

Fiscal Federalism and School Education: A comparative study of educational infrastructure and spending capacities in Northern and Southern India

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ABSTRACT

Education is a part of the Concurrent List of the Indian Constitution; therefore, it is financed by center as well as the state governments. However, this budget is not fairly distributed among the states and there are also variations in the amount that states spend. Thus, it is necessary to analyze the allocations by center to different states and their spending of budget on the school education while paying importance to the issue of north and south divide which prevails within India's fiscal federalism. The study attempts to assess and generate findings by interconnecting the themes of fiscal federalism in India, structural and institutional capacities of states, educational infrastructure and development, and the impact of Covid 19. The paper presents quantitative, comparative and descriptive-analytical research design using secondary data (2018-2024). Mean, median, minimum, maximum, and standard deviation are used to measure central tendency and variability which are presented through graphical illustrations. It examines allocation and utilization of central government school education budgets across Indian states, state-wise analysis of the ten largest budget states, region wise analysis, comparative analysis of north versus south and the effects of COVID-19 pandemic. The findings reveal that there is a rise of 56.5% in national allocation for school education over six years. Nationally only 92.26% of allocated funds get spent where spendings of south are 94.71% and north are 91.19%. The northern states like Uttar Pradesh, Bihar have large allocations but a low spending percentage comparatively southern states like Tamil Nadu, Karnataka also have large allocations, but their spending percentages are higher. This indicates that only increase in the school education budget is not sufficient. To improve the educational infrastructure and institutional capacity, efficient utilization of funds should be there while trying to remove the constraint of regional disparity.

Keywords: *Fiscal federalism, school education, infrastructure and institutional development, Covid-19 pandemic.*

INTRODUCTION

Education is one of those shared responsibilities under India's federal structure, which falls on the Concurrent List and is financed through a complex interplay of central transfers, state budgets and centrally sponsored schemes. This arrangement reflects that the quality and reach of school education, including classroom to teacher salaries, depends not only on policy design but also on the fiscal architecture used for channeling resources from the union to the states. The graph of budget allocation has increased over time. In 2018-19, the combined allocation across various schemes was about ₹68,881 crore, which by 2023-24, had climbed to roughly ₹1,07,822 crore- an increase of more than 56% in six years.

Fiscal Federalism, broadly understood as the division of financial powers and responsibilities across tiers of government, stands as one of the core explanations for why educational outcomes vary so sharply across the Indian states. Structural, institutional, and absorptive capacity are 3 major intersecting concerns that govern the state's ability to transform fiscal allocation into actual educational outcomes. The formal architecture of the state governance and educational delivery system, the soft architecture of administrative rules and regulatory compliance, and the state's ability to effectively and efficiently use increments of funding within a given time frame are the criteria that tell us about a state's overall performance in the field of education (Bhattacharjee et al., 2024).

Various education commissions and policies such as the Kothari Commission (Education Commission, 1966), National Policy on Education (Ministry of Human Resource Development, 1986), and National Education Policy (Ministry of Education, 2020) have recommended the allocation of at least 6 per cent of national income for the provision of public education. The goal of allocating 6 per cent of GDP to education remains unfulfilled to date, in spite of assurances made by various successive governments (Ramanjini and K Gayithri 2023). Over six years, about ₹4,98,594 crore was allocated for various scheme implementations, and roughly ₹4,60,005 crore of it was spent. That leaves close to ₹38,589 crore- about 7.7% of the total amount unused.

The local levels face red tapeism in states that have a highly centralized state house structure for implementing education policies and getting funds cleared. Many states rely heavily on central transfers to fund education, which often come with structural conditionalities. Poor institutional quality, characterised by corruption, low government effectiveness, or political instability, acts as a direct tax on education spending. Due to weak planning capacity, states

often fail to clear technical evaluations, tender bids, or approve school infrastructure projects in the first three quarters of the fiscal year, resulting in an unabsorbable surplus in the final quarter.

These problems and variations in educational spending are more persistently visible in the divergence between the northern and the southern states. Southern states such as Tamil Nadu and Kerala have historically posted stronger indicators on social infrastructure, teacher-pupil ratios, and learning outcomes, while several northern states continue to lag despite receiving substantial amounts of funds and central transfers (Asadullah & Yalonetzky, 2012). Various reasons, such as differences in state fiscal capacity and administrative efficiency, account for such an existing range.

Existing research highlights that education financing is deeply influenced by fiscal federalism through intergovernmental transfers, center-sponsored schemes, and tax devolution (Chakraborty, 2019). Prior researchers have examined the impact of state absorptive capacity, education expenditure, administrative efficiency, and both physical and digital infrastructure on improving educational results (Patra et al., 2025; Pritam & Shaikh, 2024; Tripathi & Grigoriadis, 2020). Moreover, the covid 19 pandemic study revealed that differences in institutional capacity and financial management broadened regional disparities in school education (Bose & Sharma, 2023; Jacob & Chakraborty, 2021).

However, these aspects have been widely studied individually. For instance, literature on fiscal federalism limits itself to defining center-state fiscal relations and transfer mechanisms, while research on educational infrastructure primarily concentrates on physical facilities, digital access, or learning outcomes. What these studies fail to mention is the correlation between these matters—how the transfer of money directly affects the educational facilities. Similarly, research on absorptive capacity and administrative efficiency elucidates differences in fund utilization without explaining how it impacts the educational infrastructure within this broader framework. Furthermore, despite consistent evidence that northern and southern states vary significantly in their expenditure patterns and educational performance, little comparative analysis combining all these dimensions exists. Therefore, there lies limited understanding.

To address this gap, examining how fiscal federalism influences state spending capacities and how these differences are reflected in educational infrastructure across North and South Indian states becomes crucial. Accordingly, this study seeks to answer how fiscal federalism

influences the spending capacities of North and South Indian states, and how differences in spending capacity affect the development of school educational infrastructure.

To support this central question, the study includes research conducted on specific sub-questions, examining how fiscal transfers and spending capacities vary in the northern and southern states of India, and how and to what extent these variations impact the educational infrastructure.

The significance of this study lies in its objective to explore the impact of fiscal federalism on funding for school education, assess the financial capabilities of chosen North and South Indian states, evaluate the condition of educational infrastructure, and analyze how state spending capacity correlates with infrastructural advancement.

LITERATURE REVIEW

The educational expenditure variation and the gap between budget and expenditure is persistently visible in the divergence between the northern and the southern states. However, only a few studies have systematically explained how the fiscal federalism framework itself, the scheme design and state's absorptive capacity contributes to this north-south gap. (Chakraborty, 2019; Ramanjini & Gayithri, 2023)

This review draws together literature across four interconnected themes to build a comprehensive picture of the problem. It begins with the basic structure of fiscal federalism in India, then turns to the structural and institutional capacities that determine how effectively states convert fiscal transfers into outcomes. It then examines the structural and infrastructural dimensions of educational development. Finally, it provides the COVID-19 period as a critical test of these fiscal and institutional infrastructure, giving meaningful insights into state-level resilience and responsiveness.

