Learning, Marginalization, and Improving the Quality of Education in Low-income Countries

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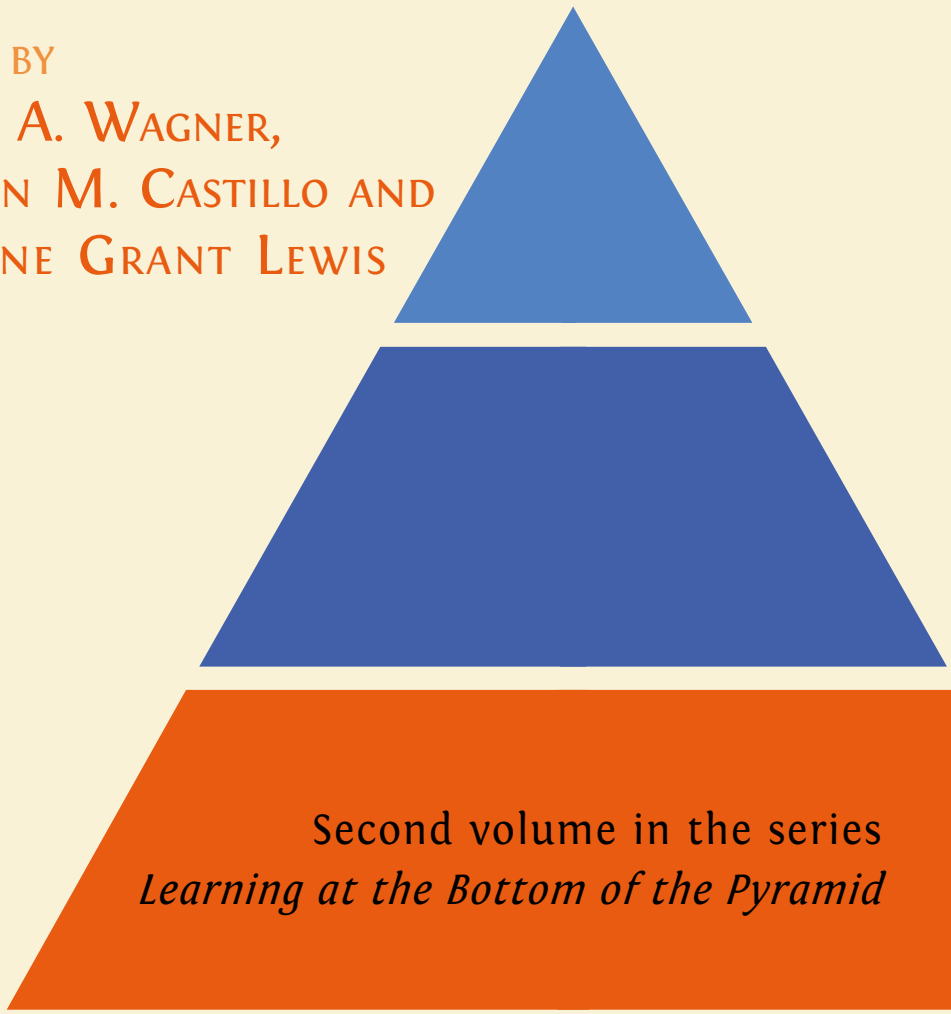

Second volume in the series
Learning at the Bottom of the Pyramid

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7. Financing Education at the Bottom of the Pyramid

Samer Al-Samarrai and Luis Benveniste

Introduction

Global public spending on education has more than doubled in real terms since the early 2000s. In most countries, the bulk of the increased spending has come from increases in overall government revenues brought about by healthy economic growth. Increased education spending has also supported a large increase in educational access over the same period. Children (particularly poor children) start school earlier and stay in school longer (World Bank, 2018). Yet these impressive achievements pale in comparison to need. Estimates show that the total share of national income devoted to education in low-income countries would need to double to achieve goals similar to the SDGs by 2030. And while access to education has improved, 90 percent of 10-year-olds in low-income countries are unable to read a short, age-appropriate text with comprehension (World Bank, 2019). Moreover, the COVID-19 pandemic has impacted public finances dramatically, and the outlook for maintaining recent increases in education funding is not encouraging.

Mobilizing additional resources is only part of the challenge. Research shows that recent increases in public education spending are associated with relatively small changes in education outcomes. The reasons why education systems struggle to use resources effectively are many. Overall, levels of spending and the use of funds may not be aligned with learning objectives, spending may not be allocated

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equitably, funds may not reach schools or may not be used for their intended purposes, and government agencies may lack the capacity to use funds efficiently. Strengthening public financial management systems, introducing allocation mechanisms that adjust for need, and building effective systems to monitor the use of funds can improve the use of education funding and support efforts to achieve learning for all.

