

# Social Sector Expenditures and Their Impact on Human Development in India: Empirical Evidence During 2001-02 To 2015-16

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*Abstract: A basic work of the affiliation is to improve the individual fulfillment of people which is essentially wrapped up by verifying open use in spaces, for instance, thriving, bearing, and other social affiliations. On an essential measurement there appears, clearly, to be a positive connection between open utilization and human advancement which the paper might want to take a gander at using observational data. This paper surveys the 'presence of mind of social part utilize approach' from a human advancement perspective by endeavored a break confidence examination of Human Development (total of per capita GDP, Gross Enrolment and Life Expectancy) as destitute variable and social zone use fragments are free factors. The time span consider for this examination is scope of 15 years from 2001-02 to 2015-16 and the assistant data got from RBI database and World Bank database. The apostatize results is adjusting that the improvement Social Sector Expenditure has advantageous result on headway of Human improvement indicators. The result reveals that open spending on Medical and Public Health; Education, Sports, Art and Culture; Water Supply and Sanitation; Welfare of SCs, STs and OBCs; Housing, Urban Development, and Nutrition have positive effect on human improvement. There is basic to build the open spending on above social administrations to advance human improvement.*

**Index Terms:** Social Sector, Human Development and Tobit Regression

## I. INTRODUCTION

In the mission to improving personal satisfaction and manageable financial advancement, decrease in disparity, destitution and joblessness, human improvement has expected as expanding significance[18]. As per Human Development Report 2010, human improvement is the extension of individuals' opportunities to live long, sound and imaginative lives; to progress different objectives they have motivation to esteem; and to connect effectively in forming advancement fairly and economically on a mutual planet . Human improvement is a methodology of expanding people's choices. On an essential dimension,

these choices can be endless and can change after some time. The human headway approach of progress as is normally understood differentiations from the customary approaches to manage money related improvement, human capital game plan, human resource headway, human welfare and essential human needs . The Human Development is an arrangement of wellbeing, training and per capita salary.

Social territory portrayed as the total of utilization on 'Social Services' and 'Natural Advancement' as given in Central and State spending plans. The head 'Social Services' included education, prosperity and family welfare, water supply, urban improvement, sustenance and sanitation[5]. A basic occupation of the organization is to improve the individual fulfillment of people which is primarily finished by achieving open use in areas of social organizations [1]. Open course of action of social organizations can in like manner help in reducing rural– urban and regional confusions in access to preparing and human administrations. Public spending on social part is given hugeness for no under two reasons. To begin with, to manage satisfactory spending required for human improvement. Second, the poor uses citizen driven associations when stood out from progressively excessive nuclear families[15]. Open use without any other individual's contribution, regardless, isn't guaranteed to achieve its objectives basically due to inefficient perspectives in the course of action of social organizations. An examination of the linkages between social portion utilization and human improvement enables taking a gander at whether government spending is fittingly channelized to achieve high human progression pointers. In context on the previously mentioned, the present examination makes an undertaking to survey the 'ampleness of open utilization approach' from a human improvement perspective.

## II. REVIEW OF LITERATURE

As indicated by distinction between the financial development what's more, the human improvement is that the principal spotlights just on the augmentation of only a solitary choice, for instance compensation, while the second handles the development of each human choice whether financial, social, social or political[12]. The possibility of

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enthusiasm for human resource is generally commencement. Human capital or human resource is the term advertise experts normally use for guidance, prosperity, and other human constrains that can raise gainfulness when extended. points out that amid the time burned through money related advancement, it is standard to associate more hugeness to the storing up of human capital than physical capital. Social pointers were improving in many making countries as open spending on preparing and prosperity increases[14]. However, an increasingly noticeable idea of enthusiasm for human capital should be redirected toward basic guidance and preventive therapeutic administrations[11]. The standard method evaluates the relationship between open usage and human movement by thinking about thriving and getting ready achievements as 'yields' and government spending as 'responsibilities' in the social age work[3][10].An addition in per capita pay and guidance use has useful result and current utilize has negative impact on the human improvement [2]. Utilization on general prosperity and tertiary guidance spending are vital in illuminating human improvement [13]. There is a positive helpful association between guidance, prosperity, nation improvement, environmental affirmation and advantageous water resources and human headway; a sign that expenditure on these divisions empowers human improvement[6]. Use on guidance, prosperity, cultivating, common headway and water resources has positive minor impact on human improvement[7].

