Social Sector Expenditure and Economic Growth: Evidence from India

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Abstract:

This study examines the causal linkage between public expenditure on social sectors like education, health, family welfare, housing, urban development, water supply and sanitation, nutrition, social security and welfare, labour and labour laws and welfare of scheduled caste and tribes and economic development in India for the period 1972-2019. Using different econometric techniques, the study observesa bi-directional causality between GDP per capita and social sector expenditure in all sectors except for health, where unidirectional causality from health expenditure to growth is observed. This result indicates the significant impact of social spending on economic growth in India. Hence, to improve the country's ranking in the global human development index and poverty alleviation index, optimal management of social sector expenditure is vital for the Government of India. Furthermore, effective expenditure on social sectors aid the country to achieve broader objectives like growth, equity, employment creation, and poverty reduction

Keywords: *Social expenditure, Per capita GDP, Social development, and Human development*

I.   Introduction

The macroeconomics literature has accentuated the importance of both social and economic progress in the development process of a nation. In the past two decadesof ongoing economic reforms, Indiahas shownkeen interest in social sector development and its linkages with economic growth.The evidence is indicated by the growth of developmental expenditure which was merely 1% of GDP during 1985-1986 to 17% of GDP in 2019-2020. The social sector spending has also mounted from 0.27% of GDP in 1985-1986 to 9.58% of GDP in 2019-2020. Despite this growth in social sector spendingand rapid economic development, the human development index of India features in the lower quintile amongst all nations, ranks 147 out of 157 in Oxfam World Inequality Index, 2018, etc. The Indian governmenthas endeavouredto set up theSocial Stock Exchange (SSE)to augment more resources for the social sector and uplift the quality of life of its citizens. The social sector spending has also been strengthened by the inclusion of the CSR funds,i.e., 2-3% of companies profit, as prescribed by the Companies Act 2013.Moreover, special focus has been given to the SSE panel along with SEBI to design guidelines covering priority sectors and sectors aligned to theoverall development policies of the government. Globally, it is designed to achieve the Sustainable Development Goals, 2030 by leveraging funds available in the Environment, Social and Governance space andSocialSector Impact Bonds. The paper is organized as follows: section two details the theoretical perspective on social sector, social development and economic development section three covers a survey of literature followed by the data and method used in the study in section four, culminating in the results and analysis in section five and finally section six presents the conclusion.

II.   Theoretical Perspective
Social Sector
Expenditure incurred under the heading 'social services' and 'rural development' in the budget of government connotes 'Social sector' expenditure. The social services sectorincludes sub-sectors such

as health, education, housing, water supply and sanitation, urban development, labourwelfare, and social security. The expenditure under the rural development sector is booked through 'economic services' and includes expenditure on various employment generation and anti-poverty schemes. Such expenditure either takes the form of revenue expenditure or capital expenditure. The extant literature on social sectors identifies two main approaches to the definition. They are Human Resource Developmentapproach and Human Development approach.

Human Resource Development Approach

According to this approach, social sectors are those which enhance human capital. Human capital is referred to as those agents in the economy who can generate income and enhances the skills and knowledge of the people. Theproponents of this theory (see Schultz, 1961 and Becker, 1962)stressedthe view that expenditure on health, education, training, and seeking information about job opportunities and migration help in enhancing human capital formation. Therefore, investments in sectors like education, health, and labour welfare, etc., boost the productivity of the workforce. Increasing financial rate of return, i.e., increase in the per capita income resulting from expenditure on education, and increased productivity at farm / firm-level through expenditure on health provides ample justifications for increased expenditure on sectors relating to social services.

Human Development Approach

The human development approach to the social sector is the process of expanding the choice and fair opportunities for the people (UNDP). It focuses on the state of existence of people which can be achieved through cooperation, empowerment, security, sustainability and, equity in basic capabilities and opportunities. It keeps people at the centre-stage and emphasised the role of increased expenditure on health, education and nutrition in enhancing the intrinsic value of the people and not their basic capabilities.To sum up, while increasing productivity of human beings is the core of the human resources development approach, the human development approach focusses in human beings as an end in themselves. But human resource development acts as the prerequisite to achieve human development,leading to economic growth.