This chapter explores these issues, with a focus on populations at the bottom of the pyramid (Wagner et al., 2018). The next section looks briefly at education spending inequalities between countries and the issues associated with narrowing these gaps. The following sections then focus on spending disparities within countries, and how available funding can be used more effectively to provide quality learning opportunities for all children, particularly those at the bottom of the pyramid.

Global spending inequalities

Between 1998 and 2017, government education spending increased by 80 percent, from $2.9 to $5.3 trillion in real terms (Figure 1). Spending growth has been most rapid in low- and lower-middle-income countries. For example, since the 1990s, real education spending in low-income countries almost tripled (Figure 1). Despite these faster rates of spending growth, low- and lower-middle-income countries account for less than 20 percent of total education spending, even though 60 percent of children between the ages of 5 and 24 live in these countries (see Figure 1).

Global spending inequalities translate into large disparities in government education spending per child. Low-income countries spend considerably less per child than middle-income countries. For example, in 2014–18, low-income countries spent, on average, purchasing power parity (PPP) $188 per primary school aged child, compared to PPP $894 in lower-middle-income countries (Figure 2). While public spending per child has increased among all income groups, the gap between the poorest and wealthiest nations has not closed, and in some cases has widened. For example, in 1998–2001, lower-middle-income countries spent nearly 11 times as much per primary school child than low-income countries (PPP $1,226 compared to PPP $109). By 2014–17 they spent

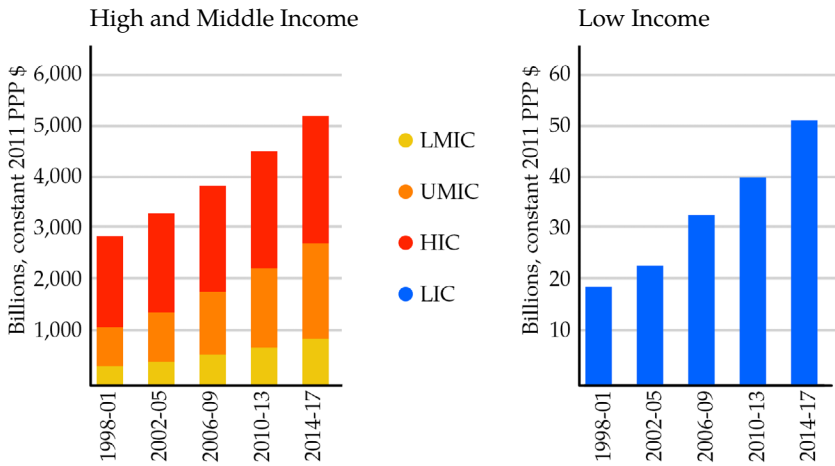

Fig. 1. Public education spending estimates, constant 2011 PPP dollars (billions), 1999–2017. Source: World Bank calculations based on World Development Indicators, UIS, and IMF online databases. Note: Total spending is estimated using income group averages of GDP and public education spending as a share of GDP.

almost 13 times as much as low-income countries (PPP $2,488 compared to PPP $188).

Looking over a child's whole school career reveals stark differences between how much rich and poor countries invest in education. By the age of 18, a child growing up in a low-income country will have attended school for 8 years compared to 13 years in a high-income country. Overall, their government will have invested about $1,300 on educating them, with almost all of that money ($900) spent on salaries. In contrast, a high-income country will have devoted $111,000 (100 times more), with a significant share devoted to other learning resources beyond salary spending.

Lower levels of public spending put a greater burden on lower-income households to contribute to education expenses. Comparable information on household education spending at the country level is relatively scarce. However, Al-Samarrai et al. (2019) find that households in low-income countries provided 41 percent of all education spending compared to only about 13 percent in high-income countries. Evidence from many countries shows that the direct costs of schooling are a major barrier to school attendance, and reforms that have lowered them

have resulted in improvements in education outcomes (Fredriksen & Craissati, 2009).

