



EDUCATION FINANCE WATCH 2023

Introduction

The Education Finance Watch (EFW) is a collaborative effort between the World Bank (WB), the Global Education Monitoring (GEM) Report, and the UNESCO Institute for Statistics (UIS). The EFW aims to provide an analysis of trends, patterns, and issues in education financing around the world. The EFW uses various sources of education, economic, and financial data from the World Bank, UIS, the International Monetary Fund (IMF), and the Organisation for Economic Co-operation and Development (OECD).

The first volume of the EFW report (EFW2021) documented continuously increased global education spending in absolute terms over the decade but indicated that the COVID-19 pandemic would interrupt this trend. EFW2022 shed light on the impact of COVID-19 on global education spending in 2020, the first year of the pandemic, and revealed that half the analyzed sample of countries reduced their annual education spending, in real terms.¹

This year, the EFW2023 updates analyses on trends and patterns of education spending for the past 10 years, up to 2021, the second fiscal year after COVID-19. As a special theme of this year's volume, the EFW2023 sheds light on changes in the school-age population and projects its fiscal implications for the upcoming ten years for selected countries. In 2021, low-income countries (LIC) increased year-on-year total education spending (a total of government, households, and development aid) in real terms. This increase was driven by an increase in government spending, which reached 50 percent of total education spending, while official development assistance (ODA) to LIC decreased both in absolute and relative terms.



© Vincent Tremeau | World Bank | 2020

Although the increase was notable, it was insufficient to close the learning gap sustained during the pandemic. Indeed, around the world countries of all income levels are grappling with pandemic-induced learning loss.

¹ To account for inflation, we use real terms throughout the EFW2023.



© Vincent Treméau | World Bank | 2020

The pandemic caused significant learning losses that will harm the future of people and economies alike if the right investments in education – in terms of amount, efficiency, and equity – are not implemented right now. School closures are expected to reduce the learning-adjusted years of education across developing regions by roughly a third to a full year (Azevedo et al. 2021). This, combined with deskilling due to prolonged unemployment, will likely lower future earnings and dent human capital (Fasih et al. 2020; Fuchs-Schündeln et al. 2022). Overall, the COVID-19 pandemic could reduce developing regions' potential growth by a further 0.6 percentage points, to 3.4 percent over the next decade, absent reforms to boost underlying drivers of long-term growth (World Bank 2021). Increasing investment in human capital can help reverse the losses caused by overlapping adverse shocks of recent years (Schady et al. 2023; World Bank 2023).

Less learning translates into lower earnings over the course of an individual's lifetime. While more years of education are associated with higher earnings, every standard deviation (SD) increase (decrease) in cognitive skills is associated with a substantial increase (decrease) in earnings. The global learning loss is equivalent to 0.7 years of lost learning (0.2 SD), which could translate into an annual reduction of 6.5 percent in the future earnings of current students once engaged in a job, as a result of lower productivity due to fewer cognitive skills. This reduction in earnings prospects could contract national income growth by 2.2 percent each year of working life (45 years on

average) of the generation hit by the pandemic (Psacharopoulos et al. 2021).

Learning loss is significantly higher in middle-income countries (MIC) and LIC, which already come from a low learning base. This situation positions around 86 percent of the world's current student population at risk of encountering lower future earnings within countries with tighter economic restrictions. Education was hit the hardest in MIC. These countries account for 76 percent of the world's student population and face a full year of lost learning, which will likely contract future annual earnings by 9 percent and annual economic growth by 0.1 percent. Future economic growth in LIC is likely to suffer the most because of pandemic-induced learning loss. LIC learning loss is equivalent to 0.7 years of education, which is likely to lead to a reduction of 7.4 percent in annual earnings which will translate into a 7.5 percent decrease in their annual economic growth. Larger learning losses and tighter economic restrictions put LIC and MIC countries at high risk of falling into a vicious cycle where low education spending produces less learning in the aftermath of the pandemic leading to lower economic growth, and lower economic growth produces even lower investment in education, and so on.

High-income countries (HIC) investing heavily in education every year managed to minimize their learning loss. HIC encountered a learning loss equivalent to 0.4 years of schooling, which could result in a decrease of 4.2 percent in future annual earnings and a contraction of 0.7 percent in national economic growth.

Key findings:

1. **The pandemic exacerbated the global learning crisis and government education spending is insufficient to close the learning gap.** Along with a slight rise in annual real spending on education, government per-capita education spending increased in 2021. This is striking, given that it occurred during the height of the pandemic. However, spending as a percentage of gross domestic product (GDP) declined in all country income groups, except LIC. Government spending on education has historically accounted for less than half of combined education spending in LIC but reached 50 percent in 2021. In countries of all income levels, particularly LIC and MIC, spending increases were far from sufficient to even make a dent in the large learning gap.
2. **Now that external support is needed most, ODA is falling – and could be spent more efficiently.** Aid to education fell by 7 percent, from US\$19.3 billion in 2020 to US\$17.8 billion in 2021, because of the reduction in general budget support, which returned to pre-COVID levels. ODA for education continues to be important for LIC, accounting for 13 percent of their total education expenditure; nevertheless, the proportion of ODA devoted to education is declining. Only 30 percent of direct aid to education among the ten largest donors to sub-Saharan Africa (SSA) goes straight to recipient countries; the remainder is funneled through donors' aid agencies, international and domestic non-governmental organizations (NGOs), and multilateral organizations. Since 2017, there has also been a significant discrepancy between aid commitments and disbursements among multilateral donors, totaling US\$1.7 billion in unused commitments over the five years.
3. **Families spend significant portions of their funds on education; more than one-third of total education spending in LIC and lower-middle-income countries (LMIC) is from households.** Within countries, household spending varies considerably by household characteristics. This includes socio-economic status, household location, education levels, and the type of school children are (or are not) enrolled in. Overall, households spend more money on non-state (private) than state (public) schooling. In selected African countries, it costs families 1.5 to 5 times more to send a child to a private rather than public school.
4. **Demographic changes present challenges and opportunities for education financing. While more education spending does not necessarily lead to better education outcomes, learning outcomes are lowest in countries spending the least per school-age child.** LIC and LMIC exhibit a striking variation in demographic change: some countries are experiencing or will soon face a decline in per-capita public education expenditures partially caused by a growing school-age population, while others are seeing school-age population stagnation or decline and could free up fiscal space to increase per-capita education expenditure.
5. **Closing the learning gap will require more efficient and equitable financing.** In all countries, particularly those with relatively lower income, the level, efficiency, and equity of education spending is often inadequate to reach learning goals. More money will only partially solve it. In a current climate of increasing inflation, high debt-to-GDP ratios in many countries, and falling ODA, particularly to LIC, spending smarter is the imperative and urgent next step. Doing so can mitigate pandemic-related learning loss, helping to develop the foundational skills needed to grow human capital and sustain economies into the future.
6. **Education spending data availability has improved considerably, yet gaps remain.** The actual availability of the latest data for the key education finance indicator, “governmental spending on education as a percentage of GDP,” fell from 76 percent of countries reviewed in July 2022 to just 66 percent in July 2023.



© Ed Wray | World Bank | 2012

Global education spending trends



© Atet Dwi Pramadia | World Bank | 2018

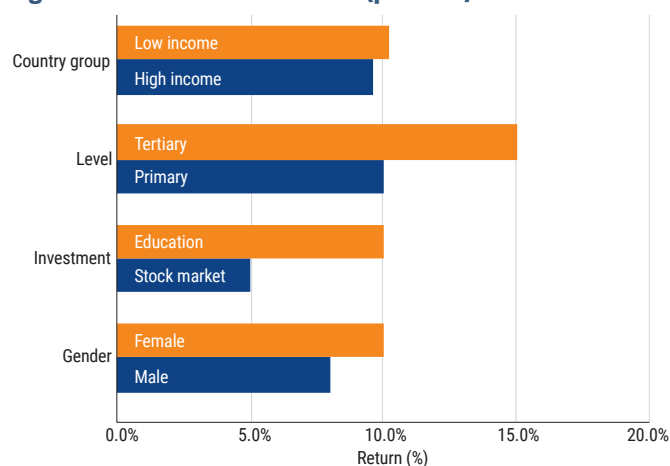
This section puts observed education spending trends during the onset of COVID-19 into a longer-term perspective and analyzes changes in spending distribution by source. Education spending data availability has improved considerably, yet gaps remain (see Section 7). The EFW uses a coherent methodological approach to deal with missing education spending data by imputation to estimate total education spending for the past 10 years. The specific methodology and rationale are described in detail in the accompanying Technical Note.

The economic and social implications of spending well on education

Education is a key investment in human capital that translates into economic growth. Education raises productivity (Sianesi and van Reenen 2003; Hanushek and Woessmann 2010; Hall and Jones 1999; Schoellman 2012; Hendricks 2002). According to harmonized learning outcomes (HLO) database, a change of 1 percent in learning is associated with a change of 7.2 percent in annual growth (Angrist et al. 2021). It is an economically and socially productive investment partially because of its positive association with earnings (Card 2018). One additional year of schooling increases earnings by 10 percent (Psacharopoulos and Patrinos 2018; Montenegro and Patrinos 2021), which is greater than stock market returns (Heckman 2008; Arias and McMahon 2001). In almost every country and at all levels of schooling, returns to education are higher for women (10 percent) than for men (8 percent) (Figure 1).

LIC have the most to gain by investing in education. The social rate of return to human capital – compared with investment in physical capital – is higher in LIC than in countries with greater income levels (Psacharopoulos 1973; Psacharopoulos et al. 2017). Also, the average payoff for one more year of schooling is higher in LIC than in MIC and HIC. This also happens by education level. The average returns to primary, secondary, and tertiary education are higher in LIC.

Figure 1. Returns to education (percent)

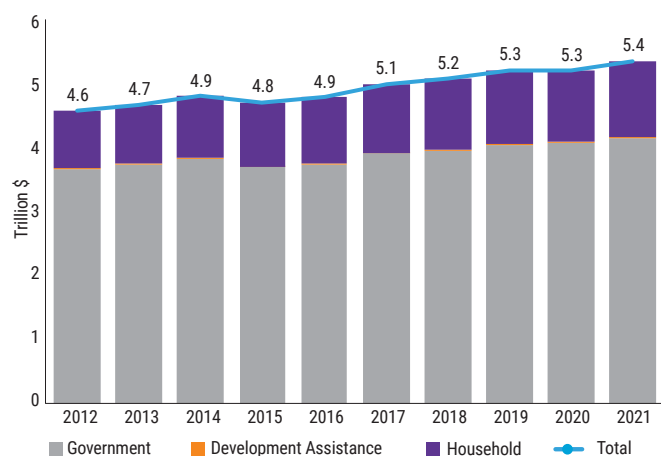


Source: Author compilation based on various sources

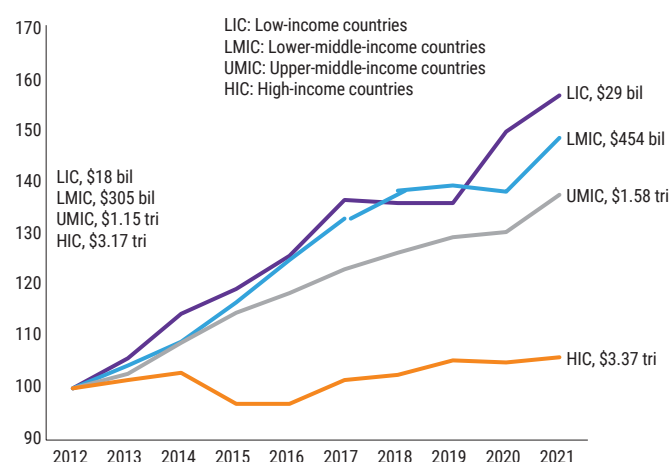
The longer a child stays in school, the greater the return. Returns to education are highest at the tertiary level across the world, even in LIC where there is a scarcity of skilled labor. This fact has been characterized as a race between education and technology (Goldin and Katz 2009; Tinbergen 1974), and shows that, while the demand for skills is increasing due to a technological change that puts a premium on higher order competencies, globally the supply of schooling is not keeping up with demand for such skills. Further, workers with higher education are better at learning new skills and adapting to changing conditions (Schultz 1975), for which the labor market also pays a premium. Also, during crises, the employment prospects of tertiary education graduates are protected by their skills, while the earnings of those with secondary education or less are more vulnerable, which likely contributes to persistent wage inequality. The insulating effect of higher education was observed during the financial crisis of the 1990s and the late 2000s recession (Cholezas et al. 2013; Fasih et al. 2021; Fiszbein et al. 2007; Patrinos and Sakellariou 2006; Psacharopoulos et al. 1996), as well as during the COVID-19 pandemic. Analysis of the returns to education

Figure 2. Total real spending on education began to increase in 2021 following a brief period of stagnation due to the COVID-19 pandemic

a. Government, ODA, and household spending on education, constant 2021 US\$, trillion, 2012 - 2021



b. Evolution of total real education spending (all sources), by country income group 2012 – 2021 (2012 = 100)



Note: LIC: Low-income countries, LMIC: Lower-middle-income countries, UMIC: Upper-middle-income countries, HIC: High-income countries, follows the World Bank country income classification published in 2022 (<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>, accessed on 28 June 2023). Interpolation was used to fill in missing data and ensure a comparable sample of countries in all periods. Considering the change in data availability in the EFW2023 database post-imputation, there is a slight increase in UMIC from 2019 to 2020, reversing a decrease initially reported in EFW2022. This shift is largely due to data changes. Specifically, 2020 data were added for three more countries on net government education spending (net of ODA) in EFW2023, while the UIS reported seven fewer countries for actual spending.

Source: Author estimates using the EFW2023 database.

in fourteen countries for which we have data before, during, and after the pandemic (Argentina, Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Egypt, Panama, Paraguay, Peru, Rwanda, El Salvador, Thailand, and the United States), shows that the average returns to higher education grew from 14.1 to

15.0 percent during the pandemic and persisted above their pre-pandemic level afterwards, at 14.7 percent. In contrast, the average returns to an additional year of schooling declined during the pandemic (from 8.9 to 8.8 percent) and continued their downward trend afterwards (to 8.5 percent).



© Charlotte Kesl | World Bank | 2010

How has total education spending changed over the last ten years, particularly since the COVID-19 pandemic?

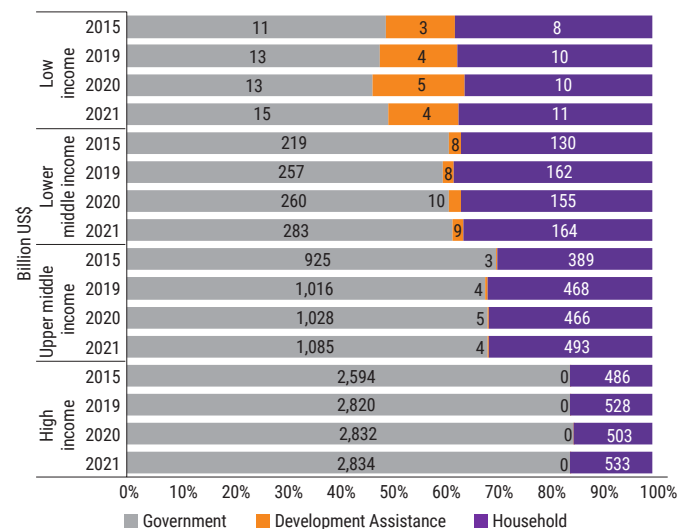
At the beginning of the pandemic, total global education spending stagnated, but it increased again in 2021. The global total real expenditure on education, combining spending by governments, ODA, and households, inched upwards in 2021 to US\$5.4 trillion after two consecutive years at US\$5.3 trillion² (Figure 2.a). This is a noteworthy development given that it occurred during the height of the pandemic. It is also slightly surprising since early reports warned of declines in spending (Alam and Tiwari 2021; Riggall et al. 2021; UN 2020). The overall increase (US\$0.1 trillion) is driven by an increase in government spending in all country income groups. The increase in 2021 was modest in HIC, and more substantial in LMIC, with a total year-on-year increase of 7.6 percent (Figure 2.b). This difference highlights how various country income groups have reacted differently and recovered to pre-COVID-19 levels of education spending at diverse rates.

Government resources remain the main education funding source in all country income groups. More than three-quarters (78 percent) of global education spending in 2021 stemmed from government spending net of ODA contributions,³ which increased by 2 percent from 2020 in real terms (Figure 2.a). Households account for a sizable share of total spending in LIC and LMIC, accounting for 37 and 36 percent of the total, in 2021. After a 15 percent increase from 2019 to 2020, ODA to education decreased by 7 percent in 2021.

In LIC, government spending reached 50 percent of the combined education expenditure in 2021. Historically, LIC governments have funded less than half of total education

Figure 3. In 2021, for the first time since 2015, government spending made up 50 percent of total education expenditure in LIC

Distribution of total education spending by source, year, and country income group, percentage, and billions US\$



Note: Interpolation used to fill in missing data and ensure a comparable sample of countries in all periods. As in EFW2022, 218 countries and territories were included in the EFW2023 database. To avoid double-counting, government expenditure nets out part of the ODA received by countries.

