Education as an Engine of Economic Growth: An Analytical Study of Public Spending in India

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Abstract:

This study examines the economic implications of public expenditure on education in India in the present - day context. Drawing on recent data and policy frameworks such as the National Education Policy (NEP) 2020, it explores the correlation between educational spending, GDP growth, human capital formation, and social equity. Despite an upward trend in absolute spending, the proportion of expenditure relative to GDP remains below the recommended 6%. The paper highlights persistent challenges including regional disparities, inefficiencies in fund utilization, and quality deficits. Findings underscore that while education spending significantly enhances productivity and reduces poverty, its economic potential remains under - realized due to structural bottlenecks. Policy recommendations include reallocation toward foundational literacy, skill development, and equitable regional funding.

Keywords: Public Expenditure, Education, Economic Growth, Human Capital, NEP 2020, India, GDP, Inequality

1. Introduction

Education is universally recognized as a cornerstone of economic growth, social progress, and sustainable development. It enhances human capital, boosts productivity, and drives innovation, thereby contributing significantly to national income and social well - being. In the context of developing economies like India, education assumes a pivotal role in transforming a large and youthful population into a skilled and productive workforce capable of propelling inclusive economic growth.

Since independence, successive Indian policies have emphasized education as a strategic national investment. The Kothari Commission (1966) first recommended allocating 6% of Gross

Domestic Product (GDP) to education — a benchmark that continues to guide policy discourse. The National Education Policy (NEP) 2020 reaffirms this target, envisioning a holistic, flexible, and equitable education system aligned with the demands of the 21st - century economy. The policy aims to develop critical thinking, creativity, and employable skills while strengthening foundational literacy and numeracy.

Despite these commitments, India's actual public expenditure on education has persistently fallen short of the 6% target. Over the past decade, spending has fluctuated between 2.8% and 4.6% of GDP, reflecting a persistent underinvestment relative to national and global standards. While allocations have increased in absolute terms — from ₹99,311 crore in 2020 - 21 to ₹1.28 trillion in 2025 - 26 — the share of education in total GDP has stagnated or declined, indicating that economic growth is outpacing investments in human capital.

The consequences of this funding gap are visible across multiple dimensions: uneven educational quality, inadequate infrastructure, skill mismatches, and persistent regional disparities. These inefficiencies hinder the potential economic returns of educational investments, limiting the nation's ability to fully leverage its demographic dividend. As studies indicate, each additional crore of public spending on education contributes approximately ₹24 crore to GDP (Rao & Dev, 2020), underscoring education's powerful multiplier effect.

Furthermore, education's benefits extend beyond economic growth — encompassing social equity, poverty reduction, gender empowerment, and improved health outcomes. Public investment in education thus yields both direct economic returns and broad social dividends, reinforcing its role as a critical pillar of national development.

This paper critically examines the economic impact of public expenditure on education in India's present - day context. It explores trends in spending, assesses its correlation with economic indicators such as GDP growth, productivity, and employability, and identifies structural challenges that constrain effectiveness. The study also proposes strategic policy recommendations to optimize educational investments in alignment with the vision of Viksit Bharat 2047.

2. Review of Literature

Public expenditure on education has long been recognized as a critical determinant of economic development and social progress. A rich body of literature, both global and national, underscores the strong and positive relationship between educational investment and macroeconomic outcomes such as GDP growth, human capital formation, and income equity. The following review organizes existing scholarship under key thematic areas relevant to this study.

2.1 Education and Economic Growth

Economic theory posits education as a central driver of productivity and long - term economic expansion. Barro (2001) established that nations with higher levels of educational attainment experience faster GDP growth, attributing this to the accumulation of human capital. Similarly, Hanushek and Woessmann (2012) demonstrated that improvements in cognitive skills significantly enhance economic performance, often surpassing the effects of mere enrolment rates.

