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Social sector expenditure and human development: An Analysis of Indian States

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Abstract

Human development is one of the most important indicator for the development of any county or region. One of the important driver of human development is social sector expenditure. In this line, the present paper investigates the effectiveness of the social sector expenditure on human development in sixteen non-special category states, using the data from 1990-91 to 2017-18. In addition, this paper evaluates the efficiency of social expenditure policy from a human development perspective by undertaking a panel regression analysis. The study finds that per capita social sector expenditure and per capita income is the significant determinant of HDI. However, per capita social sector expenditure is relatively more effective than per capita income. The reason could be that the social sector expenditure is a more focussed expenditure on education and health which is the two most important determinants of HDI.

Keywords: social sector expenditure, human development, HDI, economic development, poverty

Introduction

Human development is one of the most important indicator for the development of any county or region. One of the important driver of human development is social sector expenditure. The social expenditure is necessary for human development viz a viz economic development. Human development is practically impossible without any adequate budgetary provision to the various social sector overheads, which provides the basic facilities, such as education, health, and family welfare, housing, roads and buildings, nutrition, rural infrastructure, etc. The concept of human development encourages the improvement in the quality of life of the people in terms of various health and educational indicators. Therefore, through the investment in health, education, and skills, human resources are converted into human capital, which is the most important vehicle for economic development (Eggoh et al., 2015)^[8].

Government expenditure on social sector is important at least for two reasons. First, in the underdeveloped and developing countries, the extent of deprivation and poverty is a challenge for the government and it cannot be left to the market forces alone to take care of sufficient spending required for the alleviation of chronic poverty and deprivation which is necessary for the human development. Second, the poor are more dependent and utilizes government services than the rich person (Mittal, 2016)^[11]. The primary role of the government in developing countries is to improve the quality of life of people by making the public investment in areas such as healthcare, education, and other social services (Agarwal, 2015)^[1]. Education and health is a merit good and having positive externalities. If it is left to the market to determine completely, health and education services will be biased for the poor and underprivileged. Therefore, the public provision of health and education services is important for equitable justice. This makes a strong case for public interventions in health and education (Birdsall et al., 1990)^[6]. Expenditure on the

social sector, especially on health care and education are largely believed to have a positive impact on human development and consequently, increased government spending on the social sector is expected to better social outcomes (Baldacci et al., 2003)^[5]. Out of total social sector expenditure, most of them incurred on education and healthcare in the developing countries. In the case of India, almost 80 per cent of total social sector expenditure incurred on the education and health sector, and as we know that education and health are the two most important variables among the three variables of the human development index. Public expenditure on education and health is necessary because of its positive effect on human capital formation. It can help in economic growth at the same time, reducing poverty and promoting equity (Gupta et. al., 1998)^[10]. How public expenditure is productive and beneficial, depends upon how to fund are allocated to these sectors. Therefore, it is necessary to study the impact of social sector expenditure on human development index.

Review of Literature

The literature of public expenditure on social sector is a recent work. The area of public spending on social sectors was not in accordance as it should be and have been ignored or unexplored subject for research. Only in the recent years, some concern has been shown by researchers, who believe that in comparison to many important theoretical and empirical studies of aggregate public expenditure have done in developing countries, there are relatively less similar studies have pursued in the field of public expenditure on social sectors in developing countries. Such views were expressed by many international organizations and experts, especially the World Bank, experts of the United Nations Development Programme (UNDP). Even in India, similar voiced were raised in different platforms. The area of social sectors has not obtained as much emphasis as it deserves in Indian public finance research. It was only after the new

economic policy (1991); some focus has been shifted towards the social sector because of the rising concern of inequality persisting in India. However, in the past three decades, particularly after the economic reforms, researchers have shown interest in this area. However, some researchers worked with different methodologies on the relationship between public expenditure and social development (Dreze and Sen, 1990; Anand and Ravallion, 1993; Mahmud, 2008; John et al., 2009; Akinkugbe and Mohanoe, 2009; Vetterlein, 2011; Marginean, 2014; WIDER, 2014; etc)^[2]. Some studies have been found, on the impact of social sector expenditure on human development using the proxies of education, health, poverty, inequality and per capita income (Ghosh, 2006; Mohan, 2006; Goswami and Bezbaruah, 2011; Agarwal, 2015; Mittal, 2016; Chattopadhyay, 2018)^[11, 1].