Source: Author estimates using the EFW2023 database.

expenditures within their countries, with households and donors playing a larger funding role than in countries with more income. By contrast, UMIC and HIC mostly rely on governments for their financial sources for education (around 70 percent and 85 percent, respectively, in 2021). Despite the proportional increase in LIC government spending on education, ODA for education continues to be important in LIC, accounting for 13 percent of the total (Figure 3).

2 EFW2023 revised the estimates of total global education spending upward by approximately 8 percent over the past 10 years (total education spending in 2020 was estimated at US\$4.9 trillion in EFW2022, but new estimates in EFW2023 is US\$5.3 trillion). This upward revision was due to a combination of various factors, including the replacement of imputed data last year with newly available data this year, revisions of reported data in the past year, and a rebasing year for constant values from 2020 to 2021.

3 To avoid double-counting, aid received by countries is deducted from government expenditure.

Government spending



© Deshan Tennekoon | World Bank | 2010

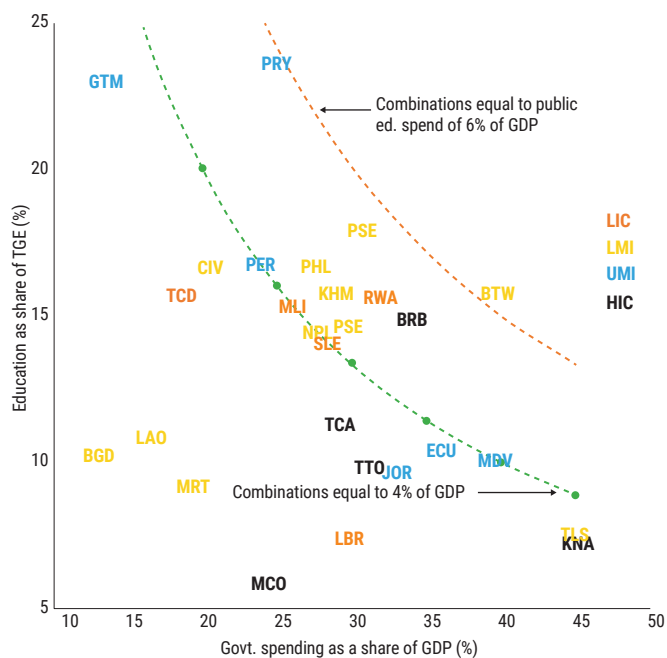
Government funding of education makes sense because education and its returns constitute a global public good. Education is a basic human service, a human right, and optimal investment is often thwarted by market failures, borrowing constraints, and differences in household incomes and preferences, among others (Haveman and Wolfe 1984; Oreopoulos and Salvanes 2011). Schooling is also a mechanism for enhancing social cohesion and nation-building, producing numerous positive externalities. These are some of the reasons governments do and should continue to invest in education, even in the face of economic, social, climate, and public health-related crises. Education builds human capital and human capital is the backbone of every country, strengthening its ability to withstand and overcome, innovating into the future.

How does fiscal space vary across countries for mobilizing greater funding for education?

Governments are facing challenges in achieving the minimum recommended international benchmarks on public education spending. To ensure countries have enough financial resources to provide education for all, UNESCO and its partner agencies established international benchmarks, namely that governments spend at least 4-6 percent of their gross domestic product (GDP) and/or 15-20 percent of total government spending on education (*Incheon Declaration Education 2030*). Of 27 countries with available data in 2021,⁴ we can distinguish three groups of countries: (1) countries that met both targets (four countries); (2) countries that achieved one or the other (16); and (3) countries that met neither (seven) (Figure 4). Interestingly, our analysis reveals no definitive correlation between a country's income level and its adherence to international benchmarks for public education spending. Examples of the first group include Bhutan, Mali, Rwanda, and the West Bank and Gaza⁵, where

Figure 4. Many LIC and LMIC fell short of either one or both international public education spending benchmarks in 2021

Education as a share of total government expenditure and as a share of GDP (%), 2021



N=27 for all countries (LIC & LMIC = 16, UMIC & HIC = 11)

Note: Data presented here do not include interpolated values.

Source: UIS database, accessed April 2023.

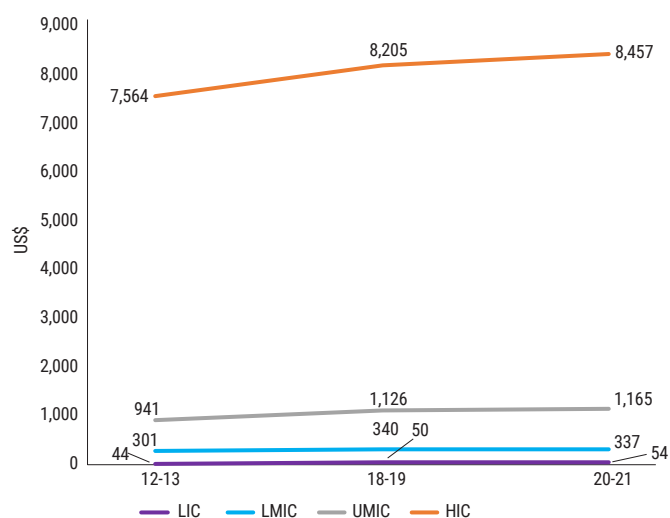
education spending exceeds 4 percent of GDP and 15 percent of total government expenditure. To meet recommended international benchmarks of over 4 percent of GDP, some countries would need some combination of expanding the share of government spending in the economy and increasing the share of education in total spending. For instance, for Mauritania to reach 4 percent of GDP, either government

4 See Appendix for the full list of countries.

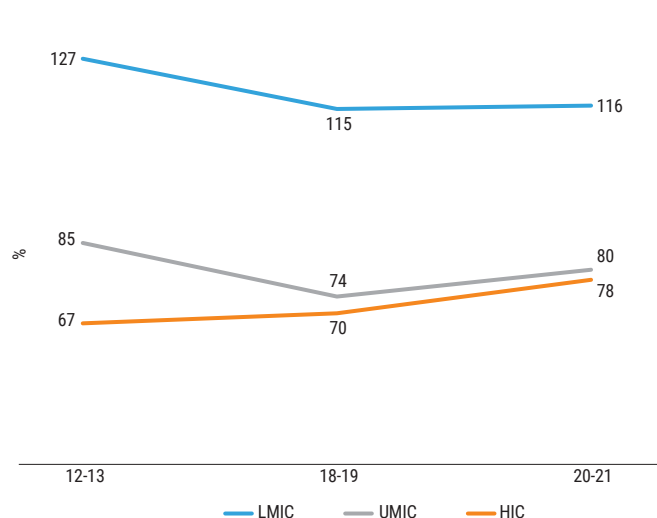
5 World Bank denomination. The denomination used by UNESCO is the State of Palestine.

Figure 5. Comparative increase in per-capita government education spending as a share of GDP per capita in LMIC (2018–19 vs 2020–21)

a. Changes in government education spending per capita (constant 2021 US dollars) by income group; two-year averages: 2012–13, 2018–19, 2020–21



b. Changes in government education spending per capita as a share of GDP per capita by income group; two-year averages: 2012–13, 2018–19, 2020–21



Note: Estimates including interpolated values of government education spending are used in place of missing country-level data. The composition of countries is the same in the two time periods (2012–13, 2018–19, and 2020–21). Per-capita figures use total pre-primary to tertiary school-age population in UIS and UNDESA. Due to an excessive amount of missing data on government spending as a percentage of GDP per capita throughout the observed year, Figure 5.b is limited to only three country income groups (LMIC, UMIC, and HIC).

Source: Author estimates using EFW2023 database.

spending as a share of GDP would need to significantly increase (from 19 to 45 percent) or the country would need to almost triple its share of education spending in total public spending (from 9 to 21 percent) while maintaining its current government spending on GDP.

In the following subsections, we look at government education spending over the past decade, particularly during and after the COVID-19 pandemic.

How has government education spending changed in the last decade?

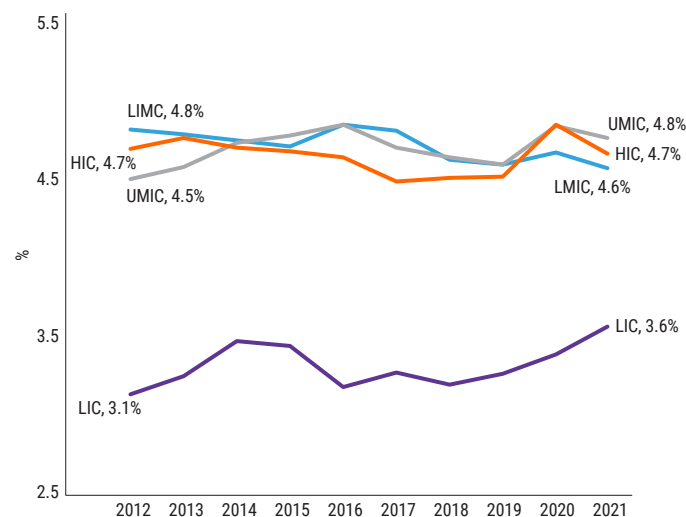
Since 2012, government spending on education relative to GDP has increased the most in LIC followed by UMIC, while remaining stable in HIC and decreasing in LMIC. More recently, in HIC, government spending declined (0.2 percentage points) from 4.9 percent (2020) to 4.7 percent (2021), and in UMIC (0.1 percentage points) from 4.9 percent (2020) to 4.8 percent (2021). In LIC, government education spending as a share of GDP has increased steadily since 2018 (3.2 percent), reaching an average of 3.6 percent in 2021 (Figure 6.a). However, it is well below the international benchmark of 4–6 percent of GDP (Education 2030 Framework for Action).

When viewed per capita, government spending on education since 2012 increased in countries of all income levels, with HIC improving the most (by US\$1,008) and LIC improving the least (by US\$14). The amount a country spends on education per child is the most direct measure to assess whether sufficient resources are devoted to education. While it is difficult to establish a benchmark for the cost of ensuring quality education in different countries and contexts, comparisons are informative. UMIC and LMIC were in the middle, increasing government per capita spending on education over the past decade by US\$276 and US\$45, respectively (Figure 6.b). Changes in per capita education spending over the past decade are influenced by overall decreases in HIC countries and increases in LIC countries' school-aged populations (see Section 6 for more on demographic shifts).

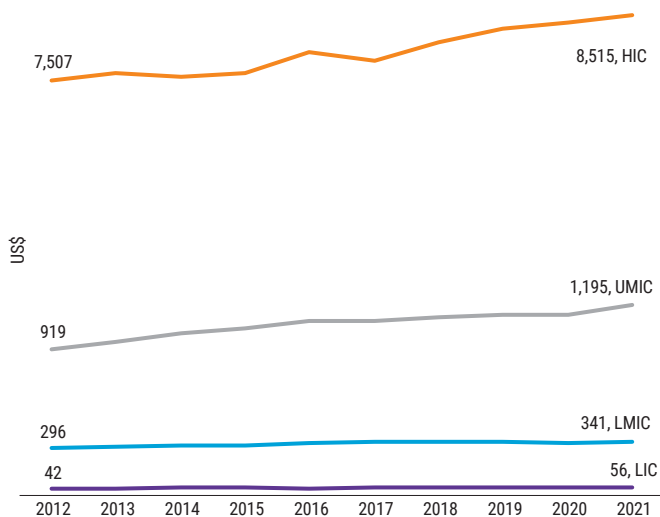
Zooming in on changes before and after COVID-19 onset, per-capita government spending decreased in LMIC, and rose in HIC and, to a lesser degree, in LIC. Upon evaluating the change in per-capita government spending across income categories, a downturn was detected in LMIC for 2020–21 (US\$337) from 2018–19 (US\$340), in contrast to continuing growth in other income groups (Figure 5). Only HIC significantly increased expenditures, surpassing pre-COVID levels. LIC have also increased spending, but to a far lesser degree and from a very low base.

Figure 6. In 2021, government education spending as a share of GDP increased only in LIC

a. Government education spending as a percentage of GDP by income group, 2012–2021



b. Government education spending per capita (constant 2021 US dollars) by income group, 2012–2021



Note: Estimates on spending as a percentage of GDP include interpolated values. Interpolation was done to fill in missing data and ensure a comparable sample of countries in all periods.
Source: Author estimates using the EFW2023 database.

Following the COVID-19 pandemic, overall, global government education spending per capita increased in 2021, after a downturn in 2020. In HIC, despite a discernible decrease in the government share of education spending as a percentage of GDP and while total spending on education stayed the same, there was a 2 percent increase in education spending per capita (up from US\$8,340 in 2020 to US\$8,515 in 2021) (Figure 6.b). In LIC, though experiencing an increase in the proportion of education spending compared to GDP and an expansion in overall educational expenditure, a comparatively marginal absolute rise in per-capita education spending (from US\$52 in 2020 to US\$56 in 2021, or by 8 percent in relative numbers) was registered.

Despite these increases, many countries are not spending enough on education, particularly in LIC. In 2021, government per-capita spending on education was on average 152 times⁶ higher in HIC than in LIC.⁷ The amounts spent vary widely: expenditures per child per year in LIC are on average US\$56. In UMIC, US\$1,195, and HIC, US\$8,515. With this information, it is important to distinguish between a country's commitment to education and the resources it has available to invest.

Per-capita spending on education grew year-on-year in 2021 in real terms for LMIC and UMIC (Figure 6.b), but government education spending as a percentage of GDP declined in these

income groups (Figure 6.a). Per capita education spending in LMIC increased from US\$332 in 2020 to US\$341 in 2021. Similarly, UMIC increased its per capita spending in education on average from US\$1,135 in 2020 to US\$1,195 in 2021.⁸ Yet, the global economy tentatively recovered in 2021 (IMF 2022). This suggests that at a time when education investment should have increased to offset learning loss due to pandemic-related school closures, the growth in education spending lagged economic recovery rates in LMIC and UMIC.

How has education spending changed over the past decade, by region?

Over the past decade, government spending on education (per capita) increased until the COVID-19 pandemic. After that (2018/2019–2020/2021), all regions – except LAC – continued to grow, though at a lower rate. Average per-capita government education spending rose in all regions between 2012–2013 and 2018–2019 (see all lines between the beginning and midpoints in Figure 7.a). Following the onset of the pandemic in 2018–2019 and until 2020–2021, government spending slowed around the world, dropping by US\$88 in Latin America and the Caribbean (LAC), and rising at a more modest rate elsewhere (see decline in grey line and less-steep inclines in all other lines from the middle to endpoints in Figure 7.a). Overall, Europe

⁶ This is slightly lower than the 162 times noted in 2020 (World Bank and UNESCO 2022).

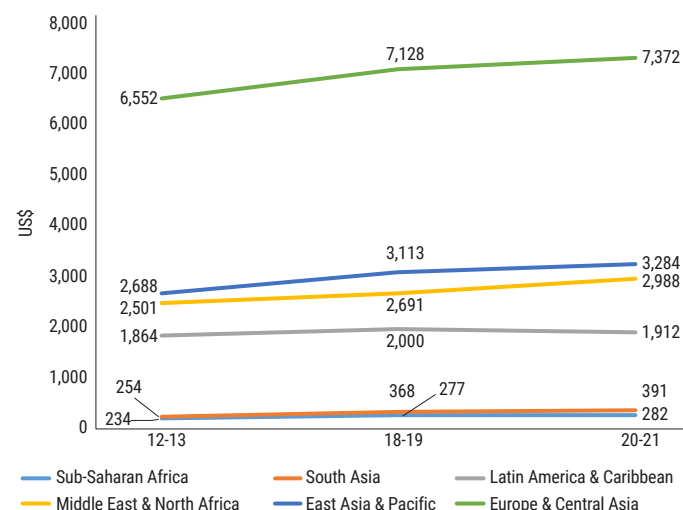
⁷ Within country income groups in 2021, per capita government education spending also varied significantly, from US\$17 in the Central African Republic to US\$123 in Tajikistan (both LIC), and from US\$71 in Pakistan to US\$1,076 in Moldova (both LMIC).

⁸ We use GDP deflator.