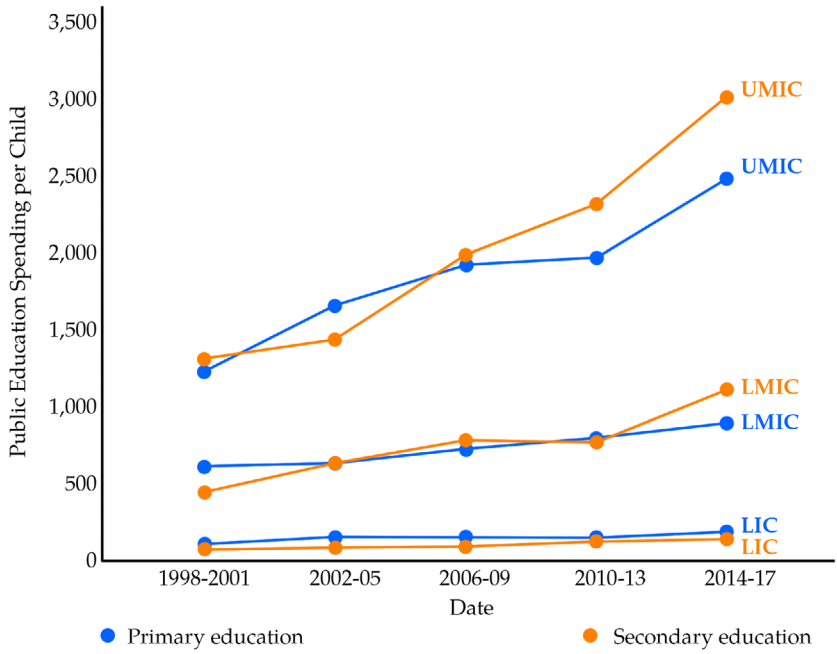

Fig. 2. Public education spending per child (constant 2015 PPP $), 1998–2001 to 2014–17. Real spending per child has generally risen in low-income and middle-income countries, but the gap between income groups has widened. Source: World Bank calculations using UIS and IMF online databases. Note: LIC = low-income country, LMIC = lower-middle-income country, and UMIC = upper-middle-income country.

The ongoing COVID-19 pandemic risks exacerbating education spending inequalities between low- and lower-middle-income countries. While the impacts on education financing are still uncertain at this stage, the pandemic is having a negative effect on all sources of education funding (Al-Samarrai, 2020). Yet there is a need for additional funding to support learners while schools are closed, to reopen schools safely, and to make up for the learning losses that have occurred during lockdowns (Azevedo et al., 2020; Rogers & Sabarwal, 2020). The ability of low-income countries to both protect existing levels of education funding and respond to the additional COVID-19-related needs is more limited compared to that of wealthier countries. Without efforts to protect

public education spending, there is a risk that the pandemic will widen the gaps in both education spending and outcomes between low- and high-income countries.

Mobilizing more resources for education

Ensuring that all children have access to good-quality education will require unprecedented increases in public funding in many countries. Recent global estimates undertaken by UNESCO, the Education Commission, and the IMF all point to very large financing gaps associated with achieving the Sustainable Development Goals (UNESCO, 2015; Education Commission, 2016; Gaspar et al., 2019). For instance, the Education Commission estimates that public spending (including development assistance) as a percentage of GDP for pre-tertiary education would need to increase from 3 percent to 8 percent in LICs between 2015 and 2030 to achieve SDG-like goals (equivalent to an increase from $27 billion to $102 billion). This kind of increase is unprecedented. No low- or lower-middle-income country has been able to achieve an increase of this kind over the last 15 years. Only Senegal came close, increasing public education spending from three to seven percent of GDP between 1998 and 2014.

Over the next 15 years, rapid population growth will have a big impact on the ability of LICs and LMICs to mobilize the resources they need. Between 2020 and 2035, the school-aged population in low-income countries and sub-Saharan Africa is projected to increase by approximately a third, from 0.9 to 1.2 billion (Figure 3). Providing sufficient school spaces, teachers, and other resources for this growing population will put significant strain on already stretched government budgets. Population growth rates in the fastest growing low-income countries will mean that the school-aged population will increase by around 40 percent over the next 15 years. In these countries, government education spending, in real terms, would need to increase at a similar rate just to maintain existing levels of access and quality. While low-income countries have managed to increase annual education spending at a much faster rate in recent years, population growth rates will restrict the funding available to expand education access to more children and improve learning outcomes.

While development assistance will remain important in low-income countries, the bulk of the additional funding will need to come from domestic sources. Overall, levels of official development assistance (ODA) to education have been declining over the last 15 years. However, ODA made up about 21 percent of total public education spending in low-income countries or just under 1 percent of GDP (Al-Samarrai et al., 2019). However, there is a lot of variation around the average, with aid to education in Malawi in 2017 representing about 2.4 percent of GDP compared to only 0.7 percent in Madagascar.