2.1 ARCHITECTURE OF THE FISCAL ECONOMY

The fiscal authority under the Indian Constitution distributes itself across the Union, State and Concurrent List. Particularly since the 80th Constitutional Amendment (2000) has made all central taxes to be shareable, a structural vertical fiscal imbalance has arisen. As of 2021, state governments were responsible for 62.4% of overall government expenditure, while state governments collected 37% (RBI, 2024) of all revenues. Therefore, transfers from the Finance Commission, NITI Aayog, and Centrally Sponsored Schemes (CSS) were required to fill this fiscal gap.

To varying degrees, the grants, and aid packages, of the 15th Finance Commission, which included revenue deficit grants (₹2.9 lakh crore), sectoral grants (₹1.3 lakh crore, education being one of the eight sectors), specific state grants (₹49,599 crore), and grants to local bodies (₹4.36 lakh crore), indicates the extent of these transfers. CSS and Central Sector Schemes account for about 30% (Fifteenth Finance Commission, 2020) of the total resources transferred to states. As a result of a trade-off designed to achieve horizontal equity with minimal fiscal self-governance, the state of Karnataka, which is one of the industrially developed states, receives ₹0.15 for every ₹1 it contributes to the scheme, while the state of Bihar receives ₹7.06, reflecting the diverge division between the two regions. Reddy (2025) agrees to this pattern, finding that southern states contribute a disproportionately larger share of national tax revenue yet receive comparatively smaller fiscal transfers than several northern states under the Finance Commission's redistribution criteria.

Chakraborty (2019) argues that though recent reforms like the abolition of the Planning Commission, higher tax devolution and the GST council have strengthened fiscal federalism overall, conditional CSS transfers financed through non-shareable cesses continue to erode state autonomy, even though states fund 85 to 89% of education spending themselves.

Tripathi and Grigoriadis (2020) add that high dependence on Union borrowing, a soft budget constraint, undermines state budget discipline more than transfer dependence alone does, with direct implications for how effectively states implement education budgets.

Reading together, the two studies suggest that transfer design and state-level fiscal discipline are complementary, rather than competing, explanations for uneven education outcomes across states.

2.2 STATE ABSORPTIVE CAPACITY

The way India spends money on education is connected to the overall economy. Ramanjini and Gayithri (2023) find that education expenditure tracks state GSDP cycles closely, with this procyclicality more pronounced in higher education than in school-level funding, suggesting that school education, while somewhat insulated, is not immune to economic downturns. This overall pattern showcases some difference in how well each state can manage its education system.

Singh (2022) in their paper compares Kerala, Maharashtra, and Bihar, finding that Kerala's strong performance rests on trusted financial commitment, public-private partnership and

community trust, as well as a robust State Council of Educational Research and Training (SCERT), while Maharashtra's gains stem from social schemes and consistent teacher employment. Bihar, by contrast, remains constrained by gender disparities, rural-urban divides, and broader socio-economic underdevelopment.

Khanna (2022) also extends this contrast nationally including southern states like Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu who have consistently spent close to 1% of state GSDP on secondary education, building administrative systems that allow near-complete utilization of allocated funds. On the other hand Northern states such as Uttar Pradesh and Bihar, despite receiving much larger allocations because of being highly populated, show erratic spending and reinvestment often below 0.8% of state wealth, bureaucratic delays account for Uttar Pradesh and Bihar to be responsible for roughly one-third of India's unspent school funds. Notably, even wealthy state like Gujarat allocates a comparatively small share of its resources to secondary education, underscoring that absorptive capacity reflects administrative effectiveness and political priority as much as fiscal capacity itself.

These distinctions regarding administration and procurement do not exist without any relation to the fiscal transfer system described above, instead they affect how efficiently the same decentralized resources are translated into classrooms, teachers, and schooling, thus connecting institutional capacity directly to the model of fiscal federalism.

2.3 GEOGRAPHICAL AND INFRASTRUCTURAL DEVELOPMENT

In this review, “educational infrastructure” is conceptualized as the sum of three components, physical, human and digital capability which determine the ability of schools to offer education. They include classrooms, electricity, water and sanitation, qualified and adequately staffed teachers, as well as working computers and internet access.

Patra et al. (2025), drawing on data from 670 districts across India, claims that professionally trained faculties, adequate infrastructure, basic school amenities, and student incentives improve enrolment and academic performance. Specifically, classrooms, electricity, drinking water, toilets, functioning school management committees, and school development grants all positively influence outcomes, proving that educational quality other than the funding also depends on physical facilities and institutional support as well.

Digital infrastructure adds a further layer of regional disparity. Pritam and Shaikh (2024), analysing UDISE+ (2021 to 2022) data, find that Kerala, Gujarat, and Punjab report markedly

better computer facilities than Bihar, Assam, and Uttar Pradesh, standing proof of the fact that only the provision of computer facilities is insufficient unless they are meaningfully integrated into classroom teaching and are physically functional in ordering to working well.

Notably, Patra et al. (2025) rely on district-level administrative data, whereas Pritam and Shaikh (2024) draw on UDISE+ school-level records, the convergence of findings across these different data sources and units of analysis strengthens confidence that the observed regional gap is not a methodological artefact.

Together, these studies show that infrastructure quality depends on both physical facilities and digital integration, yet regional disparities persist across both dimensions.

2.4 THE COVID-19 PERIOD

The pandemic worked a great deal in highlighting India's school education gaps. Bose and Sharma (2023) show that when Covid-19 hit the pre-existing shortages in government schools, teacher vacancies, and classroom capacity in Delhi became more evident, and that the share of GSDP that Delhi spends in higher education, is actually less than Kerala and Tamil Nadu. As household incomes fell, families shifted children from private to government schools, sharply raising the demand of public education however the public expenditure did not rise to match the demand, leaving low-income, marginalised and minority children take the hardest hit

N. Singh (2023) notes that as the March 2020 lockdown was imposed with minimal state consultation it led to the disruption of migrant and vulnerable populations severely. With the passage of time, states such as Kerala, Punjab, Odisha, and Rajasthan, along with local governments, took the lead, despite remaining fiscally constrained by delayed Union transfers. This disruption speaks directly to India's fiscal federalism architecture which accounts for the delayed and reduced transfers from the Union during the pandemic which narrowed the fiscal space available to revenue-dependent states, reinforcing the vertical imbalance identified in the fiscal federalism literature above. Prolonged school closures, among the longest globally, deepened learning losses unevenly across states.

Jacob and Chakraborty (2021) illustrate this strain even in a well-managed state like Karnataka's public finance for children, in which 15% of total expenditure and 80% directed to education in 2020-21, showed significant gaps between budgeted allocations and actual spending, with the state resorting to expenditure compression despite its otherwise sound fiscal

management. Together, these studies suggest Covid-19 functioned as a stress test that sharpened, existing North-South and institutional divergences in Indian school education.

Taken together, the literature reviewed across these four themes converges on one fixed pattern focussing on how southern states outperform their northern counterparts as they combine steadier fiscal commitment with stronger administrative capacity and more resilient infrastructure delivery. Fiscal federalism theory and evidence show that while transfer mechanisms are designed to equalize resources across states, conditional grants and vertical fiscal imbalance still constrains state's way of expenditure. Institutional capacity and administrative systems determine whether they are effectively utilized. It also explains how physical and digital school facilities influence a state's performance in education, while the Covid-19 literature shows that this North-South and institutional divergence was sharpened.