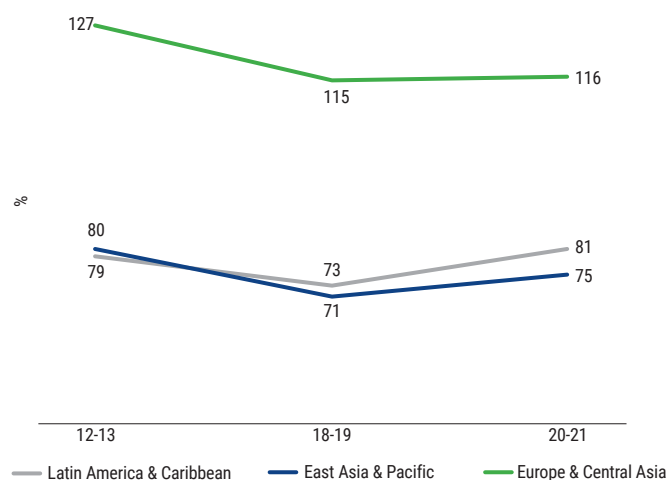
Figure 7. Comparative decrease in per-capita government education spending

(2012–13 vs 2018–19 vs 2020–21)

a. Changes in government education spending per capita (constant 2021 US dollars) by region



b. Changes in government education spending per capita as a share of GDP per capita by region



Note: Estimates including interpolated values are used in place of missing country-level data. The composition of countries is the same in the three time periods (2012–13, 2018–19, and 2020–21). Per-capita estimates use total pre-primary to tertiary school-age population in UIS and UNDESA. Due to an excessive amount of missing data on government spending as a percentage of GDP per capita throughout the observed year, Figure 7.b is limited to only three regions (LAC, EAP, and ECA).

Source: Author estimates using EFW2023 database.

and Central Asia (ECA) registered the largest absolute increase in the level of per-capita government spending on education (US\$820) between 2012 and 2021. In relative terms, South Asia showed the largest increase with per-capita government spending going up 54 percent over the decade.

Government education spending per capita as a share of GDP per capita has not recovered. Educational spending per capita as a share of GDP per capita shows the proportion of economic output that is allocated to education spending per person (Figure 7.b).⁶ In LAC countries, average education spending per capita decreased between 2018–19 and 2020–21. At the same time, education spending per capita as a share of GDP per capita increased, indicating the decrease is led by the overall economic downturn experienced in LAC.⁹ By contrast, both ECA and

EAP saw an increase in education spending per capita as well as an increase in the proportion of economic output allocated to education spending per person between 2018–19 and 2020–21, indicating average government education spending in those two regions grew between pre- and post-COVID-19 onset even while their economies were impacted by the pandemic.

What is being spent is not always spent well. Achieving better learning outcomes requires efficient use of adequate resources. There are wide variations in efficiency in spending between countries: South Africa, an upper middle-income country, invests US\$1,400 per child. However, it struggles with a persistently high learning poverty rate of 79 percent (2016 PIRLS). This level of learning poverty is like that of Guinea, a much poorer country, which invests about US\$50 per child.¹⁰

9 LAC region faced a significant economic downturn in 2020 (negative 6.5 percent annual GDP growth from 2019, which is more than double of world average of negative 3.1 percent that year). WDI. <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG>, accessed on July 27, 2023.

10 Here it is interesting to note that the variance in human resources costs between South Africa (more) and Guinea (less) does not fully explain the large difference in their returns on education investment.

3 Education aid



© Irina Oleinik | World Bank | 2012

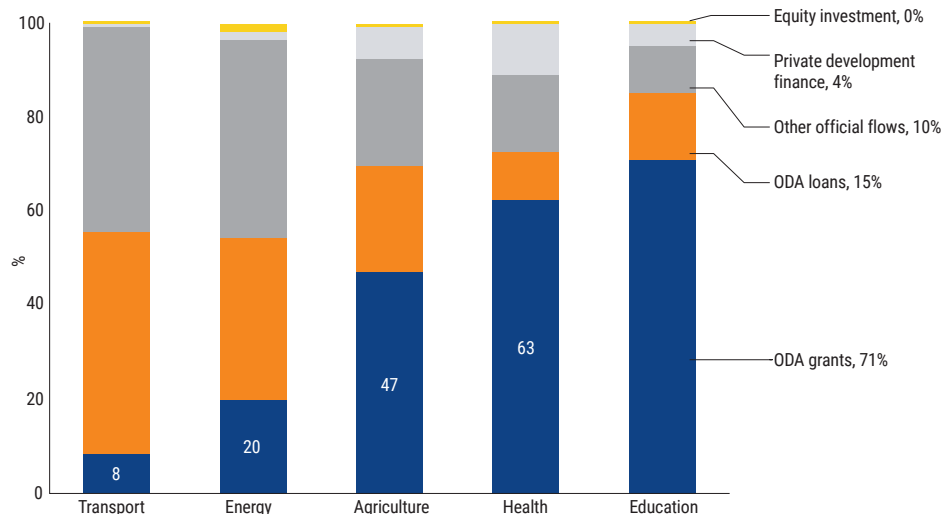
How has aid to education changed?

Aid to education has declined. Over the period of a year, international aid to the education sector declined by almost US\$2 billion, or by 7 percent in real terms (Figure 9).¹¹ It fell from US\$19.3 billion in 2020, to US\$17.8 billion in 2021.¹² Total aid to education includes two factors: (1) direct aid from donors that are specifically earmarked for education, and (2) a 20 percent estimation of general budget support, which is aid provided to governments without being earmarked for specific projects or sectors.¹³ Direct aid (ODA grants and ODA loans) specifically

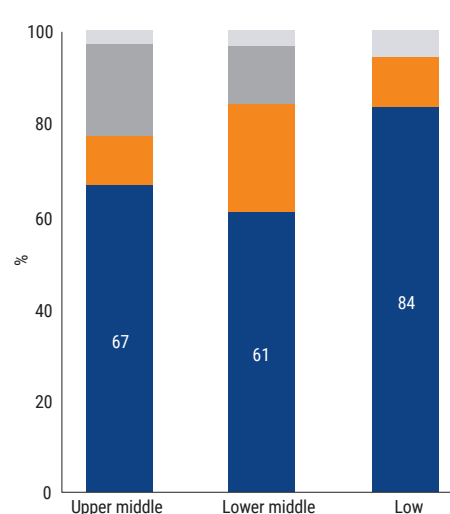
earmarked to education is dominant (over 85 percent) in total external finance flows (sum of ODA, Other Official Flows (OOF), private development finance, and equity investment) to education in 2021. In LICs, earmarked aid to education was particularly high (almost 95 percent) in 2021. The share of ODA in total external finance flows in the education sector is higher than in other sectors such as Transport and Energy, whose share is about 55 percent of total external finance flow (Figure 8). A large part of a reduction in aid can be attributed to a decline in general budget support. Excluding global budget support, direct aid to education has remained stagnant since 2018 at around US\$15 billion.

Figure 8. Education receives most of its total external finance flows in the form of grants

a. Total external finance flows, by sector and source, 2021



b. Total external finance flows to education, by source and income group, 2021



Note: Definition: 'Other official flows' are bilateral other official flows (e.g., non-concessional developmental loans) except grants and loans for commercial purposes, and all grants and loans by multilateral development institutions. 'Private development finance' is defined as private investment mobilized by official interventions. OECD estimates the volume of private flows that are mobilized by guarantees, syndicated loans, and collective investment vehicles (OECD).

Source: Author estimates based on the OECD CRS database (2023).

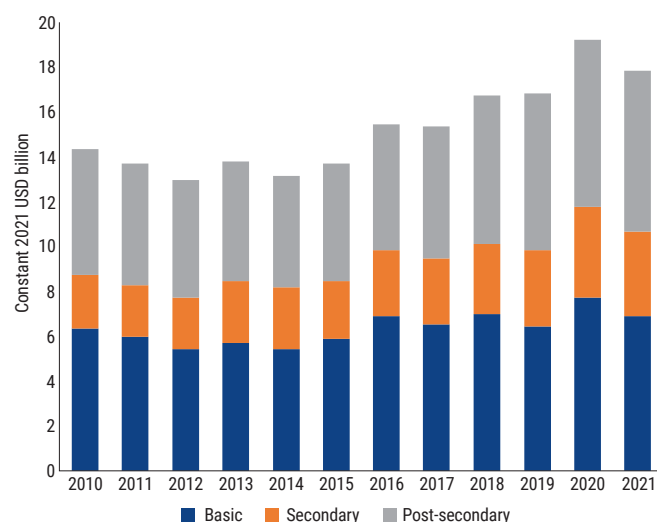
11 This includes only ODA grants and loans for education; it does not include other official flows (OOF) such as non-concessional loans (e.g., IBRD loans) or private development finance.

12 The most recent year with sector and recipient level data.

13 For this report, we estimate that 20 percent of direct budget support to governments is diverted to education.

Figure 9. Aid to education fell by 7 percent from 2020 to 2021

Total aid to education disbursements, by education level, 2010–2021



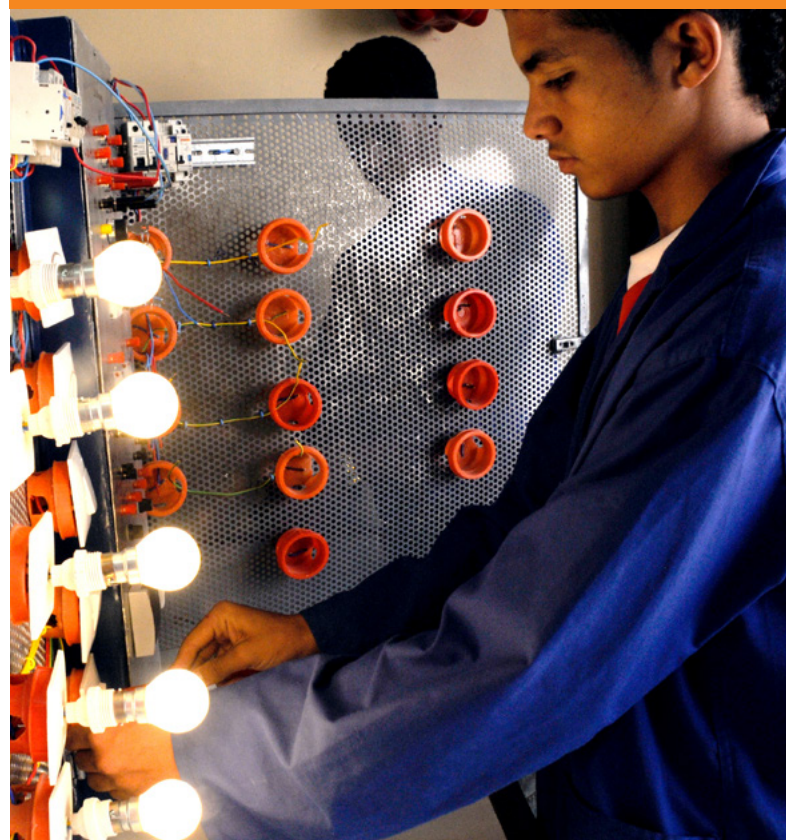
Note: Amount is disbursement base.

Source: Author estimates based on the OECD CRS database (2023).

The largest brunt of the decline is being felt by LICs, and specifically in basic education.¹⁴ The OECD's Creditor Reporting System (CRS), which tracks international aid flows, shows that almost 85 percent of aid to education goes to individual recipient countries, as opposed to regional or broader cross-country programs. Of that 85 percent, LICs received 22 percent of all aid directed to education. Basic education receives approximately 39 percent of total education aid, secondary education receives 21 percent, and tertiary education receives 40 percent. Since 2010, the share of aid to basic education has fallen by 5 percentage points, while the share of secondary education has increased by roughly 4 percentage points, showing a slight movement. Since 2015 there has been a notable increase in aid to basic education, specifically targeted at LICs. In absolute terms, the amount they received almost doubled from US\$1.1 billion in 2015 to US\$2.0 billion in 2020, before falling to US\$1.7 billion in 2021.

Sub-Saharan Africa (SSA) receives just over one-third of all aid for basic education, and MENA's share of the total is increasing.

Sub-Saharan Africa has over half of the world's primary-age out-of-school children,¹⁵ received approximately US\$2 billion of total basic education in 2021, which has stayed at the same level as it was in 2010 (US\$1.9 billion). By contrast, the amount of aid to basic education for countries in the Middle East and North Africa (MENA) has more than doubled – increasing from US\$0.8 billion in 2010 to US\$1.9 billion in 2021 in real terms. In large part, this is due to the recent influx of aid for the Syrian refugee crisis.



© Dana Smillie | World Bank | 2010

Most of the aid to education is from a handful of donors. More than 50 percent comes from 5 donors – European Union, France, Germany, Saudi Arabia, and the World Bank combined. Including the next 3 top donors – Japan, the United Kingdom, and the United States, we reach 70 percent of all education aid donations. Between 2019 and 2021, Germany was recorded as the largest donor to international education aid, giving an average of US\$3.3 billion a year. However, it is important to note that Germany, as well as other countries like France, allocate 60 percent of their aid to education at the post-secondary level within their own countries. This is because these countries count disbursements that go largely to scholarships and imputed student fees to international students in their ODA total. These waived tuition expenses are estimated and recorded as aid. Japan also distributes more than one-third of its aid to scholarships and imputed student fees. The United States, by contrast, does not include international student scholarships as a form of education aid.

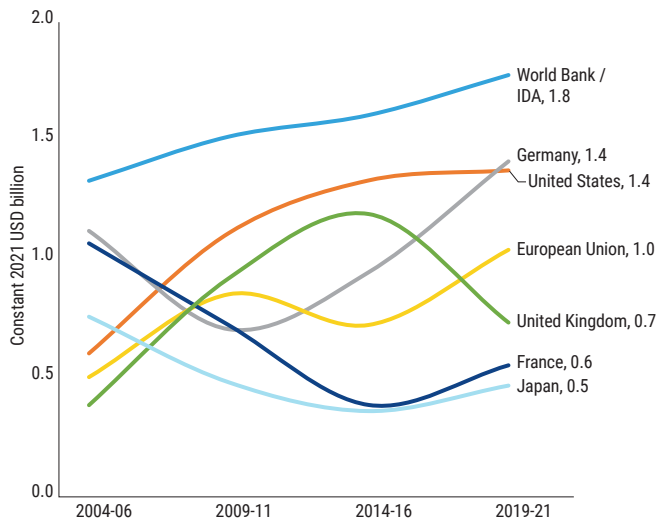
If scholarships and imputed student fees are excluded from all grant donations, the World Bank is the largest education aid donor. The World Bank roughly finances US\$1.8 billion in education aid a year through International Development Association (IDA). This is followed by Germany and the United

14 Per OECD definition, basic education covers "primary education, basic life skills for youth and adults, and early childhood education".

15 Approximately 67 million primary education age children are estimated to be out-of-school in 2021, of which 36 million children are in SSA (GEMR and UIS 2022).

Figure 10. European Union, Germany, and World Bank/ IDA have been increasing aid to education

Three-year average of aid to education, excluding scholarships and imputed student fees, seven largest donors, 2004–06, 2009–11, 2014–16, and 2019–21



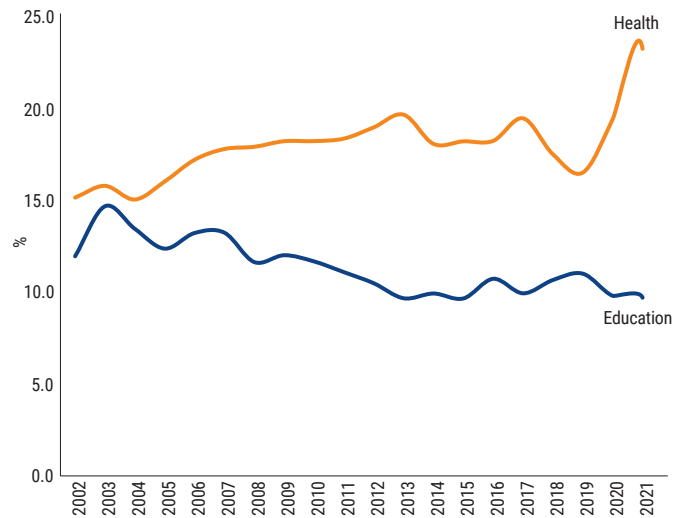
Note: Amount is disbursement base.

Source: Author estimates based on the OECD CRS database (2023).

States (US\$1.4 billion each roughly), and the European Union (EU) (US\$1 billion). Aid from the United States has remained constant recently, while other donors such as Germany, the EU, France, Japan, and the World Bank show slight increases in recent years. However, in contrast, education aid from the United Kingdom has dropped significantly by 39 percent between 2014 and 2021 (Figure 10).

Figure 11. Education takes a back seat: Widening disparity in funding priority with health

Share of education sector in comparison to health in sector-specific ODA, 2002–2021



Note: Amount is disbursement base.

Source: Author estimates based on the OECD CRS database (2023).