**III. METHODOLOGY**

This paper evaluates the 'ampleness of social region utilization game plan' from a human headway perspective by grasped a backslide examination of Human Development as dependent variable and social fragment use is a free factor. The time period consider for this examination is length of 15 years from 2001-02 to 2015-16. Genuine salary and capital utilizations on Instruction, Sports, Art and Culture; Medical and Public Health; Family Welfare, Water Supply and Sanitation; Housing, Urban Development, Welfare of SCs, STs and OBCs; Labor and Labor Welfare; Social Security and Welfare; Nutrition and Natural Calamities are procured from RBI database. Human Development Indicator is normal of a nation's accomplishments in future, instruction (literacy and gross enrollment) and GDP per capita[4]. In the present study human development was proxied by main three components (Life Expectancy, Gross Enrollment, and GDP Per Capita) which are utilized UNDP human improvement lists. The information on Life Expectancy, Gross Enrollment, and GDP Per Capita are acquired from World Bank markers. With the above factors, we have built a Tobit relapse display so as to confirm the general impact of social part spending on human improvement in the Indian setting. We expect the coefficient of social part consumption to endure a positive sign, which would imply that the larger amount of social division expenditure, the higher would be the value of Human development. The nature of the dependent variable is an aggregate score of Expectancy, Gross Enrollment, and GDP Per Capita and censoring from 300 and 600.Hence, Tobit regression has been specified as the basic model.

The Tobit display, likewise called an edited relapse show, is intended to gauge direct connections between factors when there is either left-or right-blue penciling in the needy variable (Frone, 1994&Eren et al, 2014)[8][9].

**IV. MODEL SPECIFICATION**

$$lny_1 = \alpha + \beta_1ln x_1 + \beta_2ln x_2 + \beta_3ln x_3 + \beta_4ln x_4 + \beta_5ln x_5 + \beta_6ln x_6 + \beta_7ln x_7 + \beta_8ln x_8 + \beta_9ln x_9 + \beta_{10}ln x_{10} + \beta_{11}ln x_{11} + \beta_{12}ln x_{12} + \mu \text{-----} \text{(1)}$$

$$lny_2 = \alpha + \beta_1ln x_1 + \beta_2ln x_2 + \beta_3ln x_3 + \beta_4ln x_4 + \beta_5ln x_5 + \beta_6ln x_6 + \beta_7ln x_7 + \beta_8ln x_8 + \beta_9ln x_9 + \beta_{10}ln x_{10} + \beta_{11}ln x_{11} + \beta_{12}ln x_{12} + \mu \text{-----} \text{(2)}$$

$$lny_3 = \alpha + \beta_1ln x_1 + \beta_2ln x_2 + \beta_3ln x_3 + \beta_4ln x_4 + \beta_5ln x_5 + \beta_6ln x_6 + \beta_7ln x_7 + \beta_8ln x_8 + \beta_9ln x_9 + \beta_{10}ln x_{10} + \beta_{11}ln x_{11} + \beta_{12}ln x_{12} + \mu \text{-----} \text{(3)}$$

$$lny_4 = \alpha + \beta_1ln x_1 + \beta_2ln x_2 + \beta_3ln x_3 + \beta_4ln x_4 + \beta_5ln x_5 + \beta_6ln x_6 + \beta_7ln x_7 + \beta_8ln x_8 + \beta_9ln x_9 + \beta_{10}ln x_{10} + \beta_{11}ln x_{11} + \beta_{12}ln x_{12} + \mu \text{-----} \text{(4)}$$