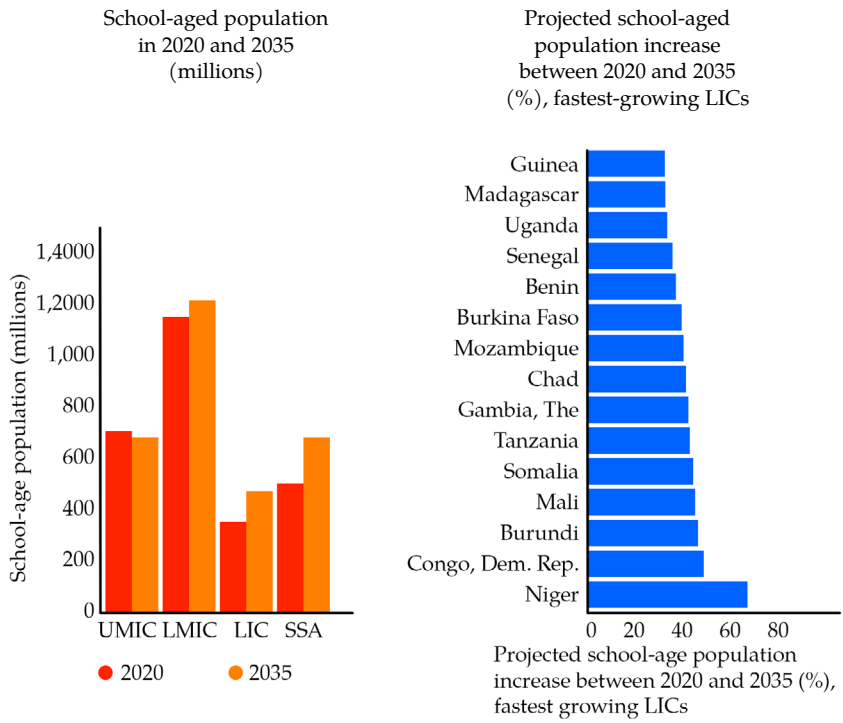

Fig. 3. Rapid population growth will put significant pressure on government education budgets. Source: United Nations Population Division (2019). Note: School-aged population includes children between 5 and 24 years of age. World Bank income group classifications are used to group countries and are as follows: LIC=low-income country, LMIC = lower-middle-income country, UMIC = upper-middle-income country. SSA = sub-Saharan Africa.

The fiscal space available for education differs considerably across countries, but falls short of the projected needs to universalize

good-quality basic education. While definitions of fiscal space differ, it refers to the financing available to pursue national objectives, which arises from enacting a set of feasible and sustainable policies to increase resource availability while at the same time maintaining macroeconomic stability. It can include the space created by increasing government revenues (including development assistance) or by borrowing to fund differences between revenues and spending. At the sectoral level, it includes the potential to obtain a greater share of the overall government budget as well as improved spending efficiency. Low- and lower-middle-income countries vary considerably in the fiscal space they have to mobilize more funding for education. Figure 4 provides information on two key indicators of fiscal space in education for LICs and LMICs. The horizontal and vertical lines indicate the lower-middle-income average for education spending as a share of total government spending, and total government spending as a share of national income, respectively. They represent plausible levels of spending that low- and lower-middle-income countries could be expected to reach over time. Based on these benchmarks, countries in the lower-left quadrant, for example, Uganda and Lao, have significant fiscal space since total government spending and education's share are below the averages for lower-middle-income countries. In contrast, total government spending and the share going to education in countries like Senegal and Moldova exceed lower-middle-income averages and suggest that fiscal space may be more constrained in these countries. The dashed line in Figure 4 plots the combinations of total government spending and the share going to education, which are equivalent to public spending on education of six percent of GDP. Afghanistan and Moldova are close to this line, but other countries would need to go far beyond existing average levels to achieve this level of public education spending and move closer to the eight percent of GDP required to achieve quality universal basic education (see Figure 4).

While mobilizing the required resources for education is challenging, many countries have the potential to mobilize more domestic resources. At present, developing countries currently take in approximately half the tax dollars per GDP than advanced economies do. Besley and Persson (2014) note that many factors get in the way of adequate levels of taxation in developing countries today, including tax exemptions,