Data Source and Methodology

The present study is based purely on the secondary data, obtained from the repository of Global data lab, UNDP, Economic and Political Weekly Research Foundation (EPWRF) and Reserve Bank of India (RBI). The study used the data from 1990-91 to 2017-18 of 16 non-special category states. In order to examine the effect of public expenditure on the overall development among the Indian states measured by the Human Development Index (HDI), we employed a regression model using a panel framework.

Analysis and Results

Keeping in the view of the importance of public expenditure on human development, the succeeding section of this paper will analyse the state-wise pattern of per capita social sector expenditure (PCSSE) and human development index (HDI) of 16 non-special category states. To know the performance of the states, we have calculated the rank of each state based on their social sector expenditure and also assign the rank to the HDI scores of the respective states. This paper makes a comparison of states from 1990-91 to 2017-18 and tries to capture the correlation between the human development index and social sector expenditure of states. For the analysis of the data, the whole study period divided into three parts, the first part considers the period from 1990-91 to 2000-01, the second part from 2001-02 to 2011-12, and the last part from 2011-12 to 2017-18.

States	PCSSE (Rs)		Rankings		Rank change (old rank - new rank)
States	1990-91	2000-01	1990-91	2000-01	
Andhra Pradesh	327	1100	10	9	1
Bihar	235	740	14	13	1
Gujarat	408	1750	5	1	4
Haryana	412	1270	4	5	-1
Karnataka	348	1227	9	7	2
Kerala	453	1339	2	4	-2
Madhya Pradesh	301	997	11	11	0
Maharashtra	405	1507	6	2	4
Orissa	282	887	12	12	0
Punjab	452	1253	3	6	-3
Rajasthan	370	1203	7	8	-1
Tamil Nadu	458	1361	1	3	-2
Uttar Pradesh	256	576	13	14	-1
West Bengal	350	1078	8	10	-2

Table 1: Per Capita Social Sector Expenditure (PCSSE) of States and their Ranks during 1990-91 and 2000-01

Sources: Authors calculation, data taken from EPW Research Foundation.

The table 1 shows state-wise PCSSE during 1990-91 and 2000-01 and also indicates how the ranks of states change over time.



Source: Table 1

Fig 1: Change in Ranks of Per Capita Social Sector Expenditure (PCSSE) of States from 1990-91 to 2000-01.

From figure 1, we can assess the performance of non-special category states, excluding Chhattisgarh and Jharkhand in terms of per capita social sector expenditure from 1990-91 to 2000-01. States like Gujarat, Karnataka, and Maharashtra observed a substantial increase in PCSSE. Further, states like Andhra Pradesh and Bihar experiment small amounts of the positive trend. On the other hand, states like Haryana, Rajasthan, and Uttar Pradesh had a decrease in their PCSSE over time and while states like Kerala, Punjab, Tamil Nadu, and West Bengal experienced a major decline in their PCSSE. States like Madhya Pradesh and Orissa show the constant change in their PCSSE.

Table 2: States Wise Human Development Index (HDI) and their Ranks during 1990-91 and 2000-01

States	HDI		Rankings		Rank change (old rank - new rank)
States	1990-91	2000-01	0-01 1990-91 2000-0		
Andhra Pradesh	0.42	0.473	9	9	0
Bihar	0.375	0.432	14	14	0
Gujarat	0.466	0.524	5	6	-1

Haryana	0.463	0.544	6	4	2
Karnataka	0.44	0.513	7	7	0
Kerala	0.54	0.593	1	1	0
Madhya Pradesh	0.403	0.456	10	12	-2
Maharashtra	0.49	0.553	3	3	0
Orissa	0.396	0.453	12	13	-1
Punjab	0.492	0.574	2	2	0
Rajasthan	0.399	0.465	11	10	1
Tamil Nadu	0.467	0.537	4	5	-1
Uttar Pradesh	0.394	0.458	13	11	2
West Bengal	0.437	0.501	8	8	0

Sources: Authors calculation: Subnational Human Development Index, UNDP

The table 2 shows state-wise HDI during 1990-91 and 2000-01 and also shows how the ranks of states change over time.



