**Short Research Article**

**Impact of Social Sector Public Expenditure on Economic Growth and Well-Being in India (1990-2024): An Econometric Case Study**

**ABSTRACT**

*Public expenditure in the social sector acts as the foundation for economic growth by enhancing human capital, promoting inclusivity, and assuring the resilience of the economy. Based on this concept, this paper analyzes the impact of government spending in the social sector on economic growth in India and also analyses both its short and long-run impacts on economic growth. In the present study the variables that are per capita Income, education, health, labor & employment, social welfare & nutrition, and water supply & housing expenditure are found to be non stationary using Augmented dickey fuller test . All of the variables are integrated at first order [I (1)] hence the study uses Johansen’s Co-integration Test for the annual time series data (1990-2024) to examine the long run impact and Vector Error Correction Model (VECM) is used to study the short-term dynamics and long-term relationships among five heads of social sector that are relevant for economic development* *namely, education, health, labor &* *employment, social welfare & nutrition, and water supply & housing. The Present study finds long-run relationship between public expenditure in social sector and economic growth. In long-run education, health, Labour & employment, and water supply & housing expenditure positively affect economic growth (PCI) and social welfare & nutrition has negative impact on economic growth. In the short-run, education, healthcare and water supply & housing expenditure negatively impacted economic growth (PCI) but labour & employment and social welfare & nutrition positively impacted economic growth.*

**Keywords:** *Social sector expenditure, Economic growth, Cointegration method, VECM*

**JEL Code***: C32, H51, H52, H53, & O47.*

**1.INTRODUCTION**

The social sector growth is directly related to human development, promotion of equity, reduction in inequality, and improvement in quality of life. It promotes equitable, inclusive and sustainable development by addressing basic necessities including social welfare, healthcare, and education[[1]](#footnote-1). Social sector development comprises of all development and welfare activities of the society, including education, health, water supply & housing, labor & employment, social welfare & nutrition, transport, agriculture and allied activities, infrastructure, irrigation, management of natural resources such as water, forest, land, energy, welfare schemes and services etc. provided by government and non-government entities[[2]](#footnote-2).

The government aims to develop human capital which helps in encouraging positive benefits related with economic growth (Waweru, 2021), reduce poverty, promote inclusive growth, enhance productivity and competitiveness, leverage the demographic dividend, and improve overall health and well-being (Sinha, 2024). When the government allocates funds effectively to these sectors, it creates a positive environment for economic development like investment in education contributes to a skilled workforce, driving productivity and innovation, improved healthcare can enhance the overall health of the population, reducing illness-related productivity losses and private health care expenditure. Public expenditure in the social sector plays a pivotal role in shaping the economic landscape of a nation and fostering inclusive economic growth. India's public expenditure has gradually increased, with a total outlay of ₹45.03 lakh crore in the 2023-24 budget, out of this, ₹23.5 lakh crore was allocated to the social sector (19% of total public expenditure)[[3]](#footnote-3). Social sector expenditure of developed countries is higher than developing countries because of their ageing populations, better tax structures, and greater incomes, hence devoting more funds to the social sector. On the other hand, developing countries like India have limited social expenditure due to governance problems, population concerns, and budgetary limitations. Social sector spending in developed countries[[4]](#footnote-4) such as US (~19% of GDP), Japan (~22% of GDP), France (~31.2% of GDP) and some developing countries[[5]](#footnote-5) such as China (~10 of GDP), Bangladesh (~5.6% of GDP) is way above than social sector expenditure in India that is only 7% of GDP out of which 2.1% is on health and 3.1% is on education and rural development. India’s social sector spending is still below average compared to other countries, with health and education expenditures falling short of the worldwide averages of about 6% and 4.8% of GDP, respectively[[6]](#footnote-6). Since FY16, the government's investment in social services has been increasing. From FY18 to FY20, social services expenditure consisted of around 25% of overall government expenditure. It grew to 26.6% in FY23[[7]](#footnote-7). According to the Economic Survey (2022-23), the social services expenditure witnessed an increase of 8.4% per cent in FY21 over FY20 and another 31.4 per cent increase in FY22 over FY21, being the pandemic years, which required enhanced outlay, especially in the health and education sectors. India's continued investments in its social sectors will help it achieve vision 2030, achieve long-term prosperity, and realise the vision 2047 of a Viksit Bharat. The development of human capital, poverty, and inequality are directly addressed by public investments in welfare, healthcare, and education. These expenditures also support important Sustainable Development Goals (SDGs), such as decreased inequality (SDG 10), improved health (SDG 3), and high-quality education (SDG 4)[[8]](#footnote-8). India’s economic journey is one of contrasts and complexities having various contradictory situations e.g. food grain self-sufficiency existing with malnutrition and hunger, rapid urbanization coexisting with persistent rural poverty etc. Effective public spending boosts economic productivity and gets India ready for global competitiveness by encouraging equitable growth and minimizing regional inequalities. Hence understanding relationship between social sector spending and economic growth becomes vital. This comprehensive investigation investigates into the nuanced dynamics (Sen, 1999), highlight on how investments in education, healthcare, and other social services influence India’s development trajectory[[9]](#footnote-9). Therefore, the present study aims to examine how public expenditure in the social sector affects economic growth and also observe the short-run and long-run effects of social sector expenditure on economic growth and particularly focuses on public expenditure categories that are crucial in social sector namely education, health, and water supply & housing, labor & employment and social welfare & nutrition.

