Evaluating Government Spending on Social Infrastructure in Tamil Nadu: Trends, Impacts, and Policy Insights

Dalia Ignatius
Doctoral Research Scholar, Department of Economics
Bharathidasan University, Tiruchirappalli, Tamil Nadu, India
https://orcid.org/0009-0002-9762-9317

L. Ganesan
Professor and Chair, School of Social Sciences, Department of Economics
Bharathidasan University, Tiruchirappalli, Tamil Nadu, India

OPEN ACCESS

Manuscript ID:
ECO-2025-13038800

Volume: 13

Issue: 3

Month: June

Year: 2025

P-ISSN: 2319-961X

E-ISSN: 2582-0192

Received: 09.04.2025

Accepted: 16.05.2025

Published Online: 01.06.2025

Citation:
Ignatius, Dalia, and L. Ganesan. "Evaluating Government Spending on Social Infrastructure in Tamil Nadu: Trends, Impacts, and Policy Insights." *Shanlax International Journal of Economics,* vol. 13, no. 3, 2025, pp. 1-12.

DOI:
https://doi.org/10.34293/economics.v13i3.8800

Abstract
The Creation, Development and Sustenance of Social Infrastructure is essential for human capital growth and overall well-being. This paper studies the pattern of public capital expenditure on Social Infrastructure in Tamil Nadu from 2001 to 2023, with appropriate trend analysis focusing on Capital Expenditure on Education. The study uses percentages, regression, and trend analysis to reveal significant shifts in funding priorities and implications for equitable growth, stressing the need for greater government expenditure for the creation of Social Infrastructure.

Keywords: Social Infrastructure, Sustainable Development, Government Expenditure, Public Expenditure
JEL Codes: I22, I25, I28, I38, J18, N35

Introduction

Social infrastructure is the foundation of a sustainable and equitable society, providing the essential services needed to support the well-being and sustainable development of the population. From education, a developed social infrastructure is essential to promoting well-being, inclusion, and economic growth. However, as societies evolve and face new challenges, continuous improvement and increased investment in these critical systems become imperative (Balan and Gutium). In South Asia, following the model developed in parts of Latin America, some countries are implementing cash transfers which are conditional on children attending school and receiving healthcare. In the expectation that regional and local governments often have a better idea of what sorts of policies might be most effective in their areas, several countries have implemented decentralization and community empowerment policies. They have also intervened in markets for basic commodities, especially food (Booth). Development of Social Infrastructure is a primary requirement for the development of human capital which in turn promulgates general well-being of the citizens. The development of social infrastructure also takes care of equitable growth as this kind of intervention by the government ensures access and distribution to that population which otherwise cannot afford or use this infrastructure. Provision of social infrastructure such as education and health services endow the economy with skilled and productive human capital, which could also lead to an increase in productivity and growth but mostly in the long run. All these facilities are expected to have both direct and indirect roles in the development by increasing the factor productivity of land, labour and capital

in the production process. Most studies conclude that infrastructure development has a positive and significant effect on economic growth. In addition to infrastructure, another factor that could affect growth positively, and is widely identified in the literature, is the extent of financial development. Financial development and infrastructure development are expected to be complementary. A diversified financing mechanism is necessary for solving the funding gaps in infrastructure development. To achieve high and sustainable growth, there is a need for government intervention to expand the physical infrastructure and financial development in the country (Mohanty and Bhanmurthy).

The Challenge facing India is that the manufacturing sector has stagnated, and there has been a reversal of the process of structural transformation, with employment increasing in agriculture and in low-productive forms following the pandemic. The growth of the aggregate economy is not being reflected on the ground. While the government estimates a real GDP growth of around 7 per cent in recent years, wages have not kept up. According to the PLFS, nominal wages for regular wage workers at the all-India level between April and June 2023-24 has only grown at around 5per cent and that of casual workers at roughly 7 per cent. With an inflation rate of roughly 5per cent during this time, this implies that wage earners have seen little to no real wage growth. An economy cannot break a middle-income trap if workers are unable to partake in the growth process, as reduced consumption demand will become a drag on the economy. The challenge for policy is to promote state intervention to ensure growth while maintaining the sanctity of the democratic ethos (Menon). In recent times, climate change and its consequences create another bottleneck for already existing social infrastructure. For climate-resilient development, additional investments are needed, which renders water supply and sanitation services unaffordable. The development of water supply was challenged due to inflation on the market and a lack of capacity for project development in developing countries. Climate change resilience is added to these issues, and the water supply and sanitation service become the toughest tasks. The resilience of the water sources is a challenge that demands more technology and studies on our prediction. Climate change strongly changes the availability and consistency of water from shallow wells and surface water sources. These were the major sources of community water supply in most developing countries due to their low price and ease of construction (Bulti and Yutura).