Where

**A. Dependent Variables**

- $y_1$  = Human Development Indictor
- $y_2$  = Life Expectancy
- $y_3$  = Gross Enrollment
- $y_4$  = GDP Per Capita

**B. Independent Variable**

- $x_1$  = Education, Sports, Art and Culture
- $x_2$  = Medical and Public Health
- $x_3$  = Family Welfare
- $x_4$  = Water Supply and Sanitation
- $x_5$  = Housing
- $x_6$  = Urban Development
- $x_7$  = Welfare of SCs, STs and OBCs
- $x_8$  = Labour and Labour Welfare
- $x_9$  = Social Security and Welfare
- $x_{10}$  = Nutrition
- $x_{11}$  = Expenditure on Natural Calamities
- $x_{12}$  = Others
- $\mu$  = Error term

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}, \beta_{14}$ , and  $\beta_{15}$  are the parameters to the estimated,  $\alpha$  being the constant.

**V. RESULTS AND DISCUSSION**

Table 1 shows synopsis measurements for the relapse factors amid 2001-02 to 2015-16. The average score



of Human Development Indicator is 443.9 and it is censoring between 299.39 and 632.31. The mean expenditure of Social Sector Expenditure has found the highest on Education, Sports, Art and Culture (1629.33) followed by Medical and Public Health (385.67), Social Security and Welfare (339.8), Welfare Of SCs, STs and OBCs (250.13), Urban Development (224.8) and the lowest on Labour Welfare (35.93). The circulation of the data has watched positive Skewness in all fragments of Social Sector Expenditure while in Human Development Indicators, Expectancy and Gross Enrollment have watched negative Skewness and per capita GDP has watched positive Skewness. Table 2 demonstrates the advancement (Exponential) for the backslide factors in the midst of 2001-

02 to 2015-16. The improvement of all Human headway indicators have found positive example and quantifiably immense in the midst of study period. The per capita GDP has getting to be 5.9 percent consistently, Gross Enrollment and Life Expectancy have improving 2.3 percent and 0.6 percent. The improvement of Social Sector Expenditure is demonstrating positive example and vital in the midst of 2001-12 to 2015-16. The most significant advancement of open use has viewed on Social Security and Welfare (22.1%) in this way on Urban Development (20.0%), Nutrition (18.8%), Housing (18.6%) and Education, Sports, Art and Culture (14.2%). The most reduced development of open use has seen on Water Supply and Sanitation (11.0%).

**Table – 1: Descriptive Statistics of Human Development and Social Sector Expenditure during 2001-12 to 2015-16**

Sector	Variables	Mean	SD	Variance	Skewness	Minimum	Maximum
Human development indicators	Life Expectancy	65.75	1.75	3.06	-0.09	62.98	68.30
	Gross Enrollment	61.14	6.37	40.61	-0.34	49.85	69.78
	GDP Per Capita	1204.80	316.50	100170.05	0.26	785.34	1758.84
	Human Development Indicator	443.90	108.14	11693.51	0.25	299.39	632.31
Social sector Components	Education, Sports, Art and Culture	1629.33	1023.68	1047921.24	0.72	596.00	3601.00
	Medical and Public Health	385.67	254.66	64854.24	0.97	135.00	933.00
	Family Welfare	64.27	47.14	2221.92	1.22	24.00	167.00
	Water Supply and Sanitation	206.07	107.22	11495.35	1.17	82.00	459.00
	Housing	81.53	64.70	4185.70	1.03	18.00	218.00
	Urban Development	224.80	158.66	25173.60	0.33	36.00	526.00
	Welfare Of SCs, STs and OBCs	250.13	168.54	28404.70	0.70	72.00	582.00
	Labour and Labour Welfare	35.93	22.88	523.64	0.66	11.00	75.00
	Social Security and Welfare	339.80	286.35	81994.03	0.78	51.00	934.00
	Nutrition	101.87	72.13	5202.41	0.37	22.00	216.00
	Expenditure On Natural Calamities	107.20	74.11	5492.46	2.10	42.00	327.00
Others	33.80	17.10	292.31	0.34	13.00	62.00	