**2. REVIEW OF LITERATURE**

Economic growth is a process whereby the country’s structural transformation ,real national income & per capita income increases over the long period of time (Kuznets, 1973). It is pertinent for raising the standard of living, increasing employment, reducing poverty and inequality (Todaro & Smith, 2015; UNDP, 2023; World Development Report, 2020) and also important for encouraging the overall progress of an economy. It indicates the comprehensive improvement in economic system such as innovation, enhancement in productivity and structural transformation (Schumpeter, 1934; OECD, 2009; World bank, 2020;). Social sector plays an important role in encouraging equitable, inclusive and sustainable economic growth (HDR, 2023). Social sector development is an essential component for the growth of human capital (Schultz, 1960s; Waweru, 2021; Sinha, 2024). As the access to quality education, healthcare, sanitation, nutrition and social welfare (SDG report 2023) increases it leads to enhanced level of individual’s physical, mental and cognitive capacities.

There are many theories related to relationship between public expenditure and economic growth (GDP/PCGDP). Wagner’s theory[[10]](#footnote-10) (1883) highlights that government spending rises with economic growth, particularly in social areas like welfare, healthcare, and education etc. This theory shows that as an economy expands and develops, government spending will naturally rise, both in absolute terms and as a proportion of national revenue. In contrast to Wagner's Law, which views public spending as expected outcomes of economic growth; Keynesian economics considers it as an active instrument for ensuring economic stability. According to Keynesian school, public expenditure, when it is continuous, can promote economic development. If public expenditure increases, it is expected to enhance investment, increase profitability and also push for creation of employment opportunities so it encourages economic development through aggregate demand (Owino, 2017). According to Peacock and Wiseman (1961)[[11]](#footnote-11) hypothesis, based on the pattern of public expenditure, concluded that public expenditure does not follow a smooth or continuous trend but the increase in public expenditure happens in jerks or a step-like pattern coinciding with social crises and wars. According to Musgrave's (1959), public spending fulfils three different purposes: allocation, distribution, and stabilization, ensuring effective utilise of resources and equitable growth in the economy.

There is a direct link between economic growth of a country and performance of its social sector confirmed through theoretical as well as empirical studies. There are various theories underlining the importance of social sector in overall development. Human capital theory (Becker, 1964) emphasizes education and healthcare as productivity and growth drivers, whereas the Capabilities Approach (Sen, 1980) focuses on increasing freedoms and reducing poverty. Welfare State Theory (Esping-Andersen, 1990) emphasizes lowering inequalities via strong social policies; whereas Dependency Theory (Prebisch & Singer, 1949) emphasizes developing human capital self-sufficiency in order to combat global exploitation. The Sustainable Development Goals connect social fairness with economic and environmental objectives. Structural-functionalism emphasizes the need of social services in ensuring stability and consistency.

