

# Implication of Public Expenditure on Infrastructural Disparity: A Study of Major States in India

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## ABSTRACT

The regional disparity in development refers to spatial variation in level of development. It can also be stated as co-existence of economically developed regions along with economically depressed regions. Infrastructural variation in India is present extremely in Social and Physical Infrastructure. Public expenditure has made for social infrastructure in the way of education, medical, family welfare, water supply, construction of houses, urban development and natural calamities. Public expenditure has made for physical infrastructure in the way of transport & Communication, roads & bridges, Irrigation & flood control, construction of houses, energy, power, science & technology. Some states are economically advanced and some are backward. Regional variation may be natural due to dependence on natural factors or it may be manmade due to high priority given to one sector and neglecting the other sectors in terms of investment and development. Regional disparities may exist at different spatial levels like at the international level (across countries), at the national level (across states) and at the state level (across districts). This paper mainly focuses on interstate variation in infrastructural development among the 17 Major states of India. This paper is divided into three Sections. The first section relates to Introduction, Review of literature, Objectives, Data base and Methodology. The Second section relates to measurement of disparities through various indicators selected for assessing the level of development of infrastructural sector using Spearman's rank correlation method, Sudershan Iyengar Method and Beta distribution. The third section relates to analysis of results classifying the states into four categories such as very backward, backward, developing and developed states and providing some suggestions for the reduction of interstate variation.

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## 1. Introduction

India being the federal economy comprises of different states which have important powers to make their own laws and decisions regarding inter regional and intra regional development. In a federal structure central intervention is necessary not only to reduce inequalities between regions but also to ensure equity among the states but in general the richer states have grown faster than the poorer states, leaving the backward states struggling for basic amenities such as transport & communication, roads & bridges, irrigation & flood control, construction of houses, energy, power, science & technology.

### SECTION I

Infrastructural variation at present is extreme in India. Public expenditure has made for social infrastructure in the way of education, medical, family development, water supply, construction of houses, urban development and natural calamities. Regional variation may be natural due to dependence on natural factors or it may be manmade due to high priority given to one sector and neglecting the other sectors in terms of investment and development. It may be inter-state or intrastate, inter-districts or intra districts, total or sectoral. The main reason of economic backwardness is high proportion of population on land, excess dependence on agriculture, low rate of literacy and technical knowledge, low productivity in agriculture etc. The entire five year plan as well as NITI Aayog stressed the importance of balanced regional development and policies were designed to direct move investment to the relatively backward areas. Nevertheless, regional disparity continues to remain a serious problem.

## 1. Review Of Literature

Parul, M and Jyoti, D. (2015) have explained that India suffers from huge regional disparity due to leakage of heterogeneity of resource allocation and many times of corrupt practices from the financial assistance sanctioned for backward states as they observed that about 50% of investment proposals were received by 4 states alone, i.e. Maharashtra, Gujarat, Tamil Nadu and Andhra Pradesh where as Bihar and Jharkhand have received the minimum number of investment proposals. Pati, S. and Panda, S. (2010). A number of studies (Ahluwalia, M. S. (2000), Kurian N.J. (2000), Panda, R. K., Meher, S. and Das, A., Rath, S.S. (2005) have examined the causes of regional disparity in Odisha and brought forth the observation that because of small shares in the state's population received relatively higher shares in central assistance responsible for regional disparity in Odisha as industrialisation in the southern districts of Odisha. Mohanty, A. (2014) in his study "Evolving Paradigms in Odisha State Finance: An Empirical Analysis" has observed the state finance of Odisha and analysed the reform in expenditure and debt management of Odisha during 2002-03 to 2012-13. He has emphasized that the state can achieve higher sustainable growth if it able to manage its finance prudently by lowering its expenditure on account of salary, pension and interest payments. He suggested that as the tax efficiency of the state in terms of tax to GSDP ratio is at 5.92% in 2012-13 which is lower than the national average of 7.4% for non-special category states. Patra, A. and Acharya, A. (2011) in their paper "Regional Disparity, Infrastructure Development and Economic Growth: An Inter-State

**Analysis**” examined the spatial disparities in infrastructural facilities across 16 major states in India and found that there is a positive relationship between Infrastructure Development Index & Per Capita Net State Domestic Product and negative relationship between Infrastructure Development Index & Poverty. **Rao, V. K. R. V. (2007)** in his scholarly article on **“Accelerating process of economic development”** emphasized that both economic and social infrastructures like energy, transportation, electricity, telecommunication, availability of skilled labors, technical and general education, health facilities, agricultural and rural infrastructure like rural roads, irrigation facilities, fertilizers and pesticides, credit facilities are made positive and strong impacts on output growth of as well as eliminates the poor performance the different sectors of the economy.