Source: Database, Reserve Bank of India and World Development Indicators

**Table – 2: Growth of Human Development and Social Sector Expenditure During 2001-12 to 2015-16**

Sector	Variables	Growth	't'	p-value
Human Development Indicators	Life Expectancy	0.06	71.654	0.000
	Gross Enrollment	2.3	17.081	0.000
	GDP Per Capita	5.9	59.865	0.000
	Human Development Indicator	5.5	64.081	0.000
	Education, Sports, Art and Culture	14.2	27.880	0.000
Social sector Components	Medical and Public Health	14.6	34.267	0.000
	Family Welfare	14.9	15.955	0.000
	Water Supply and Sanitation	11.0	15.642	0.000
	Housing	18.6	29.931	0.000
	Urban Development	20.0	14.626	0.000
	Welfare Of SCs, STs and OBCs	16.0	43.947	0.000
	Labour And Labour Welfare	14.9	28.656	0.000
	Social Security and Welfare	22.1	30.730	0.000
	Nutrition	18.8	22.243	0.000
	Expenditure On Natural Calamities	11.8	9.132	0.000
	Others	12.1	18.294	0.000

Source: Database, Reserve Bank of India and World Development Indicators

**A. Regression Results**

Table 3 demonstrates the eventual outcomes of Tobit backslide examination of Social Sector Expenditure Impact on Human Development. The table exhibits that 55.58 percent probability of assortment in the dependent variable is cleared up by the 12 factors under examination. The coefficient of Medical and Public Health is sure sign and basic at 5 percent measurement. The impact of open spending on Education, Sports, Art and Culture; Water Supply and Sanitation; Housing, Urban Development, Welfare of SCs, STs and OBCs; and Nutrition saw to make sure on human movement in any case not essential. The coefficient of use on Natural Calamities, Social Security, Labor Welfare and Family Welfare are discovered negative effect on human movement and fundamental at 5 percent measurement. This can be credited to the substances that extension the open utilization on Medical and Public Health; Education, Sports, Art and Culture; Water Supply and Sanitation; Housing, Urban Development, Welfare of SCs, STs and OBCs; and Nutrition to improve human headway. For all things considered centrality of the model, Chi-square is used and the test estimations of Chi-square is 24005.78 (p<0.01) appearing general model is truly basic[16].

Table 4 shows the aftereffects of Tobit descend into sin examination of Social Sector Expenditure effect on Life Expectancy. The outcome demonstrates that for Life Expectancy, among 12 real components six portions are important to be explicit Medical and Public Health; Nutrition, Social Security, Welfare of SCs, STs and OBCs; and Housing. These variables are out and out affecting the assortment in Life Expectancy. Use on Water Supply and Sanitation; Natural Calamities, Family Welfare, Urban Development, Education, Sports, Art and Culture are discovered negative impact on Life Expectancy. The Log-probability degree is 90.506 for this model shows that the model is enlightening 90% likelihood of combination in ward variable. Extraordinarily basic respect 29519.155 of Chi-square estimation demonstrates that factors joined into the model have titanic effect on Life Expectancy. This is have to develop open spending on Medical and Public Health; Nutrition, Social Security, Welfare of SCs, STs and OBCs and Housing to improve Life Expectancy to enhance human movement[17].

Table 5 shows the postponed results of Tobit fall away from the faith examination of Social Sector Expenditure Impact on Gross Enrolment. The table demonstrates that 50.847 percent likelihood of combination in the desperate variable is enlightened by the 12 factors under examination. The coefficient of Education, Sports, Art and Culture; Medical and Public Health; Welfare of SCs, STs and OBCs; Nutrition, Housing and Social Security and Welfare are positive and vital. These variables have significant impact on Gross Enrolment. The coefficient of utilization on Natural Calamities; Water Supply and Sanitation; and Urban Development are found negative impact on Gross Enrolment. There is need to grow the open use on Education, Sports, Art and Culture; Medical and Public Health; Welfare of SCs, STs and OBCs; Nutrition and Housing to improve human headway through guidance.