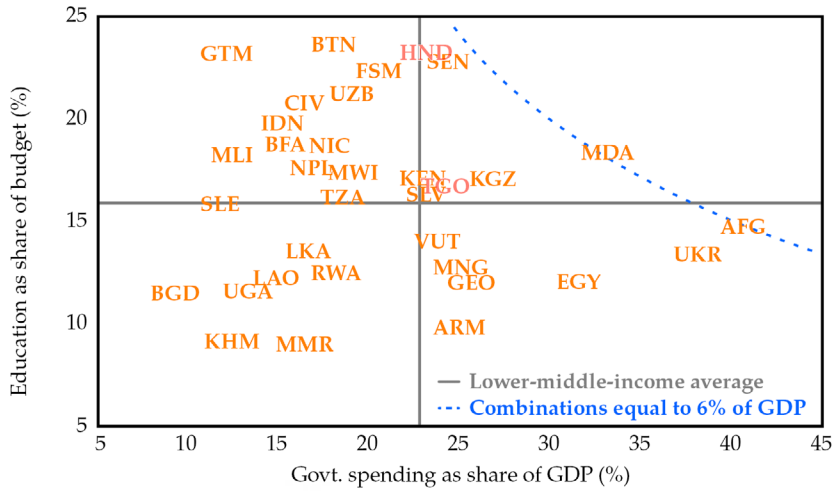

Fig. 4. Education as a share of total government budget, and government spending as a share of GDP in low- and lower-middle-income countries (%), 2014–17. Fiscal space for mobilizing greater funding for education varies considerably. Source: World Bank calculations based on World Development Indicators, UIS, and IMF online databases.

poor tax administration, an underdeveloped private sector, and informality, to name a few. Weak institutions and corruption can lead to both poor tax administration and a lack of trust in government, which itself undermines tax compliance. Also, many developing countries have failed to accomplish the level of state building required to broaden their tax base, such as the ability to withhold tax directly from income. Developing countries can raise revenues through a range of actions including deploying various forms of taxation, raising tax compliance, and strengthening tax administration. In addition, taxes on activities that directly harm people's health remain an option in many countries. Countries will also need to explore a variety of non-tax revenue sources, including the appropriate management of natural resource wealth.

Moreover, many countries could shift public funding from other sectors to education. Many countries invest in costly energy or other subsidies that are often a drain on public coffers, and frequently regressive. In Saudi Arabia, spending on energy subsidies is 4.6 percent of GDP, while in Zambia, it is 7.1 percent. While Saudi Arabia spends a similar amount on education, Zambia spends only 1 percent of GDP

on education. Many subsidies not only have high costs, they can also disproportionately benefit the wealthy and lead to distortions in the economy by incentivizing the use of cheap energy. An analysis of the unequal benefits of energy subsidies across 32 countries showed that the richest 20 percent of households receive about six times more in subsidies than the poorest 20 percent (Coady et al., 2015). Gasoline subsidies have the most regressive distribution, with more than 83 percent of benefits going to the richest 40 percent of households. These subsidies can be politically difficult to dislodge, particularly when there is public concern about the outcomes for people. When the government of Nigeria attempted to repeal its fuel subsidies in 2012 it encountered heavy public resistance and was eventually forced to backtrack, despite its plans to direct the additional resources to maternal and child health services.

The COVID-19 pandemic is having a significant negative impact on funding for education, which will make achieving national goals even harder. The economic shock associated with the COVID-19 pandemic is likely to be significantly larger than anything seen since the financial crisis of 2008/09. It will have a negative effect on the three main sources of education financing. First, government revenues have declined sharply as a result of lockdowns aimed at reducing the spread of the virus. For example, between 2019 and 2020, government revenue as a share of GDP is expected to fall from 17.2 to 16.4 percent in sub-Saharan Africa (IMF, 2020). While in the short-term, governments are expected to maintain or even increase overall levels of spending, there is expected to be a significant slowdown in the growth of government spending on education in low-income countries and, in the worst-hit countries, forecasts suggest that spending might fall (Al-Samarrai, 2020). Second, household education spending, which makes up 29 percent of total education spending in low-income countries, is also expected to fall. Poorer households are expected to suffer significant economic hardships. COVID-19 could push between 71–100 million people into extreme poverty in 2020 and increase the extreme-poverty rate for the first time since 1998. South Asia will account for almost half and sub-Saharan Africa more than a third of the projected rise in poverty numbers (World Bank, 2020a). Finally, aid to education, another key source of funding, particularly for low-income countries, only recently recovered from the

drops experienced after the financial crisis in 2008 and 2009.[1] Estimates suggest that aid to education may drop by as much as $2 billion by 2022 due to the massive drops in national income in high-income countries (UNESCO, 2020b). Collectively, these effects on education funding will significantly widen the financing gap associated with achieving national education goals. For example, updated global estimates of achieving the education SDGs estimate a $30–45 billion increase in the global financing gap due to the additional needs associated with COVID-19 and the declines in domestic financing (UNESCO, 2020a).