Social and Economic Development

Highlighting the outcome of social spending in the form of social development helps in understanding the influence of social sector spending on the economic development of a country.Enhancing human capabilities and choice for sustainable human development is the core of social development (UNDP. According to Streeten (1981),social development is a 3D process which consists of social services, social transfers and economic access and productive returns. Social servicesare reflected through better education and health whereas social safety nets and security mirrored social transfers. Similarly, remunerative employment and livelihood generation assesses economic access and productive returns and absence of violence and upkeeping peace echoes social integration. Ghai (2000)emphasized the role played by strong state capacity, committed leadership for social service provision, and the composition of social spending directed towards basic education and healthcare are for successful social development.Social development, therefore, is a process of transformation in institutions, values, and practices to enhance the quality of life of the people which can be achieved through the deliberate use of instruments of policy and planning and active involvement of concerned people. A strong relationship between social and economic development does not necessarily imply the necessity of economic development as a precondition for social development. Hence,it is quite relevant to examine the causal linkages between resource allocations in the form of public spending in the social sector and economic development in India.

III. Literature Review

Public expenditure on social sector influences development by creating socially inclusive, healthy and economically strong societies and enhances productivity (see Mundle, 1998; Arora, 2001; Guha and Chakraborty, 2003; Majumder,2005; Dev and Ravi 2007; Kannan and Pillai, 2007; Sen and Karmakar,2007). While some of these studies pointed out unequal human development among states, others reported that expenditure in the social sector is a significant determinant of economic growth. Roy and Bhattacharjee, 2009and Chakravarty, 2009 found that to rectify the regional disparities in Indian states a planned resource allocation approach was adopted, however, the study confirmed that such an approach became futile. Regarding the cyclicality of social spending, Doytch*et al.* (2010)studied the relationship between indicators of the business cycleand social spending with the focus on the expenditure on health and education for middle-income countries. They concluded that the nature of educational and health spending is acyclical and procyclical respectively. But the comparison ofthis resultwith that for the high-income countries demonstrates the counter-cyclical nature of expenditure both on health and education. In a similar study, delGranado *et al.* (2013) compared developing and developed countries and observed the procyclical and acyclical nature of expenditure on health and education in developing and developed countries respectively. They also observed that spending on education and health is procyclical during good times and acyclical during bad times which indicates an asymmetric pattern in the flow of expenditure towards health and education.

IV. Data and Method

The study utilizes annual time series data on social sector expenditure (i.e. expenditure on health, education, housing, urban development,water supply, sanitation, nutrition, labour welfare and welfare of scheduled caste and scheduled tribes) and economic development variable (such as GDP and per capita GDP) in the time interval 1972-73 to 2019-2020 for India. We collect data from the database of Economic and Political Weekly Research Foundation(EPWRF). (Table 1) We employ a chain of econometric tools for analyzing the causal relationship between social sector expenditure and economic development in India. First, we use the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root test to check the stationarity of the variables under study. The first difference of each variable is regressed with its lagged values with and without a trend. This can be expressed as follows:

$$\Delta S_t = \alpha_0 + \alpha_1 t + \alpha_2 S_{t-1} + \sum_{j=1}^{p} \alpha_j \Delta S_{t-j} + \varepsilon_t \dots \dots (1)$$

The null hypothesis i.e. S_t has a unit root, is rejected if the value of the ADF statistics is greater than the Mackinnon's critical value. The Phillips-Perron (PP) corrects for the serial correlation and heteroskedasticity in the error term ε_t. In this test, the Newey-West (1987) heteroskedasticity and autocorrelation consistent covariance matrix estimator are used. This test has an advantage over other unit root tests as it does not require a lag. Therefore, PP test is represented as:

