



Government spending on education and outcomes

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Abstract

This paper examines the relationship between government expenditure on education and measurable educational outcomes across global economies from the 1990s through the 2019–20 fiscal year. Drawing on data from UNESCO, the World Bank, OECD, and national government sources, the study analyses trends in public education spending as a share of GDP and total government budgets, and evaluates outcomes including enrolment rates, literacy, learning assessments, and equity indicators. Findings indicate that while increased spending correlates with improved access and attainment in low-income countries, the efficiency and targeting of expenditure—rather than volume alone—are stronger predictors of quality outcomes in middle- and high-income economies. The paper concludes with policy implications for optimising public investment in education.

Keywords: Education expenditure, public spending, learning outcomes, PISA, enrolment rates, fiscal policy, human capital

Introduction

Education is widely recognised as a cornerstone of human capital development, economic growth, and social equity. Governments across the world devote substantial portions of their fiscal resources to funding education systems, motivated by the dual objective of expanding access and improving the quality of learning. Yet the relationship between public spending and educational outcomes is neither automatic nor linear—it is shaped by institutional capacity, governance quality, demographic pressures, and the strategic allocation of resources.

Over the three decades leading to 2019–20, global public spending on education grew substantially in both absolute terms and as a share of national income. The expansion of primary schooling, rising secondary enrolment, and the rapid growth of tertiary participation has all been partially driven by increased government investment. At the same time, learning outcomes—as measured by international assessments such as PISA, TIMSS, and PIRLS—have shown more uneven progress, raising questions about the return on public education expenditure.

This paper investigates global and regional trends in government education spending, analyses the outcomes associated with these investments, and draws lessons about what kinds of expenditure strategies yield the greatest educational benefits. The review period spans from the early 1990s through the 2019–20 fiscal year, encompassing a period of significant policy experimentation, including the Education for All initiative, the Millennium Development Goals, and the early stages of the Sustainable Development Goals framework.

Global Trends in Government Education Expenditure

1. Education Spending as a Share of GDP

Public expenditure on education as a percentage of GDP is the most commonly used indicator for comparing fiscal commitment across countries. According to UNESCO Institute for Statistics data, the global average for public education spending stood at approximately 4.4% of GDP in 2000, rising gradually to around 4.6–4.9% by 2019. However, there is considerable variation across regions and income groups.

Table 1: Public Education Expenditure as % of GDP by Region

Region / Country Group	Spending (% GDP) ~2000	Spending (% GDP) ~2010	Spending (% GDP) ~2019
High-Income OECD	5.2%	5.4%	5.1%
Sub-Saharan Africa	3.8%	4.5%	4.8%
South Asia	3.1%	3.4%	3.8%
East Asia & Pacific	3.6%	4.1%	4.3%
Latin America & Caribbean	4.0%	4.8%	5.0%
Middle East & North Africa	4.5%	4.1%	4.0%
World Average	4.4%	4.6%	4.8%

(Source: UNESCO UIS, World Bank WDI)

Latin America and Sub-Saharan Africa recorded the largest proportional increases over this period, reflecting significant policy commitments to educational expansion. High-income OECD countries, by contrast, saw relatively stable or slightly declining shares after 2010, partly as a result of fiscal consolidation following the 2008 global financial crisis.

2. Per-Pupil Expenditure

Raw GDP-share comparisons can obscure per-capita disparities. High-income countries spend dramatically more per pupil in absolute terms. OECD data for 2019 indicates that member countries spent an average of approximately USD 10,500 per student at the primary level and USD 11,800 at the secondary level. In contrast, low-income countries typically spend less than USD 300 per student per year—a gap of more than 35 times—making cross-country outcome comparisons inherently complex.

Within the OECD, the United States allocated approximately USD 13,600 per student in 2018–19, among the highest in the world. Nordic countries—Norway, Denmark, Sweden—consistently spent above USD 11,000 per student. Meanwhile, large emerging economies such as India and Indonesia spent roughly USD 700–900 per student at the primary level in purchasing power parity terms by 2019.

