THE ADEQUACY OF PUBLIC EXPENDITURE ON EDUCATION AND THE NEEDS POST-COVID-19

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1. Education needs to recover the space it lost in national budgets as a result of COVID-19. Many LICs and LMICs decreased the prioritization of education spending with the onset of COVID-19. Half of these countries reduced their annual spending on education in 2020, compared to 28 percent in 2019. Emerging evidence suggests that after falling in 2020, the share of education in national budgets of LICs and MICs recovered in 2021 but by 2022 it remained below its 2019 pre-pandemic level. Meanwhile, many HICs protected education shares over that period and some even increased resources specifically for learning recovery.

2. Education financing needs to expand to ensure sufficient per-capita spending to meet national education goals. Given variation across countries, common international benchmarks on education spending should not be used deterministically to assess the adequacy of financing. Spending per school-age child, the most accurate indicator of financing adequacy, averages US$53 in LICs, US$318 in LMICs, US$980 in UMICs and US$7,800 in HICs. These stark differences surpass differences in countries’ living standards and costs of delivering education services. Many LICs and LMICs that meet common international benchmarks on education spending (such as 4-6% of GDP or 15-20% of public budgets) still spend very little per school-age child due to their small state budgets and large young populations.

3. More spending is needed in some LICs that may be locked in traps characterized by low spending and very low learning. Many LICs spend too little to fund the inputs necessary for effective delivery of education. However, additional education spending does not automatically lead to better learning outcomes; resources need to finance inputs and processes that are part of an integrated package and complement each other to deliver learning in the classroom.

4. In most LICs and LMICs, increases in both the level and efficiency of education spending are needed to meet national learning goals, with a strong equity focus and fiscally sustainable financing strategies. As part of their medium-term budget frameworks, countries should develop and cost evidence-based plans for achieving their learning goals and a corresponding financing road map, including through efficiency gains from:
   - Ensure sufficient financing for basic education to achieve universal foundational learning—avoiding repetition and missed learning in higher grades—with equity standards.
   - Getting more value from spending on teachers, which accounts for 50 to 80% of education spending, by tackling absenteeism, teacher deployment, and increasing time on task and teaching effectiveness (e.g., through structured lesson plans, practical training by learning level).
   - Adopting cost-effective reforms to strengthen financial management, procurement, and broader management capacity to lower unit costs and improve service provision.
I. WHAT DO WE KNOW ABOUT THE ADEQUACY OF EDUCATION FINANCING BEFORE COVID-19?

5. Adequacy of education financing refers to whether a country is spending enough to meet its education goals. The two most common indicators used to proxy for the adequacy of a country’s (or government’s) funding for education are: (i) education spending as a share of GDP; and (ii) education spending as a share of total government expenditure. Commonly cited international benchmarks of education financing adequacy based on those indicators include those agreed in 2015 as part of the Education 2030 Incheon Declaration, which urges countries to allocate at least 4-6 percent of GDP and/or at least 15-20 percent of public expenditure to education, while recognizing the diversity of country contexts.[1] As shown in Figure 1, low-income countries (LICs) and lower-middle income countries (LMICs) spend, on average, a higher share of their public budgets on education than do the upper-middle income (UMICs) and high-income countries (HICs). But HICs and UMICs allocate more resources to education as a share of their (larger) economies than do lower-income economies, because in the former group of countries the government sector is larger. Over the two decades before the COVID-19 pandemic, LICs and LMICs increased their allocations to education.

Figure 1. Government expenditure on education by country income level, 1999-2019


6. **Education financing needs vary across countries in ways that render common international benchmarks on education spending imperfect for assessing adequacy.** While the benchmarks can be useful reference points, they should not be used deterministically to assess the adequacy of education financing, since these benchmarks do not translate into the same spending per capita in different country contexts.\[2\] Spending per school-age child is a more accurate indicator, because this can be related to the unit costs of service provision, which vary across countries due to the size and density of the young population, the costs and availability of educational inputs, and other factors.\[3\] Countries with larger and more dispersed young populations need larger budgets to deliver quality education to all children and may also require relatively higher spending per learner. By contrast, aging countries with declining young populations can achieve adequate levels of per-child spending even with lower shares of national budgets and GDP devoted to education.