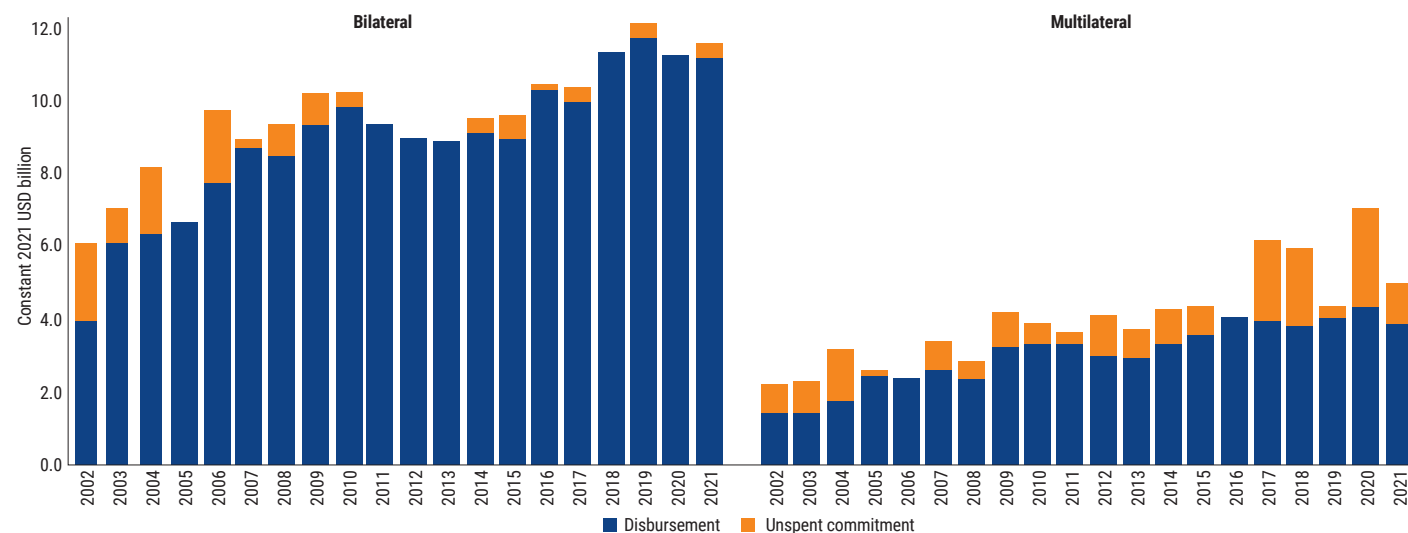
In Sub-Saharan Africa, donors disbursed a third of their aid to education in 2021 through non-government organizations and universities. France and Germany channel large parts of aid through their own development agencies. The World Bank/ IDA only funds recipient countries directly; by contrast, the EU, Germany, the United Kingdom, and the United States distribute no more than 20 percent of their aid directly to recipient countries.



© Sarah Farhat | World Bank | 2017

Figure 12. Multilateral commitments to education exceeded disbursements in recent years

Total aid to education disbursements and unused commitments, by type of donor, 2002–2021



Source: Author estimates based on the OECD CRS database (2023).

The share of education aid compared to other sectors has fallen in recent years. Despite international calls for more education financing, the portion of international aid allocated to education has decreased slightly since 2002 and has remained stagnant in recent years. It reached the lowest point of 9.7 percent in 2013 and 2015 (Figure 11). Although there were some signs soon after that the share might recover, as it reached 10.9 percent in 2019, it fell back to 9.7 percent in 2020–2021, absorbing the impact of the shift in donor focus on health during the pandemic, which saw an increase from 16.6 percent in 2019 to 19.5 percent in 2020 and 23.3 percent in 2021.

There is a lag among donors between commitments to education and disbursements allocated in the same year. It is not straightforward to compare the two: commitments predate disbursements by some years. However, it is worth noting that in education, there has been a larger discrepancy between commitments and disbursements in recent years among multilateral donors. As we see from the figure below (Figure 12), the discrepancy was first seen in 2017–18. The figure shows that for multilaterals, on average, US\$1.7 billion has gone unspent since 2017. In the education sector, bilateral aid has been 4 percent unspent since 2002, while multilateral aid is on average 21 percent unspent. In contrast, the health sector spends all or uses more aid than it commits each year: since 2002, on average,



© Nafise Motlaq | World Bank | 2013

only 4 percent of bilateral aid and 3 percent of multilateral aid has gone unspent each year. More research to inform policy could be helpful.

4 Household spending on education



© Dominic Chavez | World Bank | 2016

Economic shocks often decrease household spending on education (Read 2020), as families are less able to pay for education until the economy recovers (World Bank 2020). EFW2021 and EFW2022 reviewed trends and patterns of household spending in education over the past decade, using the global database. EFW2023 advanced this analysis by accessing household survey data and country case studies on household education spending, such as by education level, type of schools, and education items that households pay for.

How important is household education spending globally?

Household spending as a share of total education spending is highest in LIC and MIC. In 2021, households accounted for 32 percent of total education spending in LIC and MIC, while household contributions to education in HIC were around 16 percent (Figure 3).

Household spending levels are different from country to country and within a country. In LIC and MIC, household spending as a proportion of total education spending ranges from 5 to 80 percent. This wide difference is seen even within the same country's income group. For instance, in 18 LIC household education spending accounts for between 5 and 73 percent of total education financing. In general, richer households spend a higher proportion of their income on education than poorer households (Foko et al. 2012, World Bank and UNESCO 2022). However, the financial burden is higher for poorer households who are less able to afford schooling for their children than for richer families (UNESCO 2021).

Education spending is costly for households, especially poor households. Within countries, governments provide public

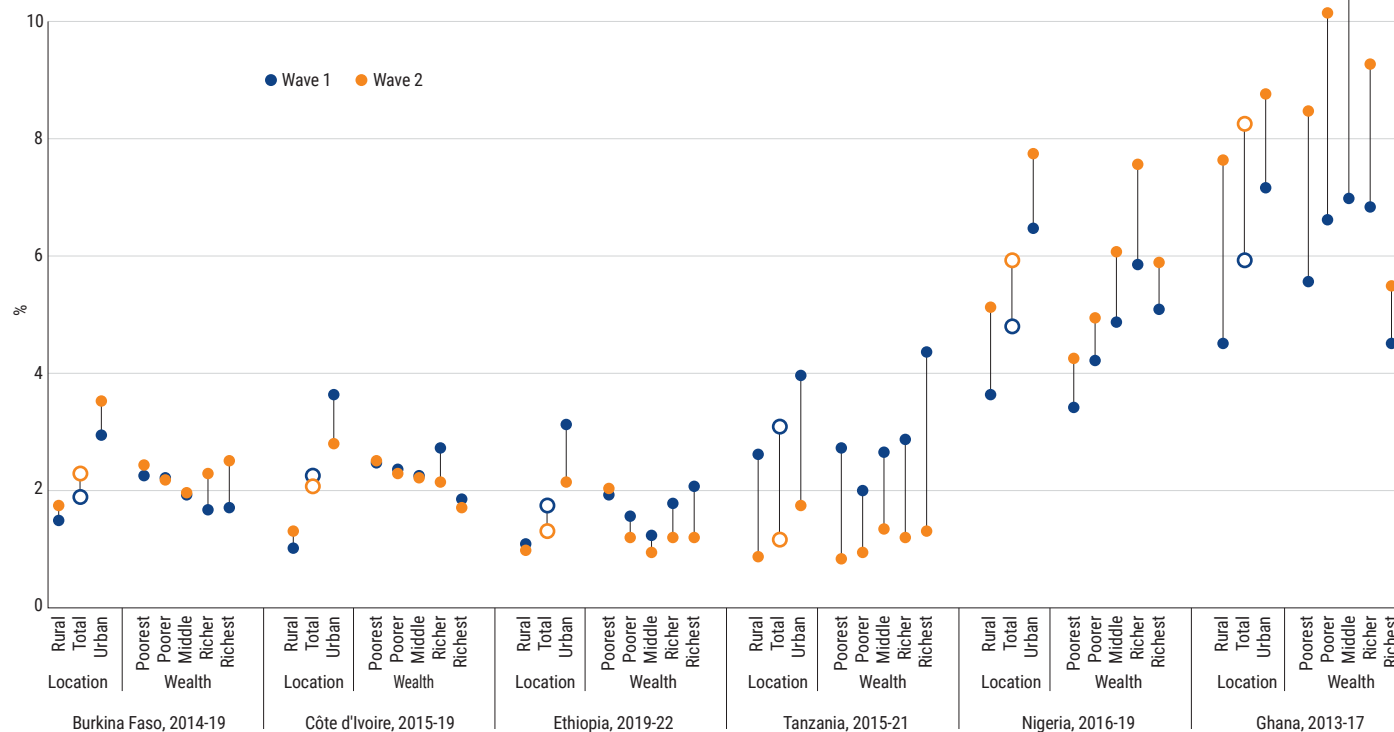
schools and may pay private school tuition for some families. However, school fees go beyond tuition and often include books, uniforms, etc. Even when governments proclaim 'fee-free' education, households spend money to send their children to school. This constitutes a regressive tax when education is compulsory, and often excludes poor children from schooling (Hamillman and Jenker 2014; UNESCO 2021).

International remittances increase household expenditures on education and other essential goods and services, particularly in LIC and LMIC. Recent estimates (Ratha et al. 2023) show that globally, remittance flow to LIC and LMIC was limited in 2020 (1.4 percent decrease from 2019), after which the flow surged and continues growing (Ajefu and Ogebe 2021). The impact in SSA LIC and UMIC lagged, with countries registering a large decrease in 2020 (13 percent down from 2019) before recovery in 2021 (16.3 percent up from 2020). Families relying on remittances to fund their children's education likely experienced income loss due to the pandemic's onset (Al-Samarrai 2020), and thus their education spending in 2020 may have decreased in response.

Household spending on education is elastic. This is based on the household's socioeconomic status and the specific characteristics (line items) of public investment. When government spending on education increases as an overall share of GDP, household spending on education also increases (Naurin and Pourpourides 2023). However, within certain groups, households spend less on education when governments spend more. For example, in a household with few resources, if the government begins providing educational materials like textbooks, a parent may reallocate education resources to other household needs. In India and Zambia, when the government provided grants to schools, parents reduced investments in their children's schooling (World Bank 2018).

Figure 13. The share of education in total household consumption varies by economic status and location

Share of household spending on education as a share of total household consumption, %, various years



Source: Author calculation using household survey datasets <https://www.worldbank.org/en/programs/lsmis>.

How much do households in LIC and LMIC spend on education and on what items?

Regardless of economic status or school type, households bear significant costs when sending their children to school. This is the case for all six LIC and LMIC analyzed in EFW2023.¹⁶ For example, in Ethiopia, households spent on average Ethiopian Birr 2,342 (approximately US\$43) per primary student, which was equivalent to 4 percent of the country's GDP per capita in 2022.¹⁷ It is noteworthy that households have maintained and even increased their absolute levels of spending on education despite the collapse of incomes over 2020 and 2021 and the significant amount of time children were not enrolled in school.

In some LIC and LMIC countries, households have decreased the share of their budget allocated to education. Ivorian families slightly decreased the share of education in their total

household consumption expenditure from 2.2 percent in 2015 to 2.0 percent in 2019. The decrease was stronger in two countries where spending was compared before and after COVID-19. Households in Ethiopia (from 1.7 percent in 2019 to 1.3 percent in 2022) and Tanzania (from 3.1 percent in 2015 to 1.1 percent in 2021), reduced the share of education in their consumption. In contrast, Burkina Faso (from 1.9 percent in 2014 to 2.3 percent in 2019), Ghana (from 5.9 percent in 2013 to 8.2 percent in 2017), and Nigeria (from 4.8 percent in 2016 and 5.9 percent in 2019) increased the share.

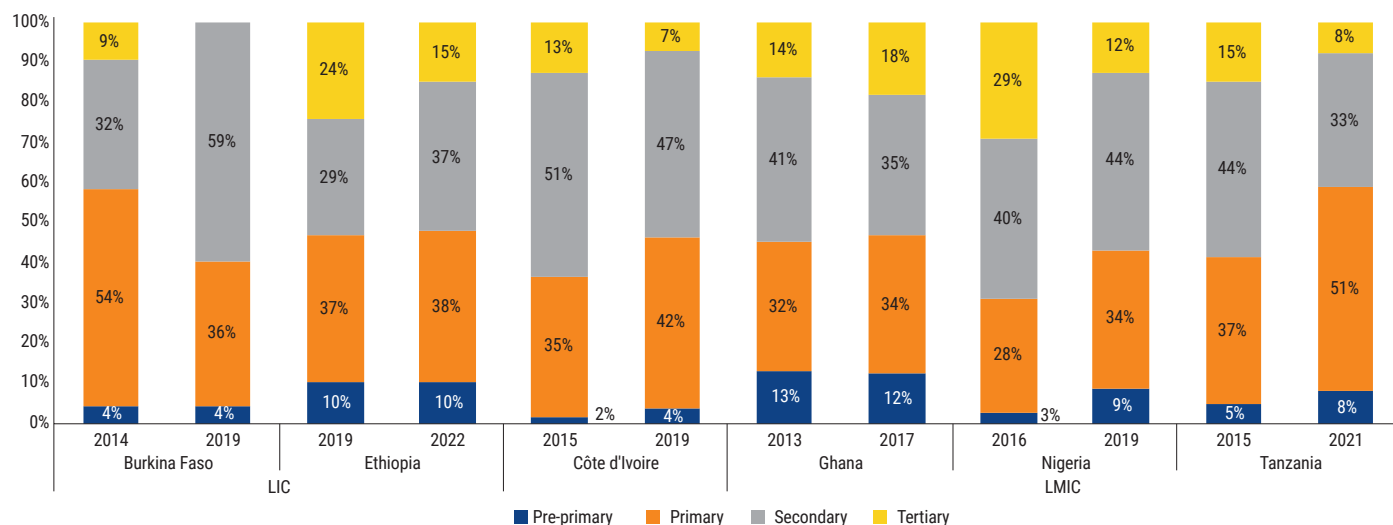
While wealthier families are often seen to allocate a higher share against their total household consumption for education, this is not always the case. For instance, poorer families allocated a larger proportion of their budget for education in Burkina Faso (2014) and Côte d'Ivoire (2019) than did wealthier families. Also, urban households spent a larger share of their budget on education than did rural households. For instance, urban

16 To analyze household spending we give examples from six LIC and LMIC countries: Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Nigeria, and Tanzania. The data come from household surveys that were conducted at least twice in the past 10 years. Household education spending was analyzed in terms of its share of total household consumption for a particular year, by the type of educational institutions (state or non-state schools), household residential areas (urban or rural), household wealth quintiles, and education levels (pre-primary, primary, secondary, and higher education).

17 Own calculation, using Ethiopia Socio Economic Survey 2022 dataset for education spending per capita and IMF WEO database for GDP per capita (accessed on May 30, 2023).

Figure 14. Most household spending on education went to primary and secondary education

Distribution of household education spending, total (state and non-state), %



Source: Author calculation using household survey datasets.

households in Burkina Faso spent 3.5 percent of their budget on education while their rural peers spent 1.7 percent in 2019 (Figure 13).

Household spending is largely concentrated in primary and secondary education. EFW2023 looked at which education levels households spent most in each country. Among the countries analyzed, families spent over 80 percent of their education funds on primary and secondary education, and just 20 percent on tertiary. Households in Burkina Faso allocated the most (up to 96 percent in 2019), while Ethiopian households allocated the least (66 percent in 2019) to primary and secondary education. This pattern among countries remained constant (Figure 14).

Not surprisingly, households spend more money on private schools than on public. In most cases, the per-student education

cost in private schools is 1.5 to 5 times higher than in public schools; in Ethiopia and Tanzania, it is 10 times higher. While some private schools cost a lot, others supply their education service at low cost (UNESCO 2021). Private costs are especially high at the pre-primary and primary education levels, compared to public schools. For instance, in 2018 Ethiopian households needed to pay more than 20 times to send their children to non-state pre-primary schools compared to their peers who sent children to public pre-primary schools. Tanzanian families spent 19 times more on non-state primary schools in 2021, while the ratio in secondary education was relatively lower (5 times). In private primary schools, fees are key spending items (the largest item in four countries and the second largest in two). In public primary schools, fees are not among the top three items in any country. This pattern is observed in other countries in Africa. Overall, the share of school fees is lower when children attend public schools (except in Burkina Faso in 2014).

5 Equity and efficiency



© Nafise Motlaq | World Bank | 2013

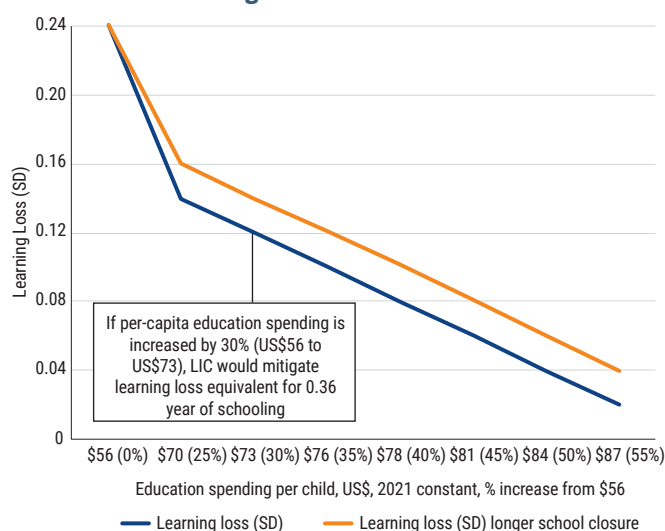
Will increasing spending be enough to close the learning gap?