Source: Table 2

Figure 2 helps us to understand the performance of the states based on the human development index from 1990-91 to 2000-01. As we can see, states such as Haryana, Rajasthan, and Uttar Pradesh increase in their HDI rank over time. While states like Gujarat, Madhya Pradesh, Orissa, and Tamil Nadu had decreases in their HDI rank, other states like Andhra Pradesh, Bihar, Karnataka, Kerala, Maharashtra, Punjab, and West Bengal had no change in their HDI rank during this period. While states like Andhra Pradesh and Bihar had shown the increasing trend in PCSSE during the same period but in the ranks of HDI, it remains unchanged.

Table 3: Per Capita Social Sector Expenditure (PCSSE) of States and their Ranks during 2001-02 and 2011-12

States	PCSSE (Rs)		Rankings		Rank change (old rank - new rank)
States	2001-02	2011-12	2001-02	2011-12	
Andhra Pradesh	1146	4562	9	7	3
Bihar	541	1983	16	16	0
Chhattisgarh	967	4496	12	8	4
Gujarat	1674	4682	1	5	-4
Haryana	1363	5454	3	2	1
Jharkhand	1003	2570	11	15	-4
Karnataka	1348	4662	4	6	-2
Kerala	1294	5020	7	3	4
Madhya Pradesh	778	3004	14	13	1
Maharashtra	1459	5011	2	4	-2
Orissa	922	3551	13	10	3
Punjab	1299	3262	6	12	-6
Rajasthan	1233	3494	8	11	-4
Tamil Nadu	1337	5626	5	1	4
Uttar Pradesh	567	2592	15	14	1
West Bengal	1046	3596	10	9	1

Sources: Author's calculation, data taken from EPW Research Foundation.

The table 3 shows state-wise PCSSE during 2001-02 and 2011-12 and also indicates how the ranks of states change over time.



Source: Table 3

Fig 3: Changes in Ranks of PCSSE of States from 2001-02 to 2011-12.

From figure 3, we can assess the performance states, including Chhattisgarh and Jharkhand in terms of per capita social sector expenditure from 2001-02 to 2011-12. States like Andhra Pradesh, Chhattisgarh, Kerala, Orissa, and Tamil Nadu had witnessed a massive jump in PCSSE during the period. Further, states like Haryana Madhya Pradesh, Uttar Pradesh, and West Bengal showed a moderate increase in their PCSSE. Bihar is the only state in the category which shows constant change during the same period. On the other hand, states like Gujarat, Jharkhand, Kerala, Maharashtra, Punjab, and Rajasthan experience a huge decline in their PCSSE during the same period. Further, new states like Chhattisgarh and Jharkhand created at the same time, but the approach of expenditure of both was different, where Chhattisgarh showed the massive increase in the

Fig 2: Change in Ranks of HDI of States from 1990-91 to 2000-01.

expenditure on the other Jharkhand registered the

considerable decline in the same period.

States	HDI	Value Rankings		kings	Rank change (old rank- new rank)
States	2001-02	2011-12	2001-02	2011-12	
Andhra Pradesh	0.481	0.591	11	8	3
Bihar	0.436	0.524	16	16	0
Chhattisgarh	0.56	0.573	4	10	-6
Gujarat	0.53	0.612	8	7	1
Haryana	0.55	0.644	6	5	1
Jharkhand	0.561	0.572	3	11	-8
Karnataka	0.52	0.613	9	6	3
Kerala	0.606	0.721	1	1	0
Madhya Pradesh	0.461	0.545	14	14	0
Maharashtra	0.559	0.652	5	4	1
Orissa	0.458	0.546	15	13	2
Punjab	0.578	0.666	2	2	0
Rajasthan	0.47	0.557	12	12	0
Tamil Nadu	0.546	0.656	7	3	4
Uttar Pradesh	0.464	0.542	13	15	-2
West Bengal	0.506	0.579	10	9	1

Table 4: States Wise HDI and their Ranks during 2001-02 and 2011-12

Sources: Authors calculation, Data Source: Subnational Human Development Index, UNDP.

Table 4 shows state-wise HDI during 2001-02 and 2011-12 and also shows how the ranks of states change over time.



Fig 4: Change in Ranks of HDI of States from 2001-02 to 2012-12.