3. Composition of Education Expenditure

The sectoral distribution of education spending—between primary, secondary, and tertiary levels—varies significantly. A recurring challenge in lower-income settings is the disproportionate allocation to tertiary education, which benefits a smaller, more privileged population. UNESCO data from 2019 shows that in several low-income African nations, tertiary education received 20–30% of the education budget despite serving less than 5% of the student population. This creates an equity problem, where the most socially disadvantaged students at the primary and lower secondary levels receive the least investment per head.

Educational Outcomes: Access, Attainment, and Quality

1. Enrolment and Completion Rates

One of the most visible success stories of increased education spending since the 1990s is the dramatic improvement in gross enrolment rates. The net primary enrolment rate globally rose from approximately 80% in 1990 to over 89% by 2019, with particularly notable gains in South Asia and Sub-Saharan Africa. The Millennium Development Goal of achieving universal primary education by 2015 was not fully met, but significant momentum was built.

Table 2: Global Educational Outcome Indicators, 1990–2019

Indicator	1990	2000	2010	2019
Primary Net Enrolment (World)	80%	83%	88%	89%
Secondary Gross Enrolment (World)	52%	60%	74%	77%
Tertiary Gross Enrolment (World)	14%	19%	28%	38%
Youth Literacy Rate (World)	84%	87%	90%	92%
Gender Parity Index – Primary (World)	0.92	0.94	0.97	1.00

(Source: UNESCO UIS, World Bank)

Secondary and tertiary enrolment grew even more rapidly. Global secondary gross enrolment rose from 52% in 1990 to 77% by 2019. Tertiary enrolment more than doubled, from 14% to 38%, driven largely by expansion in China, India, Brazil, and across Southeast Asia. Critically, gender parity at the primary level was achieved globally by 2019, though disparities persisted in Sub-Saharan Africa and parts of South Asia.

2. Learning Quality: International Assessment Evidence

While access indicators improved markedly, learning quality outcomes present a more complicated picture. The OECD's Programme for International Student Assessment (PISA) and the International Association for the Evaluation of Educational Achievement's (IEA) TIMSS and PIRLS studies reveal persistent gaps between countries in reading, mathematics, and science proficiency, which are only partially explained by spending differences.

PISA 2018 data, covering 79 countries, showed that East Asian education systems—particularly those of Singapore, China (four provinces), South Korea, and Japan—consistently outperformed all others despite varying levels of spending. Singapore spent approximately 2.9% of GDP on education in 2019, well below the OECD average, yet achieved the world's highest PISA scores. Conversely, several Latin American nations that increased spending substantially between 2000 and 2019 saw only modest PISA improvement. This paradox points strongly to the role of teaching quality, curriculum coherence, and school management rather than raw expenditure alone.

Within the OECD, the correlation between per-pupil spending and PISA performance is positive but weakens significantly once a threshold of approximately USD 50,000 in cumulative primary-to-secondary spending per student is crossed. Countries such as Finland, Estonia, and Canada achieve top-quartile PISA results with per-pupil expenditures in the mid-range of OECD countries, underpinned by strong teacher training systems and equity-focused resource allocation.

3. Learning Poverty and Foundational Skills

The World Bank's concept of 'learning poverty'—defined as the share of children unable to read a simple text by age 10—provides a stark measure of educational inefficiency. In 2019, approximately 53% of children in low- and middle-income countries were estimated to be learning-poor, despite two decades of expanded enrolment. In Sub-Saharan Africa, the rate exceeded 80%. This finding underscores that enrolment expansion, funded by higher public spending, has not automatically translated into foundational literacy and numeracy acquisition.

The Spending–Outcome Relationship: Empirical Evidence

1. Evidence from Low-Income Countries

Econometric research consistently finds that increased public education spending has a significant positive effect on enrolment, completion, and years of schooling in low-income countries. Studies using cross-country panel data suggest that a 1 percentage-point increase in the education-spending-to-GDP ratio is associated with a 5–8% increase in primary completion rates in low-income settings. The construction of school infrastructure, provision of textbooks, and abolition of school fees—all expenditure-driven interventions—have proven highly effective in driving access.

Rwanda's experience is illustrative: between 2000 and 2019, the government increased education spending from below 3% of GDP to above 5%, implementing free primary education, capitation grants, and school feeding programmes. Primary completion rates rose from approximately 28% to over 75% during this period—a dramatic improvement, though learning quality remained a concern. Similar patterns were observed in Ethiopia, Tanzania, and Uganda following major expenditure increases.