Despite the breadth of this literature, a clear gap remains, few studies integrate fiscal capacity, institutional capacity, and infrastructural outcomes within a single comparative framework specific to northern and southern Indian states. Existing work tends to treat these dimensions in isolation and this separation is a conceptual limitation, not just a coverage gap. Fiscal resources without institutional capacity risk underutilization, while strong institutional capacity without adequate resources cannot scale infrastructure, a joint effect that single-dimension studies are structurally unable to capture. This review therefore establishes the theoretical grounding and empirical foundation for the present study, which aims to bridge these gaps by studying how fiscal federalism influences educational infrastructure and spending capacity across northern and southern India

THEORETICAL FRAMEWORK

The proposed explanation for divergence is based on the theories of fiscal federalism and institutional capacity. First generation fiscal federalism supports decentralization of education to the state level because of allocation function by Musgrave (1959) and Decentralization theorem of Oates (1972). According to these theories, sub-national entities can better coordinate the allocation of expenditure to local needs and preferences that significantly differ among regions in India. Thus, this approach provides a normative basis to compare education outcomes of northern and southern states.

Second generation fiscal federalism (Weingast, 2009; Qian & Weingast, 1997) does not emphasize the efficiency but rather the incentive aspect of education financing scheme. In particular, the theory addresses the ways how the structure of transfer and conditionalities affect whether states use the allocated funds in a productive way. It helps to explain the reasons behind different outcomes of states with similar allocations like Samagra Shiksha.

Each of these strands alone does not explain how the states that receive similar transfers use them in different ways. The theory of institutional capacity (Evans, 1995; Fukuyama, 2013) can be applied to fill this gap because it suggests that absorptive capacity of the state's administration serves as a mediator between the fiscal input and infrastructural output.

Integrating these strands, this study proposes the following pathway:

Fiscal Devolution → State Absorptive → Educational Infrastructure Outcomes → Geography and the Covid-19 period act as moderating variables, conditioning how effectively capacity translates into outcomes. This framework moves the analysis beyond descriptive comparison toward explaining divergence through institutional capacity rather than resource volume alone.

METHODOLOGY

1. Research Design

The present study is quantitative, comparative and descriptive-analytical about the research design as it aims at exploring the relationship between the mechanism of fiscal federalism and school education across states in India where the required information on secondary data is compared between Southern India and Northern India mainly in terms of its ability to spend on education as well as its infrastructural ability.

2. Data Sources

The study is based exclusively on secondary data obtained from Google Scholar, Shodhganga, ResearchGate, and SSRN. Reports and datasets from NITI Aayog, NIPFP, PRS Legislative Research, Centre for Policy Research (CPR), and Gokhale Institute of Politics and Economics were also considered. The Literature was identified using representative keywords such as “Fiscal Federalism”, “School Education”, “Educational Infrastructure”, “Education Expenditure”, “State Finances”, and “Northern and Southern India”, and the rest. The selection of studies was made depending upon their credibility, peer-reviewed status, state-level focus,

institutional reliability, and availability of complete data, while duplicate and less relevant studies were not taken into consideration.

3. Population and Sample

The population of the study includes all Indian states in relation to school education and public expenditure. The sample mainly includes a set of selected states from Northern and Southern India, picked on the basis of data availability, reliability, and relevance to the objectives of the study.

4. Sampling Technique

A purposive sampling technique was adopted. Since the research uses only secondary data, the states and datasets were selected carefully according to the objectives of the study, the existence of trustworthy information, and their suitability for comparison of different regions.

5. Time Period of Study

The study covers the period from 2018 to 2024. The literature search primarily focused on studies published between 2018 and 2024. However, where recent literature was limited, a few relevant studies published outside this period were included to provide foundational context and ensure a comprehensive analysis.

6. Variables

The study uses four key variables to assess the spending patterns and implementation of education schemes across northern and southern Indian states. These variables include allocated

1. Allocated budget (in ₹ crore): In annual financial statement under the scheme forms particular financial year.
2. Budget spent (in ₹ crore): The actual expenditure incurred by state and union government in particular financial year
3. Budget unspent (in ₹ crore): The difference between the allocated budget and the budget spent, indicating unutilisation.
4. Budget utilisation rate (%): Calculated as $(\text{Budget Spent} \div \text{Allocated Budget}) \times 100$, representing the efficiency of fund utilisation.

These variables are used to measure and evaluate how much the states spend, how well they use the allocated budget and how spending differs between states in Southern and Northern India.

7. Data analysis technique

The data collected through secondary sources was analysed using Microsoft Excel. For this purpose, mean, median, minimum, maximum, and standard deviation tools were employed to understand central tendency and variability of fund allocation and expenditure across northern and southern states.

Growth rate was analysed to examine changes in allocation and expenditure over the study period.

Coefficient of variation was used to study the variability in National Budget allocation, utilization and expenditure trends during the study period. Higher CV denotes greater variability in the data series observed.

An independent two-sample t-test was conducted to compare the mean budget utilisation rates of northern and southern Indian states.

Pearson's correlation analysis was carried out to determine the association between budget allocation and budget utilisation rate of the selected states. The strength and direction of relationship were interpreted using the Pearson correlation coefficient [r].

A comparative analysis was conducted between northern and southern Indian states to evaluate differences in budget allocation, expenditure trends, unspent budgets and budget utilisation rates.

These findings were presented through bar graphs and line graphs to illustrate trends, variations, and regional differences in spending and infrastructure.

8. Methodological Limitations

This study is carried out using secondary data and purposive sampling, which may limit the representativeness of the findings. Smaller states and union territories were excluded from certain analyses due to limited data availability. The state specific administrative, political and governance aspects that may influence budget allocation and utilisation, are also not considered. These limitations should be considered while interpreting the findings. A detailed discussion of the limitations is provided in the subsequent section.

DATA ANALYSIS AND INTERPRETATION

Executive Summary

The study "Fiscal Federalism and School Education: A Comparative Study of Educational Infrastructure and Spending Capacities in Northern and Southern India" is presented in this report. The analysis covers the state allocation and utilization of central government school education budgets from 2018-19 to 2023-24 across the states and regions in India.

The Government of India provided about ₹4,98,594.46 crore for centrally sponsored schemes and programmes of school education during the 6 years. Of this, ₹4,60,005.34 crore was spent and the overall utilisation rate of Budget was 92.26%, which indicated that there was a moderate level of spending, albeit with some room for improvement.

The results indicate that there are marked disparities among the regions in terms of the efficiency of spending. However, the southern states actually had a higher average spending rate of 94.71% than the northern states spending rate of 91.19%, despite being allocated comparatively less budgets. The findings indicate that it is important to allocate educational resources optimally, but also to achieve efficient administration and institutional capacity.

1. National Spending Trend, 2018-19 to 2023-24

National allocation for school education schemes grew from ₹68,881.12 crore in 2018-19 to ₹1,07,822.36 crore in 2023-24 that is an increase of 56.5% over six years, equivalent to a compound annual growth rate of 9.38%.