7. **In fact, spending per school-age child averages US$53 in Low-income countries (LICs), US$318 in Lower-middle-income countries (LMICs), and US$7,800 in High-income countries (HICs).** These stark differences in per child spending surpass differences in countries’ living standards, teacher salaries, and costs of delivering education services. They translate into large differences in investments in education over a child’s education life in rich and poor countries. By the age of 18, a typical child in a low-income country will have attended school for 8 years and their government will have invested about PPP$1,300 in their education, while a typical child in a rich economy would have gone to school for 13 years and benefited from PPP$111,000 in public education investment.\[4\]

8. **For many LICs and LMICs, financing education at the international benchmarks still results in inadequate levels of spending because of their smaller state budgets and larger young populations.** As illustrated in Figure 2, in 2020 only a few countries reached both international benchmarks: at least 4 percent of GDP and 15 percent of total government expenditure (roughly corresponding to the upper-right quadrant). Despite being above this “frontier”, the absolute level of annual public spending on primary education in these countries, on average, barely exceeds PPP$1,000 per child of primary school age.\[5\] For instance, Niger devotes about 5% of GDP and 22% of the national budget to education, but this translates into only PPP$100 per child of school age. Thus, most LICs and LMICs need to increase spending on education substantially above these benchmarks to reach adequate spending levels per child to meet their education goals (such as SDG4 and reducing learning poverty).

\[2\] For example, the Global Partnership for Education (GPE) no longer requires commitment to these global benchmarks from its partner countries, arguing that while “[t]he global benchmark of 20% of domestic budget allocated to education remains central in country-level dialogue and advocacy, this should be complemented by a broader dialogue on fiscal space.” See: https://www.globalpartnership.org/what-we-do/domestic-financing.

\[3\] This is usually expressed in internationally comparable currency units (such as US dollars adjusted for purchasing power parity, PPPs). However, the costs of education provision often vary across countries in ways that are not well captured by international price adjustors. For instance, teacher salaries matter not only in absolute terms but also relative to labor earnings in other occupations as the latter influences the profile of those attracted to the teaching profession. Geography can also lead to important variation in unit costs of service provision. World Bank (2017).

\[4\] Al-Samarrai and Benveniste (2022).

\[5\] World Bank and UNESCO (2022).
Figure 2. Education as a share of total government expenditure and GDP in LICs and LMICs, 2020


9. Although more education spending does not necessarily lead to better education outcomes, key outcomes like learning poverty and learning-adjusted years of schooling are worst in countries spending the least per child of primary and secondary school age. Figure 3 shows the relationship between spending per learner and these two indicators. This relationship appears to be non-linear. Two important observations emerge: (i) a cluster of countries (highlighted within a square, largely LICs and LMICs), where, with few exceptions, very high levels of learning poverty and very low LAYS go along with very low levels of spending per child; in these countries, more spending is needed to adequately fund the essential inputs needed to ensure effective delivery of education services and unlock progress in foundational learning; (ii) at higher levels of spending, the correlation between education spending and outcomes is weaker: some countries (largely MICs and some HICs) have education outcomes that are far worse than those of other countries with similar per-child spending.
Panel B. Learning-adjusted Years of Schooling and spending on primary & secondary education

Panel B. Learning-adjusted Years of Schooling and spending on primary & secondary education

Source: Based on Education Finance Watch 2022 database used in World Bank and UNESCO (2022).

Note: Learning poverty is the share of children unable to read and understand a simple text by age 10. LAYs are calculated by multiplying the estimated expected years of schooling by the ratio of most recent harmonized test scores to 625 in the Human Capital Index database (2020).
10. Some examples are illustrative. For instance, Sri Lanka, an LMIC that on average spent only about PPP$615 per child of primary school age during 2015-19, nonetheless managed to achieve impressive results, with learning poverty of only 15 percent (on par with Czech Republic, which on average spent PPP$5,300 per child in the period). Meanwhile, South Africa, a UMIC, spent nearly PPP$2,400 per child of primary school age during the similar period and achieved a learning poverty rate of 79 percent (similar to much poorer Guinea, which spent only PPP$144 per child). Similar contrasting cases can be observed in the relationship between learning-adjusted years of schooling and spending per child in primary and secondary education.

