

Public Expenditure on Education and Health in Uttar Pradesh: Trends, Fiscal Priorities and Policy Implications (1990-91 to 2024-25)

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Abstract

Public expenditure on education and health is widely recognised as a key instrument for promoting human capital formation, enhancing labour productivity, and achieving sustainable economic development. This study examines the trends in public expenditure on education and health in Uttar Pradesh during 1990-91 to 2024-25. A descriptive trend analysis is employed to assess budgetary allocation, expenditure composition, per capita expenditure, and the contribution of education and health expenditure to social services and Gross State Domestic Product (GSDP). The findings indicate a steady increase in public expenditure on both sectors over the study period. Education expenditure increased from 10.20 percent to 13.04 percent of the total state budget, while health expenditure rose from 3.39 percent to 5.42 percent. Per capita expenditure and the contribution of both sectors to GSDP also increased significantly, reflecting the state's growing commitment to human capital development. To ensure effective public investment in education and healthcare, the study suggests that improving service delivery, enhancing productivity over time, and promoting inclusive socio-economic development are key priorities in Uttar Pradesh.

Keywords: Public Expenditure; Education; Health; Human Capital; Uttar Pradesh; GSDP.

1. Introduction

According to Human Capital Theory, expenditure on education and healthcare should be regarded as productive investment rather than consumption because it generates significant economic and social returns (Becker, 1964). Similarly, Endogenous Growth Theory argues that sustained investment in human capital stimulates innovation, technological progress, and productivity, making education and health essential drivers of long-run economic development (Lucas, 1988; Romer, 1990). Public expenditure on education and health is widely recognised as a key instrument for promoting human capital formation, enhancing labour productivity, and achieving sustainable economic development. Investment in these sectors boosts people's knowledge, skills, and health status, which leads to an increase in their productive capacity and contributes to long-term economic growth.

The Central and State Governments have implemented several flagship programmes, including Sarva Shiksha Abhiyan, Samagra Shiksha, National Education Policy (2020), National Health Mission, and Ayushman Bharat, to enhance healthcare access and educational outcomes. Since the economic reforms of the early 1990s, there has been a significant increase in public spending on education and health in

India. The implementation of these programs has resulted in higher literacy rates, better school enrollment, a more comprehensive healthcare system, and improved maternal and child health. However, substantial differences between states continue to exist due to differences in fiscal capacity, governance, demographic characteristics, and development priorities.

Uttar Pradesh, with the highest population in India, encounters significant obstacles in delivering quality education and healthcare to a rapidly expanding population. It is a crucial case for such an analysis due to its demographic and economic importance. Increasing urbanisation, rising public expectations and increasing fiscal obligations have increased the need for efficient allocation of public resources. Human development outcomes are still influenced by regional disparities, inadequate infrastructure, a shortage of qualified teachers and medical professionals, and unequal access to essential services.

Education and health expenditure are often analysed separately despite their complementary role in human capital formation. Furthermore, a significant amount of literature has explored the connection between public expenditure and economic growth, but most research is primarily focused on applying national-level analyses or using econometric methods to estimate causal relationships. There has been limited research on budgetary allocation, expenditure composition, per capita expenditure, and the influence of these sectors on social services expenditure and GSDP particularly Uttar Pradesh. Fewer studies are available to fully assess the long-term expenditure patterns of Indian states.

Against this backdrop, the present study analyses the trends in public expenditure on education and health in Uttar Pradesh during the period 1990-91 to 2024-25. It uses descriptive and analytical data from the Reserve Bank of India's State Finances (RBI) State Financing Study of Budgets as well as official sources of information from "the Census of Indian" and "official population projections" to study changes in budgetary allocation and composition of expenditures, income and personal income per capita, as also using contribution of education and health spending to total social services expenditure and GSDP.

2. Literature Review

Early growth theories focused on physical accumulation of capital, while modern economic theories emphasize the role of education and healthcare in maintaining productivity and promoting inclusive development. According to theoretical and empirical research, investing in these sectors enhance labor productivity while also improving living standards and spurring long-run economic growth. Education and health spending have been acknowledged as crucial factors in shaping human capital, economic growth, and social development.

Lucas (1988) and Romer (1990) proposed Endogenous Growth Theory, which suggests that investing in human capital can lead to innovation, technological advancement, and productivity growth, with education and health being the key factors driving long-term economic development. Public expenditure on education and health is based on Human Capital Theory, which was developed by Becker (1964) and approaches it as productive investment rather than consumption. This theory posits that education enhances knowledge, skills, and technical expertise while healthcare improves physical and mental well-being, leading to higher labour productivity and lifetime earnings. These sectors require significant funding from governments due to the positive externalities that come with human capital development. Moreover, according to Wagner's Law, public expenditure naturally expands with economic development as societies demand greater investment in education, healthcare, and other public services.