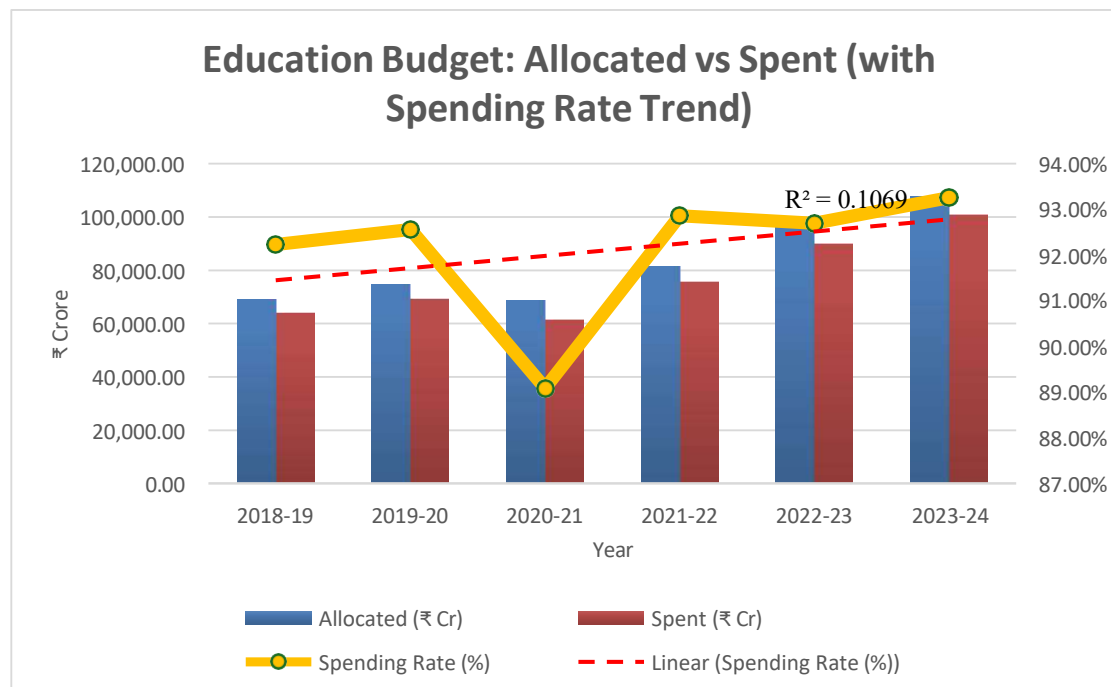
Table 1: Education Budget Allocation, Actual Expenditure, Budget Utilization rate (2018-19 to 2023-24)

Year	Allocated (₹ Cr)	Spent (₹ Cr)	Unspent (₹ Cr)	Budget Utilization Rate	Growth rate of Allocation
2018-19	68,881.12	63,528.79	5,352.33	92.23	-
2019-20	74,679.94	69,123.34	5,556.60	92.56	8.42%
2020-21	68,772.37	61,268.79	7,503.58	89.09	-7.91%
2021-22	81,482.23	75,662.63	5,819.60	92.86	18.48%
2022-23	96,956.44	89,872.36	7,084.08	92.69	18.99%

2023-24	1,07,822.36	1,00,549.43	7,272.93	93.25	11.21%
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Source: Author's calculation using secondary data published by Government of India

Figure 1: Budget Allocated vs Actual Expenditure (2018-19 to 2023-24)



- The allocation of funds has increased from ₹68,881.12 crore in 2018-19 to ₹1,07,822.36 crore in 2023-24, reflecting a consistent increase in the government's investment in school education.
- The actual expenditure came in very close to the budget allocation, except during 2020-21 when the actual expenditure reduced to 89.09% due to the Covid 19 pandemic.
- In the post pandemic period, the expenditure increased gradually, and the budget utilisation rate was at 93.25% in 2023-24, which was the highest during the study period.
- A structural utilisation gap was evident in the best year with ₹7,272.93 crore of the total amount of unutilised resources.

Table 2: Descriptive Statistics and Coefficient of Variation of Education Budget Allocation and Expenditure

Statistic	Allocation	Expenditure	Unspent	Spending Rate
Mean	83,099.08	76,667.56	6,431.52	92.11

Median	78,081.09	72,392.99	6,451.84	92.63
Minimum	68,772.37	61,268.79	5,352.33	89.09
Maximum	1,07,822.36	1,00,549.43	7,503.58	93.25
Std. Deviation	16,026.03	15,571.67	957.88	1.52
Coefficient of Variation (%)	19.29	20.31	14.89	1.65

Source: Author' calculation using Government data

- The average annual budget allocation and expenditure during the study period were ₹83,099.08 crore and ₹76,667.56 crore, respectively, reflecting sustained government spending on school education. Whereas, the coefficient of variation of the same are 19.29% and 20.31% respectively, which reflects changes in annual budgetary priorities and expenditure levels.
- The budget utilisation rate had lowest variation in the given period indicating that despite changes in allocated budget and expenditure; on an average, more than nine-tenths of the allocated funds were utilised in given period.
- Unspent funds recorded a lower coefficient of variation (14.89%), suggesting gap between allocated and utilised funds remained relatively stable across study period.

2. State-wise Analysis: The Ten Largest Budget States

The ten states with the largest school education budgets together account for 70.1% of the entire national allocation. As the largest allocations are concentrated here, spending-efficiency patterns in these ten states substantially determine the national picture.

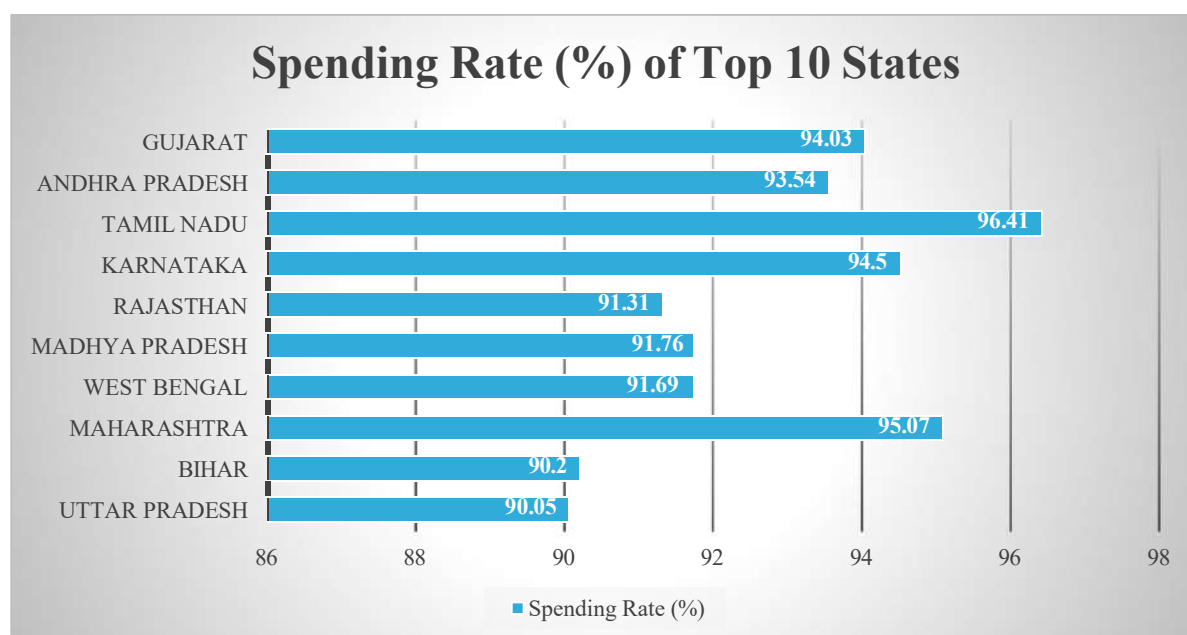
Table 3: Top 10 States by School Education Budget Allocation