Improving spending equity

Public spending on education can also be highly unequal within countries, with wealthier groups often capturing a greater share of the available resources. Using a benefit-incidence approach, it is possible to get a sense of how public funding for education is distributed across different income groups within a country. Analysis of this kind generally shows that total public education spending tends to be unequally distributed, particularly in low-income countries (Figure 5). These results are largely due to differences in participation rates by level of education between income groups. For example, it is common for the poorest and wealthiest quintiles to have similar enrollment rates in public primary schooling, but a far greater proportion of children in the wealthiest quintile are enrolled in public tertiary institutions. Since per-student expenditure is much higher in tertiary institutions, this tends to skew the distribution of public education funding in favor of wealthier quintiles. These differences in enrollment patterns by income quintile tend to be most pronounced in low-income countries, and result in significant inequalities in public education funding across the income distribution (see Figure 5).

Analysis of this kind masks large regional disparities in education spending that often reinforce existing patterns of inequality. Benefit-incidence studies often do not factor into their calculations the significant differences in how much governments spend on each student in different parts of a country. It is very common for a child living in one part of

1 Aid to education made up approximately 12.5 percent of total education spending in low-income countries in recent years (UNESCO, 2019).

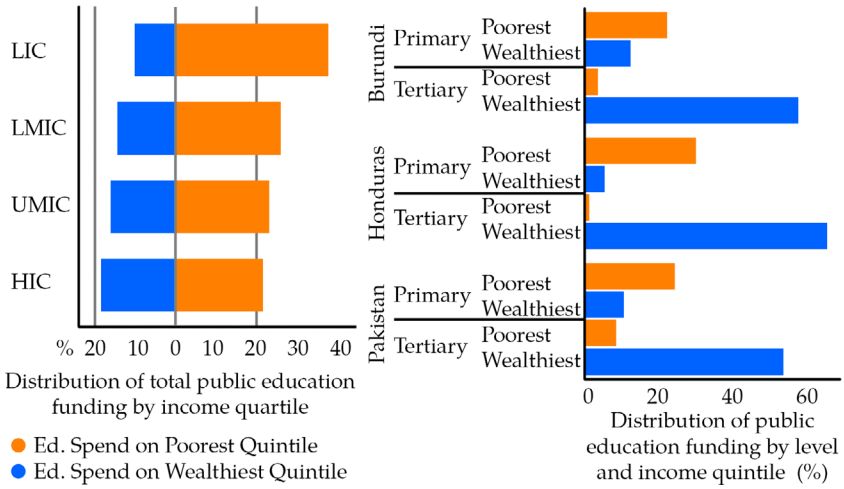

Fig. 5. Differences in education participation imply that public funding for education is distributed unequally. Source: Left-hand panel: UNICEF (2020). Right-hand panel: Burundi: Tsimpo & Wodon (2014). Pakistan: Asghar & Zahra (2012).

a country to go to a school that has several times more funding than a school in another part of the same country (Figure 6). For example, in Sudan, spending per child is approximately six times higher in the highest-spending region compared to the lowest-spending region. Subnational public spending differences tend to reinforce existing patterns of poverty and disadvantage. It might be expected that poorer regions in a country receive more education funding, since providing services in remote regions can be more expensive and children from more disadvantaged backgrounds need more support. However, in many countries, per-capita education spending is significantly lower in poorer regions than in wealthier regions. For example, in Uganda, the relationship between district per-capita spending on education and levels of poverty is negative and statistically significant (see Figure 6).

Subnational spending inequalities are often the result of public funding allocation mechanisms. In decentralized countries, differences in education spending are driven by the overall revenues a subnational administration has and, where they have autonomy, their preferences for education compared with other priorities. Since many subnational governments rely on transfers from the central government to fund basic education, the way these mechanisms allocate funding across