11. How resources are spent matters a great deal to ensure results and value-for-money.[6] Whether additional spending on education leads (causally) to improved learning outcomes has been a subject of much study. Previous research suggests that differences in institutional structures and other factors related to a country’s level of development (such as governance and bureaucratic capacity) mediate the impact of spending on learning outcomes.[7] Some empirical studies confirm the strong descriptive correlation at lower levels of spending shown in Figure 3, and suggest that a minimum threshold of education financing is needed to adequately fund the necessary inputs to ensure effective delivery of education services. One study found an econometrically robust positive correlation between spending and learning outcomes up to PPP$8,000 per student annually, although subsequent analysis did not confirm this result.[8] The OECD’s 2018 PISA results suggest that a cumulative expenditure per student of up to around PPP$50,000 over the course of a child’s schooling up to age 15 correlates with average student reading performance, and that the correlation nearly disappears above that threshold.[9] These spending thresholds are very high, and in any case, “minimum” level of per child spending again will vary across country contexts depending on demographic and geographic characteristics, the accessibility of educational inputs, and the management capacity available to deliver education services efficiently. Ultimately, each country should derive the cost of the minimum package of inputs to ensure quality universal education that leads to all children acquiring solid foundational skills and develop financing strategies to fund these costs, while ensuring that resources are well-spent.

[6] The “minimum” level of per child spending again will vary across country contexts depending on demographic and geographic characteristics, the accessibility of educational inputs, as well as management capacity to deliver education services efficiently.
II. Adequacy for whom? Equity of education spending matters

12. National spending figures often mask income, subnational and within-groups inequalities. Even in countries where overall levels of government education spending may be considered adequate, not all population groups may benefit equally or adequately. In LICs, while about one third of total public education spending goes to the poor, on average about 10 percent of spending still benefits children and youth from the wealthiest quintile. In many MICs, the share of public education spending benefitting children from the richest quintile reaches close to 20 percent.[10] One important source of inequity in the allocation of spending is financing across levels of education. While in most countries there is near parity in the enrollment rates in public primary education, a far greater proportion of children in the wealthiest quintile attend publicly financed tertiary education. This and the fact that average spending per learner is higher for tertiary education tend to channel public education funding toward wealthier families, especially in low-income countries where few youths from poor families make it to tertiary education.[11] Such inequities take already scarce public financing away from basic education and lead to allocative inefficiencies since strong foundational learning is necessary for better systemwide education outcomes.

13. Subnational disparities in education spending are another source of inequity in the adequacy of public education financing. These subnational disparities often amplify prevailing income inequalities and patterns of exclusion (Figure 4). In many countries, per-child education spending is significantly higher in more affluent regions. In Indonesia, for instance, central government transfers—which represent over 60 percent of subnational revenues—are allocated on a district rather than per-capita basis, leading to huge disparities in per capita spending that are not commensurate with differences across location in costs of providing education.[12]

![Figure 4. Sub-national education spending disparities](image-url)

Source: Al-Samarrai and Benveniste (2022) based on several country studies.

[10] Al-Samarrai and Benveniste (2022) based on data from UNICEF (2020) and other country studies.
Education financing mechanisms that target geographic areas with a greater prevalence of households with greatest need and schools with higher numbers of disadvantaged learners, and that tie transfers to improvement in education results, can help poorer regions afford the higher unit costs of providing services efficiently in remote or sparsely populated locations and to more disadvantaged children. Brazil and China offer good examples of the use of education funding mechanisms that differentiate funding based on regional needs and equity principles and that reward improvements in outcomes.[13]

14. The low and unequal levels of public spending put a greater burden on lower-income households to finance education expenses. Households in LICs and LMICs bear about 39 percent of total spending in education, compared to 16 percent in HICs. Research has found that reforms to lower the direct costs of schooling have improved education attendance.[14]