**2. Objectives**

The main objectives of the study are as follows.

1. To examine the level of infrastructural development disparity within the Country across the Major States.
2. To assess the relative position of Odisha compared to other states through analysis of inter-state development disparity in the country.

**3. Data Base & Methodology**

For analyzing the pattern of Implication of Public Expenditure on Infrastructural disparity, the data are secondary in nature and have been collected particularly from RBI State Finances-A study on Budgets, Finance accounts of different years and latest series of data from Central statistical Organization(CSO). The following indicators of Physical and Social infrastructure have been applied for the assessment of the Sectoral variation and development in Major States of India.

**4. Methodology**

**Model 1-Rank Correlation Method**

For analyzing indicators of Development and also analyzing the variation of Public expenditure we have to take rank correlation method. Spearman’s rank correlation coefficient is defined as

$$\rho = 1 - \frac{6 \sum d_i^2}{n(n^2 - 1)}$$

Where,  $\rho$  = rank coefficient of correlation  $d_i$  = difference of rank between paired items

The value of rank correlation coefficient ranges between -1 to +1, where  $\rho = +1$  there is complete agreement in the order of the ranks and the ranks are in same direction.  $P = -1$  there is complete disagreement in the order of the ranks and they are in opposite direction.

**Model-2: Sudershan Iyengar Method:**

Let  $X_{ib}$  represent the size of the value of the  $i$ ’th development indicator in  $b$ ’th district of the state ( $i = 1, 2, 3, \dots, m$  and  $b = 1, 2, 3, \dots, n$  say)

$$Y_{ib} = \frac{X_{ib} - \text{Min}X_{ib}}{\text{Max}X_{ib} - \text{Min}X_{ib}} \text{----- (1)}$$

Where  $\text{Min } X_{ib}$  and  $\text{Max } X_{ib}$  are respectively the minimum and maximum of  $(X_{i1}, X_{i2}, \dots, X_{in})$  &  $Y_{ib}$  is the Standard variable. The Overall index  $Y_b$  also varies from 0 to 1.

**Model -3:  $\beta$ -Distribution:**

A random variable  $Z$  has a Beta distribution in the interval  $(0, 1)$ , if its probability density function  $f(z)$  can be written as:

$$f(z) = \frac{1}{\beta(c, d)} z^{(c-1)} (1-z)^{(d-1)}, 0 < z < 1 \text{ and } c, d > 0$$

$$\text{Where } \beta(c, d) = \int_0^1 z^{c-1} (1-z)^{d-1} dz$$

Let  $(0, Z_1)$ ,  $(Z_1, Z_2)$ ,  $(Z_2, Z_3)$  &  $(Z_3, 1)$  be linear intervals such that each interval has the same probability weight of 25%. These four fractile groups can be used to characterize the various stages of development as follows:

- Very Backward if  $0 < Y_b \leq Z_1$
- Backward If  $Z_1 < Y_b \leq Z_2$
- Developing If  $Z_2 < Y_b \leq Z_3$
- Developed If  $Z_3 < Y_b < 1$

Composite index using Sudershan Iyengar Methodology and Beta variate values computed for different sectors and the overall position are presented below. The States can be categorized into four categories (i) Developed (ii) Developing (iii) Backward (iv) Very Backward according to the values of Beta variate.