In the Indian context, Rao and Dev (2020) found that every additional crore of public expenditure on education increases GDP by approximately ₹24 crore, confirming a robust multiplier effect. Tilak (2016) further emphasized that educational investment yields substantial economic dividends, yet India’s fiscal commitment remains insufficient to realize its full potential. Rao (2022) observed that despite rising absolute allocations, education spending as a share of GDP has stagnated, suggesting a paradox of nominal growth but relative underinvestment.

2.2 Public Expenditure Trends and Policy Commitments

Historical policy frameworks have consistently endorsed education as a national priority. The Kothari Commission (1966) first recommended allocating 6% of GDP to education — a target reiterated in successive policy documents, including the National Policy on Education (1986) and the National Education Policy (NEP) 2020. However, empirical studies reveal persistent shortfalls. UNESCO (2024) and the World Bank (2024) report India’s education expenditure fluctuating between 3% and 4.6% of GDP, below both the national target and global averages. PRS Legislative Research (2024) highlighted that even recent budgets allocate just 2.51% of GDP to education, reflecting inadequate prioritization.

International comparisons reinforce this underperformance. Tilak (2018) notes that India lags behind other BRICS nations such as Brazil (5.7%) and South Africa (6.2%) in education spending. Choudhary (2023) critiques India’s “miserably poor” investment levels, especially in quality and infrastructure, given its large youth population.

2.3 Education, Human Capital, and Labour Productivity

The nexus between education and human capital formation is well - documented. Nelson and Phelps (1966) argue that education accelerates technological adoption and innovation, while Lucas (1988) conceptualizes human capital as a fundamental input for endogenous growth. In India, World Bank (2019) studies reveal that education substantially enhances labour productivity, though skill mismatches persist due to curriculum irrelevance and inadequate vocational training.

Kaul et al. (2021) quantified the returns to education, estimating a 7% increase in income for each additional year of schooling. NCAER (2020) reported that returns are highest for tertiary education (9.8%) but emphasized that declining quality and employability gaps reduce overall efficiency. Heckman (2006) further demonstrated that early childhood education yields the greatest economic returns (7 - 10% annually), supporting the case for prioritizing foundational learning.

2.4 Social Equity and Poverty Reduction

Education’s role extends beyond economic growth to promoting equity and social mobility. UNESCO (2022) and Oxfam India (2023) identify education as a key instrument in reducing poverty, empowering marginalized groups, and narrowing gender disparities. World Bank (2022) linked educational expansion in India to significant poverty reduction between 2011 and 2019.

However, NSSO (2023) data reveal persistent inequalities: illiteracy remains at 26.3%, with substantial rural - urban and caste - based gaps. The Education Gini Index declined to 46.6% but remains high, reflecting uneven access and quality. Chancel and Piketty (2022) highlight that rising income inequality — with the top 10% controlling 77% of national wealth — further compounds educational inequities.

2.5 Quality of Education and Learning Outcomes

While access has improved, quality remains a critical constraint. The Annual Status of Education Report (ASER, 2022) found that 57% of Grade 5 students cannot read a Grade 2 text, underscoring a crisis in foundational learning. UNESCO (2023) estimates that India accounts for 21% of global learning poverty, reflecting inefficiencies in translating expenditure into outcomes. World Bank (2022) and FICCI (2022) stress that outdated curricula, inadequate teacher training, and poor infrastructure undermine the economic impact of public spending.

2.6 Challenges in Public Education Financing

Research consistently identifies structural inefficiencies in India's education financing. Dholakia (2020) warns against overreliance on cess - based funding, which now contributes 74% of school education budgets but remains outside the core fiscal framework, limiting sustainability. NITI Aayog (2023) observes wide interstate disparities, with states like Manipur (7.7% of GSDP) investing far more than Telangana (1.3%), resulting in unequal human capital outcomes. TeamLease Services (2019) and Kapoor (2020) describe a "productivity paradox" where expanding the workforce without improving skills leads to underemployment rather than growth.