State	Allocated (₹ Cr)	Spent (₹ Cr)	Unspent (₹ Cr)	Spending Rate (%)
Uttar Pradesh	78,315.43	70,519.42	7,796.01	90.05
Bihar	41,995.10	37,881.10	4,114.00	90.2
Maharashtra	40,943.99	38,927.45	2,016.54	95.07

West Bengal	34,006.77	31,180.55	2,826.22	91.69
Madhya Pradesh	31,081.78	28,521.07	2,560.71	91.76
Rajasthan	30,900.09	28,216.18	2,683.91	91.31
Karnataka	25,826.47	24,405.03	1,421.44	94.5
Tamil Nadu	23,592.23	22,744.32	847.91	96.41
Andhra Pradesh	22,726.43	21,259.33	1,467.10	93.54
Gujarat	20,309.34	19,097.79	1,211.55	94.03

Source: Author' calculation using Government data

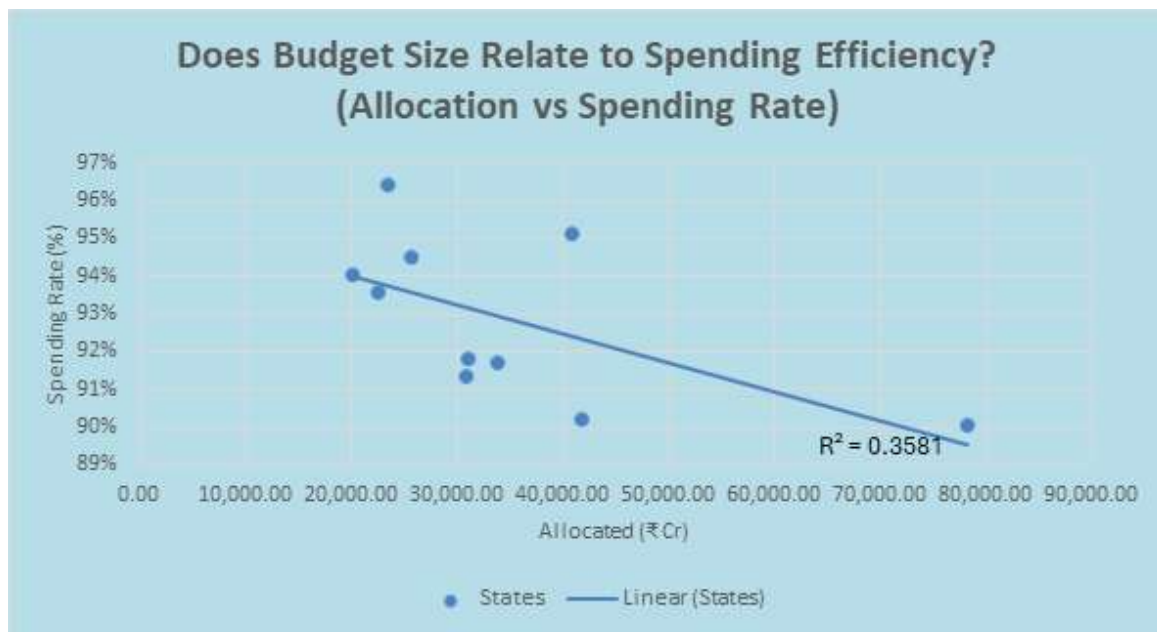
Figure 2: Spending rates of Top 10 states over the years 2018- 2024



- Though Uttar Pradesh received the highest allocation at ₹78,315.43 crore, ₹7,796.01 crore of it remained unspent, a significant amount compared to Bihar's ₹4,114.00 crore which accounts for nearly half of the unspent amount in the state.
- Tamil Nadu (96.41%), Maharashtra (95.07%), Karnataka (94.50%) and Gujarat (94.03%) had the highest spending rates, reflecting better use of funds, despite their comparatively smaller spending, whereas other states had comparatively lower spending rates.

- The three southern states – Karnataka, Tamil Nadu and Andhra Pradesh – show spending rates higher than 93.54%, whereas the northern states in this list of states are, or are close to, the lower limit of 91-92% – further illustrating the regional static pattern seen in Section 3.
- The results suggest that size of the budget is not sufficient to ensure efficiency in expenditure; rather, there is need to have the capacity to administer and implement the budget in the individual states.

Figure 3: Relationship Between Budget Allocation and Spending Rate



- States with larger budgets have slightly lower spending rates, with an almost inverse relationship, as suggested by the negative relationship shown in the downward sloping trend line.
- The $R^2 = 0.3581$ indicates that, in this sample, approximately 35.8% of the variation in the spending rate is explained by differences in the allocation of money in the budget.

- Budget size is not the only determinant of spending efficiency (low R^2). Other factors, such as implementation efficiency, governance and administrative capacity will also impact on the use of funds.

3. Region-wise Analysis

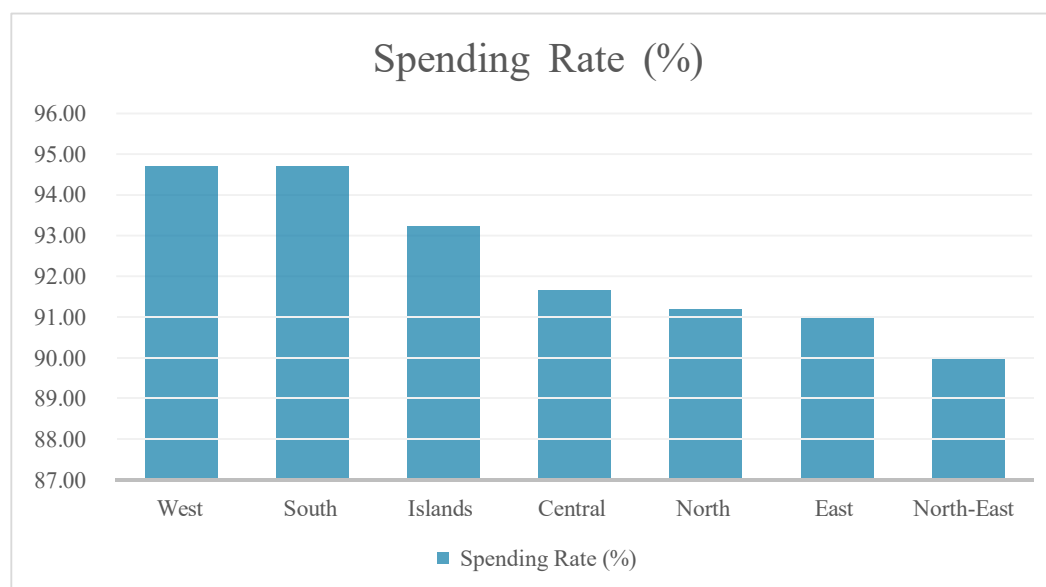
The Northern, Southern and Eastern regions has the largest school education budgets, followed by Western and Central regions of India. Despite not having a large budget, West still has the highest budget utilisation among all the regions, followed by Southern region.