**SECTION –II**

The Social Infrastructure analysis among 17 Major states discussed in terms of number of indicators are education, medical and family development, water supply facility, construction of houses, urban development and natural calamities and special area programmes from 2001-02 to 2016-17 explained in the following Table-1. The coefficient of rank correlation for Public expenditure on education has measured as 0.8774. The coefficient of rank correlation for Public expenditure on medical & family welfare has measured as 0.8995. The coefficient of rank correlation for Public expenditure on water supply is calculated as 0.6151. The rank correlation coefficients for Public expenditure on houses are measured as 0.3284. The rank correlation coefficient for Public expenditure on urban development has calculated as 0.821. The rank correlation coefficient for Public expenditure on natural calamities and special area programmes is 0.4215. From the above analysis it is concluded that, there is very high level of Social Infrastructural disparity arises in education, medical, family welfare, urban development, high level of Social infrastructural disparity arises in water supply and low level of social infrastructural disparity arises in construction of houses & natural calamities and special area programmes.

Table-6.4: Indicators of Expenditure on Social Infrastructure Development for Major States from 2001-02 to 2016-17

Sl. No.	States	Education		Medical & Family		Water supply		Housing		Urban development		Rural Development		Natural calamities & special area programs	
		2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17
1	Andhra Pradesh	3871.04 (6.43)	17356.47 (4.27)	1367.56 (8.23)	6437.73 (5.14)	482.00 (5.83)	1665.17 (2.87)	165.74 (9.28)	463.36 (1.55)	345.12 (8.65)	4738.53 (6.44)	1653.73 (13.24)	9801.60 (6.53)	292.74 (4.73)	1206.98 (3.41)
2	Bihar	3076.22 (5.08)	20226.37 (5.19)	727.05 (4.37)	5492.89 (4.39)	212.51 (2.57)	2366.12 (4.09)	2.55 (0.14)	3595.95 (12.07)	58.61 (1.47)	2823.86 (3.84)	1189.95 (9.53)	16244.04 (10.82)	80.00 (1.29)	818.89 (2.31)
3	Chhattisgarh	696.59 (1.14)	11596.3 (12.95)	243.95 (1.47)	3292.27 (2.63)	146.60 (1.77)	1671.71 (2.89)	47.11 (2.64)	1276.46 (4.28)	60.14 (1.51)	2292.93 (3.11)	364.97 (2.92)	4665.81 (3.11)	97.97 (1.58)	560.57 (1.58)
4	Gujarat	3263.19 (5.32)	19726.30 (5.09)	728.77 (4.38)	7699.52 (6.15)	330.43 (4.00)	3960.99 (6.84)	239.43 (13.40)	2446.40 (8.21)	226.09 (5.67)	8743.94 (11.88)	379.14 (3.04)	4606.04 (3.07)	2528.46 (40.88)	902.28 (2.55)
5	Haryana	1479.66 (2.42)	11202.15 (2.76)	321.92 (1.94)	3045.15 (2.43)	275.43 (3.33)	2675.76 (4.62)	13.40 (0.75)	96.20 (0.32)	43.75 (1.10)	2754.55 (3.74)	135.46 (1.08)	2892.08 (1.93)	87.03 (1.41)	1023.08 (2.89)
6	Karnataka	3505.88 (5.72)	21192.51 (5.44)	1085.84 (6.53)	6882.88 (5.50)	372.44 (4.51)	4751.90 (8.20)	298.55 (16.71)	3882.17 (13.03)	98.35 (2.47)	4412.71 (5.99)	478.73 (3.83)	5596.00 (1.93)	202.60 (3.28)	4383.16 (12.37)