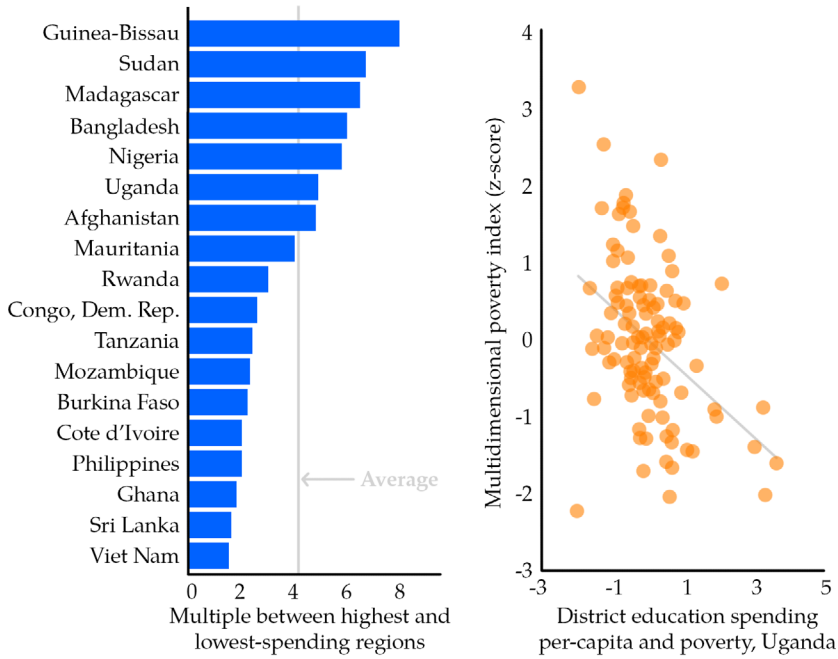

Fig. 6. Education spending inequalities are large and can reinforce existing patterns of poverty and disadvantage. Source: Left-hand panel: Manuel et al. (2019) and various World Bank Public Expenditure Reviews. Right-hand panel: Manuel et al. (2019).

regions has implications for the levels and distribution of education funding. For example, in Indonesia a general transfer from the central government accounts for over 60 percent of subnational revenue (World Bank, 2020b). However, these transfers are allocated very unequally, since they are allocated on a district rather than per-capita basis. The district with the highest per-capita transfer has 40 times more revenue than the district with the lowest per-capita transfer, even accounting for differences in the costs of service delivery between districts (Al-Samarrai & Lewis, 2021). This can lead to major disparities in the quality of education offered in different parts of a country (see Box 1).

Reforming allocation mechanisms can reduce inequalities in spending and education outcomes across regions. Many countries use the intergovernmental fiscal transfer system to try and address education spending inequalities between regions. For example, in China, the new

Box 1: Differences in district revenue result in large differences in education spending and quality in Indonesia.

Education spending in Indonesia differs considerably between districts. Districts rely heavily on fiscal transfers from the central government to fund basic services, including basic education and other delegated responsibilities. For example, in 2018, approximately 85 percent of all district-level spending was funded by a number of fiscal transfers from the central government. The largest transfer is not allocated according to a district's population size, but on a district-level basis. This results in large differences in transfers between districts. The smallest 20 percent of districts, in terms of population size, received per-capita transfers that were approximately five times as large as the largest and most populous 20 percent of districts. These differences in revenue translate into very different levels of spending on education across districts. In 2016, the highest-spending district spent 21 times as much as the lowest-spending district on a per-capita basis, even after controlling for delivery costs.

Large differences in per-capita revenues translate into very different levels of education quality across Indonesia. In some districts, education funding is so low that many schools are unable to achieve a set of minimum service standards. Differences in funding also lead to very different student-teacher ratios, with some districts registering less than 10 students per teacher in primary education, while others had more than 30. It has been estimated that over 17 percent of teachers could be redistributed across districts to make class sizes more equal and still comply with maximum class sizes of 32 in primary education. The quality of teachers that also varies. In 2015, the proportion of teachers with a bachelor's degree in the relatively poor province of West Kalimantan was only 20 percent, compared to 60 percent in Jakarta, a wealthy province including the capital city.

education funding mechanism introduced in 2006 includes specific purpose transfers that provide different levels of funding in recognition of the differences in the ability of provinces and counties to fund their education systems from their own revenues (Al-Samarrai & Lewis, 2021). In Brazil, the Fund for the Development of Primary Education and Appreciation of Teachers (FUNDEB) addresses equity issues by guaranteeing minimum levels of education spending across municipalities (Loureiro et al., 2021). Prior to the introduction of FUNDEB's predecessor in 1996, education spending differences between municipalities were large due to the limited revenues of poorer municipalities. 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 & Vegas, 2005). These spending disparities led to significant differences in education outcomes and exacerbated more general socioeconomic inequalities across regions. FUNDEB and its predecessor FUNDEF aimed to narrow spending inequalities by redistributing a portion of federal, state, and municipal tax revenues to guarantee a minimum level of spending per student across all municipalities. The funds have been successful at narrowing spending inequalities between municipalities and, in particular, increasing the funding of education in the poorest states (Gordon & Vegas, 2005; Cruz & Silva, 2020).