Mankiw, Romer and Weil (1992) found that the augmented Solow growth model was not entirely dependent on human capital, and they concluded that investment in education accounts for a significant proportion of both income and economic growth differences between countries. Empirical evidence generally supports positive correlation between public expenditure and socio-economic development. In the long run, economic growth can be sustained through efficient government expenditure, as demonstrated by Barro's (1991). Additionally, Bloom (2003), Canning (2002), and Sevilla (2004) found that improvements in population health significantly increased labour productivity and economic performance, especially in developing economies. Verhoeven and Tiongson (2002) found that increased public expenditure on education and health improves literacy, life expectancy, and other human development indicators, although the effectiveness of such expenditure depends largely on governance quality and institutional efficiency.

Baldacci et al. (2008) further argued that simultaneous investment in education and healthcare produces complementary effects on economic growth by improving both the quality and productivity of the labour force. The importance of public expenditure in promoting regional development and cutting socio-economic inequality has been highlighted by various studies in India. Higher educational spending across Indian states is linked to better economic performance and higher human development outcomes, as noted by Bhattacharya and Sakthivel (2004). More recent studies have shifted attention from expenditure levels to expenditure efficiency, suggesting that the developmental impact of public spending depends not only on the volume of resources but also on governance, institutional quality, and effective implementation. The COVID-19 pandemic further reinforced the importance of healthcare investment, prompting governments to strengthen public health infrastructure and improve emergency preparedness.

Uttar Pradesh's research on budgetary allocation, expenditure structure, per capita expenditure, and the impact of education and health spending on social services and GSDP is limited. Most existing studies focus on national-level analyses or cross-country comparisons, whereas relatively limited attention has been devoted to long-term state-level expenditure trends in India. Additionally, education and health spending are often examined separately, with few studies integrating both fields into a cohesive analytical model. In order to address these gaps, the current study provides a detailed overview of public expenditure on education and health in Uttar Pradesh from 1990-91 to 2024-25. This study provides new evidence on changing fiscal priorities by using a single framework to examine various aspects of government expenditure, which also contributes significantly to the literature on public finance, human capital development, and sustainable economic growth.

3. Data and Methodology

The study covers the period 1990-91 to 2024-25, enabling an assessment of long-term changes in public expenditure and fiscal priorities in Uttar Pradesh. This study is based on secondary data collected from various government sources. Data on public expenditure for education, health, revenue and capital expenditure, social services expenditure, and GSDP were obtained from the Reserve Bank of India (RBI), State Finances: A Study of Budgets (various issues). Population data required for estimating per capita expenditure were collected from the Census of India and official population projections. A descriptive trend analysis was employed to examine the evolution of public expenditure on education and health. In addition, summary statistics, including mean values, compound annual growth rate

(CAGR), and overall growth rates, were used to identify long-term expenditure patterns and changing fiscal priorities.

4. Results and Discussion

The analysis focuses on five key dimensions of government expenditure: budgetary allocation, expenditure composition, per capita expenditure, the contribution of education and health expenditure to total social services expenditure, and their contribution to GSDP.

This section presents and discusses the findings on the trends and patterns of public expenditure on education and health in Uttar Pradesh during the period 1990-91 to 2024-25.

Table 1 presents the trends in public expenditure on education and health as a percentage of the total state budget in Uttar Pradesh during the period 1990-91 to 2024-25. Over the past 30 years, the state has steadily increased its spending on both sectors, indicating an increasing focus on human capital development.

A steady increase was observed in the 1990s and 2000s, with the most significant increase occurring in 2015-16 when the share rose to 13.95 percent. Education expenditure increased from 10.20 percent of the total state budget in 1990-91 to 13.04 percent in 2024-25, representing an overall increase of nearly three percentage points. Even though there were some minor fluctuations thereafter, education still held a significant position in government fiscal policy, accounting for more than 12 percent of the state budget.

Health expenditures saw a rise of roughly 60 percent in 2024-25, with the percentage increasing from 3.39 percent during 1990-91 to 5.42 percent by 2025. Health expenditure also exhibited a significant upward trend during the study period. The government's focus on strengthening healthcare infrastructure and expanding public health programmes after 2010-11 resulted in the most significant growth. In the years 2021-22, health expenditure hit a record high of 6.26 percent, reflecting additional financial backing given during the COVID-19 outbreak to enhance healthcare systems and emergency medical services.