7	Kerala	2489.81 (4.09)	17406.17 (4.33)	756.07 (4.55)	5987.57 (4.78)	131.87 (1.60)	1144.81 (1.98)	36.64 (2.05)	99.04 (0.33)	122.59 (3.07)	884.97 (1.20)	685.91 (5.49)	1895.74 (1.26)	126.94 (2.25)	380.62 (1.07)
8	Madhya Pradesh	2125.86 (3.49)	21880.60 (5.51)	688.16 (4.14)	5432.27 (4.34)	444.58 (5.38)	3740.86 (6.46)	63.42 (3.55)	3531.07 (11.85)	99.99 (2.51)	5021.95 (6.82)	767.54 (6.15)	11987.00 (7.98)	124.28 (2.01)	1096.97 (3.10)
9	Jharkhand	1283.06 (2.11)	8229.97 (2.07)	385.24 (2.32)	2479.25 (1.98)	284.04 (3.44)	1696.32 (2.93)	17.67 (0.99)	129.33 (0.43)	54.82 (1.37)	2632.98 (3.58)	941.49 (7.54)	9321.52 (6.21)	77.89 (1.26)	453.32 (1.28)
10	Maharashtra	9387.91 (15.30)	45410.46 (11.08)	1834.74 (11.03)	10723.81 (8.57)	524.43 (6.34)	3015.99 (5.21)	215.94 (12.08)	1749.14 (5.87)	270.30 (6.78)	10761.00 (14.62)	522.36 (4.18)	8705.44 (5.80)	199.84 (3.23)	3141.70 (8.87)
11	Odisha	1755.64 (2.90)	12169.15 (3.05)	449.56 (2.70)	4729.25 (3.78)	251.39 (3.04)	3231.04 (5.58)	62.68 (3.51)	667.23 (2.24)	43.77 (1.10)	1028.14 (1.40)	447.98 (3.59)	7991.39 (5.32)	268.39 (4.34)	2136.16 (6.03)
12	Punjab	1832.93 (2.99)	9033.28 (2.26)	618.30 (3.72)	2890.23 (2.31)	184.83 (2.24)	844.23 (1.46)	1.24 (0.07)	455.86 (1.53)	67.52 (1.69)	246.32 (0.33)	64.45 (0.52)	395.56 (0.26)	262.91 (4.25)	669.01 (1.89)
13	Rajasthan	3455.52 (5.67)	24617.28 (6.03)	7996.81 (48.10)	8252.12 (6.59)	1162.81 (11.07)	6818.87 (11.77)	114.25 (6.39)	95.58 (0.32)	474.54 (11.90)	5570.40 (7.57)	587.40 (4.70)	11686.95 (7.78)	353.28 (5.71)	2473.46 (6.98)
14	Tamil Nadu	4299.80 (7.01)	27022.80 (6.83)	1219.66 (7.34)	8640.86 (6.90)	681.15 (8.24)	2628.46 (4.54)	68.68 (3.84)	1368.87 (4.59)	186.32 (4.72)	3871.88 (5.26)	504.72 (4.04)	7160.78 (4.77)	153.48 (2.48)	2392.96 (6.75)
15	Uttar Pradesh	6088.10 (9.99)	54238.21 (13.71)	1376.51 (8.28)	15783.83 (12.61)	574.64 (6.95)	3590.09 (6.20)	19.56 (1.09)	6755.63 (22.67)	115.84 (2.90)	4847.64 (6.58)	1827.59 (14.63)	16097.47 (10.72)	256.59 (4.15)	3542.72 (10.00)
16	Uttarakhand	696.92 (1.16)	5800.77 (1.52)	146.30 (0.88)	1506.15 (1.20)	168.68 (2.04)	811.42 (1.40)	4.66 (0.26)	36.38 (0.12)	168.75 (4.23)	338.81 (0.46)	158.91 (1.27)	2089.29 (1.39)	17.02 (0.28)	1225.44 (3.46)
17	West Bengal	4552.45 (7.43)	23862.09 (5.91)	2227.22 (13.40)	8262.33 (6.60)	406.63 (4.92)	2117.52 (3.66)	92.62 (5.19)	848.35 (2.85)	989.01 (24.80)	6880.84 (9.35)	916.42 (7.34)	12844.57 (8.55)	431.80 (6.98)	3416.06 (9.64)
18	All States	60793.10 (100.00)	398607.08 (100.00)	16626.80 (100.00)	125189.06 (100.00)	8265.41 (100.00)	57920.92 (100.00)	1786.86 (100.00)	29801.93 (100.00)	3988.40 (100.00)	73627.64 (100.00)	12489.55 (100.00)	150147.0 0 (100.00)	6185.09 (100.00)	35427.1 1 (100.00)
	Coefficient of Rank Correlation	0.8774		0.8995		0.6151		0.3284		0.6151		0.821		0.4215	

Source: State Finances: A Study of Budgets-Reserve Bank of India Different Years

Table-2: Indicators of Expenditure on Physical Infrastructural Development for Major States from 2001-02 to 2016-17