$$Y_t = \mu + \alpha y_{t-1} + \varepsilon_t \dots \dots \dots (2)$$

Next, we conduct cointergration and granger causality tests but before it, the lag selection for VAR model is determined. To determine the optimal lag length, the study uses Akaike (AIC), Hannan and Quinn (HQIC), and Schwarz's Bayesian (SIC) information criteria. We employ the Johansen cointegration approach to understand the long-run relationships between the social sector expenditure variables and economic growth. It is estimated as a vector autoregressive process of order k (i.e., VAR(k))

$$Y_t = A_0 + \sum_{i=1}^{k} A_i Y_{t-i} + u_t$$
$$\dots \dots \dots \dots \dots \dots \dots ..(3)$$
$$\Delta Y_t = A_0 + \Pi Y_{t-i} + \sum_{i=1}^{k} \Gamma_i \Delta Y_{t-i} + u_t$$
$$\dots \dots \dots \dots ..(4)$$

where Y_t denotes a vector containing social sector expenditure variables and per capita GDP. The test examines the hypothesis that the rank of matrix Π in

Eq. (4) is at most r. It is evaluated based on the trace statistic or maximum eigenvalue statistic.

After the co-integration tests, we next conduct the Toda Yamamoto Causality (1995) test to understand the direction of causal flow between the variables under study. This causality technique is similar to the Granger Causality but takes an extra lag for the analysis. For instance, if we consider two series with either of them being non-stationary, then we develop a VAR at level with (k+dmax) lags. Thus, a vector autoregressive model constructed with 2 lags is represented as:

$$\begin{bmatrix} y_t \\ x_t \end{bmatrix} = \begin{bmatrix} \beta_{10} \\ \beta_{20} \end{bmatrix} + \begin{bmatrix} \beta_{11}^{(1)} & \beta_{12}^{(1)} \\ \beta_{21}^{(1)} & \beta_{22}^{(1)} \end{bmatrix} \begin{bmatrix} y_{t-1} \\ x_{t-1} \end{bmatrix} + \begin{bmatrix} \beta_{11}^{(2)} & \beta_{12}^{(2)} \\ \beta_{21}^{(2)} & \beta_{22}^{(2)} \end{bmatrix} \begin{bmatrix} y_{t-1} \\ x_{t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{bmatrix}$$
(5)

Modified Wald test is used to evaluate the modelandto find out the relationship between social sector expenditure variables and economic growth.

V.   Results and Discussion

The empirical analysis begins with checking for stationarityof the time series variables as that is the essential requirement forcointegration and causality test. The ADF and the PP test has been employed to examine the stationarity of the variables under study. The results, so estimated, are given in Table 2. As observed from the table, no variables have stationarity and all are non-stationary in their levels, as the test statistic's fail to reject the null hypothesis of unit root test. Therefore, we check them at a higher order of difference, i.e., at the first difference of the variables and the results confirm that the null hypothesis of the unit root test is rejected at the respective level of significance. The result shows that the first difference of the variables under study is integrated of order one. Following that the variables are stationary in their first difference, we conduct the Johansen Cointegration Test to check for the long-run relationship between the variables. The estimated results are shown in Table 3. The trace statistics and the max eigenvalue indicate the presence of some long-run relationship between the

social sector expenditure variables andGDP per capita. This result gave us hope for striving towards the main objective of the study i.e. testing for the hypothesized causality. The results of the Toda and Yamamoto (1995) causality tests are shown in Table 4. The results indicate a bi-directional causality between the per capita GDP and education expenditure, suggesting that the government must increase the percentage of public expenditure on education. But the study observed a unidirectionalcausal flow from health to per capita GDP indicating that safeguarding and uplifting the health conditions of the people helps in boosting the economic growth of the country. Expenditure on other social sector areas like family welfare, housing, urban development, water supply and sanitation, nutrition, social security and welfare, labour and labour laws, and welfare of scheduled caste and scheduled tribes show a bi-directional causality with GDP per capita. The results suggest that the budgetary allocation of the government of India on the social sector is contributing towards enhancement of the quality of life of its citizens and contributing towards social development which in turn accelerating the economy. As the causality is bi-directional it can also be said that India's growth is also an impactful factor for the government to make expenditure on the social sector, as with economic growth people's income level increases and demand for superior facilities get created in the system.