Public Expenditure on the Social Sector of India including health & education is a major concern to improve the Human Development Index rank of the country. Although the Union Government assists the States by providing funds through different Centrally Sponsored Schemes (CSS) & Central Sector Schemes, the States also use their resources, prioritising and making the best allocation of the resources available. However, in the creation of sufficient social infrastructure facilities, India still lags behind. The notable lag is the poor performance in the HDI rankings compared to that of India's immediate international neighbours, Bangladesh, Sri Lanka, Bhutan and China. Achim Steiner, head of the UN Development Programme, said "The widening human development gap revealed by the report shows that the two-decade trend of steadily reducing inequalities between wealthy and poor nations is now in reverse. The failure of collective action to advance action on climate change, digitalisation or poverty and inequality not only hinders human development but also worsens polarisation and further erodes trust in people and institutions worldwide. In a world marked by increasing polarisation and division, neglecting to invest in each other poses a serious threat to our wellbeing and security. Protectionist approaches cannot address the complex, interconnected challenges we face, including pandemic prevention, climate change, and digital regulation," Mr. Steiner said. (The Hindu Bureau). Investing in Social Infrastructure aligns with the SDGS (United Nations) effectively addressing multiple goals which are interlinked with human progress.

Review of Literature

An increased government spending on those items that enter private production functions as productive public inputs enhances economic growth. Examples of such productive public spending

include public investment and (intragenerational and intergenerational) transfer payments, both of which generate positive externalities that raise private investment and thus economic growth. However, the size of government is limited by the need to fund such public spending by the levying of distortionary taxes, which reduce the marginal return to private capital, and so dampen economic growth. (Cashin)

The paper, analyses the trends in social sector expenditures by both central and state governments in India during the 1990s, examines how budget allocations to various social sectors such as education, health, and social welfare have evolved over the decade. The study discusses the impact of economic reforms on social sector spending, highlighting any shifts in priorities or changes in funding levels. The analysis differentiates between the spending patterns of central and state governments, providing insights into how responsibilities and financial commitments are distributed. The findings have implications for policy-making, particularly in terms of ensuring adequate funding for social sectors to promote inclusive growth and development (Dev and Mooij).

Education

(Harisha and Gopalappa) in their paper examine public expenditure on higher education as a percentage of GDP by the central and state governments. The analysis reveals that higher education receives a relatively low priority in resource allocation, as a significant portion of public spending on education is directed towards primary education. Despite a substantial expansion in India's higher education system since independence, government funding has not kept pace. Although there is a rising trend in public expenditure on higher education, the growth remains unsatisfactory. Experts and NITI Ayog have recommended increasing public education spending to six per cent of GDP. However, the country spends less than five per cent of GDP on education, with only one-tenth of this amount allocated to higher education, hindering the achievement of equity and quality in the sector. The study indicates that higher education has suffered in terms of relative priority, and statistical analysis shows a significant positive relationship between GDP and public investment in higher education in India. Despite its importance for national progress, higher education is undervalued, necessitating government action to increase funding for the sector.

After the Pandemic, learning loss is significantly higher in middle-income countries (MIC) and low-income countries (LIC), which already come from a low learning base. This situation positions around 86 per cent of the world's current student population at risk of encountering lower future earnings within countries with tighter economic restrictions. Education was hit the hardest in MIC. These countries account for 76 per cent of the world's student population and face a full year of lost learning, which will likely contract future annual earnings by 9 per cent and annual economic growth by 0.1 per cent. Future economic growth in LIC is likely to suffer the most because of pandemic-induced learning loss. LIC learning loss is equivalent to 0.7 years of education, which is likely to lead to a reduction of 7.4 per cent in annual earnings which will translate into a 7.5 per cent decrease in their annual economic growth. Larger learning losses and tighter economic restrictions put LIC and MIC countries at high risk of falling into a vicious cycle where low education spending produces less learning in the aftermath of the pandemic leading to lower economic growth, and lower economic growth produces even lower investment in education, and so on (Bend et al.).

Water and Sanitation

Demand for water resources has increased dramatically as a result of population and economic expansion. Consequently, 36% of the world's population now lives in water-stressed areas. Rapid urbanization, particularly in low- and middle-income nations, has caused a slew of water-related issues, such as degradation of water quality, insufficient water supply and sanitation facilities, and the rise of suburban and informal settlements. Good water quality is essential for human health, socio-economic development and ecosystems. However, as the population grows and the natural environment deteriorates, it becomes increasingly difficult to ensure adequate and safe water supply for all. A predominant part of the answer is to lessen pollutants and enhance wastewater control practices.

Water must be properly managed throughout the water cycle, from freshwater withdrawal, pretreatment, distribution, usage, collection, and post treatment to the usage of treated wastewater and its eventual return to the environment (Deepanraj et al.).