Table 4: Region wise Budget allocation for Education

Region	Allocated (₹ Cr)	Spent (₹ Cr)	Unspent (₹ Cr)	Spending Rate (%)
West	62,417.23	59,117.69	3,299.54	94.71
South	1,01,987.79	96,588.93	5,398.86	94.71
Islands	647.21	603.45	43.76	93.24
Central	43,013.68	39,427.84	3,585.84	91.66
North	1,54,241.76	1,40,657.86	13,583.90	91.19
East	1,06,776.75	97,079.53	9,697.22	90.92
North-East	29,510.04	26,530.04	2,980.00	89.9

Source: Author's calculation using Government data

Figure 4: Average spending rate across different regions



- Both regions in West and South are the only two regions above national average (92.26%) spending rate with 94.71% and 94.71% respectively.
- The lowest regional spend rate was recorded in the North East (89.90%), and the East was below the national average, both showing comparatively low spend efficiency.
- The highest budget allocation was given to the North (₹1,54,241.76 crore) but the utilisation rate in the North (91.19%) was lower than that in the South.
- The underwhelming results are not an outlier; this is underperformance by virtually every state in the region, and that means more of an underlying issue – smaller management teams, logistical challenges in remote or hilly areas, and slower cycles of paperwork for releasing funds.

4. North vs South: Core Comparative Analysis

The North and South region together has around 50% share of the national education budget, hence it becomes important to study how the budget is being utilised in these particular regions.

Table 5: North vs South- Allocation, spending, and unspent funds

Metric	North	South
Allocated (₹ Cr)	₹1,54,241.76	₹1,01,987.79
Spent (₹ Cr)	₹1,40,657.86	₹96,588.93

Unspent (₹ Cr)	₹13,583.90	₹5,398.86
Spending Rate	91.19%	94.71%
National Allocation Share	30.94%	20.46%

To test the significance of this North-South gap at the individual-state level, the three largest-budget states from each region with individually reported spending rates are compared: Uttar Pradesh, Bihar, and Rajasthan represent the Northern states ($n = 3$), and Karnataka, Tamil Nadu, and Andhra Pradesh represent the Southern states ($n = 3$).

Table 6: Descriptive statistics for Northern & Southern states

States	Average Spending Rate	Average Budget Allocation	Average Spent Expenditure	Average Budget Unspent
Northern	90.52	50403.54	45538.90	4864.64
Southern	94.82	24048.38	22802.89	1245.48

Source: Author' calculation using Government data

- The average utilisation of school education budget at the selected southern states (94.82%) was higher than the selected northern states (90.52%) despite having significantly lower average budget allocations. This shows that it is not simply a matter of money to ensure the effective use of educational resources.
- The total budget allocation for education in the selected northern states (₹1,54,241.76) was more than the allocation of the southern states (₹1,01,987.79). They also had significantly more unspent funds but this implies relatively lower spending efficiency.
- This is in line with Khanna (2022) who contends that the southern states, in particular Tamil Nadu, Karnataka and Andhra Pradesh, have more robust administrative systems which allow them to spend a higher percentage of the education allocations than the northern states, which experience implementation delays and lower expenditure efficiency even with a larger allocation.
- The findings also corroborate with Singh (2022) who argues that the performance of education in Kerala is better than that of other states such as Bihar due to the historical

commitment of the state government to spending on education, effective institutions and improved administrative capacities in the state.

- The results are also consistent with those of Chakraborty (2019) and Reddy (2025) who have found that fiscal transfers aim to ensure that regional disparities are reduced, but the differences in institutional capacity and in state-level implementation are still significant for the extent to which education budgets are translated into actual spending.
- It also means that even if the spending-rate inequity between the North and the South were to be reduced, in part, by a considerable amount of unspent money would still be saved – and in fact, nearly one-third of all allocated funds are in the North.
- Overall, the North-South comparison points to administrative effectiveness and institutional capacity and fiscal governance as being of equal importance to the amount of budget assigned when considering the efficiency of school education.

Table 7: Two Sample t-Test comparing the mean school education Budget Utilisation Rates of Selected Northern and Southern States

t-Test: Two-Sample Assuming Unequal Variances		
	North	South
Mean	90.52	94.81666667
Variance	0.4737	2.134433333
Observations	3	3
Hypothesized Mean Difference	0	
df	3	
t Stat	-4.608158359	
P(T<=t) one-tail	0.009610131	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.019220262	
t Critical two-tail	3.182446305	

Source: Author' calculation using Government data

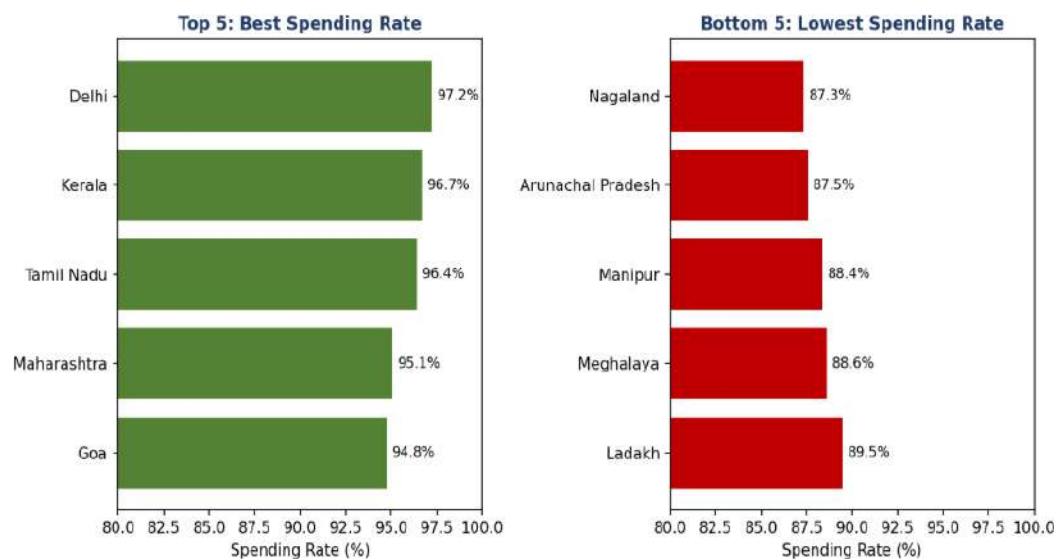
- The independent two-sample t-test was conducted to examine whether the difference in the average school education budget utilisation rates between the selected northern and southern states is statistically significant.

- The selected southern states recorded a higher mean spending rate (94.82%) than the selected northern states (90.52%), indicating comparatively better utilisation of allocated school education budgets.
- The two-tailed p-value (0.0192) is less than the 5% significance level ($p < 0.05$), suggesting that the observed difference in the mean spending rates is statistically significant. Therefore, the null hypothesis of no difference between the two regional means is rejected.
- From the perspective of fiscal federalism, the findings align with Chakraborty (2019) and Reddy (2025), who argue that although fiscal transfers aim to reduce regional disparities, differences in state-level administrative capacity and governance continue to influence the effective utilisation of education funds.