VI.   Conclusion

This study has examined the casual flow between the social sector expenditure and growth in per capita GDP in Indian using the data for the period 1972-73 to 2019-2020. This analysis is important for analyzing the composition of public expenditure and their optimalallocation to achieve sustainable economic development in India and the formulation of policies on the implementation of different welfare schemes. The results show a significant bi-directional causal relationship between GDP per capita and the expenditures on education, family welfare, housing, urban development, water supply and sanitation, nutrition, social security and welfare,

labour and labour laws and welfare of scheduled caste and tribes. Hence, policies should be directed towards optimal allocation of resources to improve the country's ranking in the human development index as well as in poverty alleviation index.

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Table 1: List of Variables sourced from EPWRF

GDPPC	Per Capita Gross Domestic Product
ESAC	Education, Sports, Art, and Culture
MPH	Medical and Public Health
FW	Family Welfare
WSUPSA	Water Supply and Sanitation
HOU	Housing
UDEV	Urban Development
WSCST	The welfare of Scheduled Caste, Scheduled Tribes, and OBC
LLW	Labour and Labour Welfare
SSW	Social Security and Welfare
NUT	Nutrition

Table 2: Unit Root Test

	ADF Test		PP TEST		
	Level	1st Diff	Level	1st Diff	Order of Integration

GDP	6.27	-3.47**	10.68	-3.36***	I(1)
GDPPC	1.19	-3.24**	6.36	-4.17*	I(1)
ESAC	9.07	-6.26*	10.17	-5.17*	I(1)
MPH	11.74	-3.74**	6.70	-8.24*	I(1)
FW	4.91	-4.94*	10.18	-5.01*	I(1)
HOU	11.25	-4.92*	3.14	-6.89*	I(1)
UDEV	6.04	-6.01*	6.42	-5.83*	I(1)
WSUPSA	0.34	-10.74*	6.45	-3.25**	I(1)
SSW	7.82	-4.91*	8.57	-5.90*	I(1)
LLW	3.29	-3.83**	8.19	-3.67**	I(1)
NUT	2.93	-4.76*	2.49	-4.84*	I(1)
WSCST	5.59	-3.95**	6.67	-3.94**	I(1)

*, ** , *** denotes significance at 1%, 5% and 10% respectively .

Table 3: Johansen Cointegration Test

Null Hypothesis	Trace Stat	5% critical Value	Max Eigen Value	5% critical value
Ho: $r \leq 0$	1279.56	334.98	281.23	76.58
Ho: $r \leq 1$	998.32	285.14	235.70	70.54
Ho: $r \leq 2$	762.63	239.24	193.68	64.50
Ho: $r \leq 3$	568.94	197.37	169.67	58.43
Ho: $r \leq 4$	399.28	159.53	119.96	52.36
Ho: $r \leq 5$	279.32	125.62	88.94	46.23
Ho: $r \leq 6$	190.39	95.75	73.52	40.08
Ho: $r \leq 7$	116.86	69.82	53.17	33.88
Ho: $r \leq 8$	63.69	47.86	30.54	27.58

Table 4: TY Causality Test

	F-stat	Prob
GDPPC - ESAC	2.62	0.09
ESAC- GDPPC	17.84	0.00
GDPPC - MPH	0.41	0.67
MPH- GDPPC	13.35	0.00
GDPPC - FW	3.57	0.04
FW- GDPPC	13.82	0.00
GDPPC - HOU	2.89	0.07
HOU- GDPPC	25.48	0.00
GDPPC - UDEV	5.68	0.01
UDEV- GDPPC	6.61	0.00
GDPPC - WSUPSA	6.85	0.00
WSUPSA - GDPPC	5.36	0.01
GDPPC - SSW	0.82	0.45

SSW - GDPPC	10.59	0.00
GDPPC -LLW	13.05	0.00
LLW- GDPPC	21.00	0.00
GDPPC - NUT	9.60	0.00
NUT - GDPPC	5.86	0.03
GDP PC- WSCST	2.51	0.09
WSCST - GDPPC	11.52	0.00

1.