By bringing together different functions of water such as for sanitation, drinking water, irrigation and environmental pollution, it may be possible to identify synergies and trade-offs between all the functions. In the context of sanitation, the management of water reuse and pollution control by a single institution leads to a more effective, comprehensive and sustainable management of water However, the chief concern is that combining functions could lead to a loss of expertise and focus on specific areas of water management, potentially leading to less effective policies and programmes. For example, the consolidation of the Department of Water Affairs and Forestry with the Department of Environmental Affairs and Tourism in South Africa in 2009 has been criticised for reducing the focus on water management and sanitation. Similarly, in India, the merger of the Ministry of Water Resources, River Development and Ganga Rejuvenation with the Ministry of Drinking Water and Sanitation has faced challenges due to conflicting priorities and a lack of clarity around responsibilities. Another potential challenge is bureaucracy and red tape involved in decision making and implementation. This is because these processes may have to pass through more layers of approval and oversight. Furthermore, there may be conflicts of interest and priorities between different departments, potentially leading to less effective policies and programmes (Cisneros et al.).

Health

In the paper: "Analysis of Public and Private Healthcare Expenditures In India", states that public expenditure contributes a significantly small per centage in healthcare expenditure. Public healthcare expenditure in India is composed of states and central government allocations. The Centre provides direct and partial (matching grant) support to the states for meeting recurring and non-recurring expenditure of programs under this policy initiative. The states' share in the total revenue expenditure has been declining due to their fiscal problems and central support in their budgetary allocations is increasing. India has created a huge Public health service delivery but more than 60 per cent of the health budget is spent in the recurring costs of staff salary. Social sector allocations are almost all absorbed by staffing costs. Little remains for capital investment and maintenance of essential infrastructure. Governmental resource constraint and the compelling need for upgrading infrastructure, together pave the way for private sector growth. Dwindling financing support to the public health system and the perceived better-quality care in the private healthcare system is making people increasingly receptive towards the profit oriented, "fee-for-service" private sector. Private household expenditure is predominant in curative primary care, which is about 46 per cent of total health expenditure. Secondary and tertiary (hospital) care accounts for 27 per cent of the total. Although direct treatment costs in most public hospitals are largely subsidized, households have to bear substantial costs for purchase of medicines so that illnesses impose a heavy burden on the poor. Therefore, there is an urgent need for increasing government funding in providing health services (Bhat and Jain).

Over the past several years in India, states have spent close to 8-9 per cent of their revenue receipts on providing subsidies. States can provide subsidies on various items such as electricity, public distribution system, education, health and transportation. Subsidies form a part of revenue expenditure, which is used for largely non-capital formation items such as payment of salaries, pensions and interest liabilities, and dominates the Budget expenditure. On the other hand, capital expenditure tends to be lower but is used for capital and asset formation. Typically, high revenue expenditure is frowned upon and most governments focus on increasing capital expenditure, as is being done now, to boost growth. Higher subsidies can often mean a need to review the capital spending (Surabhi).

Public Expenditure

Dreze and Sen also found that Brazil had a fairly sophisticated administration in charge of screening applicants, and determining what sort of assistance they needed. The experience of India

in targeting poverty assistance has been 'far from encouraging', for reasons which Dreze and Sen set out in considerable detail (Booth).

In the White Paper on State Finances, the data shows significant fluctuations in the allocation of funds between different social sector categories over the past three decades. Education expenditure has been the highest priority, but its share has varied widely. Health expenditure has generally been lower than education but has increased in recent years. Water supply and sanitation expenditure has been more volatile. Overall social sector spending as a percentage of total government expenditure has ranged from 15-35 per cent in most years. The high variation in the year-on-year growth of capital expenditure and the fact that in some years like in 2012-13 to 2017-18, capital expenditure actually declined are causes for concern. Capital expenditure has become the first area where cuts are imposed to manage the fiscal deficit and this has considerable impact on growth prospects of the State's economy.

The Tamil Nadu government prioritizes social welfare schemes as a vital strategy for alleviating poverty among its citizens. Capital expenditure directed towards social infrastructure, such as schools, hospitals, housing, and sanitation plays a crucial role in enhancing the well-being of those affected by poverty and economic stagnation. By investing in these areas, the government not only generates employment opportunities but also improves access to essential services that are fundamental for economic growth and social development. This strategic intervention is essential for breaking the cycle of poverty, as improved resources empower individuals to uplift themselves. Ultimately, government investment in social infrastructure is not merely an economic necessity; it is foundational for fostering sustainable development and promoting social equity in Tamil Nadu.

Research Gap

There are few papers and research content on Capital Expenditure of Governments and its trend analysis. Social Sector Expenditure and thereby its Growth is the link between developing human capital that can contribute meaningfully to economic growth and the well-being of the nation. Some Literature suggests spending on public goods and services improves public welfare, improves the standards of living. Despite existing literature on public expenditure trends, there is a notable lack of focused studies analysing capital expenditure on social infrastructure in Tamil Nadu. This research aims to fill that gap by examining how these expenditures impact human capital development. This study analyses the trend in Government Capital expenditure on Social Infrastructure particularly Education, from 2001-2023 and the impact on Tamil Nadu State Domestic Product.