III. Adequacy, efficiency, and fiscal space: addressing education financing needs post-COVID-19

15. Education needs to recover space in national budgets of LICs and LMICs that has been lost because of COVID-19. Forty percent of LICs and LMICs reduced their education spending in 2020, after the onset of the pandemic. Spending declined by 13.5 percent, on average. The pandemic reversed a steady upward trend in per capita real public spending on education in many MICs. One-third of LMICs and half of UMICs spent less per capita on education in 2019-2020 than they did in 2014-2015.[15] While there is not yet country level data on actual education spending in 2021 and 2022, available data on the share of education in national budgets indicate that education lost space in national budgets of low- and lower-middle income countries over that period. Education’s share in national budgets had fallen in 2020, and although it rebounded slightly in 2021, it fell again in 2022 to below 2019 levels. In contrast, richer economies protected education spending over the last two years.

16. Recovering and expanding investments in education will require the creation of fiscal space, where possible, and greater prioritization of education where needed. As part of their medium-term budget frameworks, countries should develop and cost evidence-based plans for achieving their learning goals and a road map for financing those plans, considering overall fiscal needs and sustainability and means for domestic resource mobilization and external financing (Figure A.1, Annex).

Economic growth and increases in overall government budgets—rather than increases in the share of budgets devoted to education—were the main driver of the 4 percent annual growth in public education spending between 1999 and 2015. However, countries that achieved the largest and most rapid increases in education spending did this by both expanding government revenues and increasing education’s share in their national budgets. In LICs that spend too little to ensure effective delivery of education services, external financing for education might be key to unlock them from low-spending, low-learning traps.

**17. Greater spending efforts will need to go hand in hand with improvement in spending efficiency.** Global and country evidence points to three key areas to improve efficiency (GEEAP 2020; see Annex for illustrative country examples and a summary of typical policy recommendations to address key sources of education spending inefficiency):

a) Ensure funding for basic education to achieve universal foundational learning, starting in the early grades and allowing for sufficient financing for poor localities and disadvantaged learners—note that providing a similar service might cost more per child in these circumstances. Besides adopting policies to reduce the inefficiencies arising from inequities in education spending, countries need to tackle repetition and low learning in the early grades of primary school, by ensuring the fundamentals of literacy and numeracy, starting in early childhood education, since this will enable school progression and learning in higher grades.

b) Emphasize the interventions that are most cost-effective at improving learning. Since quality teaching is the number one driver of learning, there is a need to get more value from resources invested on teachers. Teacher salaries (and teacher training) account for 50 to 80% of education expenditures in most countries. Hence, large efficiency improvements will stem from reforms aimed at reducing teacher absenteeism, improving teacher deployment (to reduce gaps in pupil-teacher ratios and to properly staff disadvantaged localities), and increasing time on task and teaching effectiveness through greater use of structured lesson plans and practical teacher training on how to target instruction according to students’ learning levels.

c) Adopt reforms to strengthen budget planning, financial management, procurement, and broader management capacity to lower unit costs and improve efficiency in delivering key inputs. Effective public finance management systems can improve the accountability of spending and the timely delivery of inputs such as teacher salary payments, school grants, and textbooks. Procurement reforms can lower the costs of infrastructure investments, textbooks, education technology, and other inputs. These reforms are critical to improve efficiency but have as a critical constraint the quality of human resources and management capacity in ministries of education and local governments.

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The Public Expenditure Financial Accountability Framework (PEFA) is useful in identifying common PFM issues across sectors. Linking PFM weaknesses to key spending problems can be effective in stimulating necessary country reforms. The main spending problems could be (i) a gap between the education budget and budget execution; (ii) inadequate budget allocation; (iii) human resource management; (iv) learning materials; (v) school infrastructure; and (vi) private sector funding for private schools.

18. To be efficient, policies and interventions need to be designed so that they enable behavioral changes at scale (e.g., from teachers) in a politically acceptable way. Making policies and their objectives more clear, doable, and rewarding for all stakeholders, identifying ways to compensate the “losers” and empower the “winners”, and sequencing policies strategically can make them politically feasible and sustainable.