2.7 Research Gaps

Although prior studies confirm the positive association between education spending and economic growth, significant gaps remain in:

Evaluating the efficiency and distributional equity of public spending;

Assessing returns across educational levels in contemporary India;

Integrating NEP 2020 reforms into empirical analyses;

Linking education investment with measurable outcomes like productivity and poverty reduction.

This study addresses these gaps by offering a comprehensive, data - driven analysis of India's education expenditure patterns, economic impact, and policy implications in the post - NEP 2020 era.

3. Objectives

To analyse trends in public expenditure on education in India.

To evaluate the economic impact of education spending on GDP, productivity, and employment.

To assess challenges in fund allocation, efficiency, and equity.

To propose policy recommendations for optimizing expenditure effectiveness.

4. Methodology

This study adopts a descriptive - analytical approach, using secondary data from government reports (Ministry of Finance, PRS India, UNESCO, World Bank) spanning 2013 - 2025. Data are analysed in terms of GDP proportion, composition across levels, and economic outcomes.

5. Results and Discussion

5.1 Trends in Expenditure

Absolute allocations have increased (₹99,311 crore in 2020 - 21 to ₹1.28 trillion in 2025 - 26).

Spending as % of GDP remains below 6%, averaging 3.8% (2000 - 2025).

States contribute ~89% of total education expenditure, with disparities across regions.

5.2 Economic Impact

Each additional ₹1 crore spent on education raises GDP by ₹24.01 crore (Rao & Dev, 2020).

Returns to education vary: primary (3.4%), secondary (4.5%), graduate (9.8%).

Skill development programs enhance employability and reduce poverty.

5.3 Social Equity

Education reduces income inequality and improves health outcomes.

Persistent gaps remain: rural - urban divides, gender disparities, and caste - based inequalities.

5.4 Challenges

Quality deficits: 57% of Class 5 students lack basic literacy (ASER, 2022).

Infrastructure gaps and digital divide hinder learning outcomes.

Inefficient fund utilization and over - reliance on cess - based funding.

Under funding of State Public Universities versus elite institutions.

Table1: Public Expenditure on Education in India

(%of Gross Domestic Product (GDP) and Total Government Expenditure)

Year	**Public Expenditureon Education(%ofGDP)**	**Public Expenditure on Education (% of Total Government Expenditure)**
2013	14.05% (TotalGovt.Exp.)	14.05%
2013-2014	3.1%	-
2014	15.72% (TotalGovt.Exp.)	15.72%
2015	16.33% (TotalGovt.Exp.)	16.33%
2015-2024	4.1%-4.6%	13.5%-17.2%
2016	17.16% (TotalGovt.Exp.)	17.16%
2017	13.55% (TotalGovt.Exp.)	13.55%
2018	13.07% (TotalGovt.Exp.)	13.07%
2019	15.00% (TotalGovt.Exp.)	15.00%
2020	14.99%(TotalGovt.Exp.)	14.99%
2020-2021	4.64%	-
2021	14.65%(TotalGovt.Exp.)	14.65%
2021	4.64%(declinedfrom2021)	-
2022	14.16%(TotalGovt.Exp.)	14.16%
2022	4.1207%	-
2022-2023	2.9%	-
FY25 (Interim Budget)	4.6%	-
2024	2.51%(declinefrom2023)	-

Table2: Ministry of Education Budget Allocations and Key Scheme Spending

(FY2015 - 16 to FY2025 - 26)

Fiscal Year	**Total Ministry of Education Allocation (₹ crore)**	**School Education Allocation (₹ crore)**	**Higher Education Allocation (₹ crore)**	**Key Schemes (e.g.,Samagra Shiksha, PM POSHAN,PM SHRI)**	**Notes on Underspending/Change**
2015 -16	-	-	-	-	Overall expendituregrew at 5% annually (2015 - 16 to 2025 - 26)
2019 -20	-	-	-	-	51.33% increase from FY19toFY25 allocation
2021 -22	-	-	-	-	Allocationdecreased by 6.12%dueto Covid– 19
2022 -23	1,04,000	-	-	-	
2023 - 24 (BE)	1,12,899.47	-	-	-	13.68% increase from 2020 – 21