There exist many empirical studies related to the effect of social sector expenditure on economic growth (Owino, 2017; Mohanty& Bhanumurthy,2018; Premalatha,2020; Ray & Sarangi,2021, etc.) All of these are basically different in term of methods as well as, the sample time period and countries/regions under consideration. Some studies found positive growth effects (Alshahrani & Alsadiq, 2014; Ebong, Ogwumike, Udongwo, &Ayodele, 2016; and Koenig & Myle, 2013) and some show negative growth effects (Fasoranti,2012 and Nurudeen & Usman, 2010), whereas few study found insignificant effects (Cooray, 2009 and Carter, Craigwell, & Lowe 2013). Premalatha, R. (2020) examined the trend and determinants of social sector expenditure in India during 1988 to 2010-11 and found declining social expenditure. Owino, (2017) investigated the effect of public expenditure in the social sector on economic growth in Kenya for the period 1967 to 2015 by using the autoregressive distribution lag (ARDL) modelling framework into short-run and long-run and showed that education had a positive short-run and long-run effects on real gross domestic product (GDP) per capita. On the other hand, health and social security expenditure appeared to dampen economic growth. Mukui, G. et.al (2019) examined the relationship between public spending and economic growth and how the composition of government expenditure affects economic growth in Kenya using time series data from 1989 to 2014 using, Granger causality techniques and Autoregressive Distributed lag model (ARDL). The results revealed both short term and long-term causality from economic growth to government expenditure but only short run causality from government Expenditure to economic growth. Mohanti, & Bhanumurthy, (2018) measured the efficiency of government expenditure on social sector, especially health and education, among the Indian states & also attempted to understand what drives the public expenditure efficiency among the states by using Data Envelopment Analysis (DEA).and found that both quality of governance and economic growth affects the efficiency of education, health and social sector. Seshaiah, et.al (2018) investigated the impact of general government expenditure on GDP growth in India for the period 1980-81 to 2015-16 by using simple regression analysis and concludes positive impact of general government expenditure on GDP growth rate in post 1991 and negative in post 2008 period. Ray & Sarangi, (2021) examined the causal relationship between spending in the social sector and economic development in India for the period 1972-73 to 2019-20 and results show significant bi-directional causal flow between GDP per capita and the expenditure on education, family welfare, housing, urban development, water supply and sanitation, nutrition, social security and welfare, laboure and laboure laws and welfare of scheduled caste and tribes. However, they found unidirectional causality from health expenditure to economic development. This result indicates the significant contribution of social spending on the economic growth of a developing country like India.

**3. METHODOLOGY**

 **3.1 Variables and Data**

Present study is based on secondary data for the period 1990-91 to 2023-24. The dependent variable is economic growth which is measured through GDP per capita and its data has been obtained from Handbook of statistics on Indian Economy published by RBI. Independent variables are major social sector heads such as Education, Health, Labour & Employment, Social Welfare & Nutrition, and Water supply and Housing expenditure and aggregate of these heads is termed as social sector expenditure (SSE). The data of all SSE heads have been collected from various issues of Economic survey and budget. SSE data is based on new classification after 2016-17[[12]](#footnote-12). Econometric modeling is used to observe the short-run and long-run effect of social sector expenditure on economic growth details of which is provided below.

There are many methods to examine the stationarity of the time series such as augmented Dickey-Fuller test[[13]](#footnote-13), Phillips-Perron (1988) and the Kwiatkowski, Phillips, Schmidt and shin (KPSS) test. Present study uses the ADF test to check for the null hypothesis of existence of unit root (δ=0 ) ADF test is used as it is suitable for large time series data and it is better than other stationarity methods due to difference in null hypothesis. ADF test is expressed as follows;

**∆Yt =****µ +** **δYt-1 +** $\sum\_{i-1}^{k}β$**i∆Yt-i +** **et**

 Where: ∆Yt= the first difference of Yt, i.e. (Yt – Yt-1), µ= constant or drift term, $\sum\_{i-1}^{k}β$i∆Yt-i= lagged differences to account for autocorrelation, et= Error term, δ = coefficient to test for the presence of a unit root.