School closures during COVID-19 worsened the global learning crisis. Before the COVID-19 pandemic, six out of ten students in LIC and MIC could not read and understand simple texts by age 10 (World Bank et al. 2022). Upon the pandemic's onset, learning losses were projected (Azevedo et al. 2021). Actual learning losses are much worse than projected: now seven out of ten cannot read (World Bank et al. 2022). On average, one month of school closures led to one month of lost learning (Schady et al. 2023). Learning loss is significantly larger for students whose schools faced relatively longer closures (on average of 33 percent of a SD – roughly equivalent to one year of schooling – in 65 countries globally, and 20 percent of a SD in ECA). Further, lower-achieving students before COVID-19 have experienced much larger learning losses than higher achievers (Jakubowski et al. 2023; Patrinos et al. 2023).

Without adequate remediation, learning loss will likely translate into a huge negative impact on the global economy - up to a 0.68 percentage point reduction of GDP growth, totaling a global loss of more than 80 trillion (analysis using PIRLS 2021 data) (Jakubowski et al. 2023). Because economic growth is a main driver of increased education spending, the global income loss could in turn substantially decrease future public education spending (Al-Samarrai et al. 2019). In this negative scenario, a negative cycle perpetuates – lower-skilled individuals earn less, countries experience GDP erosion as a result and consequently invest less in education, ad infinitum.

Countries with lower education spending and efficiency are expected to see the largest learning gains from increased education financing. While in general there is no direct correlation between education spending and student learning outcomes, there are empirical suggestions that colinear relationships exist between the two in countries where education spending is still low or relatively low (Al-Samarrai et al. 2019; Vegas and Coffin 2015). Using global data from 41 countries compiled by Patrinos

Figure 15. Increasing education spending would lead to decreased learning loss



Source: Author estimates based on Patrinos (2023) data and EFW2023 database.

(2023), EFW2023 found schools in LIC closed for an average of 30 weeks and learning outcomes were significantly lower than global benchmarks (e.g., harmonized learning outcomes (HLO): 329 in LIC vs 462 in global samples). If government per-capita education spending in LIC were increased by 30 percent (US\$56 to US\$73), LIC could mitigate learning loss equivalent to 0.36 years of schooling. If LIC schools closed longer (33 weeks, which is the average for MIC), LIC would need to increase education spending more to reduce learning poverty at the same level (0.24 to 0.12 SD), at least \$76 (Figure 15).

Increasing funding for education has a significant, though relatively weak, impact on student learning. Al-Samarrai and Lewis's (2021) econometric analysis in Brazil, Colombia, Indonesia, and Uganda shows that both government transfers and subnational education spending have a positive and significant impact on student achievement. For example, in Indonesia, a 10 percent increase in subnational per capita education spending increased students' test scores by 0.6 percent. However, although



© Khasar Sandag | World Bank | 2013

the relationship is significant, it is not very strong, and there is considerable variation in the effectiveness of subnational entities in translating funding into outcomes.

Increasing education spending is necessary, but not sufficient to halt learning loss and overcome the learning crisis. If countries increase education spending by one percent from 2020-2021 levels, learning loss could be mitigated by 0.4 percent in SD, equivalent to 0.01 years of schooling. However, learning loss because of school closures is larger than this (author estimates using data in Patrinos 2023). It is estimated that global education expenditure is over US\$5 trillion. Public expenditure on education is significant; on average, countries spend about 4.5 to 5 percent of GDP on education, except for low-income countries (3 to 3.5 percent, on average).

Despite increases in education spending and schooling worldwide,¹⁸ learning poverty has reached high levels.¹⁹

Education financing is an important factor: Often, countries are either spending too little, the spending is inefficient, or a combination of both (Al-Samarrai and Lewis 2021). What governments spend on, and how, are key to recovering learning loss and avoiding the ‘negative cycle,’ mentioned above. If spending is inefficient, meaning misallocated and misaligned, and/or does not target what works, it will not translate into student learning. Further, education funding must be equitable to bring and keep all children in school and learning.

Key learning outcomes are lowest in countries spending the least per school-aged child. EFW2023 updates the analysis done by World Bank and UNESCO (2021) and Arias and Kheyfets (2023), using the latest available public education spending data.²⁰ Figure 16 plots the relationship between LAYS²¹ and spending for each country. LIC – with few exceptions – achieves very low LAYS with very low levels of spending per child (blue in Figure 16.b). These countries could benefit from

18 Primary education completion rate (both sex) in LIC increased from 46.6 percent in 2012 to 55.8 percent in 2021 (SDG4 Indicator Dashboard <http://sdg4-data.uis.unesco.org/>, accessed on August 21, 2023).

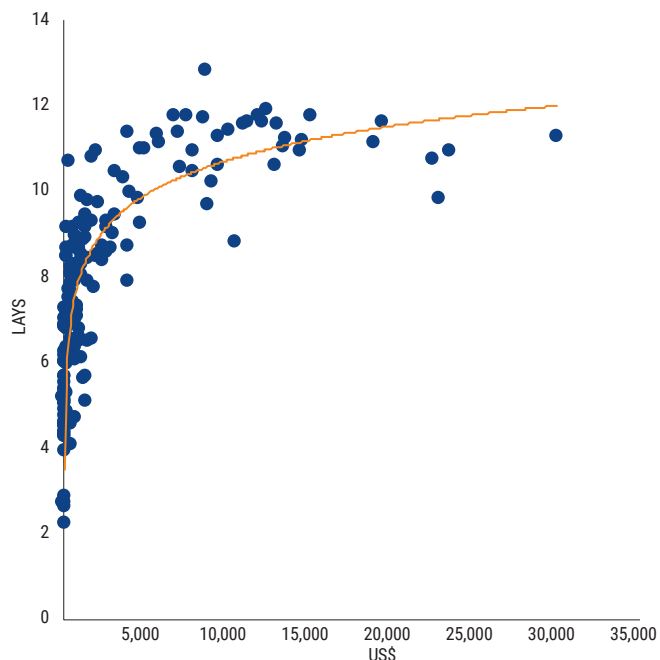
19 For instance, learning poverty are 99 percent for Zambia, 98 percent for Lao PDR, 97 percent for Democratic Republic of Congo and 91 percent for Philippines. (World Bank and UIS. June 2022. Learning Poverty Global Database, <https://datacatalog.worldbank.org/int/search/dataset/0038947>, accessed on August 22, 2023).

20 As at writing EFW2023, 2020 is still the latest for LAYS data.

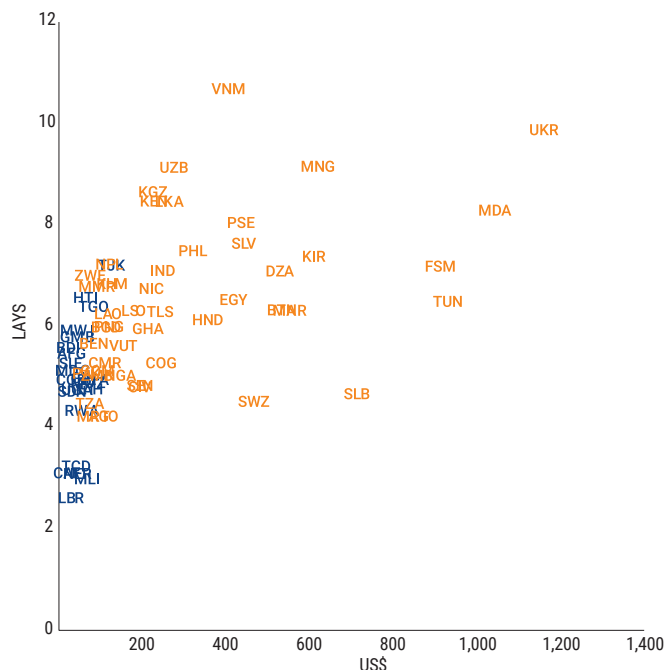
21 The LAYS metric combines quantity (expected years of schooling) and quality (harmonized learning outcomes). Expected years of schooling measures the number of years of school a child born today can expect to obtain by age 18. It is based on age-specific enrollment rates between ages 4 and 17 and has a maximum value of 14. Meanwhile, harmonized learning outcomes are calculated using a conversion factor. For more details see Filmer et al. (2020); Kraay (2019); Patrinos and Angrist (2018).

Figure 16: Countries differ in how effectively they translate funding into outcomes

a. Mean per-capita education expenditure and LAYS, all countries, 2020



b. Mean per-capita education expenditure and LAYS, LIC, and LMIC, 2020



Note: Spending per capita is computed as total public education divided by the school-age population. Estimates on spending per capita include interpolated values.

Source: Author calculations based on the Human Capital Index (HCI) and EFW database.

more spending to adequately fund essential inputs to ensure effective delivery of education services, and from cost-effectively investing to maximize impact on learning (Banerjee et al. 2023). It is important to note that the correlation between education spending and outcomes is weaker at higher levels of spending: some countries have education outcomes that are far worse than those of other countries with similar spending levels per child (see LMIC in yellow in Figure 16.b). Education spending efficiency can be improved by: (i) prioritizing universal foundational learning, and (ii) spending a greater portion of government expenditure on high-efficiency educational investments rather than low-return investments (Psacharopoulos et al. 1986; International Commission on Financing Global Education Opportunity 2016; World Bank 2018, Angrist et al. 2023).

Increasing the cost-effectiveness of education spending could maximize learning returns on education investments. Even before the pandemic, actual learning in LIC was very low. On average, a child living in a low-income country expected 7.6 years of schooling, but only 4.3 years of actual learning – as measured by LAYS – with a government education expenditure of US\$51.8 per student a year. In contrast, a child living in a high-income country was expected to attain 13.1 years of schooling, of which 10.3 years would be of a learning level comparable to Singapore, with an annual government education per capita expenditure of US\$8,400.

Improving efficiency

Global evidence highlights myriad ways to improve education spending efficiency. This includes reducing repetition, drop-out, and delayed entry, deploying teachers efficiently, avoiding teacher absenteeism, promoting teaching effectiveness, procuring textbooks sustainably, paying teacher salaries, transferring school grants promptly, and managing fiduciary risks effectively, all of which evidence shows can raise educational outcomes (Arias and Kheyfets 2023). Here we present an example about how evidence can be used to improve the efficiency of education spending. We draw on the approaches identified in the literature (Banerjee et al. 2023).

One promising approach is targeting instruction by learning level rather than age or grade. This approach requires grouping children by learning level and providing each with teaching specifically tailored to their learning needs (Angrist et al. 2023). It can be accomplished with the use of technology (software) or with teachers and teacher assistants alone. On average, this approach could provide a full extra LAYS at a unit cost of US\$33.3. Teaching according to learning level with technology support for one year can improve learning by 0.27 SD, which has the potential to increase students’ future earnings by 5.5 percent while yielding US\$1,724 in future benefits per beneficiary at a student cost per year of US\$26.6. This translates into a Benefit-Cost Ratio

(BCR) of 65. The rise in earnings associated with this approach will represent US\$261 more in earnings each year per beneficiary in LIC, and its Net Present Value (NPV) over an average working life of 45 years would amount to US\$6,390 per beneficiary assuming a discount rate of 3 percent. If every primary student in LIC profits from this intervention, the total labor earnings in these countries will increase by US\$28,048 million over 45 years, which represents 4.8 percent of the current year GDP. The non-technology implementation of this approach could increase learning by 0.15 SD in one year, potentially transforming into 3 percent higher future earnings, and future benefits amounting to US\$940 per student for each dollar invested. In this case, each beneficiary would receive \$142 more in earnings each year for an accumulated NPV of \$3,485 over their working life. If all primary students in LIC were to receive this intervention, total labor earnings might increase by US\$15,299 million in LIC over 45 years, representing 2.25 percent of current year GDP.

Structured pedagogy aims to improve classroom instruction with a set of coordinated inputs. This includes, for example, lesson plans, materials, teacher training, etc.), so teachers can give classes with clarity – even if they have limited training, minimizing students’ misunderstanding. On average, this approach improves learning by 0.13 SD per year of intervention, which would reflect on a 2.6 percent increase in future earnings of beneficiary students, namely US\$123 more earnings each year. The NPV of the additional earnings that each beneficiary might receive over their working life amounts to US\$3,021. Again, if all primary students in LIC were to benefit from this approach, total labor income would likely increase by US\$13,259 million over the working life of beneficiary students, equivalent to 2.25 percent of current year GDP. Also, it is estimated that its successful implementation would yield US\$105 in benefits per each US\$1 invested (Angrist et al. 2023). One extra LAYS using this approach would require an investment of \$33.3 per student.

Providing information to parents has been proven to propel learning when it shifts beliefs around the benefits of education, increasing enrollment and compelling parents to choose the



© Dominic Chavez | World Bank | 2016

best school available. Informing parents and students about the returns to education increases LAYS by 0.08 (Angrist et al. 2023) in LIC, which is in line with a moderate typical effect of 0.1 SD (Evans and Yuan 2022). Although the effect is moderate, it is cost-effective because information can be shared at a very low cost. Considering that 1 SD increase in learning correlates with a 20 percent increase in individual earnings (Angrist et al. 2021), this modest learning improvement would increase students’ future earnings by 2 percent. In this case, each beneficiary student could receive US\$95 more each year in earnings, which over a working life of 45 years, amounts to a NPV of US\$2,323. If all primary students in LIC were to receive this intervention, total labor income in LIC could increase by US\$10,199 million, namely 1.7 percent of current year GDP, over the working life of beneficiary students. It is estimated that successful implementation of this approach could produce US\$21 in benefits per each US\$1 invested (Angrist et al. 2023). Table 1 summarizes the three outlined interventions.

Table 1. Learning gain (SD) by strategy implemented

Strategy	Initial spending per capita (US\$)	Learning gain with initial spending (SD)	Learning gain with per capita spending of US\$50 (SD)	Earnings increase due to learning gain in previous column (%)
Structured pedagogy	7.8	0.13	0.84	16.77
Teaching according to learning level with technology use	26.6	0.275	0.52	10.32
Teaching according to learning level without technology	19.5	0.15	0.38	7.68

Source: Author elaboration based on Angrist et al. (2023) data.

Closing the learning gap widened by the pandemic will require more funding for education and investing each additional dollar better to get its maximum benefit. According to the regression we used to estimate the learning loss recovery trajectory for LIC (Figure 15), improving learning by 0.1 SD would require an additional investment of US\$14 per student. However, the correlation between education expenditure and actual learning is historically weak as governments mostly invest in inputs (building more schools, lowering student-teacher ratios, hiring more teachers) without regard to the actual learning occurring in the classroom (Angrist et al. 2023). One of the cheapest options would be providing information related to education where this is not already widespread as the cost of providing information is very low and can yield a 0.1 SD increase in learning outcomes. But if low-income countries were to invest US\$50 more per student – at least in the most underserved – in cost-effective approaches any of the other two *smart buys* approaches (such as structured pedagogy or teaching according to learning levels with or without technology), they would be able to improve learning between 0.38 and 0.84 SD (equivalent to 1.15 and 2.54 years of additional schooling) while increasing future earnings of the most disadvantaged between 7.7 and 16.8 percent (see Table 1).

Equity can be improved

Education is critical to equalizing opportunities and providing each child with the skills to achieve their full potential. Children in disadvantaged and vulnerable situations face barriers to school access and learning related to household income and location, gender, ethnicity, and disability, among others (UNICEF 2023). We examine the distribution of public spending to education across wealth income quintiles at each education level (pre-primary, primary, secondary, and tertiary) in two countries (Côte d'Ivoire 2015 and 2019; and Ghana 2013 and 2017), using household surveys and published data in government budget and expenditure reports.

Government spending for primary education benefits poorer households. The analyses for different data points for the two countries suggest that each year, government expenditure distribution for secondary and tertiary education levels was skewed to wealthier households and this was especially prominent at the tertiary level. However, spending on primary education was pro-poor: the Lorenz curves show the distribution of expenditure by consumption quintile above the diagonal line (45-degree black line in Figure 17), which means that the poorer received a higher share of government spending. Results are mixed in the case of

pre-primary education: wealthier families benefited more in Côte d'Ivoire, while poorer families benefited more in Ghana. This finding fits with current global trends as countries recognize the importance of early childhood development to decrease delayed entry and increase learning over the life cycle, and countries begin to fund this priority, given its high return on investment and positive impact on human capital development.

Sometimes governments have chosen to disproportionately subsidize higher education. Typically, expenditure on tertiary education is skewed toward the wealthiest as those with access to higher education mainly come from the richest households. Such inequities in spending result in large variances in the quantity and quality of education received by different groups. This, in turn, contributes to greater inequality in potential future earnings, and persistent socio-economic disparities. Reallocating education budgets away from tertiary to basic education can make education financing more equitable.