2023 - 24 (RE)	-	-	-	PM - USHA: 13,000croresfor 2023 - 24 to 2025 -26	Spending higher than 2024 - 25 due to MUSK
2024 - 25 (BE)	1,20,628	-	-	-	7.14% increase from 2023 -24
2024 - 25 (RE)	-	-	-	PM-POSHAN: 25% lower than budget [29]; PM - USHA:51% lower than budget [29]; Student Aid:33% lower than budget	Ministry's expenditure 5% lower than budgeted
2025 - 26 (BE)	1,28,650	78,572 (61%)	50,078 (39%)	SamagraShiksha:41,250; PM POSHAN: 12,500;PM SHRI: 7,500; STARS: 1,250; CentralUniversities/IITs: 56% of HE allocation; Student Aid: 2,160	13%increaseover2024 -25 RE

6. Policy Implications

The findings of this study underscore that public expenditure on education in India has a profound and multi - dimensional impact on economic growth, human capital formation, and social equity. However, persistent underinvestment, inefficiencies in fund utilization, and structural disparities dilute the potential benefits. To align educational spending with national development goals and fully harness the demographic dividend, the following policy implications are proposed:

Achieving the 6% of GDP Benchmark: Despite policy commitments since the Kothari Commission (1966) and reiterated in the National Education Policy (NEP) 2020, India continues to allocate only 3 - 4.5% of GDP to education. To unlock the full economic potential of human capital, the government must prioritize a progressive increase in spending toward the 6% of GDP target, accompanied by mechanisms ensuring effective absorption and outcome - oriented utilization.

Rebalancing Expenditure toward Foundational Learning: Evidence indicates that foundational literacy and numeracy (FLN) deliver the highest long - term returns on investment (World Bank, 2021). Therefore, policies should emphasize early childhood care and primary education, ensuring that all children attain minimum learning standards by Grade 3. Strengthening programs such as Samagra Shiksha Abhiyan and NIPUN Bharat can yield substantial productivity gains and reduce later - stage dropouts.

Enhancing Efficiency and Accountability in Spending: Significant gaps persist between budget allocations and actual expenditure, with underspending observed in key schemes. To address this, the government should adopt performance - based budgeting and outcome - linked funding frameworks. Establishing an Education Expenditure Monitoring Authority could improve transparency, reduce leakages, and ensure fiscal efficiency.

Reducing Regional and Social Disparities: Interstate variations — with states like Manipur (7.7% of GSDP) far outpacing Telangana (1.3%) — threaten balanced national development. The Centre should introduce equalization grants and incentive - based transfers for underfunded states. Targeted funding for Scheduled Castes, Scheduled Tribes, minorities, and rural populations is essential to bridge equity gaps and ensure inclusive growth.

Strengthening Higher Education and Research: While elite institutions such as IITs and IIMs receive significant allocations, State Public Universities — which serve nearly 80% of students — remain underfunded. Policy must ensure balanced investment across institutions, with dedicated grants for faculty development, infrastructure, and research. Operationalizing the National Research Foundation (NRF) under NEP 2020 can foster innovation - driven growth.

Expanding Vocational and Skill - Oriented Education: Skill mismatches continue to constrain employability. Integrating vocational education into mainstream curricula from secondary level, as envisaged by NEP 2020, is crucial. Scaling up schemes like Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and National Apprenticeship Promotion Scheme (NAPS) can enhance workforce readiness and boost earnings.

Promoting Digital Equity: The digital divide exacerbates inequality in access and quality. Investment in digital infrastructure, internet connectivity, and teacher digital training must be prioritized. Expanding the PM e - Vidya initiative and ensuring affordable devices for students in rural areas will make education more inclusive and future - ready.