Figure 4 helps us to understand the performance of states based on the human development index from 2001-02 to 2011-12. As we can see, states such as Andhra Pradesh, Karnataka, Orissa, and Tamil Nadu have undergone a considerable increase in their HDI rank during 2001-02 to 2011-12. States like Gujarat, Haryana, Maharashtra, and West Bengal had a moderate increase in their HDI. While states like Bihar, Kerala, Madhya Pradesh, Punjab, and Rajasthan had no change in their rank during the same period. Other states like Chhattisgarh, Jharkhand, and Uttar Pradesh showed a huge dip in their HDI during the same period.

Source: Table 4

Table 5: Per Capita Social Sec	tor Expenditure (PCSSE) of St	tates and their Ranks during 2011-12 and 2017-18

States	PCSSE (Rs)		Rankings		Rank change (old rank - new rank)
States	2011-12	2017-18	2011-12	2017-18	
Andhra Pradesh	4562	13793	7	1	6
Bihar	1983	5707	16	15	1
Chhattisgarh	4496	11394	8	3	5
Gujarat	4682	9301	5	7	-2
Haryana	5454	12900	2	2	0
Jharkhand	2570	6853	15	14	-1
Karnataka	4662	10095	6	5	1
Kerala	5020	11112	3	4	-1
Madhya Pradesh	3004	7752	13	11	3
Maharashtra	5011	9599	4	6	-2
Orissa	3551	8360	10	10	0
Punjab	3262	6957	12	13	-1
Rajasthan	3494	8585	11	9	2
Tamil Nadu	5626	8662	1	8	-8
Uttar Pradesh	2592	5099	14	16	-2
West Bengal	3596	7341	9	12	-3

Sources: Authors calculation, data taken from EPW Research Foundation.

The table 5 shows state-wise PCSSE during 2011-12 and 2017-18 and also indicates how the ranks of states change over time.



Source: Table 5

Fig 5: Changes in Ranks of PCSSE of States from 2011-12 to 2017-18

From figure 5, we can analyse the performance of states, in terms of per capita social sector expenditure (PCSSE) from 2011-12 to 2017-18. States like Andhra Pradesh, Chhattisgarh, Madhya Pradesh, and Rajasthan had witnessed a huge jump in PCSSE during the period. Further, states like Bihar and Karnataka showed a moderate increase in their PCSSE. Haryana and Orissa showed constant change during the same period. On the other hand, states like Jharkhand, Kerala, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, and West Bengal had experienced a huge decline in their PCSSE during the same period. Tamil Nadu is the biggest loser in terms of PCSSE during this period.

Table 6: States Wise HDI and their Ranks during 2011-12 and 2017-18

States	HDI Value		Rankings		Rank change (old rank- new rank)
States	2011-12	2017-18	2011-12	2017-18	
Andhra Pradesh	0.591	0.643	8	8	0
Bihar	0.524	0.568	16	16	0
Chhattisgarh	0.573	0.606	10	11	-1
Gujarat	0.612	0.665	7	7	0
Haryana	0.644	0.701	5	3	2
Jharkhand	0.572	0.591	11	14	-3
Karnataka	0.613	0.675	6	6	0
Kerala	0.721	0.77	1	1	1
Madhya Pradesh	0.545	0.599	14	12	2
Maharashtra	0.652	0.689	4	5	-1
Orissa	0.546	0.599	13	12	1
Punjab	0.666	0.715	2	2	0
Rajasthan	0.557	0.621	12	10	2
Tamil Nadu	0.656	0.699	3	4	-1
Uttar Pradesh	0.542	0.59	15	15	0
West Bengal	0.579	0.633	9	9	0

Sources: Authors calculation, Data Source: Subnational Human Development Index, UNDP

The table 6 shows state-wise HDI during 2011-12 and 2017-18 and also shows how the ranks of states change over time.