2. Evidence from Middle-Income Countries

For middle-income countries, the relationship between spending and outcomes becomes more nuanced. Brazil's Fundeb programme—a constitutional earmarking mechanism that redistributed federal tax revenues to equalise per-pupil spending across states—is widely studied. Between 2000 and 2019, Brazil significantly increased its education budget from approximately 3.6% to over 6% of GDP. PISA scores for Brazil showed modest but consistent improvement over this period, with the strongest gains at the bottom of the performance distribution, suggesting that equalisation of resources benefited disadvantaged students most.

India's Sarva Shiksha Abhiyan (SSA) and the Right to Education Act of 2009 similarly drove large increases in primary school infrastructure and teacher recruitment. Net primary enrolment rose to near-universal levels by 2015. However, large-scale learning assessments conducted by the Annual Status of Education Report (ASER) in India revealed that even by 2018, approximately half of all Grade 5 students could not read a Grade 2 level text—highlighting a quality deficit despite adequate access spending.

3. Evidence from High-Income Countries

In high-income countries, the relationship between spending growth and outcome improvement is the weakest. Several rigorous studies, including those using natural experiments arising from school finance reforms in the United States, find positive long-run effects of increased per-pupil spending on student attainment and adult earnings. Jackson, Johnson, and Persico (2016)^[4] found that a 10% increase in per-pupil spending throughout the school years led to a 7% higher adult wage and a reduction in the probability of adult poverty.

However, aggregate cross-country evidence from the OECD shows that countries that increased spending the most between 2000 and 2019 did not necessarily achieve the largest PISA improvements. The United Kingdom, for instance, nearly doubled per-pupil spending between 2000 and 2010 as part of the Blair government's investment drive, with ambiguous effects on PISA rankings. What matters more, research suggests, is how money is spent—particularly on attracting and retaining high-quality teachers and providing targeted support for disadvantaged students.

Equity and Distributional Dimensions

Beyond averages, the distributional impact of education spending is a critical policy dimension. Research from the World Bank and UNICEF consistently shows that education spending in many developing countries disproportionately benefits wealthier households, because enrolment and completion rates remain lower for the poorest quintiles even when overall spending rises. Unit subsidies per enrolled student implicitly flow more to those who remain in school longer—typically the non-poor.

Progressive reforms such as conditional cash transfers (Brazil's Bolsa Família, Mexico's Prospera), school feeding programmes, and incentivised teacher placement in rural areas have been shown to improve equity in educational outcomes alongside or in lieu of aggregate spending increases. These targeted expenditure mechanisms often yield higher marginal returns than equivalent increases in general education budgets.

Gender equity in education also improved substantially over the study period. The global gender parity index in primary education reached 1.00 by 2019, a major milestone. At the secondary level, girls' enrolment surpassed boys' in many regions. However, in parts of West Africa, South Asia, and conflict-affected states, significant gender gaps persisted, requiring targeted expenditure on girls' schooling, sanitation, and community engagement.

Efficiency of Education Spending

Efficiency analysis—relating inputs (spending) to outputs (outcomes)—reveals considerable variance across countries and systems. Data Envelopment Analysis (DEA) and stochastic frontier models applied to PISA and government expenditure data by researchers including Agasisti (2014)^[1] and Sutherland *et al.* (OECD, 2007) find that many education systems operate significantly below their efficiency frontier. Countries such as Estonia, Poland, and South Korea are typically identified as highly efficient—achieving strong outcomes at moderate expenditure levels—while others show large efficiency gaps.

Key drivers of expenditure efficiency in the literature include: teacher quality and incentive systems, class size management (with evidence suggesting diminishing returns to class-size reduction below 20–25 students), autonomy and accountability at the school level, use of data and assessment for instructional improvement, and governance capacity. Systems that combine high autonomy with strong accountability mechanisms—as characterised by Singapore and Finland—tend to achieve the best outcomes per unit of spending.

India: Government Education Spending and Outcomes

India's education financing trajectory over the period merits specific attention given its scale and policy ambition. The Constitution (Eighty-Sixth Amendment) Act of 2002 made elementary education a Fundamental Right, and subsequent legislation—the Right of Children to Free and Compulsory Education Act, 2009—established a legal framework for universal access.

