.7
Goa	92.81	81.84	87.4
Gujarat	89.5	74.8	82.4
Haryana	88	71.3	80.4
Himachal Pradesh	92.9	80.5	86.6
Jammu & Kashmir	85.7	68	77.3
Jharkhand	83	64.7	74.3
Karnataka	83.4	70.5	77.2
Kerala	97.4	95.2	96.2
Lakshadweep	96.11	88.25	92.28
Madhya Pradesh	81.2	65.5	73.7
Maharashtra	90.7	78.4	84.8
Manipur	86.49	73.17	79.85
Meghalaya	77.17	73.78	75.48
Mizoram	93.72	89.4	91.58
Nagaland	83.29	76.69	80.11
Odisha	84	70.3	77.3
Puducherry	92.12	81.22	86.55
Punjab	88.5	78.5	83.7
Rajasthan	80.8	57.6	69.7
Sikkim	87.29	76.43	82.2



Tamil Nadu	87.9	77.9	82.9
Telangana	80.5	65.1	72.8
Tripura	92.18	83.15	87.75
Uttar Pradesh	81.8	63.4	73.0
Uttarakhand	94.3	80.7	87.6
West Bengal	84.8	76.1	80.5

Source: Survey by National Statistical Office (NSO). \*UTs & NE States based on 2011 Census

Although the government of India have initiated several schemes and policies to enrich literacy amongst female children such as Sarva Shiksha Abhiyan, Beti Bachao Beti Padhao, Sukanya Samriddhi Yogna, Rastriya Mahila Kosh and many others, yet several sociological factors have hindered or decelerated the progress.

- a. Low enrolment of girls in schools equipped by their high rates of dropouts.
- b. Still in several parts of the country especially the rural areas, females are associated with biological reproduction and not considered as an active agent of economic production, thus, families instead do not want to make financial ventures on her education and save money for marriage.
- c. Another important factor for lower rates of female literacy is prevalence of child marriage practices in remote areas.
- d. Educational preferences given to male children as they are considered to be the bread weavers of the family.
- e. Location of the schools or any educational institutes is also one of the major factors for lower enrolment of female children.
- f. Female children also have an extra household responsibility to look after making pursue of education a burden.

The existing socio- economic disparity for women is the root cause for India's failure to launch towards developed nation. The contradiction and gaps in the levels of income, per capita income and employment between the two genders have acted as an intervening obstacle towards the achievement of holistic economic development of the country. The income levels of Indian women are low due to low work force participation and lack of access to income and control over the resources (Dash, Prashad, Singh, & Dash, 2020).

Table no 5- Labour Participation rate

Year wise Total work participation						
Year 1961 1971 1981 1991 2001 2011						2011
Male work participation	51.1	52.6	52.6	51.6	51.7	53.3
rate	31.1	32.0	32.0	31.0	5	33.3



Female work participation rate 28.0 12.1 19.7 22.3 25.6		28.0	1 / 1	19.7		25.6	25.5
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Source: Census of India

The above table clearly show that the work participation of Indian women over the years have always been at the lower levels of the economy than men-

- 1) The labour force participation rate for females in India is one of the lowest in the world (ILO, 2017). Despite educational gains in terms of increasing literacy among women (literacy ratio of female have improved from 16.83 in % in 1951 to 65.46 % in 2011; Government of India, 2011), the labour force participation rate for women in 2017 became 28.5 in line with cent (compared with 82 per cent for males) (World Economic Forum, 2017) (Parmar, 2020).
- 2) Traditionally owing to the patriarchal family structure, women are confined to domestic chores. The domestic labour is an unpaid labour.
- 3) In rural areas, most women are engaged in agricultural activities either as a helping hand to their husbands or as agricultural labourer. However, most often their labour is blindsided and unpaid.
- 4) In urban areas, the existing 'male working models' at work place, often make women difficult to work. This is especially due to the absence of gender institutionalization and inflexibility in labour market.
- 5) Often women leave their jobs for child care or for care taking of old parents or for household responsibilities.
- 6) Women in Indian workforce continue to receive 34 percent lesser renumeration than their male counterparts for similar nature of work in their workforce (Dash, Prashad, Singh, & Dash, 2020).
- 7) Fewer number of women in higher position. This can be corelated with the education. With fewer number of women pursuing higher education, women find it difficult to reach higher positions. Equally, women find it difficult to compete with men in workforce because of the hegemonic presence of men.

## 6. CONCLUSION

In conclusion it can be said that for any country to achieve higher levels of human development, identification, analysis and mitigation of the existing forms of gender



disparities is prerequisite. Any denial of freedom and opportunities to any person irrespective of gender is a hinderance to human development. The denial of freedom and opportunities are more for women than men by virtue of sex imbedded in the socio- cultural foundations of societies. Gender inequality exists in labour force participation, education, medical assistance, access to resources and political participation. Gender development Index was devised by UNDP in 1995 to look into the HDI levels of both the genders that clearly gives a picture of the existing inequalities. Since its inception, GDI has made tremendous effort to protect and secure positions of women in societies. Much improvements have been achieved leading to increased HDI levels yet, the journey is long.

### 7. SUGGESTIONS / RECOMMENDATIONS:

Comprehensive and holistic development of the country requires undivided attention towards the improvement and growths of various indices of HDI subsequent of gender inclusivity and sensitivity, furthering into the bridging of the developmental gaps between the two genders. The following are few of the suggestion and recommendations for such bridging of the gaps –

- 1) Accessibility to quality healthcare facilities to women especially during pregnancy and child birth should be of vital importance.
- 2) Awareness regarding sanitation, reproductive health and nutrition should be provided to women since young age via proper channel.
- 3) The intervening obstacles to women's education should be identified and if not possibly eliminated should be positively abated.
- 4) Parity in pay for both the genders should be considered. Employment opportunities should be free from gender biases.
- 5) Women centric jobs should be developed to encourage women to work and improve work participation rate.
- 6) Women should not be excluded or considered a passive agent during decision making process. Their opinions, ideas, participation and representation should be given equal weightage as their counter partners.

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