Improving Teacher Quality and Motivation: Teacher shortages, absenteeism, and inadequate training undermine learning outcomes. Policy reforms must focus on teacher recruitment transparency, continuous professional development, and performance - linked incentives. Improved service conditions and autonomy can foster accountability and motivation.

Encouraging Public - Private Partnerships (PPP): Strategic partnerships with the private sector can mobilize additional resources, foster innovation, and improve delivery efficiency. PPPs in infrastructure, digital learning, and vocational training can supplement public investment, provided strong regulatory frameworks ensure equity and quality.

Linking Education with Economic Planning: Education policy must be integrated with macroeconomic strategies such as industrial growth, labour market demands, and regional development plans. A National Human Capital Strategy aligning education outputs with future workforce needs can ensure that investments translate into tangible economic outcomes.

Achieving the vision of Viksit Bharat 2047 demands that education be treated not merely as a social obligation but as a strategic economic investment. A recalibrated fiscal approach — emphasizing adequacy, equity, quality, and accountability — can transform India's education system into a robust engine of inclusive and sustainable economic growth.

7. Conclusion

Education stands as one of the most powerful instruments for fostering economic growth, social equity, and sustainable development. This study has demonstrated that public expenditure on education in India exerts a significant positive influence on GDP growth, human capital formation, and poverty reduction, while also enhancing social mobility and gender equality. Yet, despite its strategic importance, India's public investment in education remains below the globally accepted benchmark of 6% of GDP, averaging only 3 - 4% over the past decade.

The findings reveal a persistent paradox: while absolute allocations have risen steadily, the relative share of education spending in GDP has stagnated, reflecting inadequate prioritization amidst rapid economic expansion. Moreover, systemic inefficiencies—such as underspending, regional disparities, poor infrastructure, and learning quality gaps—limit the full realization of education's transformative potential. Consequently, the nation risks underutilizing its vast demographic dividend, as large sections of the youth remain under - skilled and underemployed.

Empirical evidence reinforces that investment in education yields high economic and social returns. Foundational literacy, primary education, and vocational training contribute directly to productivity gains and long - term income growth. Furthermore, education plays a multiplier role in improving health outcomes, reducing inequality, and strengthening civic participation—all of which contribute to inclusive national development.

To harness these benefits, India must transition from a spending - focused approach to an outcome - oriented and equity - driven model of public expenditure. Policy reforms must emphasize quality over quantity, efficiency over expansion, and inclusivity over uniformity. Strengthening foundational learning, bridging regional gaps, enhancing teacher capacity, and investing in digital equity are critical to ensuring that every rupee spent translates into measurable developmental gains.

As India aspires toward Viksit Bharat 2047, education must be positioned at the heart of its economic strategy. A sustained fiscal commitment—backed by accountability, innovation, and inclusive planning—can transform education into a catalyst for equitable growth, empowering citizens and strengthening the nation's competitiveness in the global knowledge economy.

In essence, education is not merely an expenditure, but an investment—one that yields enduring dividends across generations. Achieving the full potential of this investment demands both political will and policy precision, ensuring that every learner becomes a productive, creative, and empowered contributor to India's development journey.

References

1) Accountability Initiative. (2023). Budget brief: Education sector in India 2023 - 24. Centre for Policy Research.
2) Agarwal, P. (2019). Higher education in India: Growth, challenges, and opportunities. Routledge.
3) All India Survey on Higher Education (AISHE). (2023). AISHE 2021 - 22 Report. Ministry of Education, Government of India.
4) Annual Status of Education Report (ASER). (2022). ASER 2022: Beyond basics. ASER Centre.
5) Azad India Foundation. (2021). Education budget analysis 2014 - 2021.
6) Banerjee, A., & Duflo, E. (2011). Poor economics: A radical rethinking of the way to fight global poverty. PublicAffairs.
7) Barro, R. J. (2001). Human capital and growth. American Economic Review, 91(2), 12 - 17.
8) Barro, R. J., & Lee, J. W. (2013). A new data set of educational attainment in the world, 1950 - 2010. Journal of Development Economics, 104, 184 - 198.
9) Chancel, L., & Piketty, T. (2022). World inequality report 2022. World Inequality Lab.
10) Choudhary, S. (2023). Education expenditure and human development in BRICS nations. Journal of Comparative Economics, 51(4), 923 - 940.