India's public spending on education rose from approximately 3.8% of GDP in 2000 to around 4.4% in 2014–15 before declining somewhat to approximately 3.0–3.4% in 2018–19 due to fiscal pressures and restructuring of Centrally Sponsored Schemes. The Gross Enrolment Ratio for elementary education (Classes I–VIII) reached near parity with the school-age population by 2015. However, dropout rates at the secondary level and persistent learning deficits remained significant challenges.

Government data from the Unified District Information System for Education (UDISE) and ASER surveys consistently documented that while infrastructure outcomes (school buildings, toilets, libraries) improved markedly with SSA funding, learning outcomes lagged severely. The disconnect between spending on inputs and quality learning underscores the systemic challenges of teacher absenteeism, misaligned curriculum, and weak accountability mechanisms that spending alone cannot resolve.

Policy Implications and Conclusions

The evidence reviewed in this paper supports several important policy conclusions. First, increased public spending on education is necessary but not sufficient for improved learning outcomes. In low-income countries, closing financing gaps remains critical to achieve even basic access—and more spending in these contexts is generally associated with better outcomes. In middle- and high-income countries, the efficiency, equity-orientation, and quality of spending matter far more than the volume.

Second, teacher quality is the single most influential school-level factor in determining learning outcomes, and education expenditure should prioritise attracting, training, retaining, and appropriately incentivising teachers. Countries that pay competitive salaries, invest in professional development, and hold teachers accountable tend to outperform those that focus spending on physical infrastructure or administrative overhead.

Third, equity-focused targeting of education funds—through conditional transfers, pupil-weighted funding formulas, targeted subsidies for disadvantaged groups, and rural deployment incentives—generates higher social returns than untargeted per-pupil increases. Progressive public expenditure design is not merely a social justice imperative but an economic efficiency strategy.

Fourth, governance matters as much as funding. Decentralised school management combined with transparent accountability systems, regular assessment of learning outcomes, and public reporting of results have been associated with improved efficiency of education expenditure in diverse country contexts.

Finally, data and evidence systems are essential for converting spending into outcomes. Countries that invest in robust education management information systems, early grade reading and mathematics assessments, and rigorous programme evaluation tend to learn faster and allocate resources more effectively than those that measure only enrolment inputs.

In sum, the period from 1990 to 2019–20 saw substantial growth in global public education expenditure, accompanied by historically unprecedented improvements in access and enrolment. Yet the learning quality challenge remains acute, particularly in low- and lower-middle-income countries. As the Sustainable Development Goal 4 agenda (Quality Education) shapes the post-2020 discourse, the central policy imperative is not merely to spend more on education, but to spend more wisely—targeting the interventions, institutions, and actors that have been shown to make the greatest difference to children's learning and life outcomes.

References

1. Agasisti T. The efficiency of public spending on education: An empirical comparison of EU countries. *European Journal of Education*, 2014;49(4):543–557.
2. ASER Centre. Annual Status of Education Report (Rural) 2018. Pratham Education Initiative. New Delhi, 2019.
3. Hanushek EA, Woessmann L. *The Knowledge Capital of Nations: Education and the Economics of Growth*. MIT Press, 2015.
4. Jackson CK, Johnson RC, Persico C. The effects of school spending on educational and economic outcomes. *Quarterly Journal of Economics*, 2016;131(1):157–218.
5. OECD. *Education at a Glance 2019: OECD Indicators*. OECD Publishing, 2019. <https://doi.org/10.1787/f8d7880d-en>
6. OECD. *PISA 2018 Results*. OECD Publishing, 2019, 1-3.
7. UNESCO Institute for Statistics. *Education and Literacy Data*. UNESCO, 2020. <http://uis.unesco.org>
8. World Bank. *World Development Report 2018: Learning to Realize Education's Promise*. Washington, DC: World Bank, 2019.
9. World Bank. *The State of Global Learning Poverty: 2020 Update*. Washington, DC: World Bank, 2020.
10. Ministry of Education, Government of India. *Annual Report 2019–20*. Department of School Education & Literacy and Department of Higher Education, 2020.