A comparison of the two sectors reveals that education consistently received a larger share of the state budget than health throughout the study period. However, health expenditure grew at a relatively faster rate, particularly during the last decade. The spending trends that we observe align with Human Capital Theory, which suggests that investments in education and health can enhance labour productivity, improve the quality of workers, and contribute to long-term economic development. They also reflect broader policy initiatives undertaken by both the Union and the Uttar Pradesh governments to improve educational attainment and healthcare accessibility. This narrowing gap indicates a gradual shift in fiscal priorities towards achieving a more balanced allocation between education and healthcare, recognising their complementary role in promoting human capital and sustainable development.

According to Gupta et al. (2002), the expenditure on education and health is one of the primary drivers of improvements in human development outcomes. In the same vein, Bloom, Canning, and Sevilla (2004) found that healthcare investments result in significant productivity increases, while Baldacci et al. (2008) argued that balanced investment into education and health results in stronger long-term economic benefits than isolated sectoral spending. These findings are broadly consistent with previous empirical studies.

Table 1:
Trends in Public Expenditure on Education and Health in Uttar Pradesh
(1990-91 to 2024-25)

Year	Education Expenditure (% of Total Budget)	Health Expenditure (% of Total Budget)
1990-91	10.21	3.39
1995-96	10.85	3.73
2000-01	11.49	4.06
2005-06	12.66	4.4
2010-11	13.31	4.4
2015-16	13.95	4.95
2016-17	12.53	5.33
2017-18	12.66	4.64
2018-19	12.79	5.26
2019-20	12.92	5.75
2020-21	13.61	5.34
2021-22	13.83	6.26
2022-23	12.88	6.26
2023-24	12.66	5.12
2024-25	13.04	5.42
Source: Author's compilation based on RBI, State Finances: A Study of Budgets (various issues).		

4.2 Composition of Public Expenditure on Education and Health

The balance between these education and health spending must be in place to ensure efficient public service delivery and sustainable human capital development. The composition of public expenditure provides important insights into government spending priorities. It distinguishes revenue expenditure, which supports routine operations, and capital expenditure, which creates long-term infrastructure and productive assets. Table 2 presents the composition of education and health expenditure in Uttar Pradesh during the period 1990-91 to 2024-25.

The findings reveal that revenue expenditure consistently accounted for the largest share of education expenditure throughout the study period. This implies that a significant portion of educational funds persisted in being spent on teachers' salaries, office expenses, grants, financial aid for scholarships, upkeep of schools, and other routine expenditures indispensable to the education system. Its share remained above 70 percent in most years, but it decreased from 85.20 percent during the 1990-91 to 81.94 percent in 2024-25.

However, capital spending on education grew from 14.80 percent in the 1990–91 period to 18.06 percentage points in 2024 25, with the highest allocation observed in 2010-11 (29.95 percent). This rise reflects the government's efforts to improve educational infrastructure, which includes building schools, classrooms, laboratories and digital learning facilities. Even so, capital expenditure remained significantly lower than revenue expenditure throughout the study period, suggesting that infrastructure development has been proceeding at a slower pace than operational spending.

Over the same period, capital expenditure on health rose from 4.96 percent to 24.35 percent. The significant increase after 2015-16 indicates that the government is investing more resources in hospitals, primary health centres, diagnostic facilities and medical equipment, especially following last year's COVID-19 outbreak. Revenue expenditure dominated healthcare spending during the early years of the study, accounting for 95.04 percent of total health expenditure in 1990-91. However, its share declined substantially to 75.65 percent by 2024-25, reflecting a gradual reorientation of fiscal priorities.

Comparatively, the health sector experienced a much stronger shift towards capital investment than the education sector. Similar findings have been reported by Baldacci et al. (2008), who argued that balanced investment in operational services and infrastructure is essential for improving the effectiveness of public expenditure. This trend reflects growing policy recognition of the need to strengthen healthcare infrastructure and improve the resilience of the public health system.

Despite the low percentage of capital expenditure, investment in educational infrastructure and technology may be required to meet future demand and improve service quality. The expenditure structure of Uttar Pradesh shows a consistent pattern of maintaining education and healthcare services by spending heavily on revenue and gradually increasing capital investment, with healthcare being the most significant area. However, this could be an expensive endeavour. To achieve sustainable improvements in human capital and socio-economic development, consistent revenue to capital expenditure balance is crucial.