Objectives

1. To examine the pattern of Public Capital Expenditure on Social infrastructure in Tamil Nadu between 2000 and 2023.
2. To analyse the influence of Capital and Revenue Expenditure of Social Infrastructure on Tamil Nadu Gross State Domestic Product.

Methodology

Data

This study concentrates on the effect of Public Capital Expenditure on Social Infrastructure in Tamil Nadu. The required data is compiled from the published Annual Budget Statements by the Ministry of Finance, Government of Tamil Nadu. The period considered for the study is from 2001-02 to 2023-24. The Amount was converted to Lakhs wherever it was mentioned in crores for the sake of uniform analysis. Percentages are used to explain data characteristics like distribution, and patterns of the selected variables including Capital Expenditure on Education, Capital and Revenue expenditure on Social Infrastructure overheads specifically Education, Sports art and culture facilitating comparison and summary analysis.

Tools of Analysis

Trend Analysis

A linear equation in the form $Y = a + bX$ is employed to model the trend in Capital Expenditure on Education, Sports, Arts, and Culture. In this equation, Y signifies Capital Expenditure, while X represents the Year. The constants a and b denote the Y-intercept and the slope of the trend line,

respectively, with b indicating the average annual fluctuation in Capital Expenditure.

Linear Regression is used to study the pattern of public expenditure over the years as well as the impact of Capital Expenditure and Revenue Expenditure (on Social Infrastucture) on TNGSDP.

Linear Regression is Applied to Find Out

1. The influence of Capital Expenditure on TNGSDP The model used in the analysis is: $Y = \beta_0 + \beta_1 X$ Where Y=TNGSDP (Dependant Variable) X=Public Capital Expenditure (Independent)
2. The influence of Capital and Revenue Expenditure on TNGSDP The model used in the analysis is The model used in the analysis is: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2$ Where Y is the Dependant Variable TNGSDP and the explanatory variables are X_1 = Public Capital Expenditure and X_2 = Public Revenue Expenditure

Working Concepts

The following concepts are used in the analysis to analyze the trends in capital expenditure by the public sector in Tamil Nadu The social sector expenditure as the total of expenditure on 'social infrastructure' as given in central and state budgets (DEA) will be mentioned as Social Infrastructure in this study.

Capital expenditure is the expenditure incurred by the government to create fixed assets such as roads, bridges, irrigation structures, schools, hospitals, and investments made in public sector undertakings. Social Sector is also mentioned as Social infrastructure and represents all Social infrastructure components listed above.

In the definitions used by the budget, Capital Expenditure on the Social Sector includes expenditure on the following:

1. Education includes: General Education, Technical Education, Sports and Youth Services, Arts and Culture
2. Health includes Medical and Public Health, Family Welfare,
3. Water Supply and Sanitation,
4. Housing and Urban Development
5. Other Social Sector expenditure includes: Information & Publicity, Broadcasting, Welfare of SC, ST and OBC, Labour and Employment, Social Security & Welfare, Nutrition, Natural Calamities, Other Social infrastructure, Secretariat Social infrastructure & North Eastern Areas (DEA).

General Services include

(a) Organs of State; Parliament / State / Union Territory Legislatures, President, Vice President / Governor / Administrator of Union, Council of Ministers, Administration of Justice, Elections

(b) Fiscal Services (i) Collection of Taxes on Income & Expenditure Collection of Taxes on Income and Expenditure; (ii) Collection of Taxes on Property & Capital Transactions, Land Revenue, Stamps and Registration. Collection of Other Taxes on Property & Capital Transactions; (iii) Collection of Taxes on Commodities and Services, State Excise, Taxes on Sales, Trade etc. Taxes on Vehicles, Other Taxes and Duties on Commodities and Services; (iv) Other Fiscal Services, Other Fiscal Services

(c) Interest Payment and Servicing of Debt, Appropriation for Reduction or Avoidance of Debt, Interest Payments

(d) Administrative Services; Public Service Commission, Secretariat General Services, District Administration, Treasury and Accounts Administration, Police, Jails, Stationery and Printing, Public Works, Vigilance, Other Administrative Services

(e) Pensions & Misc. General Services; Pensions and Other Retirement Benefits; Miscellaneous General Services (DEA).