[19] 14 PEFA Indicators that could be used to analyze the education sector.
Annex

Figure A.1 Main levers for increasing financing and linking it to results


Illustrative country examples of reforms to improve education spending efficiency[1]

_In China_, an education funding mechanism introduced in 2006 included a specific-purpose transfer to provinces designed to cover elements of non-salary funding and to compensate subnational governments for the revenue they lost as a result of the abolition of tuition fees, which was implemented at the same time (Al-Samarrai & Lewis, 2021).

_In Brazil_, the federal fund for basic education (FUNDEB) has improved education results and equity issues by redistributing a portion of federal, state, and municipal tax revenues to guarantee a minimum level of spending per student across all municipalities. And in the case of the State of Ceara, a formula has been used to reward municipalities that improve education outcomes (Loureiro et al., 2021).

_In Colombia_, a new information system to assess quality dimensions is helping ensure that resources are targeted more effectively to schools (Cerdan-Infantes & Zavala Garcia, 2019).

_In Bangladesh and Cambodia_, results-based financing has been used to ensure that books are delivered to schools on time, in the right languages, and in the right quantities, and to incentivize authors, teachers and the community to create books in languages that children speak at home (Lee and Medina 2018).

[1] This draws heavily from Al-Samarrai and Benveniste (2022).
Illustrative country examples of reforms to improve education spending efficiency[2]

In Indonesia, district-level funding formulas in some districts factor in an equity adjustment to reflect cost differentials in the delivery of education; for example, schools located on small and remote islands receive a 20 percent higher per-student amount to cover higher travel costs (Al-Samarrai et al., 2018).

In Niger and Uganda, grants have been used to increase enrollment in primary school, and in Mexico, to improve student progress and retention (Grogan, 2009; Gertler et al., 2012; Beasley & Huillery, 2013).

In Tanzania, school-level funding tied to incentives for teachers to utilize these funds to improve student performance led to better outcomes and improve efficiency (Mbiti et al., 2019).

In Zambia, the introduction of incentives to improve the efficiency of the book supply chain resulted in more books getting to schools on time (Hong et al., 2020).

Key sources of education spending inefficiency and policy recommendations[1]

Sources of inefficiencies vary by region, income group within the region, fragility (conflict and institutional), main education policies (free and compulsory, automatic promotions vs. filter etc.), and country educational performance.

In general, the analyses in high and upper middle-income countries and countries where universal access was achieved, point to the management of human resources (distribution of teachers) as the most important source of inefficiency. Low pupil-teacher ratio (PTR) and small school size, usually in the context of an aging population, are key outcomes of underlying inefficiencies in these countries. Low- and lower-middle-income countries appear to suffer more from internal and allocative inefficiencies primarily associated with the management capacity of the sector. Conflict-affected countries and countries that use filters such as strict repetition policies, or high-stakes examinations, as a quality control seem to generate higher levels of internal inefficiency. Although many countries may face different sources of inefficiency, most analyses focus on the main drivers based on sector knowledge and past patterns. In some countries, the gains from improved efficiency will cover the expenses needed to meet sector goals, while others still need to allocate more, regardless of income group. Table A.1 below summarizes the typical policy recommendations made vis-à-vis key sources of inefficiency.

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### Table A.1. Summary of sources of education spending inefficiencies and policy recommendations