At the same time, higher education financing can be made more efficient by tapping new sources of funding. Doing so means using future earnings to finance contemporary education. In higher education, this can be done with income contingent loan repayments (Barr 2014; Chapman 2016). Over 30 years later, income-contingent loans (ICL) exist in different forms in 10 countries, although scheme design, eligibility, interest rates, and debt forgiveness regimes differ widely between systems, and have changed over time within jurisdictions (Chapman and Dearden 2022).

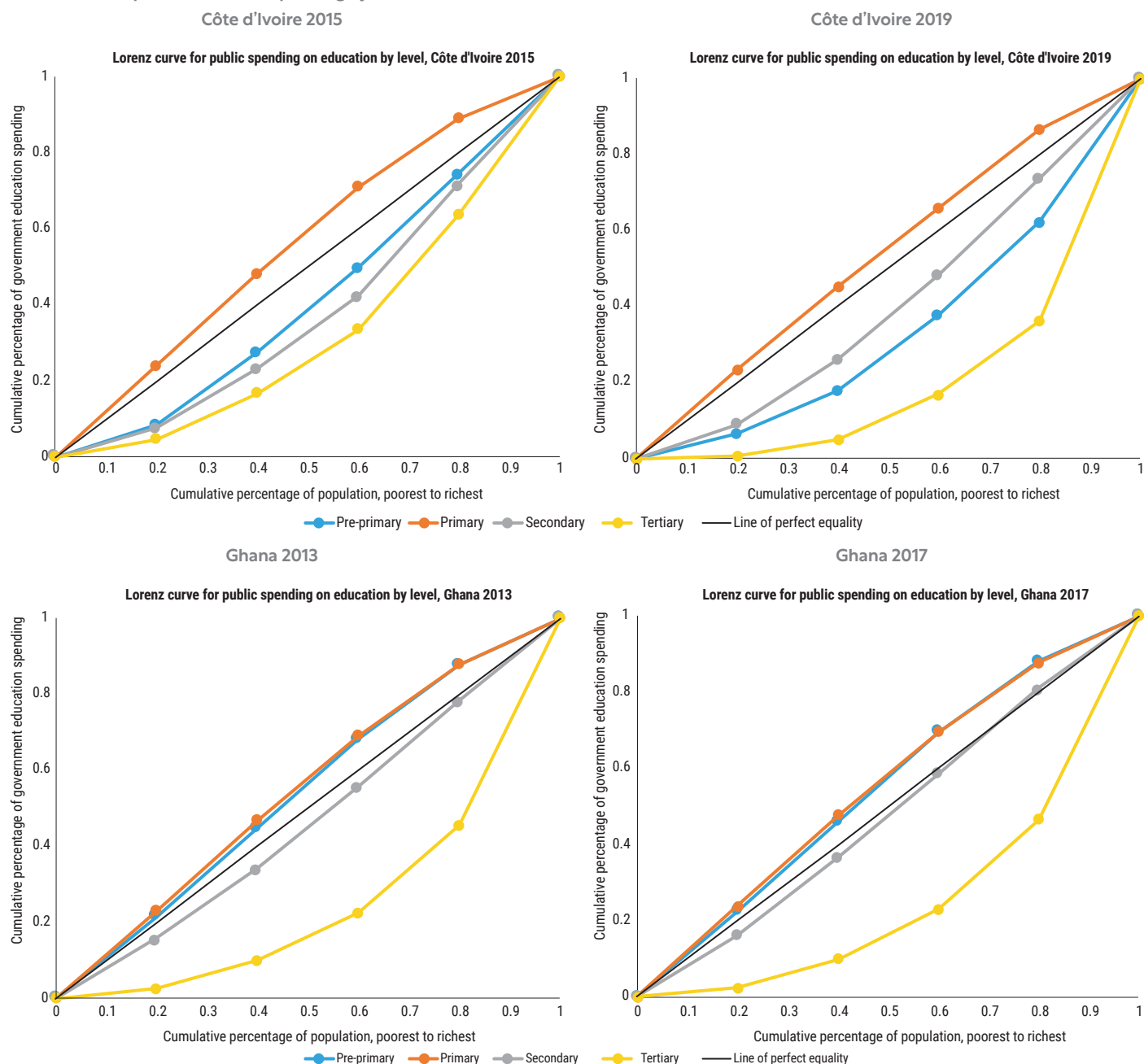
Basic literacy, including reading with comprehension, and numeracy support individuals in reaching their full potential, while contributing to sustainable development, inclusive growth, and gender equality, among others (UNICEF 2022). Primary education is the key stage for children to acquire foundational skills and yields the highest social returns among all education levels across the globe, especially in LICs (Psacharopoulos and Patrinos 2018).

Using transfers to make education spending more effective

Because intergovernmental fiscal transfers comprise a large share of subnational spending in decentralized countries, their design and implementation might improve education financing and outcomes. Recent estimates indicate that 84 percent of the world's children live in countries where subnational authorities

Figure 17. Government education spending is skewed towards richer households, especially at the tertiary level

Lorenz curves of public education spending by education level



Source: Author calculations using household surveys, UIS, and government budget reports.

govern.²² Over the last three decades, many have introduced reforms to decentralize education, particularly basic education.²³ In most decentralized countries, subnational governments account for over 50 percent of total public education spending.

If the focus is narrowed to the basic level, this share would be significantly higher. In Uganda, subnational governments account for over 80 percent of government spending on primary and secondary education (Al-Samarrai and Lewis 2021).

²² The estimates are based on the Fiscal Decentralization Dataset, International Monetary Fund, Washington, DC, (accessed May 8, 2020) <https://data.imf.org/?sk=1C28EBFB-62B3-4B0C-AED3-048EEEB684F> and OECD (2019).

²³ See Dyer and Rose (2005) and Channa and Faguet (2016) for discussions of the potential benefits and actual effects of decentralization in the education sector.



© Conor Ashleigh | World Bank | 2015

Box 1. Using intergovernmental transfers to improve education in Brazil

Using existing revenue sources, a performance-based general transfer improved education spending efficiency, and equity in Ceará, Brazil (Loureiro and Cruz 2020; Wetzels and Viñuela 2020). In 2008, an innovative reform of the fiscal transfer system in Ceará linked an important general transfer to learning outcomes. In Brazil, states are obligated to transfer 25 percent of consumption tax revenues to their municipalities as a general-purpose transfer. States have discretion over how they transfer a quarter of the total transfer and since 2008, Ceará began allocating 72 percent of these discretionary funds to municipalities based on their education performance. The discretionary transfer amount is determined by a primary “education quality index” that is designed both to improve performance and to increase equity. A comprehensive census-based learning assessment is used to calculate the index. The assessment consists of indicators on early grade literacy, learning measured at the end of primary school, and the proportion of children transitioning to the next grade. Municipalities are allocated transfer resources based on their scores on these indicators as well as on the magnitude of their educational improvements over the preceding year. Overall, performance-based transfers are a big revenue source for municipalities, representing as much as one-third of all revenue for poorer municipalities in Ceará (Loureiro and Cruz 2020).

Rigorous evaluations show the performance-based reform to the fiscal transfer program improved learning outcomes in most municipalities. Even though the transfer was not a specific-purpose transfer, evidence indicates it led municipalities to increase their spending on basic education and narrowed per capita differences in transfers between municipalities (Franca 2014). The transfers also narrowed learning gaps between poor and wealthy municipalities (Brandão 2014). Evidence indicates their effectiveness is linked to (1) careful design to avoid any negative consequences – such as the risk of inter-governmental transfers widening existing inequalities, (2) solid and comprehensive information systems, and (3) good implementation capabilities of subnational governments, down to the local (municipal) level.

Most subnational governments receive a combination of general- and specific-purpose transfers. General-purpose transfers are typically unconditional and can be allocated across subnational government responsibilities, including education. Central governments often complement these general transfers with conditional or specific-purpose transfers targeted and tied to providing certain inputs or improvements in education outputs or outcomes. Beyond core funding, transfer systems can also provide an effective system for channeling funds to education systems during times of crisis. For example, in the United States, federal stimulus packages used existing transfer mechanisms to provide additional financial support to local education systems during the COVID-19 crisis. While all transfers provide subnational governments with additional resources, relatively large conditional (specific-purpose or performance-based) transfers may improve education services most (Al-Samarrai and Lewis 2021). For example, in Brazil and China, the estimated marginal effect for education-specific conditional transfers was higher than that for unconditional transfers (Box 1).

Thoughtfully designed fiscal transfers could improve equity. World Bank public expenditure reviews and other studies have shown that, in approximately one-half of developing countries with available data, there was a negative and statistically significant relationship between subnational poverty rates and education spending (Manuel et al. 2019).²⁴ When education transfers include a per-student element, subnational governments know that if they expand access, they will receive funding from the central government to help cover the costs of providing more school places. This has had the effect of reducing the cost

24 There are relatively few countries that show an opposite and statistically significant relationship.

burden on subnational governments and households while narrowing access inequalities. China's New Mechanism to Guarantee Rural Compulsory Education Financing, introduced in 2006, strengthened incentives for provincial governments to increase basic education access at the same time school fees were abolished. The New Mechanism introduced a specific-purpose transfer allocated to provinces on a per-student basis designed to cover elements of non-salary funding and to compensate subnational governments for the revenue lost by the abolishment of school fees. The share of per-student funding covered by the transfer was linked to the socioeconomic characteristics of each province.²⁵ The New mechanism increased primary and secondary enrollment and narrowed enrollment outcomes between provinces (and counties). It also improved attainment and learning outcomes, and these effects were larger for students from disadvantaged backgrounds (Ha and Yan 2018; Xiao, Li, and Zhao 2017). Ding et al. (2020) found that transfers did not lead to any significant increase in total education spending because they substituted for other “off-budget” spending, including household tuition fees. This may also help to explain their positive impact on outcomes since the burden of funding shifted away from households to governments, removing household cost constraints associated with sending children, particularly from low-income families to school.

Subnational transfers can enhance education spending efficiency, especially when designed on a per capita by child basis. In Bulgaria, the introduction of per capita financing led to the merging or closing of some schools, significantly increasing efficiency. Although some spending inefficiencies remain, per capita funding formulas act as automatic stabilizers that adjust financing mechanisms immediately in response to demographic shifts. Conversely, fiscal transfers that are not per capita by child can sometimes inadvertently drive inefficiencies in public education spending. In Indonesia, the formula for the largest general transfers includes incentives for district governments to spend more on hiring civil servants than on non-salary spending. In education, this has resulted in a tendency to hire more teachers than is required to comply with minimum service standards and maximum class sizes and is an important driver of inefficiency (Lewis and Smoke 2017; World Bank 2012).

To address inequity through per-student transfers at sub-regional levels, some countries employ general-purpose transfers, while others use specific-purpose transfers. In China, equalization general-purpose transfers make up approximately two-thirds of all transfers to provinces and counties. These transfers are allocated according to formulas that include



© Gerhard Jörén | World Bank | 2012

estimates of subnational fiscal gaps, which measure the gaps between subnational revenues and expenditure obligations, as well as population size, and levels of economic development (Al-Samarrai and Lewis 2021). Others use specific-purpose transfers: In Brazil, the Fund for the Development of Basic Education (FUNDEB) addresses equity issues by guaranteeing minimum levels of education spending among municipalities. Before the program began in 1996 with FUNDEB's predecessor, the Fund for the Development of Primary and Lower Secondary Education (FUNDEF), there were large differences in education spending between municipalities, driven by poorer municipalities' limited revenues. Before the program started, the wealthier South, Southeast, and Central West regions in Brazil were spending almost twice as much per student as the poorer regions in the North and Northeast (Gordon and Vegas 2005). These spending disparities led to significant differences in education outcomes and exacerbated more general socio-economic inequalities between regions. FUNDEF and FUNDEB narrowed spending inequalities by redistributing a portion of federal, state, and municipal tax revenues among all municipalities to guarantee a minimum level of spending per student while increasing education funding in the poorest states (Cruz and Silva 2020; Gordon and Vegas 2005). Per child funding – particularly considering demographic shifts could be considered in education funding mechanisms. (For further reading on intergovernmental transfers to improve education financing, see Al-Samarrai and Lewis 2021.)

²⁵ The central government transfers covered 80 percent of the administrative expenses and lost school fee income of the least developed provinces in the west and 60 percent of those of the central provinces. Initially, the wealthier eastern provinces did not receive any funds through the compulsory specific-purpose education transfer, but this changed in 2015 when they received transfers amounting to 50 percent of their total expenses.

Spotlight: Demographic shifts



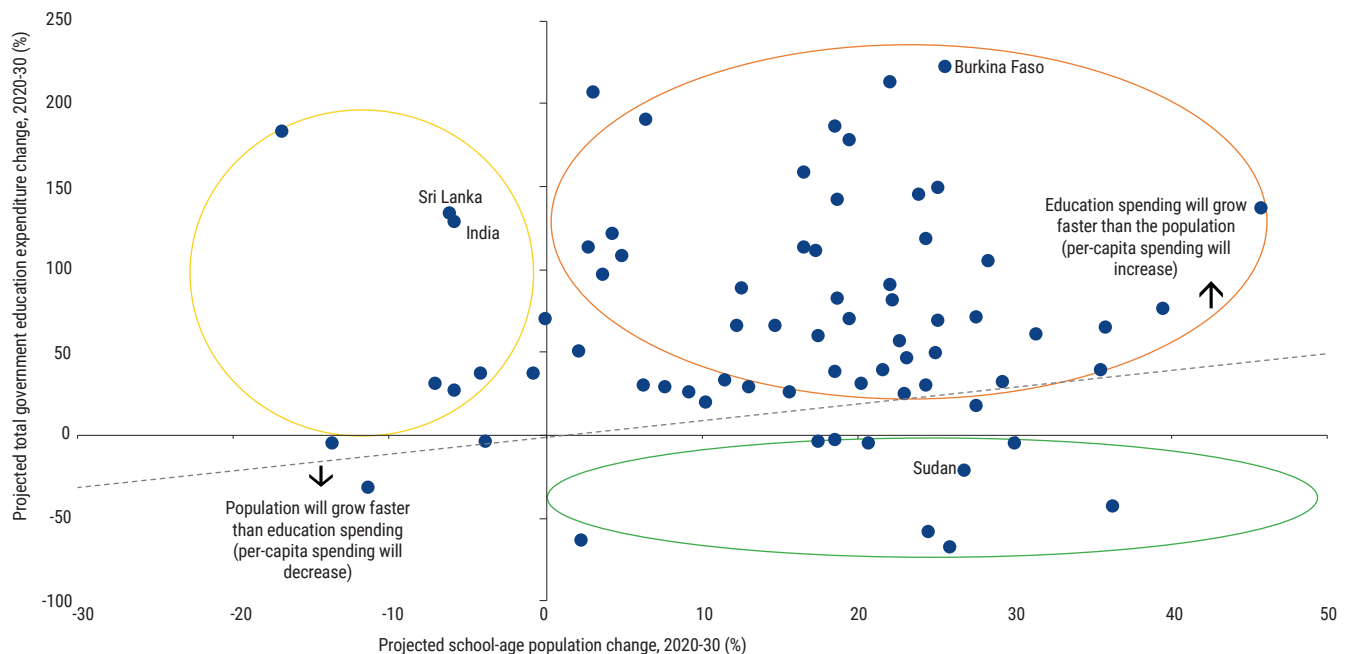
© Arne Hoel | World Bank | 2016

Around the world, school-aged populations are changing

LIC and LMIC school aged populations are expanding rapidly. In 2020, LIC and LMIC in SSA were home to 492 million children and youth, from 5 to 24 years old. By 2030, this number will reach 620 million.²⁶ The financial pressure imposed by working to provide education to all children and recover COVID-19 learning losses (Sánchez et al. 2023a; Jakubowski et al. 2023) will be even higher, especially for LIC and LMIC. We categorize LIC and LMIC based on their school-age population growth and total public education expenditure in the past decade (2010-2019), grouping countries into three categories (Figure 18).

For the majority of LIC and LMIC analyzed, government per-capita education spending is projected to increase while the school-age population is projected to grow. Their education spending will grow faster than the school-age population. For instance, the school-age population in Burkina Faso is estimated to increase by nearly 25 percent in ten years. If Burkina Faso increases its total government expenditure on education at the pace it took during the last decade, its education spending will grow much faster than its population growth; government education spending will increase more than 220 percent over the next ten years. This will lead to higher per-capita education spending for the coming years in Burkina Faso (red circle in Figure 18). Some regions, including SSA, are projected to increase their school-age population in the

Figure 18. Projected changes in school-age population and total government spending



Note: We use UN population projection data to estimate school-age population changes and used the past 10-year trend in government education expenditures (constant 2021 USD) to project changes between 2020 and 2030. Scatter plots (countries) above the dotted line: school-age population growth rate is higher than the total government education spending growth rate. Scatter plots (countries) below the dotted line: school-age population growth rate is lower than total government education spending growth rate.

Source: Author estimates based on UN-DESA, World Bank Databank, and EFW2023 database.