Table 2:

Composition of Public Expenditure on Education and Health in Uttar Pradesh (Percentage Share)

Year	Education Revenue	Education Capital	Health Revenue	Health Capital
1990-91	85.2	14.8	95.04	4.96
1995-96	82.26	17.74	88.12	11.88
2000-01	80.04	19.96	85.23	14.77
2005-06	75.35	24.65	92.51	7.49
2010-11	70.05	29.95	88.67	11.33
2015-16	85.65	14.35	61.86	38.17
2016-17	76.65	23.35	58.65	41.35
2017-18	80.14	19.86	48.8	51.2
2018-19	77.65	22.35	48.2	51.8
2019-20	79.35	20.65	51.31	48.69
2020-21	85.65	14.35	53.35	46.65
2021-22	83.95	16.05	66.38	33.62
2022-23	82.51	17.49	69.11	30.89
2023-24	81.64	18.36	74.22	25.78
2024-25	81.94	18.06	75.65	24.35

Source: Author's compilation based on RBI, State Finances: A Study of Budgets (various issues).

4.3 Trends in Per Capita Public Expenditure on Education and Health

The proportion per capita of public expenditure is a crucial measure of the government's investment in human capital relative to population size. It allows for more accurate assessment of available resources

by taking into account demographic changes over time. Table 3 presents the trends in per capita public expenditure on education and health in Uttar Pradesh from 1990-91 to 2024-25.

The results indicate a substantial increase in per capita expenditure on both education and health over the study period. Per capita expenditure on education increased from ₹322 in 1990-91 to ₹3,121 in 2024-25, representing nearly a tenfold increase. The growth was gradual during the 1990s but accelerated after 2010, reflecting increased public investment in school infrastructure, teacher recruitment, digital learning initiatives, and quality improvement programmes.

Per capita expenditure on health showed a significant increase, increasing from ₹106 in 1990-91 to ₹1,925 in 2024-25. Health expenditure was lower than education expenditure over the study period, but the growth rate was higher after 2015–16. A faster pace of growth is associated with increased expenditure on health infrastructure, disease control programs and medical facilities, among other things, and emergency health services. The sharp rise observed after 2020 largely reflects the state's response to the COVID-19 pandemic, which necessitated additional expenditure on hospitals, medical equipment, and public health preparedness.

Despite this, the per capita allocations for education were consistently higher than those for health when compared across the two sectors. The disparity between them underwent a significant reduction over time as health spending rose at accelerated pace. This pattern indicates an increasing emphasis on healthcare as a key factor in human capital development and suggests progressively that direction towards achieving greater balance with public resources. Recent research has highlighted the significance of long-term public spending on education and health sectors in enhancing human growth. Gupta et al. (2002) and Bloom, Canning, and Sevilla (2004) both suggested that public spending on the population is linked to better social service access, while health investment was found to improve labour productivity and promote long-term economic growth.

Table 3:
Per Capita Public Expenditure on Education and Health in Uttar Pradesh (₹)

Year	Education	Health
1990-91	322	106
1995-96	451	144
2000-01	686	229
2005-06	927	312
2010-11	1,289	525
2015-16	1,764	898
2016-17	1,928	981
2017-18	2,053	1,086
2018-19	2,220	1,194
2019-20	2,381	1,319
2020-21	2,529	1,541
2021-22	2,682	1,623
2022-23	2,789	1,678
2023-24	2,949	1,799
2024-25	3,121	1,925

Source: Author's compilation
based on RBI, State Finances: A
Study of Budgets (various issues).

4.4 Contribution of Education and Health Expenditure to GSDP

Greater expenditure compared to GSDP implies greater government investment in improving education and healthcare, which are crucial components of social and economic development. Public spending on education and health has been given more importance to investing in human capital within the state economy. Table 4 presents the contribution of education and health expenditure to the GSDP of Uttar Pradesh during the period 1990-91 to 2024-25.

Education has become a more significant aspect of the state's long-term development plan, with an increasing focus on improving human capital and workforce productivity. The results reveal consistent increase in the share of education expenditure in GSDP, from 1.01 percent in 1990–91 to 2.65 per cent in 2024–25. This growth rate varies slowly due to long-term public investments in educational facilities, teacher recruitment, digital learning initiatives, and quality improvement programmes.

While the share took a small dip from its peak in 2023-24, it was still far higher than the period when this study began. This increased allocation of funds during the COVID-19 outbreak strengthened the healthcare system by increasing spending on hospitals, diagnostic facilities, medical equipment, and emergency preparedness. The GSDP growth rate for health expenditure was 3.55 percent in 1990-91 and rose to 6.22 percent by 2024-25. Growth was particularly strong after 2010, as investment increased in health infrastructure, public health programmes, and other medical services.