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<th>Key sources of inefficiency</th>
<th>Typical policy recommendations</th>
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| **A. Internal inefficiency** | • Encourage ECD programs to increase children’s readiness for primary school, promote learning abilities, help reduce factors that affect internal efficiency (dropout, repetition, and delayed entry), and increase probability of having longer productive life on the labor market by expanding preschool education and supporting early stimulation and nutrition interventions  
  • Institute a policy that stipulates a mandatory enrollment age and automatic promotion at least at the primary education level. |
| • High repetition and dropout rates  
  • Low survival and completion rates | |
| **B. Allocative inefficiency** | • Use criteria including STR, classrooms, school size, subjects taught, and facilities available at the school level and hardship status of the school location or local areas for human and financial resource allocation  
  • The unit cost should be used in the budget planning process to ensure that scarce resources are equitably and efficiently allocated, especially to avoid the wide disparities across regions/institutions as currently observed  
  • The budget preparation process and final allocation should reflect the sectoral priorities outlined in the country’s MTEF through better coordination across agencies. |
| • Uneven distribution of resources by spending categories (salary, non-salary recurrent, capital and others) and level of education (pre-school to tertiary) leading to inefficient use of resources  
  • Earmarked allocation of budget which hinder the fungibility of budget as needed  
  • Financial allocations are not adequately responsive to meet the population growth, and to adapt to the gradual change in its dynamics and structure | |
| **C. Inefficiencies related to weak human resources management.** | • Use formula to determine teacher recruitment and administrative staff needs at the school level based on standardized criteria such as STR, classrooms, school size, subjects taught and facilities available at the school Carry out regular auditing to assess alignment of staffing needs and provide retirement packages for those who qualify  
  • Ensure teachers are effectively used at optimal STR by revising curriculum to ensure course load and options are optimal.  
  • Simplify curriculums and ensure teacher have a good command of the whole curriculum and support them with teachers guides or lessons plans (the lower the capacity of teachers, the more important to provide highly scripted lessons)  
  • The efficient use of teachers and staff requires, especially at the secondary education level, a revision of the curriculum, streamlining the courses offered  
  • Use attrition to reduce teacher numbers in schools where there currently is overstaffing.  
  • Provide continuous professional development to improve teacher competencies in the classroom.  
  • Use technology to leverage teacher effectiveness where possible.  
  • Audit staff and determine the actual number and subject mix of teachers in place. |
| • Lack of criteria for onboarding teachers (such as specialization or learning group which lead to over estimation of teachers) which lead to STR variation by level of education and geographic areas  
  • Low teachers’ workload, especially for expensive and senior teachers  
  • High teacher absenteeism leading to loss teaching time  
  • Lack of incentives in the deployment of teachers leading to high variation of STR by geographic areas.  
  • Rigid HR rules which affect the effective use of teachers— outdated legal framework related to teacher selection and career development  
  • Weak attrition system for effective management of teachers  
  • Over-supply of administrative teachers often because the education sector is used for job creation | |

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### Key sources of inefficiency

- Weak infrastructure planning leading to uneven distribution of school sometimes leading to duplicate school in nearby communities (low class size, low STR, etc)
- Lack of clarity on mandates by different levels of government leading to duplication of efforts, contradictions and wastage
- Weak coordination between different actors at different levels of government including development partners
- Weak M&E system to track resources and ensure accountability
- Weak budget execution rate especially capital spending which often depends on external resources
- Inadequate planning for implementation of reforms which often suffer from lack of appropriate consultations and planning for resources (financial, human and technical) needed. Some activities dropped after significant spending

### Typical policy recommendations

- Given the poor level of execution of capital spending budgeted on external resources, there should be a more balanced in budgeting between internal and external resources in the education capital spending. Operating cost allocations to schools should be increased.
- Budget nomenclature should be revised to allow monitoring and evaluation of both recurrent and capital spending to each level of education.
- Establish systematic monitoring and evaluation oversight of all schools to ensure standards are upheld; provide the means to enforce compliance.
- Implement and institutionalize school mapping to guide new infrastructure development.
- Institute measures to closely monitor and manage the execution of projects particularly in the infrastructure sector.
- Strengthen the EMIS capacity to enable better M&E, particularly at the postsecondary level
- Support decentralization policy for better funding, better accountability, effectiveness, and efficiency.
- Improve public financial and human resources management capabilities at all levels
- Strengthen legal and institutional environment in education policy and implementation
- Create incentive mechanisms in basic education policies and ensure alignment of resources with sector priorities
- Improve budget execution to ensure that allocated resources are effectively utilized in a timely manner, catering to the needs of schools
- Implement procurement reforms to improve the efficiency of capital spending
- Simplify and streamline procedures by strengthening key management capacities such as planning, procurement and introducing internal management systems, and practices that improve coordination between units and clarify the responsibilities of those responsible for specific aspects of the program and project implementation.
References