Economic services include

(a) Agriculture and Allied Activities: Crop Husbandry, Soil and Water Conservation, Animal Husbandry, Dairy Development, Fisheries, Forestry and Wildlife, Plantations, Food Storage and Warehousing, Agricultural Research and Education, Co-operation, Other Agricultural Programmes

(b) Rural Development: Special Programmes for Rural Development, Rural Employment, Land Reforms, Other Rural Development Programmes,

(c) Special Areas Programmes; Hill Areas

(d) Irrigation and Flood Control: Major and Medium Irrigation, Minor Irrigation, Command Area Development, Flood Control and Drainage,

(e) Energy, Power, Non-Conventional Sources of Energy

(f) Industry and Minerals, Village and Small Industries, Non-Ferrous Mining and Metallurgical Industries, Other Industries, Other Outlays on Industries and Minerals

(g) Transport: Ports and Light Houses, Shipping, Civil Aviation, Roads and Bridges, Road Transport, Inland Water Transport, Other Transport Services

(h) Science, Technology & Environment: Oceanographic Research, Other Scientific Research, Ecology and Environment

(i) General Economic Services: Secretariat-Economic Services, Tourism, Foreign Trade and Export Promotion, Census Surveys and Statistics, Civil Supplies, Other General Economic Services.

Analysis and Interpretation

Government intervention through capital expenditure in social infrastructure is not just an economic necessity; it lays the groundwork for sustainable development and social equity.

Table 1 Total-Public Capital Expenditure on Different Categories

Year	Expenditure On General Services	Total Expenditure On Social Infrastructure	Total Expenditure On Economic Services	Total - Capital Expenditure
2000-2001	15203.02 (9.83)	63414.96 (40.99)	76070.53 (49.18)	154688.51 (100)
2001-2002	15063.11 (8.47)	66600.33 (37.45)	96127.76 (54.07)	177791.2 (100)
2002-2003	17344.87 (10.66)	61606.19 (37.85)	83802.99 (51.49)	162754.05 (100)
2003-2004	25238.41 (7.03)	151225.27 (42.12)	182526.54 (50.84)	358990.22 (100)
2004-2005	37572.12 (8.23)	244946.95 (53.66)	173876.6 (38.10)	456395.67 (100)
2005-2006	12561.3 (3.10)	112123.63 (27.65)	280770.53 (69.25)	405455.46 (100)
2006-2007	19464.42 (3.27)	113210.41 (19.01)	462562.33 (77.71)	595237.16 (100)
2007-2008	27701.83 (3.71)	123886.19 (16.6)	594634.64 (79.69)	746222.66 (100)
2008-2009	23065.64 (2.53)	143396.79 (15.75)	743967.99 (81.72)	910430.42 (100)
2009-2010	52979.17 (6.18)	215065.81 (25.08)	589213.79 (68.73)	857258.77 (100)
2010-2011	74165.34 (5.96)	412317.38 (33.15)	757144.18 (60.88)	1243626.9 (100)
2011-2012	27407.07 (1.68)	482264.62 (29.52)	1123940.98 (68.80)	1633612.6 (100)
2012-2013	45665.69 (3.13)	514967.14 (35.34)	896134.71 (61.52)	1456767.54 (100)
2013-2014	60173.29 (3.50)	670900.14 (39.06)	986233.31 (57.43)	1717306.74 (100)
2014-2015	106360.61 (5.97)	423392.06 (23.78)	1250544.95 (70.24)	1780297.62 (100)
2015-2016	105392.85 (5.55)	566015.68 (29.79)	1228049.7 (64.65)	1899458.23 (100)
2016-2017	75083.41 (3.63)	604109.05 (29.17)	1391756.33 (67.20)	2070948.79 (100)
2017-2018	84733.26 (4.19)	473117.93 (23.41)	1462468.66 (72.39)	2020319.85 (100)
2018-2019	85778.71 (3.53)	699617.06 (28.77)	1645687.93 (67.69)	2431083.7 (100)
2019-2020	106444.92 (4.15)	585967.78 (22.86)	1870745.25 (72.99)	2563157.95 (100)
2020-2021	93658 (2.83)	1083117 (32.75)	1083117 (32.75)	3306765.0 (100)
2021-2022	78021 (2.11)	1498498 (40.48)	2124560 (57.40)	3701079.00 (100)
2022-2023	104098.49 (2.63)	1432377.3 (36.23)	2416515.78 (61.13)	3952991.57 (100)
2023-2024	115069.19 (2.71)	1470898.45 (34.58)	2667200.54 (62.71)	4253168.18 (100)
2024-2025	154621.21 (3.24)	1422174.05 (29.82)	3191335.11 (66.93)	4768130.37 (100)

Source: Compiled from Tamil Nadu budget papers (Ministry of Finance, Government of Tamil Nadu).

Note: Amount in Lakhs of Rupees, Figures in brackets represent percentages.