Sl. No.	States	Transport & Communication		Roads & Bridges		Irrigation and Flood control		Energy		Power		Science & Technology	
		2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17	2001-02	2016-17
1	Andhra Pradesh	1342.32 (10.69)	3277.58 (2.34)	1232.95 (12.31)	3076.54 (2.46)	2727.79 (13.12)	10592.45 (9.51)	2328.45 (12.96)	11486.49 (6.23)	2304.70 (15.14)	11477.91 (8.83)	5.24 (5.55)	31.28 (2.02)
2	Bihar	283.92 (2.26)	7388.39 (5.28)	281.04 (2.80)	7101.15 (5.67)	799.95 (3.85)	2843.94 (2.55)	2.91 (0.02)	13436.85 (7.28)	0.00 (0.00)	7540.70 (5.80)	0.00 (0.00)	0.00 (0.00)
3	Chhattisgarh	232.50 (1.85)	4135.56 (2.96)	215.21 (2.15)	4061.13 (3.24)	288.54 (1.39)	2412.95 (2.17)	82.43 (0.46)	1943.35 (1.05)	79.97 (0.53)	1009.77 (0.78)	0.02 (0.02)	12.78 (0.82)
4	Gujarat	838.39 (6.68)	7466.33 (5.34)	659.62 (6.58)	6360.64 (5.08)	2335.30 (11.23)	8669.79 (7.79)	3502.66 (19.50)	7768.27 (4.21)	3550.25 (23.32)	5058.71 (3.89)	3.31 (3.51)	249.28 (16.06)
5	Haryana	877.97 (6.99)	4408.24 (3.15)	392.56 (3.92)	2434.18 (1.94)	779.44 (3.75)	2338.03 (2.10)	829.54 (4.62)	12409.71 (6.73)	790.41 (5.19)	10501.47 (8.08)	3.45 (3.66)	40.69 (2.62)
6	Karnataka	778.28 (6.20)	12467.79 (8.91)	622.04 (6.21)	11325.80 (9.05)	1715.62 (8.25)	10223.81 (9.18)	2336.70 (13.01)	10098.39 (5.47)	2321.15 (15.25)	9228.70 (7.10)	3.07 (3.25)	79.02 (5.09)
7	Kerala	483.64 (3.85)	4870.78 (3.48)	432.88 (4.32)	3998.42 (3.19)	257.82 (1.24)	1183.01 (1.06)	11.68 (0.07)	85.79 (0.05)	0.00 (0.00)	59.03 (0.05)	10.72 (11.36)	151.43 (9.76)
8	Madhya Pradesh	483.66 (3.85)	5916.94 (4.23)	474.74 (4.74)	5907.65 (4.72)	946.60 (4.55)	9428.10 (8.47)	2208.79 (12.30)	17142.76 (9.29)	2037.01 (13.38)	12474.05 (9.59)	2.11 (2.24)	228.96 (14.75)
9	Jharkhand	336.09 (2.68)	4950.58 (3.54)	329.74 (3.29)	4519.41 (3.61)	424.76 (2.04)	1750.81 (1.57)	33.50 (0.19)	1754.64 (0.95)	2.00 (0.01)	1702.80 (1.31)	0.00 (0.00)	0.00 (0.00)
10	Maharashtra	873.86 (6.96)	11567.14 (8.27)	653.53 (6.52)	10295.60 (8.22)	3052.65 (14.68)	11308.17 (10.16)	1006.28 (5.60)	10295.83 (5.59)	715.64 (4.70)	9166.09 (7.05)	0.84 (0.89)	237.32 (15.29)
11	Odisha	249.81 (1.99)	8748.45 (6.25)	238.63 (2.38)	8504.35 (6.79)	647.10 (3.11)	7669.18 (6.89)	66.37 (0.37)	2131.73 (1.16)	15.66 (0.10)	6.50 (0.00)	15.62 (16.55)	54.34 (3.50)
12	Punjab	585.48 (4.66)	1856.74 (1.33)	283.29 (2.83)	1516.41 (1.21)	860.70 (4.14)	2825.63 (2.27)	576.53 (3.21)	1654.51 (0.90)	450.00 (2.96)	1615.11 (1.24)	4.11 (4.36)	4.82 (0.31)
13	Rajasthan	341.42 (2.72)	4106.58 (2.93)	341.42 (3.41)	3827.68 (3.06)	1180.99 (5.68)	3901.26 (3.50)	651.70 (3.63)	20968.06 (11.36)	318.10 (2.09)	16842.06 (12.95)	3.20 (3.39)	45.04 (2.90)
14	Tamil Nadu	673.16 (5.36)	7439.03 (5.32)	520.23 (5.19)	6621.99 (5.29)	718.36 (3.45)	2475.69 (2.22)	134.63 (0.75)	10824.51 (5.87)	33.25 (0.22)	6296.33 (4.84)	5.95 (6.31)	26.22 (1.69)
15	Uttar Pradesh	782.85 (6.23)	27479.00 (19.64)	749.86 (7.48)	26998.35 (21.56)	2108.14 (10.14)	10666.88 (9.58)	500.00 (2.78)	26274.83 (14.24)	350.00 (2.30)	14369.56 (11.05)	6.99 (7.41)	67.07 (4.32)
16	Uttarakhand	188.37 (1.50)	1700.20 (1.21)	181.08 (1.81)	1624.93 (1.30)	145.83 (0.74)	825.67 (0.74)	21.56 (0.12)	150.20 (0.08)	3.65 (0.02)	0.07 (0.00)	1.80 (1.91)	19.78 (1.27)
17	West Bengal	1067.43 (8.50)	3602.12 (2.57)	714.83 (7.13)	2515.69 (2.01)	841.24 (4.05)	2589.90 (2.33)	103.45 (0.58)	5345.57 (2.90)	100.85 (0.66)	4426.16 (3.40)	1.42 (1.51)	65.42 (4.22)
18	All States	12557.43 (100.00)	139946.35 (100.00)	10019.43 (100.00)	125204.27 (100.00)	20794.32 (100.00)	111338.10 (100.00)	17966.35 (100.00)	184512.67 (100.00)	15223.94 (100.00)	130046.05 (100.00)	94.36 (100.00)	1551.75 (100.00)
Coefficient of Rank Correlation		0.1225		0.2769		0.8971		0.424		0.5747		0.229	