For as a rule centrality of the model, Chi-square procedure is used and the estimation of Chi-square is 2380.679 (p<0.01) appearing general model is quantifiably basic.

Table 4 demonstrates the eventual outcomes of Tobit backslide examination of Social Sector Expenditure influence on per capita GDP. The result shows that, among consistent elements seven components are found positive association with per capita GDP specifically Education, Sports, Art and Culture; Medical and Public Health; Urban Development, Water Supply and Sanitation; Welfare Of SCs, STs and OBCs; Housing and Nutrition. Simply the coefficient of Medical and Public Health is certain and basic at 5 percent element of significance. Expenditure on Natural Calamities, Labor Welfare, Social Security and Welfare and Family Welfare are discovered huge negative effect on per capita GDP. The Log-probability degree is 55.077 for this model shows that the model is clearing up 55% likelihood of combination in ward variable. Exceedingly enormous respect 2380.679 of Chi-square estimation exhibits that factors joined into the model have essential impact on per capita GDP. There is basic to stretch out the open spending to make the per capita remuneration to contribute human improvement.

**Table -3: Social Sector Expenditure Impact on Human Development – Tobit Regression Analysis**

Independent Variables	coefficient	std. error	z	p-value
Constant	1.62742	1.31495	1.238	0.216
Education, Sports, Art and Culture	0.48857	0.42702	1.144	0.253
Medical and Public Health	0.52860*	0.24515	2.156	0.031
Family Welfare	-0.36156*	0.05932	-6.095	0.000
Water Supply and Sanitation	0.08229	0.09160	0.898	0.369
Housing	0.02131	0.05829	0.366	0.715
Urban Development	0.08150	0.05989	1.361	0.174
Welfare Of SCs, STs and OBCs	0.03340	0.06116	0.546	0.585
Labour and Labour Welfare	-0.07042*	0.02669	-2.639	0.008
Social Security and Welfare	-0.25530*	0.09454	-2.700	0.007
Nutrition	0.00854	0.06919	0.123	0.902
Expenditure On Natural Calamities	-0.04015*	0.01946	-2.063	0.039
Others	-0.01302	0.02346	-0.555	0.579
<b>Model Summary</b>				
Observations	15			
Chi-square(12)	24005.78			
p-value	0.000			
Log-likelihood	55.58			
Schwarz criterion	-73.250			
Akaike criterion	-83.17			
Hannan-Quinn	-83.27			
Dependent Variable: Human Development Indicator				
Note: * significant at 1% level & ** significant at 5% level.				

**Table - 4: Social Sector Expenditure Impact on Life Expectancy – Tobit Regression Analysis**

Independent Variables	coefficient	std. error	z	p-value
Constant	4.27438*	0.12817	33.349	0.000
Education, Sports, Art and Culture	-0.10752*	0.04162	-2.583	0.010
Medical and Public Health	0.07456*	0.02390	3.120	0.002
Family Welfare	-0.00759	0.00578	-1.313	0.189
Water Supply and Sanitation	-0.00214	0.00893	-0.240	0.810
Housing	0.01004**	0.00568	1.768	0.077
Urban Development	-0.02154*	0.00584	-3.690	0.000
Welfare Of SCs, STs and OBCs	0.02475*	0.00596	4.152	0.000
Labour and Labour Welfare	0.00445**	0.00260	1.709	0.087
Social Security and Welfare	0.02619*	0.00922	2.842	0.004
Nutrition	0.02721*	0.00674	4.034	0.000
Expenditure On Natural Calamities	-0.00395*	0.00190	-2.082	0.037
Others	-0.00641*	0.00229	-2.804	0.005
<b>Model Summary</b>				
Observations	15			
Chi-square(12)	29519.155			
p-value	0.000			
Log-likelihood	90.506			
Akaike criterion	-153.011			
Schwarz criterion	-143.099			
Hannan-Quinn	-153.117			
Dependent Variable: Life Expectancy Note: * significant at 1% level, ** significant at 5% level & *** significant at 10% level.				