The overall analysis of the Total Public Capital Expenditure reveals that the highest priority has been on expenditure on economic infrastructure (49.18 to 81.72 percent), to meet the needs of development followed by expenditure on Social Infrastructure (15.75 to 53 percent) to maintain equity. Considering the importance of Public Administration, upkeep of the State, and Maintenance of Law and order,

Expenditure on General Infrastructure (1.68 to 10.66 per cent) is spent in the study period. Together these services create the necessary infrastructure to sustain the economic growth in the state. The year 2004-05 showed an increase in the expenditure on Social Infrastructure emphasising a shift in budgetary spending particularly in areas like health and education. Equal importance has not been given to Economic and Social Infrastructure development in all the years of study. Wherever expenditure on economic infrastructure is high, the state is forced to reduce allocation for social infrastructure to balance and vice versa. The variation in capital expenditure allocation between economic and social infrastructure in Tamil Nadu is shaped by a complex interplay of growth priorities, fiscal realities, urbanization pressures, political dynamics, project management outcomes, and external funding influences. These factors collectively determine how resources are distributed across different sectors over time.

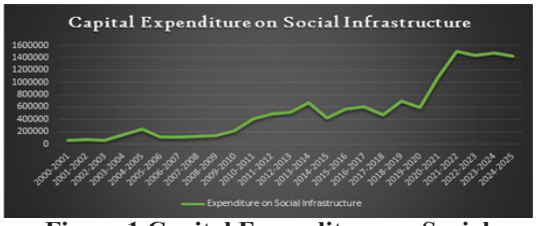

Figure 1 Capital Expenditure on Social Infrastructure

Source: Ministry of Finance, Government of Tamil Nadu

The figure presents data on the percentage of capital expenditure dedicated to social infrastructure by the Tamil Nadu government from 2000-2001 to 2024-2025. The overall expenditure has been progressively rising throughout the study period showing highlighting an increased focus on various social welfare programs like the Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS) and Dr. Muthulakshmi Reddy Maternity Benefit Scheme. The percentage of the total budget dedicated to social infrastructure has also been variable but shows a general upward trend. There was a sharp increase from 2020 owing to the increased spending due to health exigencies like the H1N1 and dengue outbreaks and the COVID-19 pandemic, which had at least 2,915,948 cases as of January 15, 2022, in Tamil Nadu, cording to the Ministry MoHFW statistics. Thereafter the expenditure on Health and Family Welfare remains unchanged without much variation.

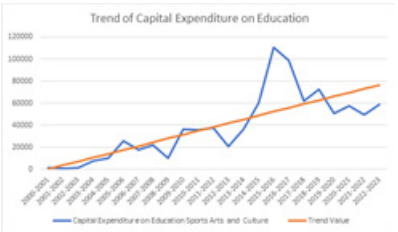

Figure 2 Trend of Capital Expenditure on Education

Table 2 Trend of Capital Expenditure on Education Sports Arts and Culture

Year	Capital Expenditure on Education Sports Arts and Culture	Trend Value
2000-2001	1366.54	258.29196
2001-2002	692.96	3729.31605
2002-2003	1359.18	7200.34014
2003-2004	7907.12	10671.36423
2004-2005	9938.33	14142.38832
2005-2006	26051.86	17613.41241
2006-2007	17894.15	21084.43650
2007-2008	22225.39	24555.46059
2008-2009	9977.16	28026.48468
2009-2010	36157.71	31497.50877
2010-2011	35846.81	34968.53287
2011-2012	37442.22	38439.55696
2012-2013	20800.66	41910.58105
2013-2014	36474.77	45381.60514
2014-2015	59825.35	48852.62923
2015-2016	110427.17	52323.65332
2016-2017	98924.95	55794.67741
2017-2018	61681.4	59265.70150
2018-2019	72527.24	62736.72559
2019-2020	50778.67	66207.74968
2020-2021	57828	69678.77377
2021-2022	49351	73149.79787
2022-2023	58631.17	76620.82196

Note: Amount in Lakhs of Rupees, Financial Accounts, Government of Tamil Nadu for years 2001-02 to 22-2023.

Source: Compiled from Tamil Nadu budget papers Ministry of Finance, Government of Tamil Nadu

The trend was fit for the data given in Table 2 and the results are given below.

The Trend for Capital Expenditure on Education Sports Arts and Culture is fit by using the following Linear Equation Y=a + bX where Y is the Capital Expenditure on Education Sports Arts and Culture and X is the Year. a and b are constants where a=Y intercept and b=slope of the trend line (average annual change in Capital Expenditure).

Y = -6945260.914 + 3471.024X. The above equation shows that, on average, Capital Expenditures on Education, Sports, Arts, and Culture increase by 3471.024 lakhs annually.

A negative y-intercept suggests that in the absence of capital expenditure on education (u=0), the outcome variable (y) would have a negative value. This indicates the necessity for an incremental increase in the minimum level of capital expenditure on education to achieve a positive outcome on the economy.

Regression

To find, the influence of Capital Expenditure on Tamil Nadu's Gross State Domestic Product (TNGSDP), Linear Regression was run (Table 3 appended below) and the results are given below.