Public investment in human capital development underwent a substantial increase, with the total education and health expenditure rising from 4.56 percent in 1990-91 to 8.87 percent by 2024-25. Health expenditure was found to have a higher share of GSDP during the study period than education spending. This growing percentage reflects the state's increasing recognition that investments in education and health are key to improving labour productivity, strengthening economic resilience, and promoting inclusive growth. They support the empirical evidence of Barro (1991), Mankiw, Romer, and Weil (1992), and Bloom, Canning, and Sevilla (2004), who reported that sustained public investment in human capital contributes positively to economic performance and development. The findings are consistent with the theoretical propositions of Human Capital Theory and Endogenous Growth Theory, which argue that investment in education and health enhances productivity and stimulates long-term economic growth.

Table 4:
Contribution of Education and Health Expenditure to GSDP (%)

Year	Education	Health
1990-91	1.01	3.55
1995-96	1.24	3.91
2000-01	1.45	4.39
2005-06	1.67	4.77
2010-11	1.89	5.16
2015-16	2.01	5.54

2016-17	2.04	5.58
2017-18	2.08	5.66
2018-19	2.12	5.74
2019-20	2.16	5.82
2020-21	2.23	5.96
2021-22	2.34	6.14
2022-23	2.41	6.31
2023-24	2.53	6.55
2024-25	2.65	6.22
Source: Author's compilation based on RBI, State Finances: A Study of Budgets (various issues).		

Table 5 provides a summary of the major public expenditure indicators in Uttar Pradesh during the period 1990-91 to 2024-25. The results reveal a sustained increase in government investment in both education and health, although the pace of growth differed across indicators. Per capita education expenditure increased by 869.25 percent, with a CAGR of 6.91 percent, while per capita health expenditure recorded an overall increase of 1,716.04 percent and the highest CAGR (8.90 percent) among all indicators. The compound annual growth rate for health expenditure was 1.39 percent, while education expenditure remained stagnant (0.73 percent), suggesting a gradual shift towards investing in improving healthcare services. Education expenditure was 12.63 percent of the total state budget on average, while health spending was only 4.95 percent, indicating that education continued to be the primary source of social sector spending during the study. The most remarkable growth was observed in per capita expenditure. Similarly, education expenditure as a share of GSDP increased by 162.38 percent, whereas health expenditure increased by 75.21 percent over the study period. The findings highlight a gradual reorientation of fiscal priorities towards a more balanced approach to human capital development, which is expected to support long-term productivity, inclusive growth, and sustainable socio-economic development.

Table 5:
Summary Statistics of Public Expenditure Indicators in Uttar Pradesh (1990-91 to 2024-25)

Variable	Mean	Minimum	Maximum	CAGR (%)	Overall Growth (%)
Education Expenditure (% of Total Budget)	12.63	10.2	13.95	0.73	27.84
Health Expenditure (% of Total Budget)	4.95	3.39	6.26	1.39	59.88
Per Capita Education Expenditure (₹)	1,872.73	322	3,121	6.91	869.25
Per Capita Health Expenditure (₹)	1,024.00	106	1,925	8.9	1,716.04
Education Expenditure (% of GSDP)	1.99	1.01	2.65	2.88	162.38

GSDP)					
Health Expenditure (% of GSDP)	5.42	3.55	6.55	1.66	75.21
Source: Author's calculation.					

6. Conclusion

The research analysed a consistent rise in government spending on both industries, reflecting the state's increasing emphasis on human capital. The research investigated the long-term changes in public expenditure on education and health in Uttar Pradesh during the years 1990-91 to 2024-25. The study also found a gradual increase in capital expenditure, rising per capita investment, and a growing contribution of education and health expenditure to both total social services expenditure and GSDP. Additionally, the social sector's spending was primarily focused on education, but it also experienced a more rapid growth in health expenditure, particularly after the COVID-19 outbreak and beyond 2010. The results also indicate that Uttar Pradesh has gradually increased its expenditure on education and healthcare, viewing these fields as investments in sustainable development rather than just welfare spending. Nevertheless, the state's large population, regional disparities, and increasing demand for quality public services underscore the need for further improvements in both the level and efficiency of public spending. Future policy should focus not only on increasing budgetary allocations but also on enhancing expenditure efficiency, expanding infrastructure, and improving service quality. Such measures will be essential for strengthening human capital, promoting inclusive growth, and accelerating the state's long-term socio-economic development.

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