**Table - 5: Social Sector Expenditure Impact on Gross Enrolment – Tobit Regression Analysis**

Independent Variables	coefficient	std. error	z	p-value
Constant	7.10946	1.80318	3.943	0.000
Education, Sports, Art and Culture	1.31466*	0.58558	2.245	0.025
Medical and Public Health	0.56098**	0.33618	1.669	0.095
Family Welfare	0.03504	0.08135	0.431	0.667
Water Supply and Sanitation	-0.05294	0.12561	-0.421	0.673
Housing	0.18482*	0.07993	2.312	0.021
Urban Development	0.18503*	0.08213	2.253	0.024
Welfare Of SCs, STs and OBCs	0.37793*	0.08387	4.506	0.000
Labour and Labour Welfare	0.03019	0.03660	0.825	0.409
Social Security and Welfare	0.11100	0.12965	0.856	0.392
Nutrition	0.34338*	0.09488	3.619	0.000
Expenditure On Natural	-0.02974	0.02669	-	0.26

Calamities			1.114	5
Others	-0.14496*	0.03217	-4.506	0.000
<b>Model Summary</b>				
Observations	15			
Chi-square(12)	2380.679			
p-value	0.000			
Log-likelihood	50.847			
Akaike criterion	-73.694			
Schwarz criterion	-63.781			
Hannan-Quinn	-73.799			
Dependent Variable: Gross Enrolment Note: * significant at 1% level, ** significant at 5% level & *** significant at 10% level.				

**Table - 6: Social Sector Expenditure Impact on Per Capita GDP – Tobit Regression Analysis**

Independent Variables	coefficient	std. error	z	p-value
Constant	2.0080	1.3601	1.476	0.140
Education, Sports, Art and Culture	0.5982	0.4417	1.354	0.176
Medical and Public Health	0.5755*	0.2536	2.270	0.023
Family Welfare	-0.4118*	0.0614	-6.712	0.000
Water Supply and Sanitation	0.0917	0.0947	0.968	0.333
Housing	0.0153	0.0603	0.253	0.800
Urban Development	0.1016	0.0619	1.640	0.101
Welfare Of SCs, STs and OBCs	0.0160	0.0633	0.254	0.800
Labour and Labour Welfare	-0.0803*	0.0276	-2.908	0.004
Social Security and Welfare	-0.2955*	0.0978	-3.022	0.003
Nutrition	0.0010	0.0716	0.014	0.989
Expenditure On Natural Calamities	-0.0448*	0.0201	-2.224	0.026
Others	-0.0067	0.0243	-0.277	0.781

<b>Model Summary</b>	
Observations	15
Chi-square(12)	26238.932
p-value	0.000
Log-likelihood	55.077
Akaike criterion	-82.154
Schwarz criterion	-72.241
Hannan-Quinn	-82.260
Dependent Variable: Per Capita GDP	
Note: * significant at 1% level & ** significant at 5% level	

## VI. CONCLUSION

The improvement of Social Sector Expenditure is appearing to be certain model amidst study period. The most indispensable improvement of open spending has seen on Social Security and Welfare; trailed by Urban Development, Nutrition, Housing and Education. Meanwhile, the improvement of all Human improvement indicators in like manner have watched positive example, anyway the advancement of Human progression indicators is low when showed up contrastingly in connection to headway of Social Sector Expenditure. The break faith results is changing that the progression Social Sector Expenditure has helpful result on progress of Human improvement indicators. The outcome uncovers that open spending on Medical and Public Health; Education, Sports, Art and Culture; Water Supply and Sanitation; Welfare of SCs, STs and OBCs; Housing, Urban Development, and Nutrition have constructive outcome on human progression. There is fundamental to grow the open spending on above social organizations to propel human improvement.

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