Table 3 TNSDP and Expenditure Compiled from (Ministry of Finance, Government of Tamil Nadu)

Year	Tamil Nadu GSDP	Capital Expenditure on Education Sports Arts and Culture	Revenue Expenditure on Education Sports Arts and Culture	Total Capital Expenditure on Social Infrastructure	Total Revenue Expenditure on Social Infrastructure
2000-2001	14206500	1366.54	439599.87	63414.96	779220.86
2001-2002	13984200	692.96	429286.88	66600.33	767705.65
2002-2003	14229500	1359.18	414532.71	61606.19	797404.53
2003-2004	15081500	7907.12	417506.11	151225.27	859776.91
2004-2005	16808500	9938.33	459727.94	244946.95	968274.69
2005-2006	18807600	26051.86	501254.08	112123.63	1131640.64
2006-2007	20930200	17894.15	606110.4	113210.41	1302635.13
2007-2008	21853800	22225.39	684574.56	123886.19	1572562.88
2008-2009	22847900	9977.16	880414.93	143396.79	2137148.24
2009-2010	24112200	36157.71	1071113.45	215065.81	2295752.13
2010-2011	58489600	35846.81	1346576.93	412317.38	2890914.86
2011-2012	75148600	37442.22	1526584	482264.62	2611012.48
2012-2013	79182400	20800.66	1766183.98	514967.14	3862287.68
2013-2014	85197600	36474.77	2115584.44	670900.14	4527590.17
2014-2015	89391500	59825.35	2424417.58	423392.06	5034906.29
2015-2016	96756200	110427.17	2501605.89	566015.68	5480657.16
2016-2017	103676200	98924.95	2603354.52	604109.05	5529726.62
2017-2018	112579300	61681.4	2870676.81	473117.93	5979017.37
2018-2019	120466700	72527.24	3298354.05	699617.06	7020193.34
2019-2020	124383600	50778.67	3823899.47	585967.78	7399931.51
2020-2021	124465000	57828	3799998	1083117	8980485
2021-2022	134281700	49351	3818465	1498498	8874910
2022-2023	145192900	58631.17	445604.2	1432377.3	889675.9

Regression Estimates on Tamil Nadu GSDP with one Independent Variable

Variables	β	Std. Error	t
(Constant)	18937975.434	7290722.049	2.598
Public Capital Expenditure on Social Infrastructure	102.075	11.846	8.617
F= 74.249 (p = 0.000)		R^2 = 0.78	

Note: Dependent Variable: TNGSDP;
Significance level: $p < 0.05$

The significant F statistic reveals that the model is a good fit. The calculated regression coefficient reveals a positive relationship between Public Capital Expenditure on Social Infrastructure and TNGSDP. When Public Capital Expenditure on Social Infrastructure increases by one unit, the Gross State Domestic Product in Tamil Nadu increases by 102.075. Thus, it is evident that higher the expenditure on social infrastructure, the higher the increase in State GDP. Hence, the Government should improve the availability and access to social infrastructure and take necessary steps to provide education to the residents, which will result in economic progress and sustainable growth.

Regression Estimates on Tamil Nadu GSDP with Two Independent Variables

Variables	β	Std. Error	t
(Constant)		6352540.708	1.331
Public Capital Expenditure on Social Infrastructure	72.142	12.213	5.907*
Public Revenue Expenditure on Social Infrastructure	6.88	1.827	3.770*
F= 67.590		R^2 = 0.87	

Note: Dependent Variable: TNGSDP;
*Significance level: $p < 0.05$

The significant F statistic reveals that the model is a good fit. It is evident from the value of R2, that the variation in (TNGSDP) explains the variation in Public Capital Expenditure on Social Infrastructure to the tune of 87 percent. The value of the estimated regression coefficient of Revenue being less than the Public Capital Expenditure on Social Infrastructure indicates that an additional unit of Revenue expenditure contributes less to the growth of State GDP compared to an equal increase in Capital Expenditure on Social Infrastructure. This is consistent with economic theory which generally posits that the Revenue expenditure often finances operational activities while such expenditures are necessary for running the government machinery and supporting welfare, their direct contribution to economic output is often limited, whereas capital expenditure creates long-term productive assets fostering economic activity, employment, and higher GDP growth in the long term. Thus, the higher impact of Capital expenditure on GDP suggests that investments in infrastructure and productive capacity should be prioritized to stimulate economic growth. The results also imply that the Revenue expenditure must be managed prudently.

Findings

The study aimed to examine the pattern of Government Capital Outlay on Social Infrastructure, Economic Infrastructure and General Infrastructure in the State of Tamil Nadu and the significance of public expenditure on creation of social infrastructure with a special emphasis on education. The priority for allocation has been need-based and shows variation in the study period. The allocation has been the highest for Economic services, followed by Social Infrastructure and lastly General Services. High expenditure on economic service often forces reduced allocation for social infrastructure and vice versa. The Trend analysis for capital expenditure on education indicates an average annual increase of 3471.024 lakh rupees. Investment in education has a positive impact on the overall development of human capital, which subsequently exerts a positive influence on the economic and social development of the State. The analysis stresses the critical role that both capital and revenue expenditures on social infrastructure play in driving the economic growth in Tamil Nadu. Conclusively social infrastructure components have an effect of each other positively, when one component improves other components show good or partial improvement.