5. Top and Bottom Performing States by Spending Rate

In this section the states are ranked purely on the basis of spending rate, independent of their budget sizes. This offers complimentary view to regional analysis.

Figure 5: The five states with the highest and lowest spending rates over the years 2018-19 to 2023-24



- Tamil Nadu, Kerala and Delhi have the top expenditure rates in India, while the lowest performing five regions are Nagaland, Meghalaya, Manipur, Arunachal Pradesh; which are mostly concentrated in the North-East India, as also seen in the regional analysis.
- There is significant difference between the performance of the top and bottom 10 states across the use efficiency of the school education budget allocated: the top state (Delhi)

has a use efficiency of 97.2% compared with the lowest (Nagaland) who has a use efficiency of 87.3%, which means the difference is around 9.9 percentage points.

- The clustering of lower spending rates across the North-Eastern states is similar to the regional profile shown earlier and implies that factors such as geographical location, administrative capacity (high altitude place in remote terrain), and implementation issues could affect the way in which budgets are spent.

6. Effect of COVID-19 Disruption

The trend data for the country is for the FY 2020–21, which marked the first and most severe wave of the COVID-19 pandemic in India (see Figure 1, Section 1). This year's national spending rate came in at 89.09%, the lowest in the six years of the study, following school closures, a lack of construction activity under these schemes and late delivery of routine paperwork needed for the release of funds.

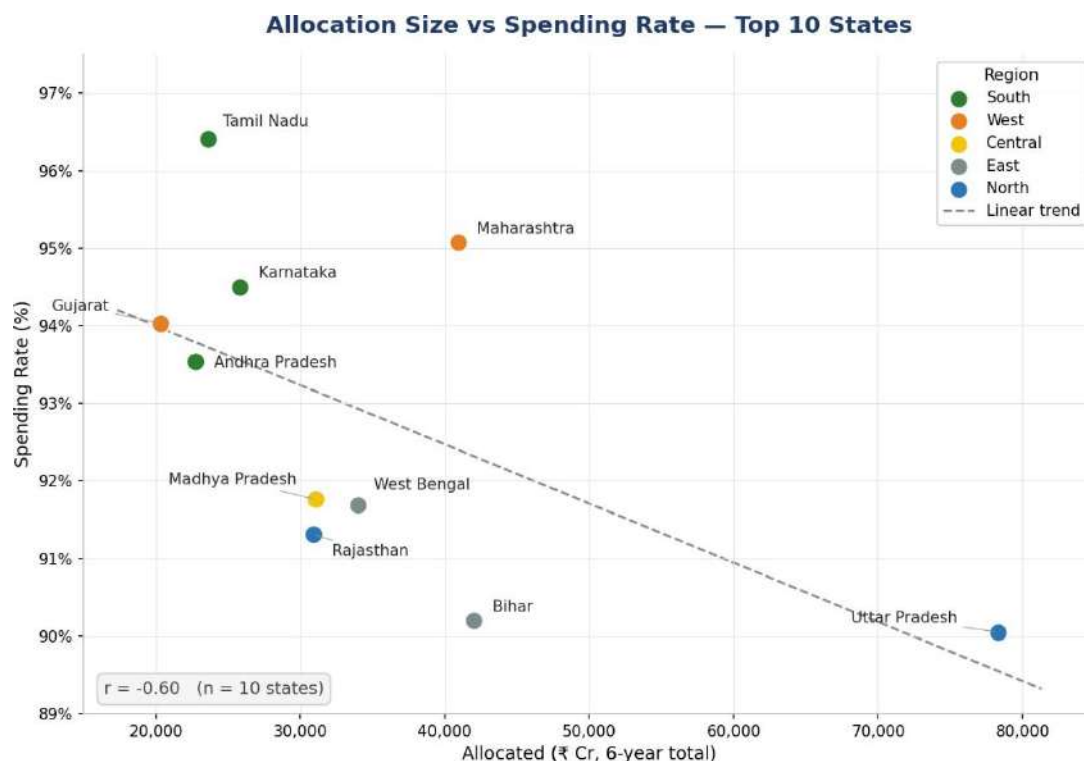
The recovery was rapid at the national level: By 2021-22 (92.86%) the spending rate had already surpassed the level of 2019-20, and by 2023-24 (93.25%) it reached a six-year high.

- The national recovery was fairly rapid with regional resilience showing significant variation. The low spending rate of the NE region (89.90%) is at the lower end compared to all other regions and very similar to the national spending rate for the COVID year (89.09%), which aligns with literature identifying COVID-19 as a “stress test” that increased existing North-South and institutional capacity gaps instead of causing universally weak one-off performance (Bose and Sharma, 2023; N. Singh, 2023).
- The source data was not available for a detailed, year-by-year regional comparison of the impacts of COVID-19; instead, the source data offers only six-year regional totals. As mentioned in Section 8, this is highlighted as a limitation of the study.
- The national recovery (returning to pre-COVID levels within a year) was relatively quick, suggesting that the downturn in 2020-21 was mainly an operational challenge, rather than a structural reduction in capacity, although it is also evident from Sections 4 and 5 that there is a more persistent structural gap between the regions.

7. Does Budget Size Predict Spending Efficiency?

It is natural to ask whether size of the allocation is also linked to a lower (or higher) spending rate, whether utilisation problems are scale dependent. The correlation coefficient between spending rate and allocation size for the top 10 spending states is $r = -0.60$ (or $R^2 = 0.36$, with about 36% of the spending rate variation across these top 10 spending states being statistically associated with differences in allocation size).

Figure 6: Allocation Size vs. Spending Rate, Ten Largest-Budget States, with Linear Trend Line (2018-19 to 2023-24)



- If the correlation is $r = -0.60$, then it is a moderately strong negative correlation: in the states with the highest budgets, the tendency is for larger budgets to be correlated with lower spending rates. A theory that may be derived from this is the concept of "absorptive capacity": It suggests that there are big states that find it difficult to use their large budgets efficiently, perhaps because they were not designed to spend the entire allocation within the budget.
- The R^2 value (0.36) indicates that budget size is not the dominant factor in explaining the spending efficiency broadly, in addition to administrative capacity and governance

quality and implementation systems, there are other factors as well that play a part in spending efficiency.

- The states with high allocation and low spending rate (Bihar and Uttar Pradesh) represent the eastern and the northern region. On the other hand, the states with big allocations and high spending rates are western Maharashtra, and southern Tamil Nadu. This suggests that budget size does not have a significant impact on the outcomes of utilisation; and it is more likely that it is administrative capacity and institutional systems that influence the outcomes of utilisation, as captured by the “state absorptive capacity” concept in this study (Ramanjini and Gayithri, 2023).