26 Author estimates using UN-DESA and World Bank Databank data.



© Ollivier Girard | World Bank | 2019

next decades. Such increases require more financial resources to expand access and ensure the quality of education (Sánchez et al. 2023b; UN 2023). For instance, SSA countries will need to recruit 15 million more primary and secondary teachers (8.7 million new teaching posts and 6.3 million teachers for those who leave the profession) to meet SDG4 targets by 2030 (Teacher Task Force 2021).

Countries with estimated declines in their school-age population (the so-called ‘demographic dividend’) may benefit from less costly public education. This could lead to an increase in per-capita government education spending, benefiting students (Miller and Mauricio 2011) (yellow circle in Figure 18). Sri Lanka and India are among such countries. Staying on their past efforts and commitments, public spending on education in these two countries could more than double in a decade. In addition, the UN estimates that the school-age populations in these two countries will decline by 6 percent in the next ten years. These two factors could drive higher per-capita education spending in the future. However, considering the fiscal implications of aging populations in countries with fewer youth entering the labor market, education financing is less elastic to school-age population shifts (Grob and Woler 2007). This might be because money will need to be

reallocated to support retired and therefore economically less productive older generations.

By contrast, per-capita education spending is projected to decline in more than half of the countries we examined (10 countries) if they maintain downward trends in government education spending observed during the last decade. For instance, Sudan – its school-age population will go up by nearly 30 percent in 10 years – will likely face a challenge in a continuous decrease of per-capita education spending if they do not increase education allocations to keep up with school-age population growth rate (green circle in Figure 18). Given this, it may be prudent if: (1) countries maintain efforts to increase government education spending and plan and act to realize better learning outcomes, using available financial resources effectively; (2) countries with expanding school-age populations accelerate efforts to allocate more financial resources to education to outpace their demographic shifts, increasing education spending per capita; and (3) countries consider demographic impacts on education financing, the magnitude of which varies significantly across countries. As school-aged populations continue to shift, governments might increase efforts to address inequities in spending, with particular attention to poorer geographic areas, and disadvantaged children.

Data Spotlight: Monitoring education spending



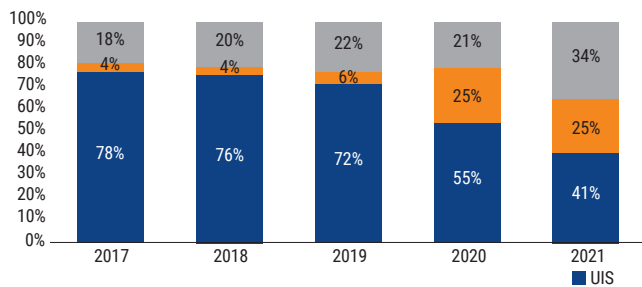
© Bart Verweij | World Bank | 2012

Education spending data availability has improved considerably, yet gaps remain. UIS collects and reports education spending data based on country reporting. As of May 2023, 18 percent of countries had not reported 2017 data on education spending as a share of GDP, and 34 percent had not reported 2021 data (Figure 19.a). The share of education spending in total government spending is a global SDG 4 monitoring indicator. There is a notable gap, with 50 percent of countries yet to submit 2021 data for this indicator (Figure 19.b).

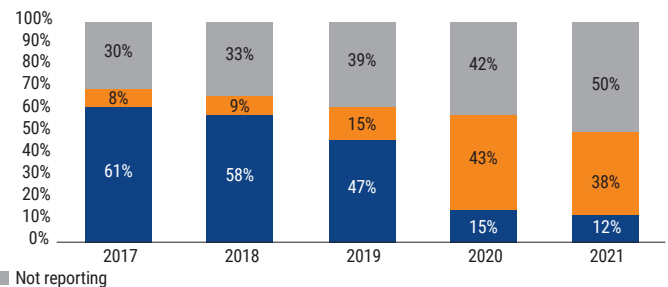
The timely availability of updated education finance data has decreased compared to EFW2022. Data availability has increased for the indicator of education spending (as a percentage of GDP or of total government spending) after imputation. However, compared to 76 percent and 73 percent actual data availability in EFW2022 for government education expenditure as a share of GDP and government education expenditure as a share of total government expenditure, data availability in EFW2023 has fallen to 66 percent and 50 percent, respectively. This is partially because some countries did not report on time (Figure 20.b).

Figure 19: The gap in education expenditure data is still severe.

a. Data availability for government education expenditure as a share of GDP



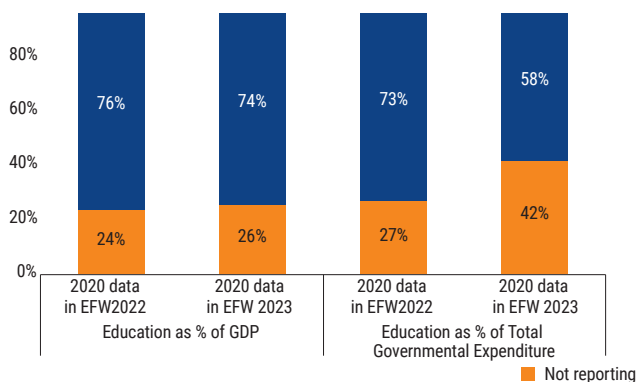
b. Data availability for government education expenditure as a share of total government expenditure



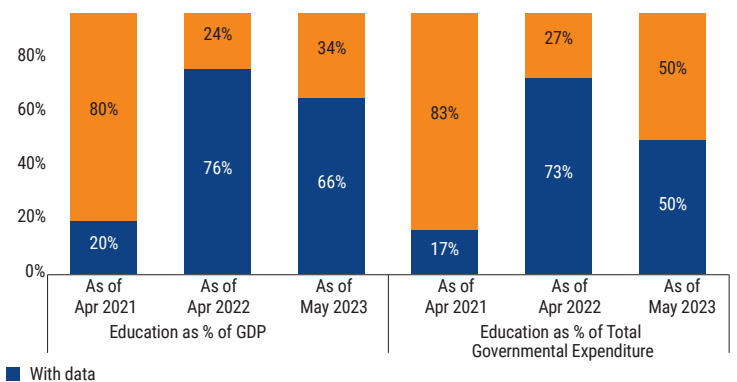
Note: Others come from BOOST, WDI, Publication Expenditure Reviews, and the IMF's GFS. The overall number of countries and territories is 218.
Source: Author estimates using the EFW2023 database. July 2023.

Figure 20: Latest data availability decreased in EFW2023

a. 2020 data in EFW2022 vs EFW2023



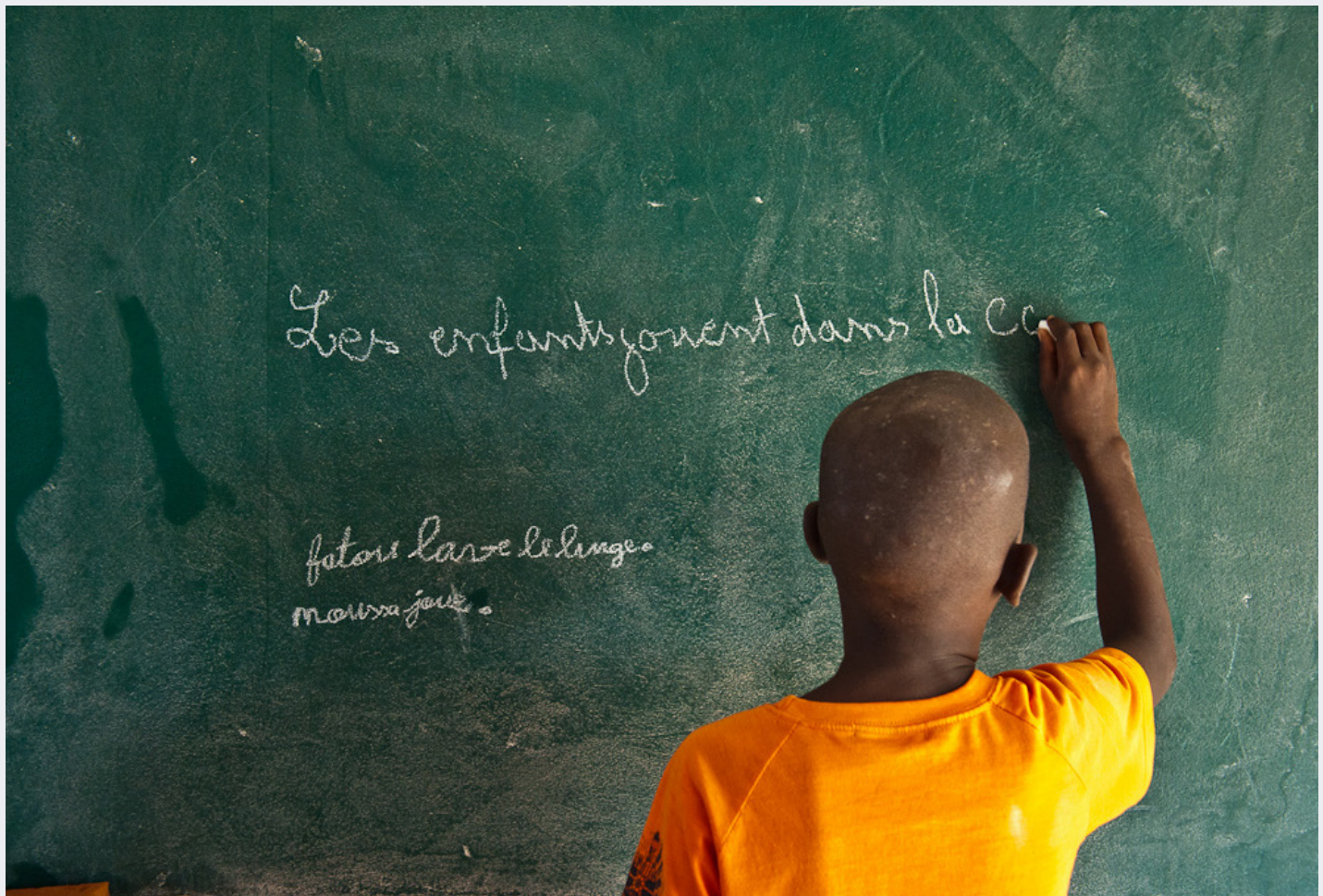
b. 2019 data in EFW2021 vs 2020 data in EFW2022 vs 2021 data in EFW2023



Source: Author estimates using EFW2021, EFW2022 and EFW2023 database. July 2023.

Conclusion

There is a strong commitment to education. Total government spending as a share of total education spending reached 50 percent in low-income countries. Poor people in lower-income countries spend large portions of their income on education. While there was a small increase in annual real per capita spending on education in 2021, the percentage of GDP declined in all country income groups, except low income. Furthermore, aid decreased in real terms. While more spending does not necessarily lead to better learning outcomes, a minimal level of spending is needed. Moreover, public resources for higher levels of education are skewed to wealthier households, while government spending for basic education benefits poorer households.



Appendix

Government spending as a share of GDP, education spending as a share of total government expenditure, and education spending as a percentage of GDP, 2021

Country	Govt. spending as a share of GDP (%)	Govt. education spending as a share of TGE (%)	Govt. education spending as % of GDP
Bangladesh	13.0	10.2	1.8
Guatemala	13.4	23.0	3.1
Lao PDR	16.3	10.8	1.9
Chad	18.4	15.7	2.9
Mauritania	19.2	9.1	1.7
Côte d'Ivoire	20.3	16.6	3.5
Peru	23.5	16.7	4.0
Monaco	24.2	5.9	1.4
Paraguay	24.8	23.6	3.5
Mali	26.4	16.2	4.4
Philippines	27.3	16.6	3.9
Nepal	27.7	14.4	4.0
Sierra Leone	28.3	14.1	3.3
Cambodia	28.6	15.7	1.7
Turks and Caicos Islands	29.0	11.2	3.3
India	29.3	14.6	4.6
Liberia	29.7	7.4	2.5
West Bank and Gaza ²⁷	30.4	17.9	5.5
Trinidad and Tobago	31.1	9.8	3.0
Rwanda	31.6	15.5	5.6
Jordan	32.8	9.6	3.2
Barbados	33.8	14.8	5.0
Ecuador	35.8	10.4	3.7
Bhutan	39.3	15.7	7.0
Maldives	39.5	10.0	5.0
Saint Kitts and Nevis	44.8	7.2	2.8
Timor-Leste	44.8	7.5	5.5

Source: UIS database, accessed April 2023.

²⁷ World Bank denomination. The denomination used by UNESCO is the State of Palestine.

References

- Ajefu, J.B., Ogebe J.O. 2021. The effects of international remittances on expenditure patterns of the left-behind households in Sub-Saharan Africa. *Reviews of Development Economics* 25: 405–429.
- Alam, A, Tiwari, P. 2021. Implications of COVID-19 for low-cost private schools. UNICEF Issue Brief 8.
- Al-Samarrai, S. 2020. The Impact of the COVID-19 Pandemic on Education Finance. World Bank.
- Al-Samarrai, S., Cerdan-Infantes, P., Lehe, J. 2019. Mobilizing Resources for Education and Improving Spending Effectiveness: Establishing Realistic Benchmarks Based on Past Trends. World Bank Policy Research Working Paper 8773.
- Al-Samarrai, S., B. Lewis. 2021. The Role of Intergovernmental Fiscal Transfers in Improving Education Outcomes. International Development in Focus. Washington, DC: World Bank.
- Angrist, N., Djankov, S., Goldberg, P., Patrinos, H. 2021. Measuring human capital using global learning data. *Nature* 592(7854): 403–408.
- Angrist, N., Evans, D., Filmer, D., Glennerster, R., Rogers, F. H., Sabarwal, S. 2023. How to Improve Education Outcomes Most Efficiently? A Comparison of 150 Interventions Using the New Learning-Adjusted Years of Schooling Metric. World Bank Policy Research Working Paper 9450.
- Angrist, N., Aurino, E., Patrinos, H., Psacharopoulos, G., Vegas, E., Nordjo, R. Wong, B. 2023. Improving Learning in Low- and Lower-Middle-Income Countries. *Journal of Benefit-Cost Analysis*.
- Arias, O., Kheyfets, I. 2023. The Adequacy of Public Expenditure on Education and the Needs. World Bank, Washington, DC.
- Arias, O. and McMahon, W.W. 2001. Dynamic Rates of Return to Education in the US. *Economics of Education Review* 20(2): 121–138.
- Azevedo, J.P., Hasan, A., Goldemberg, D., Geven, K. and Iqbal, S.A. 2021. Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global estimates. *World Bank Research Observer* 36(1): 1–40.
- Banerjee, A., Andrabi, T., Banerji, R., Dynarski, S., Glennerster, R., Grantham-Mcgregor, S., Muralidharan, K., Piper, B., Saavedra, J., Yoshikawa, H., Ruto, S., Schmelkes, S. 2023. *Cost-effective Approaches to Improve Global Learning—What does Recent Evidence Tell Us are Smart Buys for Improving Learning in Low-and Middle-income Countries?* World Bank, Washington.
- Barr, N. 2014. Income Contingent Loans and Higher Education Financing: Theory and Practice. In *Income Contingent Loans: Theory, Practice and Prospects*. Palgrave Macmillan, London.
- Brandão, JB. 2014. O rateio de ICmS por desempenho de municípios no Ceará e seu impacto em indicadores do sistema de avaliação da educação. Fundação Getulio Vargas, School of Public and Business Administration, Rio de Janeiro.
- Card, D. 2018. Returns to Schooling. In *The New Palgrave Dictionary of Economics*. Palgrave Macmillan, London.
- Channa, A, J-P Faguet. 2016. Decentralization of Health and Education in Developing Countries: A Quality-Adjusted Review of the Empirical Literature. *World Bank Research Observer* 31 (2): 199–241
- Chapman, B. 2016. Income contingent loans in higher education financing. *IZA World of Labor* 2016. 227
- Chapman, B, Dearden, L. 2022. Income-contingent loans in higher education financing. *IZA World of Labor* 2022, No 227v2
- Cholezas, I., Kanellopoulos, N.C., Mitrakos, T., Tsakoglou, P. 2013. The Impact of the Current Crisis on Private Returns to Education in Greece. *Economic Bulletin* 38: 33–63.
- Cruz, T., Silva, T. 2020. Minimum Spending in Education and the Flypaper Effect. *Economics of Education Review* 77 (C): 102012.
- Ding, Y., Lu, F., Ye, X. 2020. “Intergovernmental Transfer under Heterogeneous Accountabilities: The Effects of the 2006 Chinese Education Finance Reform.” *Economics of Education Review* 77 (C): 101985.
- Dyer, C., Rose, P. 2005. Decentralisation for Educational Development? An Editorial Introduction. *Compare* 35 (2): 105–13.
- Evans, D., Yuan, F. 2022. How Big are Effect Sizes in International Education Studies? *Educational Evaluation and Policy Analysis* 44 (3): 532–40.
- Fasih, T., H.A. Patrinos, and M.J. Shafiq. 2020. The Impact of COVID-19 on Labor Market Outcomes: Lessons from Past Economic Crises. Education for Global Development (blog).
- Fasih, T., Patrinos, H., Shafiq, M. 2021. Economic crises and returns to university education in middle-income countries: stylized facts and COVID-19 projections. *Current Issues in Comparative Education* 23(1).
- Filmer, D., Rogers, H., Angrist, N., Sabarwal, S. 2020. Learning-adjusted years of schooling (LAYS): Defining a new macro measure of education. *Economics of Education Review* 77.
- Fiszbein, A., Giovagnoli, P.I., Patrinos, H.A. 2007. Estimating the Returns to Education in Argentina Using Quantile Regression Analysis: 1992–2002. *Economia* 53(1–2): 53–72.
- Foko, B, BK Tiyab, G Husson. 2012. Household Education Spending: An Analytical and Comparative Perspective for 15 African Countries. IIEP - Pôle de Dakar, UNESCO.
- Franca, E.M. 2014. Repasse da cota-parte do ICMS aos municípios cearenses: Avaliação das mudanças ocorridas no período de 2009 a 2011. Universidade Federal do Ceará.
- Fuchs-Schündeln, N., Krueger, D., Ludwig, A., Popova, I. 2022. The long-term distributional and welfare effects of Covid-19 school closures. *Economic Journal* 132(645): 1647–1683.
- Goldin, C., Katz, L.F. 2009. *The Race between Education and Technology*. Harvard UP.
- Grob, U., S.C. Wolter. 2007. Demographic Change and Public Education Spending: A Conflict between Young and Old? *Education Economics* 15(3): 277–292.