Source: State Finances: A Study of Budgets-Reserve Bank of India Different Years

**Table-2** represents the total expenditure of physical infrastructure development for major states from 2001-02 to 2016-17, where the indicators are transport and communication, roads and bridges, irrigation and flood control, energy, power and science and technology. The coefficient of rank correlation for Public expenditure on transport & communication has measured as 0.1225. The rank correlation coefficient for Public expenditure on roads and bridges is measured as 0.2769. The rank correlation coefficients for Public expenditure on irrigation and flood control as 0.8971. The rank correlation coefficient for Public expenditure on energy is 0.424. The rank correlation coefficients for Public expenditure on power sector are 0.5747. The rank correlation

coefficient for Public expenditure on science & technology is 0.229.

### 5. Measurement of Infrastructural disparity among Major States

The position of states in different sectors & in overall by ranking the districts have been analysed in Table-3. By looking forward from the table, we can observe the following ranking patterns of states. In the following an attempt has been made to present the variations in development among states in different sectors separately.

**Table-3: BETA Values among Major States in India**

States	Social Infrastructure		Physical Infrastructure	
	2001-02	2016-17	2001-02	2016-17
Andhra Pradesh	0.831126	0.4581337	0.966628	0.5548858
Bihar	0.3846374	0.6143927	0.0938538	0.4565002
Chhattisgarh	0.1008916	0.2235238	0.0375698	0.1169209
Gujarat	0.8474729	0.6555008	0.931942	0.760758
Haryana	0.099896	0.2292186	0.7156908	0.6443048
Karnataka	0.6651521	0.7880364	0.8193175	0.8176393
Kerala	0.29633	0.1574186	0.4036941	0.3224351
Madhya Pradesh	0.4359592	0.6753023	0.5952343	0.7711354
Jharkhand	0.2720554	0.2161799	0.0918357	0.1685542
Maharashtra	0.8628865	0.8836606	0.7773817	0.8948396
Odisha	0.2624408	0.4115401	0.402021	0.4054594
Punjab	0.109526	0.0430897	0.5234339	0.0927322
Rajasthan	0.952152	0.7925404	0.3135067	0.6313987
Tamil Nadu	0.6264714	0.623308	0.4944685	0.4989714
Uttar Pradesh	0.7874858	0.9826484	0.6912221	0.9854216
Uttarakhand	0.0537093	0.0394693	0.0251262	0.0127457
West Bengal	0.878275	0.73421	0.6639126	0.3877269