Lag length is based on Schwarz information criterion (SIC). Optimum lag value for all the variables is 1. If variables are integrated at first order [I (1)] then the variables can be used for co-integration tests. For co-integration analysis order of integration must be known that is determined by the number of times variable must be differenced before it becomes stationary. The Johansen test is effective because it can handle more than two time series and permits multiple cointegration associations. Therefore, present study uses Johansen’s Co-integration Test[[14]](#footnote-14) (1999) for the time series data to examine the long run impact of independent variables on the dependent variable where the null hypothesis is “there is no co-integration” among variables. Since the study uses 5% significance level, therefore if the probability of statistics is more than 0.05 then null hypothesis would be accepted, which means there is no co-integration among the variables. However, if the probability of the statistics is less than 0.05, the null hypothesis would be rejected, that means the variables are co-integrated. Johansen’s Cointegration model is represented as:

**Yt ​=β0 ​+ β1​X1t​ + β2X2t + ⋯ + βkXkt​ + ϵt**

Which can be transformed as follows:

 **PCIt = β0 ​+ β1EDUt-1 + β2Heat-1 + β3L\_Et-1 + β4WS\_Ht-1+ β5SW\_Nt-1 + ϵt**

Here, β1, β2, …., βk = Cointegration coefficients representing the long-run relationship and ϵt = Error term. Present study uses the VECM method to study the short-term dynamics and long-term relationships among variables. VEC model in general can be expressed as follows:

**ΔYt ​=** $α $**+** $\sum\_{i-1 }^{p-1}βY\_{t-i}$**​ +** λ**ECTt-1**

Which can be transformed for the present purpose as

Δ **PCIt =** $α$ **+ β1** Δ**PCIt-1 + β2**Δ**EDUt-1 + β3**Δ**HEAt-1+ β4**Δ**L\_Et-1 + β5**Δ**WS\_Ht-1 + β6**Δ **SW\_Nt-1 +** λ**ECTt-1**

Where Yt = Vector of n endogenous variables (n×1), ΔYt = First differences of the variables, i.e., ΔYt=Yt−Yt-1, capturing short-term changes, λECTt-1 = The error correction term, ​ β: Short-run coefficient matrices for lags (n×n), capturing short-term dynamics and ϵt​ = Vector of error terms (n×1), assumed to be white noise. The VECM model for the present study can be expressed as follows:

**4. RESULTS and Discussion**

To estimate relationship between social sector expenditure and economic growth, cointegration techniques of vector error correction model is used. To run VECM model, Augmented Dickey-Fuller (ADF) is applied to examine stationary of the data. All six variables were found to be non-stationary at levels but became stationary at first differences. This indicates that the variables are integrated of the order one i.e. I (1). These results justify the use of cointegration technique. According to Feridun and Shahbaz (2010) lag selection is crucial for the accuracy and quality of the research. As suggested by Pesaran et al. (2001), the ideal or optimal lag selection option should be based on the AIC, SIC or BIC. In present study optimal lag length is one according to SIC. Johansen’s Co-integration Test (1999) for the time series data is applied to assess the long-term relationship among the variables. The trace statistics & maximum eigen value shows that the null hypothesis i.e. there is no cointegration among the variables is rejected at 5% level of significance. At the 5% level of significance, the test results indicate that there are two cointegrating equation in all cointegrating equations. Thus, there is strong evidence of statistically significant cointegration between Per capita income, Education, health, Labour & employment, water supply & housing and social welfare & nutrition. Hence restricted VAR (VECM) is used to estimate long-run and sort-run dynamics between SSE and economic growth (EG). The Johansen Normalized Cointegration Coefficients rejects the null hypothesis – There is no cointegration against the alternative of a cointegrating relationship in the model. Johanson cointegration long run equation is-

**lnPCIt-1 =8.19** **+** **0.19lnEDUt-1 + 0.015lnHeat-1 + 0.13lnL\_Et-1 + 0.069lnWS \_Ht-1****- 0.11 lnSW\_Nt-1**

In case of normalised cointegration coefficient signs are together reverse, now here if sign is negative the interpretation is positive and if sign is positive the interpretation is negative. Hence, the equation might be understood as follows: In a long run education, health, Labour & employment, and water supply & housing have positive impact on economic growth measured by PCI (Alshahrani & Alsadiq, 2014; Ebong, et.al. 2016; and Koenig & Myle, 2013) and impact of social welfare & nutrition is negative on economic growth. All variables are significantly affecting economic growth in long run except health. The coefficients of the cointegrating equation can be interpreted as dynamics that show how each variable affects economic growth (PCI) in the long run: a 1% change in the Education is associated with a 19% change in PCI and a 1% change in the health leads to a smaller 1.5% change in PCI. Improvements in labour and employment have positive effect on PCI in long term, with a coefficient of 14%. In the same way, better water supply and housing has a smaller positive impact in long run, with a coefficient of 6.9%. On the contrary, a 1% increase in social welfare and nutrition decreases PCI by 11%, showing a negative long-term relationship. The short-term dynamics and adjustments to the long-term equilibrium for PCI are taken by the following Vector Error Correction Model (VECM)-