***Note:** This correlation is presented as indicative only, not statistically definitive, because the number of states represented ($n = 10$) is small, and only three of the states are from the South and two are from the North, in this particular cut. The state-wise comparison in Section 4, which is based on the entire state population of each region, is the more solid evidence basis in this study for the North-South conclusions.*

8. Limitations

1. Data granularity: The analysis was carried out at an aggregated level of the source report, other than the fact that a disaggregated level by state-by-year data set for all 28 states and 8 Union Territories separately was not available, thus some comparisons were limited to the ten highest spending states..
2. Regional classification: North is defined by the source report's six-year regional aggregates while South is defined as the other regions. As used herein, a finer zonal classification at the state-level would allow for finer distinctions (e.g. using Bihar as a separate case in the eastern region), but for the purposes of the present invention such a classification is a simplification and not meant to replace a fully disaggregated regional taxonomy.
3. In Cross-source integration, while several indicators of fiscal federalism discussed in the Literature Review are available from multiple sources, these were not available in a single raw dataset for this analysis (CPR Budget Brief; PRS Legislative Research). Where relevant these indicators are described qualitatively but have not been statistically compared with this study's budget data.

4. The source data only offers regional numbers as a six-year total and therefore does not allow for year-by-year comparisons of the region. The year-by-year comparisons for the region COVID impacts discussed in Section 7 are therefore based on the comparison with the national year-by-year trend, not on a direct year-by-year comparison.
5. Provisional 2023-24 figures: The figures for 2023-24 are provisional, and subject to revision in future editions of the source report after the CAG audit.
6. Inter-state comparability: There are also a number of states that report on combined central-plus-state spending, and others that report only on the amount of money received from the Centre, as stated in the source report; it is not strictly comparable to compare the education spending rates across all states.
7. Delhi: Delhi's spending rate does not include the amount spent on its state education budgets, which are also large and reported separately; therefore its spending rate is not directly comparable to the combined spending rates of states reporting combined spending.
8. Availability of data for Ladakh: There is no separate data available for Ladakh for an earlier period as it was reported along with Jammu & Kashmir till the upgrade of the Union Territory in the end of 2019.
9. The sample size for both the state-level North-South correlation ($n = 10$) and the North-South t-test ($n = 3$ Northern states: Uttar Pradesh, Bihar, Rajasthan; $n = 3$ Southern states: Karnataka, Tamil Nadu, Andhra Pradesh) is small, so these results should be treated as indicative rather than definitive proof. The North-South conclusions of this study come from the region-wise comparison, which is based on the total population of states in each region.

9. Main Findings

1. The school-education scheme budgets have increased significantly over six years, with spending increasing 56.5% over the six years, with the exception of the COVID year (2020-21), when spending was broadly similar.
2. The utilisation of the funds for the study period of 6 years during the period of study was 92.26% at national level.

3. The North-South divide is evident and, on the available evidence, statistically significant: spending is 94.71% of the total in South, but 91.19% in North, thus producing a share of 35.20% of the national total which is significantly more than would be predicted by that share of national allocation (30.94%).
4. The rate of spending in North-East is the lowest of all regions, while all five lowest-performing individual states are in or near this region, suggesting that administrative/logistical capacity is the more probable constraint, not funding.
5. In high budget states such as Tamil Nadu, Kerala, and even under-performing states, such high spending rates are feasible, and may be considered as learning examples about the utilization processes of the spending rates (Khanna, 2022).
6. An overall moderate negative correlation exists between budget size and spending rate ($r = -0.60$) for the states with the highest budgets, but this appears to be driven more by region than by budget size. What this implies is that the institutional and institutional capacity, rather than fiscal size, is a more clear-cut explanation of variation in spending efficiencies.

DISCUSSION

Empirically, the results clearly respond to the research question by proving that the workings of fiscal federalism and variation in absorptive capacity of states lead to the formation of a North-South divide in school education expenditure. Over the span of six years, the Government of India spent a total of ₹4,98,594.46 crore on centrally sponsored schemes in the area of school education; however, structural utilization gap left ₹38,589.12 crore of the budget completely unused. The data supports the idea of "state absorptive capacity" because larger fiscal budget does not always mean higher educational expenditure or better infrastructure development.

This regional disparity is explicitly illustrated by the core comparative analysis between the above-mentioned regional disparity is clearly shown by the core comparison between Northern and Southern states:

The Spending Efficiency Gap: Southern states reached a higher average spending rate of 94.71%, whereas Northern states had lower spending rate of 91.19%.

Volume of Unspent Funds: The North received the biggest part of the budget (30.94% vs. South's 20.46%), but is responsible for the biggest share of unspent school budget in India - 35.20%. On the contrary, the South only accounted for 13.99% of the total amount of unspent budget.

The Extent of Wastage: For every 100-crore allocation, the North has 8.81 crore wastage as against 5.29 crore in the South, meaning the North has unspent budget per rupee almost 1.7 times higher than the South.

This indicator is consistent with the review of literature, especially Khanna (2022), wherein Khanna finds that while Northern states such as UP and Bihar get huge allocations because of large populations, the bureaucratic hassles and centralization of houses lead to irregular spending. In contrast, the Southern states such as Tamil Nadu (96.41%) and Kerala (96.7%) are maximizing their funds through efficient administration and trust in public-private sector partnerships. Also, the moderately strong negative relationship ($r = -0.60$) between size of allocation and spending rate among top 10 states shows that increasing the size of funds without increasing the administrative capacity of local areas leads to implementation gap.

CONCLUSION

In this comparative study, there is a detailed and empirical analysis of the effect of India's fiscal federalism on the fiscal capacity and development of educational infrastructure in the North and South States from 2018-19 to 2023-24. Through a synthesis of fiscal transfers and institutional absorption capacity, this paper fills in a long-standing gap in the literature whereby center-state interactions, physical infrastructure, and administrative efficiency were examined separately.

The results unequivocally prove that although the amount spent on school education in the country increased significantly by 56.5% within six years-increase from ₹68,881.12 crore to ₹1,07,822.36 crore-the implementation of such funds is highly limited due to the regional gap. The national average budget expenditure level of 92.26% hides the existing structural difference since Northern and North Eastern states always fail in comparison with Southern and Western ones. Even having a bigger share of the national allocation of funds because of redistributive policy according to equity criteria, the North states' low spending level (91.19%) and their great contribution into the overall budget of unspent funds in the country (35.20%) show that the amount of funds is not sufficient to overcome the problems with governance and administration.

The stress test provided by the COVID-19 outbreak in 2020-21 revealed the structural problems once again. The national spending level decreased to 89.09%, the lowest one within six years, due to the operational disturbances, school closings, and paper process delays. On the contrary, national recovery was rapid - surpassing pre-COVID levels by 2021-22 and peaking at a utilization rate of 93.25% in 2023-24 - the North-East region and remote Northern territories experienced a lagging growth pattern and continued to maintain a six-year average of 89.90%. This clearly establishes that external shocks tend to aggravate preexisting institutional capacity deficiencies rather than being

stand-alone financial deficits.

The research concludes with the demonstration that successful educational delivery is more dependent on the strength of the regulatory framework, technical and financial capacities, of the state, rather than on the volume of funds devolved centrally. Southern states such as Tamil Nadu and Kerala achieve their success through efficient financial commitment and utilization without leaving any surplus funds by the end of the fiscal year. The solution lies in addressing the North-South gap in physical and digital infrastructure in schools through appropriate policy reforms that not only devolve the finances but aggressively enhance institutional capacities of underperforming states. Future policy changes should include the need for streamlining the bureaucratic documentation processes in Centrally Sponsored Schemes, reduce centralization and encourage the Northern state legislatures to follow the highly efficient local fund-utilization processes pioneered in the South.

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