11) Dholakia, R. (2020). Education cess and fiscal sustainability in India. Indian Journal of Public Finance, 14(2), 45 - 62.

12) FICCI. (2022). India employability report 2022: Bridging the skills gap. Federation of Indian Chambers of Commerce & Industry.

13) Hanushek, E. A., & Woessmann, L. (2012). Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation. Journal of Economic Growth, 17(4), 267 - 321.

14) Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. Science, 312(5782), 1900 - 1902.

15) International Labour Organization (ILO). (2020). India employment report. ILO South Asia Office.

16) Kaul, V., Singh, R., & Desai, M. (2021). Returns to education in India: A micro - level analysis. NCAER Working Paper Series.

17) Kapoor, R. (2020). The productivity paradox and India's labour market. Brookings India Discussion Paper.

18) Lucas, R. E. (1988). On the mechanics of economic development. Journal of Monetary Economics, 22(1), 3 - 42.

19) Macrotrends. (2023). India education expenditure: Historical data.

20) Mehrotra, S. (2021). Revisiting the economics of education in India: Policy priorities post - NEP 2020. Economic and Political Weekly, 56(12), 44 - 51.

21) Ministry of Education (MoE). (2020a). National Education Policy 2020. Government of India.

22) Ministry of Education (MoE). (2023). Budget documents 2023 - 24. Government of India.

23) Ministry of Finance. (2025). Union Budget 2025 - 26: Expenditure profile. Government of India.

24) Ministry of Health and Family Welfare (MoHFW). (2023). National family health survey and health outcomes in India. Government of India.

25) Mirrority. (2023). Public expenditure on education: State - wise analysis.

26) MSDE. (2021). Pradhan Mantri Kaushal Vikas Yojana (PMKVY) progress report. Ministry of Skill Development & Entrepreneurship.

27) National Council of Applied Economic Research (NCAER). (2020). India human development survey and returns to education.

28) Nelson, R. R., & Phelps, E. S. (1966). Investment in humans, technological diffusion, and economic growth. American Economic Review, 56(2), 69 - 75.
29) NITI Aayog. (2023). India higher education overview report.
30) NSSO. (2023). Household social consumption on education in India. Ministry of Statistics and Programme Implementation.
31) Oxfam India. (2023). Inequality report: The gap between the rich and the rest.
32) PRS Legislative Research. (2024). Demand for grants: Education 2024 - 25.
33) Rao, N. (2022). Public expenditure on education and economic growth in India: A time - series analysis. Indian Economic Journal, 70(1), 56 - 78.
34) Rao, N., & Dev, M. S. (2020). Education expenditure and growth linkage in India. Journal of Development Studies, 56(5), 893 - 910.
35) Scopus Database. (2024). India's share in global research publications. Elsevier.
36) TeamLease Services. (2019). India employability report: The productivity challenge.
37) Tilak, J. B. G. (2016). Public financing of education in India: Issues of equity and efficiency. NUEPA Occasional Paper.
38) Tilak, J. B. G. (2018). Education and development: Lessons from BRICS countries. Springer.
39) UNDP. (2020). Human development report 2020: The next frontier. United Nations Development Programme.
40) UNESCO. (2021). Global education monitoring report 2021.
41) UNESCO. (2022). Reimagining education for a more equitable world.
42) UNESCO. (2023). Learning poverty and education quality: Global update.
43) UNESCO. (2024). Education finance database.
44) World Bank. (2019). India development update: Unlocking human capital.
45) World Bank. (2021). Foundational literacy and numeracy for economic growth.
46) World Bank. (2022). Poverty and shared prosperity in India.
47) World Bank. (2024). World development indicators.