Δ **lnPCI = 0.061 + 0.025** Δ **lnPCIt-1 – 0.035**Δ**lnEDUt-1 - 0.11**Δ**lnHEAt-1+ 0.015** Δ **lnL\_Et-1 –**

**0.028** Δ **lnWS\_Ht-1 + 0.035** Δ **lnSW\_Nt-1 -0.4707 ECTt-1**

Where, Δ = Denotes the first difference of the variable, ECTt-1​ = The error correction term, representing the deviation from the long-term equilibrium in the previous period.

Error correction coefficient provides the speed of adjustment within which the model will return its equilibrium after any disturbance. The results give important insights into both long-term equilibrium adjustments and short-term dynamics affecting per capita income (PCI). The statistically significant and negative coefficient of ECTt-1 (−0.4707) shows that the method has adjusted towards long-term equilibrium, with each period improving around 47.07% of the preceding period's disequilibrium.

In terms of short-term dynamics, if there is 1% increase in PCI during previous period then it leads to a positive 2.50% change in the present period, showing minor short-term durability. However, if there is 1% increase in the health then PCI reduces by 11%, showing a short-term trade-off between them. Similarly, education has a short-term negative impact on PCI, with a coefficient of −3.50%. On the other hand, labour and employment have a positive impact on PCI in the short term, with a coefficient of 1.50%, while improvements in social welfare and nutrition have a positive correlation with PCI, with a coefficient of 3.50% Conversely, changes in water supply & housing have negatively impacted PCI in the short term, with a coefficient of −2.80%. In the short run, education and healthcare expenditure negatively impact per capita income (Fasoranti, 2012), likely because there is lag in their impact. Long-term growth is improved by investments in these areas, but their instant effects may cause resources to be distracted from other productive activities. On the other hand, a rise in labour force participation & employment and social welfare & nutrition expenditure positively impacts per capita income, as more people working and financial support programs improve economic activity. While, more expenditures in housing and water supply could have a short-term negative influence on per capita income because of their higher preliminary costs and belated advantages. These expenditures have limited short-term economic benefits, but they raise standard of living over a long time.

**5. CONCLUSION**

The present study aims to analyze the impact of government spending in the social sector on economic growth in India. The findings show that in long run, education, health, labour & employment, and water supply & housing positively impact economic growth, indicating that more expenditure in these areas contribute to the improvement of human capital, productivity and infrastructure, eventually enhancing economic performance but social welfare & nutrition negatively impact economic growth, indicating the need for more efficient, transparent, and targeted policies to optimise their long-term advantages. In short run, some SSE heads show immediate positive impact (labour & employment and social welfare) on economic growth, but others indicate negative impact (education, health and water supply & housing) due to time lag in showing their impact on economic growth.

In light of these findings, the present study shows the dual nature of public expenditure, where some public expenditure gives short-term returns, while others give to long-term returns. Policymakers should adopt a balanced strategy to optimise and reap short-term as well as long-term returns in order to promote economic growth and social well-being. The government should spend more on priority sectors such as education, health, social welfare, nutrition etc. to ensure better quality of education at all levels, better public health facilities, improved human capital, enhance productivity & competitiveness, and create a positive environment for economic development.

Disclaimer :

Authors of the present study, hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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7. PIB press release (Release ID: 1894916) [↑](#footnote-ref-7)
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12. From 1990-91 to 2016-17 the classification was in terms of plan and non-plan expenditure and in 2017 new classification is termed as Capital and Revenue expenditure. [↑](#footnote-ref-12)
13. Dickey and Fuller, 1979 [↑](#footnote-ref-13)
14. The test also called the Johansen test is a more advanced method that allows for several cointegration associations and is especially effective when working with more than two time series. [↑](#footnote-ref-14)