- Gordon, N., Vegas, E. 2005. Educational Finance Equalization, Spending, Teacher Quality, and Student Outcomes: The Case of Brazil's FUNDEF. In *Incentives to Improve Teaching: Lessons from Latin America*, 151–82. Washington, DC: World Bank.
- Ha, W., Yan, F. 2018. Does money matter? The Effects of Block Grants on Education Attainment in Rural China: Evidence from Intercensal Population Survey 2015. *International Journal of Educational Development* 62: 174–83.
- Hall, R.E., Jones, C.I. 1999. Why do Some Countries Produce so Much More Output per Worker than Others? *Quarterly Journal of Economics* 114: 83–116.
- Hanushek, E.A. and Woessmann, L. 2010. Education and Economic Growth. *Economics of Education Review* 60(67): 1.
- Haveman, R.H., Wolfe, B.L. 1984. "Schooling and Economic Well-Being: The Role of Nonmarket Effects." *Journal of Human Resources* 19 (4): 378–407.
- Heckman, J.J. 2008. Schools, Skills, and Synapses. *Economic Inquiry* 46(3): 289–324.
- Hendricks, L. 2002. How Important is Human Capital for Development? Evidence from Immigrant Earnings. *American Economic Review* 92: 198–219.
- Hillman, A.L., Jenkner, E. 2004. Educating Children in Poor Countries. Economic Issues No 33. International Monetary Fund.
- IMF. 2022. *World Economic Outlook Update: Gloomy and More Uncertain*. IMF, Washington.
- International Commission on Financing Global Education Opportunity. 2016. *The Learning Generation: Investing in Education for a Changing World*. International Commission on Financing Global Education Opportunity, New York.
- Jakubowski, M., Gajderowicz, T., Patrinos, H. 2023. Global Learning Loss in Student Achievement: First Estimates Using Comparable Reading Scores. *Economics Letters*.
- Kraay, A. 2019. The World Bank Human Capital Index: A Guide. *World Bank Research Observer* 34(1): 1–33.
- Lewis, B.D., Smoke, P. 2017. Intergovernmental Fiscal Transfers and Local Incentives and Responses: The Case of Indonesia. *Fiscal Studies* 38(1): 111–39.
- Loureiro, A., Cruz, L. 2020. *Achieving World-Class Education in Adverse Socioeconomic Conditions: The Case of Sobral in Brazil*. Washington, DC: World Bank.
- Manuel, M., Coppard, D., Dodd, A., Desai, H., Watts, R., Christensen, Z., Manea, S. 2019. Subnational Investment in Human Capital. Development Initiatives, Bristol, UK.
- Montenegro, C.E. and Patrinos, H.A. 2021. A Data Set of Comparable Estimates of the Private Rate of Return to Schooling in the World, 1970–2014. *International Journal of Manpower*.
- Miller, T., Mauricio, H. 2011. *The Fiscal Impact of Demographic Change in Ten Latin American Countries* in Population Aging Is Latin America Ready? World Bank.
- Naurin, A., Pourpourides, P.M. 2023. On the Causality Between Household and Government Spending on Education: Evidence from a Panel of 40 Countries. *Empirical Economics* 65: 567–585.
- OECD. 2019. 2019 Report of the World Observatory on Subnational Government Finance and Investment—Key Findings and Country Profiles. Paris: OECD.
- Oreopoulos, P., Salvanes, K.G. 2011. "Priceless: The Nonpecuniary Benefits of Schooling." *Journal of Economic Perspectives*, 25 (1): 159–84.
- Patrinos, H. A., Angrist, N. 2018. "Global Dataset on Education Quality: A Review and Update (2000–2017)." World Bank, Washington, DC.—
- Patrinos, H., Sakellariou, C. 2006. Economic Volatility and Returns to Education in Venezuela: 1992–2002. *Applied Economics* 38(17): 1991–2005.
- Patrinos, H. A., Jakubowski, M., Gajderowicz, T. 2023. Evaluation of Educational Loss in Europe and Central Asia. Policy Research Working Papers; 10542.
- Psacharopoulos, G., Velez, E., Panagides, A., Yang, H. 1996. Returns to education during economic boom and recession: Mexico 1984, 1989 and 1992. *Education Economics* 4(3): 219–230.
- Psacharopoulos, G. 1973. *Returns to Education: An International Comparison*. Elsevier, Amsterdam.
- Psacharopoulos, G., Montenegro, C., Patrinos, H.A. 2017. "Education Financing Priorities in Developing Countries." *Journal of Educational Planning and Administration* 31(1): 5–16."
- Psacharopoulos, G., Tan, J.P., Jimenez, E. 1986. *Financing Education in Developing Countries: An Exploration of Policy Options*. World Bank, Washington, DC.
- Psacharopoulos, G., Patrinos, H.A. 2018. Returns to investment in education: a decennial review of the global literature. *Education Economics* 26(5): 445–458.
- Psacharopoulos, G., Patrinos, H. 2018. Returns to Investment in Education: A Decennial Review of the Global Literature. World Bank PRWP 8402.
- Psacharopoulos, G., Collis, V., Patrinos, H., and Vegas, E. 2021. The COVID-19 Cost of School Closures in Earnings and Income across the World. *Comparative Education Review*, Vol. 65. No. 2.
- Ratha, D., Plaza, S., Kim, E.J., Chandra, V., Kurasha, N., Pradhan, B. 2023. Migration and Development Brief 38: Remittances Remain Resilient but Are Slowing. KNOMAD—World Bank, Washington, DC.
- Read, L. 2020. COVID-19 and options for financing education. Background paper prepared for the Save Our Future white paper Averting an Education Catastrophe for the World's Children. Save Our Future.
- Riggall, A., Kashefpakdel, E., Mullan, J., Rajagopalan, K., Sutoris, P., Korin, A. 2021. COVID-19 and the Non-State Education Sector. Education Development Trust.
- Sánchez, A., Gregory, L., Crawford, M., Oviedo, M., Herman, R., Ahlgren, E. 2023a. *Learning Recovery to Acceleration: A Global Update on Country Efforts to Improve Learning and Reduce Inequalities*. World Bank, Washington DC.
- Sánchez, J.B., M.S. Lai, C. Sawyer, P. Gerland. 2023b. Population, Education and Sustainable Development: Interlinkages and Select Policy Implications. Policy Brief No. 152. UN DESA, New York.
- Schoellman, T. 2012. Education Quality and Development Accounting. *Review of Economic Studies* 79: 388–417.

- Schady, N., Holla, A., Sabarwal, S., Silva, J. 2023. Collapse and Recovery: How the COVID-19 Pandemic Eroded Human Capital and What to Do about It. World Bank.
- Sianesi, B. and Reenen, J.V. 2003. The Returns to Education: Macroeconomics. *Journal of Economic Surveys* 17(2): 157-200.
- Schultz, T. 1975. The Value of the Ability to Deal with Disequilibria. *Journal of Economic Literature* 13(3): 827-846.
- Teacher Task Force. 2021. Closing the gap: ensuring there are enough qualified and supported teachers in sub-Saharan Africa. UNESCO.
- Tinbergen, J. 1974. Substitution of Graduate by other Labour. *Kyklos* 27(2): 217-226.
- United Nations. 2020. Policy brief: Education during COVID-19 and beyond. UN Policy Briefs.
- United Nations. 2023. Population, Education and Sustainable Development: Report of the Secretary-General. E/CN.9/2023/2. United Nations.
- UNESCO. 2021. *Global Education Monitoring Report, 2021/2: Non-state Actors in Education: Who Chooses? Who Loses?* UNESCO, Paris.
- UNICEF. 2022. *Commitment to Action on Foundational Learning: Ensure Foundational Learning as a Key Element to Transform Education.*
- UNICEF. 2023. *Transforming Education with Equitable Financing.* UNICEF, New York.
- Vegas, E, Coffin, C. 2015. When Education Expenditure Matters: An Empirical Analysis of Recent International Data. *Comparative Education Review* 59(2): 199-398.
- Wetzel, D.L., Viñuela, L. 2020. Intergovernmental Fiscal Transfers and Performance Grants in Brazil. In *Intergovernmental Transfers in Federations*, 204–23. Edward Elgar Publishing.
- World Bank. 2012. *Making Better Use of Teachers: Strengthening Teacher Management to Improve the Efficiency and Equity of Public Spending.* Jakarta: World Bank.
- World Bank. 2018. *World Development Report 2018: Learning to Realize Education's Promise.* World Bank, Washington, DC.
- World Bank. 2020. *The COVID-19 Pandemic: Shocks to Education and Policy Responses.* World Bank, Washington, DC.
- World Bank. 2021. *Global Economist Prospects.* World Bank, Washington, DC.
- World Bank. 2023. *Global Economist Prospects.* World Bank, Washington, DC.
- World Bank and UNESCO. 2021. *Education Finance Watch 2021.* World Bank, Washington DC.
- World Bank and UNESCO. 2022. *Education Finance Watch 2022.* World Bank, Washington, DC.
- World Bank, UNESCO, UNICEF, USAID, FCDO, and Bill and Melinda Gates Foundation. 2022. “The State of Global Learning Poverty: 2022 Update.” Conference Education, June 23, 2022.
- Xiao, Y., Li, L., and Zhao, L. 2017. “Education on the Cheap: The Long-Run Effects of a Free Compulsory Education Reform in Rural China.” *Journal of Comparative Economics* 45 (3): 544–62.



Acknowledgments

The EFW2023 was prepared by May Bend, Yitong Hu, Yilin Pan, Harry Anthony Patrinos, Thomas Poulsen, Angelica Rivera-Olvera, Nobuyuki Tanaka (World Bank), Manos Antoninis and Yuki Murakami (GEM Report). It was prepared under the overall guidance of Luis Benveniste, Jaime Saavedra and Halil Dunder (World Bank). It benefited from UIS data access and comments from Silvia Montoya (UIS), inputs from Omoniyi Babatunde Alimi, Kebede Feda, and Neha Devi Tengur (World Bank), and comments from Samer Al-Samarrai, Raja Bentaouet Kattan, Myra Murad Khan, and Norbert Rudiger Schady (World Bank). The team benefited from valuable supports from Patrick A. Biribonwa, Stefano De Cupis, Raiden C. Dillard, Tania Fragnaud, Massimo Mastruzzi, Kristyn Schrader-King (World Bank) and Katherine Redman (GEM Report).

© 2023 International Bank for Reconstruction and Development / The World Bank and UNESCO
This work is a co-publication of The World Bank and UNESCO.

The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent, or those of UNESCO.

The World Bank and UNESCO do not guarantee the accuracy, completeness, or currency of the data included in this work and do not assume responsibility for any errors, omissions, or discrepancies in the information, or liability with respect to the use of or failure to use the information, methods, processes, or conclusions set forth. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank and UNESCO concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Nothing herein shall constitute or be construed or considered to be a limitation upon or waiver of the privileges and immunities of The World Bank, all of which are specifically reserved.

Rights and Permissions



This publication is available in Open Access under the Creative Commons Attribution-ShareAlike 3.0 IGO (CC-BY-SA 3.0 IGO) license (<http://creativecommons.org/licenses/by-sa/3.0/igo/>). Under this license, you are free to copy, distribute, transmit, and adapt this work, including for commercial purposes, under the following conditions:

Attribution—Please cite this publication as follows: The World Bank and UNESCO (2023). Education Finance Watch 2023. Washington D.C., Paris: The World Bank and UNESCO.

Share Alike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original.

Translations—If you create a translation of this work, please add the following disclaimer along with the attribution: This translation was not created by The World Bank or UNESCO and should not be considered an official World Bank or UNESCO translation. The World Bank and UNESCO shall not be liable for any content or error in this translation.

Adaptations—If you create an adaptation of this work, please add the following disclaimer along with the attribution: This is an adaptation of an original work by The World Bank and UNESCO. Views and opinions expressed in the adaptation are the sole responsibility of the author or authors of the adaptation and are not endorsed by The World Bank and UNESCO.

Third-party content—The World Bank and UNESCO do not necessarily own each component of the content contained within the work. The World Bank and UNESCO therefore do not warrant that the use of any third-party-owned individual component or part contained in the work will not infringe on the rights of those third parties. The risk of claims resulting from such infringement rests

solely with you. If you wish to re-use a component of the work, it is your responsibility to determine whether permission is needed for that re-use and to obtain permission from the copyright owner. Examples of components can include, but are not limited to, tables, figures, or images.

All queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: pubrights@worldbank.org.

Designed by alejandra.espinosa@sonideas.com.

Photography credits— 1: © Vincent Tremeau | World Bank | 2020. Used with the permission of Vincent Tremeau | World Bank | 2020. Further permission required for reuse. 2: © Vincent Tremeau | World Bank | 2020. Used with the permission of Vincent Tremeau | World Bank | 2020. Further permission required for reuse. 3: © Ed Wray | World Bank | 2012. Used with the permission of Ed Wray | World Bank | 2012. Further permission required for reuse. 4: © Atet Dwi Pramadia | World Bank | 2018. Used with the permission of Atet Dwi Pramadia | World Bank | 2018. Further permission required for reuse. 5: © Charlotte Kesl | World Bank | 2010. Used with the permission of Charlotte Kesl | World Bank | 2010. Further permission required for reuse. 6: © Deshan Tennekoon | World Bank | 2010. Used with the permission of Deshan Tennekoon | World Bank | 2010. Further permission required for reuse. 7: © Irina Oleinik | World Bank | 2012. Used with the permission of Irina Oleinik | World Bank | 2012. Further permission required for reuse. 8: © Dana Smillie | World Bank | 2010. Used with the permission of Dana Smillie | World Bank | 2010. Further permission required for reuse. 9: © Sarah Farhat | World Bank | 2017. Used with the permission of Sarah Farhat | World Bank | 2017. Further permission required for reuse. 10: © Nafise Motlaq | World Bank | 2013. Used with the permission of Nafise Motlaq | World Bank | 2013. Further permission required for reuse. 11: © Dominic Chavez | World Bank | 2016. Used with the permission of Dominic Chavez | World Bank | 2016. Further permission required for reuse. 12: © Nafise Motlaq | World Bank | 2013. Used with the permission of Nafise Motlaq | World Bank | 2013. Further permission required for reuse. 13: © Khasar Sandag | World Bank | 2013. Used with the permission of Khasar Sandag | World Bank | 2013. Further permission required for reuse. 14: © Dominic Chavez | World Bank | 2016. Used with the permission of Dominic Chavez | World Bank | 2016. Further permission required for reuse. 15: © Conor Asleigh | World Bank | 2015. Used with the permission of Conor Asleigh | World Bank | 2015. Further permission required for reuse. 16: © Gerhard Jörén | World Bank | 2012. Used with the permission of Gerhard Jörén | World Bank | 2012. Further permission required for reuse. 17: © Arne Hoel | World Bank | 2016. Used with the permission of Arne Hoel | World Bank | 2016. Further permission required for reuse. 18: © Ollivier Girard | World Bank | 2019. Used with the permission of Ollivier Girard | World Bank | 2019. Further permission required for reuse. 19: © Bart Verweij | World Bank | 2012. Used with the permission of Bart Verweij | World Bank | 2012. Further permission required for reuse. 20: © Arne Hoel | World Bank | 2010. Used with the permission of Arne Hoel | World Bank | 2010. Further permission required for reuse. 21: © Nafise Motlaq | World Bank | 2013. Used with the permission of Nafise Motlaq | World Bank | 2013. Further permission required for reuse.

DOI: <https://doi.org/10.54676/XTON4555>