### 6. Summary & Conclusion

In terms of Social Infrastructure Development states which coming under the category of very backward category are Chhattisgarh, Haryana, Kerala, Jharkhand, Punjab, Uttarakhand in 2016-17 compare to Chhattisgarh, Haryana, Punjab, Uttarakhand in 2001-02. The backward states are Andhra Pradesh & Odisha in 2016-17 compared to Bihar, Kerala, Madhya Pradesh and Jharkhand & Odisha in 2001-02. The only state which categorized as developing is Bihar, Gujarat, Madhya Pradesh and Tamil Nadu in 2016-17 compare to Karnataka & Tamil Nadu in 2001-02. However the only developed state in 2016-17 is Karnataka, Maharashtra, Rajasthan and Uttar Pradesh compare to Andhra Pradesh, Gujarat, Maharashtra, Rajasthan, Uttar Pradesh and West

Bengal states in 2001-02. In terms of Physical Infrastructure Development, the states which coming under the category of very backward category are Chhattisgarh, Jharkhand, Punjab and Uttarakhand in 2016-17 compare to Bihar, Chhattisgarh and Jharkhand in 2001-02. The backward states are Bihar, Kerala, Odisha, Tamil Nadu and West Bengal in 2016-17 compared to Kerala, Odisha, Rajasthan, Tamil Nadu and Uttarakhand in 2001-02. The only state which categorized as developing is Andhra Pradesh, Haryana and Rajasthan in 2016-17 compare to Haryana, Madhya Pradesh, Punjab, Uttar Pradesh and West Bengal in 2001-02. However the only developed state in 2016-17 is Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Uttar Pradesh compare to Andhra Pradesh, Gujarat, Karnataka and Maharashtra in 2001-02.

Table-4: Status of Different States of India from 2001-02 to 2016-17

Sectors	Year	Social infrastructure	Physical infrastructure
Very Backward	2001-02	Chhattisgarh, Haryana, Punjab, Uttarakhand,	Bihar, Chhattisgarh, Jharkhand
	2016-17	Chhattisgarh, Haryana, Kerala, Jharkhand Punjab, Uttarakhand,	Chhattisgarh, Jharkhand, Punjab, Uttarakhand
Backward	2001-02	Bihar, Kerala, Madhya Pradesh, Jharkhand, Odisha	Kerala, Odisha, Rajasthan, Tamil Nadu, Uttarakhand
	2016-17	Andhra Pradesh, Odisha	Bihar, Kerala, Odisha, Tamil Nadu, West Bengal
Developing	2001-02	Karnataka, Tamil Nadu,	Haryana, Madhya Pradesh, Punjab, Uttar Pradesh, West Bengal
	2016-17	Bihar, Gujarat, Madhya Pradesh, Tamil Nadu, West Bengal	Andhra, Haryana, Rajasthan
Developed	2001-02	Andhra Pradesh, Gujarat, Maharashtra, Rajasthan, Uttar Pradesh, West Bengal	Andhra, Gujarat, Karnataka, Maharashtra
	2016-17	Karnataka, Maharashtra, Rajasthan, Uttar Pradesh	Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh

From the above analysis, we can conclude from the indicators of infrastructural development from 2001-02 to 2016-17, there is continuous increase in public expenditure disparity in infrastructural sector among Major states in India. The infrastructure inequalities can be reduced by taking systematic steps and policy formulation by the government. (i) Efficiency of Public investment, which is basically a problem of governance. There may be many backward regions where a number of programs are being implemented with massive public investment that are rendered ineffective due to huge leakages

of funds at different levels (ii) Fragmentation of decision making of Public expenditure made by the government (iii) To reduce the economic role of the government to the level that can be administratively and effectively controlled. (iv) Introducing incentive systems to encourage efficiency and reduce corruption (v) Participating model of development must be encouraged by wider sections of the society to reform the economy. Efficiency level of them will be increased to compete with the forward regions of the state.

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