As per the regression analysis, every unit increase in total expenditure on social infrastructure, the GSDP increases by approximately 102.08 lakhs

when holding other factors constant. Considering this Government expenditure must be stepped up in areas of need through targeted interventions in facilitating the improvement of Social Infrastructure components.

It is important to note that the public expenditure data reflects the overall priorities and policies of the ruling government like social welfare or economic development and the balance of both. However, various factors such as economic conditions, central government policies, and specific development needs of the state have significant sway.

Conclusion

The creation of Social Infrastructure yields intangible assets like improving social quotient, better standards of living for the community and makes citizens responsible and participatory for long-term growth. In conclusion, this study demonstrates the significant impact of government spending on the creation of social infrastructure in Tamil Nadu, as evidenced by the analysis. Investments in social infrastructure not only foster community cohesion and enhance social capital but also drive economic growth and reduce inequality by empowering marginalized populations. Targeted and increased investments in education, healthcare, and sanitation are crucial for improving overall economic performance and ensuring equitable resource allocation. As Tamil Nadu anticipates substantial industrial development in the future, maintaining a focused approach to social infrastructure will be essential for addressing future challenges and promoting sustainable development.

References

Anirudh, T. R. *Tamil Nadu Budget Analysis 2024-25*. PRS Legislative Research, 2024.

Balan, Aliona, and Tatiana Gutium. "Social Infrastructure-Factor of Sustainable Development and Inclusive Growth in the Republic of Moldova." *Annual International Scientific Conference*, 2023.

Bend, May, et al. *Education Finance Watch 2023*. World Bank, 2023.

Bhat, Ramesh, and Nishant Jain. "Analysis of Public and Private Healthcare Expenditures." *Economic and Political Weekly*, vol. 41, no. 1, 2006, pp. 57-68.

Booth, Anne. "Government Policy Interventions." *Living Standards in Southeast Asia: Changes over the Long Twentieth Century, 1900-2015*, Amsterdam University Press, 2019, pp. 219-62.

Bulti, Adebe Tadesse, and Gonse Amelo Yutura. "Water Infrastructure Resilience and Water Supply and Sanitation Development Challenges in Developing Countries." *AQUA - Water Infrastructure, Ecosystems and Society*, vol. 72, no. 6, 2023, pp. 1057-64.

Cashin Paul. "Government Spending, Taxes and Economic Growth." *IMF Staff Papers*, vol. 42, no. 2, 1995, pp. 237-69.

Cisneros, Blanca J., et al. "Sanitation: An Unavoidable Public Responsibility." *Sanitation for All: A Women's Perspective*, IWA Publishing, 2024, pp. 15-46.

DEA, "Others." Department of Economic Affairs, Government of India.

Deepanraj, B., et al. "Technologies for Water Quality and Wastewater Management in Developing Countries." *Water Science & Technology*, vol. 84, no. 10-11, 2021.

Dev, Mahendra, and Jos Mooij. "Social Sector Expenditures in the 1990s: Analysis of Central and State Budgets." *Economic and Political Weekly*, vol. 37, no. 9, 2002, pp. 853-66.

Harisha, B., and D. V. Gopalappa. "An Analysis of Public Investment on Higher Education in India." *EPRA International Journal of Environmental Economics, Commerce and Educational Management*, vol. 10, no. 8, 2023, pp. 71-76.

Menon, Rahul. "Can India Escape Middle-income trap?." *The Hindu*, 2024.

Mohanty, Ranjan Kumar, and N. R. Bhanmurthy. "Analyzing the Dynamic Relationships between Physical Infrastructure, Financial Development and Economic Growth in India." *Asian Economic Journal*, vol. 33, no. 4, 2019, pp. 381-403.

PTI. "We should have a more Informed and Vigorous Debate on Freebies: Ex-RBI chief Subbarao." *The Hindu*, 2024.

Surabhi. "The Economics of Election Freebies." *Business Today*, 2024.

The Hindu Bureau. "India ranks 134th in Global Human Development Index, says UNDP Report." *The Hindu*, 2024.

United Nations. *Transforming Our World: The 2030 Agenda for Sustainable Development*. 2015.

Authors Details

Dalia Ignatius, *Doctoral Research Scholar, Department of Economics, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India,* ***Email ID:*** *d.ignatius991@gmail.com*

Dr. L. Ganesan, *Professor and Chair, School of Social Sciences, Department of Economics, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India,* ***Email ID:*** *l.ganesan2008@gmail.com*