Source: Table 6

Fig 6: Change in Ranks of HDI of States from 2011-12 to 2017-18

Figure 6 helps us to understand the performance of the states based on the human development index from 2011-12 to 2017-18. As we can see, states such as Haryana, Madhya Pradesh, and Rajasthan have shown a substantial increase in their HDI during this period. While Kerala and Orissa registered a moderate increase in their rank over time. States like Andhra Pradesh, Bihar, Gujarat, Karnataka, Punjab, Uttar Pradesh, and West Bengal has shown the constant change during the same period. Karnataka, Orissa, and Tamil Nadu have undergone a huge increase in their HDI rank over time. While States like Chhattisgarh, Jharkhand, Gujarat, Haryana, Maharashtra, and West Bengal had a moderate increase in their HDI. While states like Bihar, Kerala, Madhya Pradesh, Punjab, and Rajasthan had no change in their rank during the same period. Other states

like Chhattisgarh, Jharkhand, Maharashtra, and Tamil Nadu have shown the dip in their HDI during the same period. The above tables and help us to understand that, the states which spend more on social expenditure have better ranks in HDI, and those who committed to spends less have lower ranks in HDI. Bihar, Odisha, Madhya Pradesh, Uttar Pradesh, and Andhra Pradesh are the states with lower per capita social expenditure as compared to other states and also have a lower rank in terms of HDI. These states belong to the less human development category states. These states are historically poor in terms of social sector indicators. States like Karnataka, Gujarat, Tamil Nadu, Haryana, Maharashtra, and Punjab had higher PCSSE, but in terms of HDI, they perform moderately. Kerala is on the top among these states in terms of HDI while they spend moderately on the social sector.

Analysis of Regression Results

To examine the relationship between social sector expenditure and human development among the states, we have used a fixed effect panel data linear regression model based on the Hausman test criteria. We used human development Index as the proxy for human development is a dependent variable and per capita social sector expenditure (PCSSE) and per capita income (PCI) as an independent variable and regress the human development index on per capita social sector expenditure and per capita income of the states.

For the regression following model has been developed.

Where HDI_{it} = Human development of the states. F = functional relationship. PCI_{it} = Per capita income of the states. $PCSSE_{it}$ = Per capita social sector expenditure of states. The result of panel regression with the fixed-effect model is presented below.

Table 7	:	Summary	of	Results
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Variables	Coefficient	t-statistics	P-value			
PCI	0.001	2.850	0.012			
PCSSE	0.008	2.200	0.044			
Cons.	0.496	48.860	0.000			
$R^2 = 0.723 F - statistics = 146.45 (0.000)$						

Source: Author's Calculation

Table 7 shows the regression results of both coefficients of PCI and PCSSE are significant and have an expected sign that has a positive effect on human development. The significant and positive relationship between per capita social sector expenditure and per capita income with the human development index shows that an increase in PCSSE by 1 unit increases human development on an average by 0.008 unit and increase in PCI by 1 unit increases human development on an average by 0.001unit. However, per capita social expenditure comparatively has more contribution than per capita income. The reason is that social sector expenditures include the expenditure on education and health both, which is the two most important components of human development. This significant and positive result of social sector expenditure may be attributed to various other items also included in the social sector, which directly or indirectly affects the level of human development such as drinking water, sanitation, and nutrition directly affect the health of the people. The results indicate that social expenditure significantly contributes to human development of the society.

Conclusion

In this research article an effort has been made to analyse the relationship between the social sector expenditure and human development in sixteen non special category states in India. The study found that there is a positive relationship between social sector expenditure and human development in the states. It is found that states having higher level of social sector expenditure also having higher level of human development. States like Kerala, Punjab, Haryana, Tamil Nadu, Maharashtra, Karnataka, and Gujarat with comparatively high per capita social sector expenditure also have more top ranks in the human development index. While the states like Bihar, Uttar Pradesh, Madhya Pradesh, Orissa, West Bengal, Andhra Pradesh, and Rajasthan are consistently low per capita social sector expenditure and also having lower ranks in terms of human development index. The regression results of both coefficients, per capita income (PCI) and per capita social sector expenditure (PCSSE) are significant and have a positive effect on human development. However, Per capita social expenditure comparatively has more contribution than per capita income in the human development index.

Therefore, states are required to increase their social sector expenditure to improve their performances in HDI. But over time, the association between two variables becomes less, and it means that merely an increase in social sector expenditure will not prove to be very useful for the progress of the society. How the fund is allocated and is being spent is also a very crucial aspect that needs to be considered. Adequate funding for the social sector is necessary but not a sufficient prerequisite for desired outcomes for the human development. Effectiveness of fund utilization and implementation of the various program are also important in lifting the masses out of poverty and achieving the desired result in human development.

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