The FUNDEB and FUNDEF transfers not only raised education spending in some of the poorer municipalities in Brazil, it also contributed to narrowing inequalities in education outcomes. There has been considerable research into the effect of these funds on education outcomes. Overall, the findings suggest that these funds increased enrollment in basic education particularly in poorer municipalities, improved education quality, and narrowed achievement gaps (Gordon & Vegas, 2005; Cruz & Rocha, 2018; Cruz, 2018). A recent study exploring the impact of FUNDEB on upper-secondary-school student achievement found that it had increased average achievement in both Portuguese and mathematics, and the gains were larger for the poorer students (Silveira et al., 2017).[2]

School funding formulas have also been used effectively to address spending inequalities and improve the support and outcomes of disadvantaged children. School grants have been used in many countries to help reduce the cost burden on parents, particularly poorer parents. Evaluations show that grants of this kind are successful at improving access to education and increasing attainment (McEwan, 2013; Snilstveit et al., 2015). For example, grants in Niger and Uganda increased the number of children enrolling in primary school, and in Mexico, grants improved student progress and retention (Grogan, 2009; Gertler et al., 2012; Beasley & Huillery, 2013). Funding formulas can also be

2 FUNDEB is set to expire at the end of 2020, but is likely to be renewed and improved to strengthen its impact on spending equity. It will also include a performance element, based on the successful experience of the state of Ceara.

designed to account for the different needs of schools serving different populations. For example, many OECD countries include weights or special allocations in their formulas to provide additional targeted funding for students from disadvantaged backgrounds, students with special needs, or refugees (see Box 2 and OECD, 2017). School funding formulas in developing countries also attempt to account for the differences associated with the costs of delivering education to different student groups. For example, some district-level funding formulas in Indonesia include an equity component to address the cost differentials associated with delivering education in different parts of the district (World Bank, 2012). Schools located on small and remote islands are provided with a 20 percent higher per-student amount to cover the higher travel-related costs (Al-Samarrai et al., 2018).

Improving spending effectiveness

Improving the efficiency of public spending is also critical to ensuring universal access to good-quality education, particularly for poor and disadvantaged children. Given the challenge of mobilizing additional resources for education, it is important that funds are used as effectively as possible to improve the education outcomes of all students. However, studies show that many low-income countries could improve the effectiveness of existing spending.

Cross-country evidence points to significant differences in how effectively public spending is translated into education outcomes. For example, Burundi and Togo spend a similar amount per school-aged child, but that spending provides one additional learning-adjusted year of schooling in Togo compared to Burundi (see Figure 7). These comparisons suggest that spending is more inefficient in Burundi than in Togo. Similarly, Côte d'Ivoire spends more than twice as much as Burkina Faso, but its spending delivers a similar amount of learning for each child. Similar patterns between spending and outcomes are also seen at the subnational level, and also suggest that some regions appear to be more efficient than others when it comes to using their education funds.

Box 2: The "pupil premium" in England.

Introduced in 2011, the pupil premium provides government-funded schools in England with additional per-student funding to raise the attainment of disadvantaged pupils and narrow inequalities between them and other students. In 2014/15, schools received an additional £1,300 ($2,031) per primary-aged student and £935 ($1,461) per secondary-aged student. Rough calculations suggest that an average-sized secondary school received approximately £200,000 ($312,500) in additional funding through the pupil premium, which is the equivalent of five full-time teachers.

The main criterion of deprivation used to calculate eligibility is the number of students in the school that have received free school meals over the last six years. Head teachers and school governing bodies are accountable for the use of these funds in two ways. First, tables that outline the performance of disadvantaged students compared to their peers are made available to the public. Second, schools are required to publish details online each year of how they have used the premium and what impact it has had.

Schools typically use the additional resources to hire more teachers and teaching assistants in order to introduce special programs for disadvantaged students. In addition, resources are frequently used to allow eligible students to participate fully in after school activities.

A study of the implementation of the pupil premium found:

- Since the introduction of the premium, an increasing number of schools are targeting the funding more effectively at improving the attainment of disadvantaged students and narrowing learning disparities.
- The best schools combine a series of targeted interventions with robust tracking systems to evaluate effectiveness.
- Governing bodies in these schools take strategic responsibility for ensuring the pupil premium supports eligible pupils. They also hold school leaders accountable for the use of these additional resources and the results obtained.
- Challenges remain in some schools with leaders and governing bodies in the weakest schools failing to ensure the pupil premium is used effectively to narrow attainment gaps.

Sources: OFSTED (2014) and www.gov.uk/pupil-premium-information-for-schools-and-alternative-provision-settings.

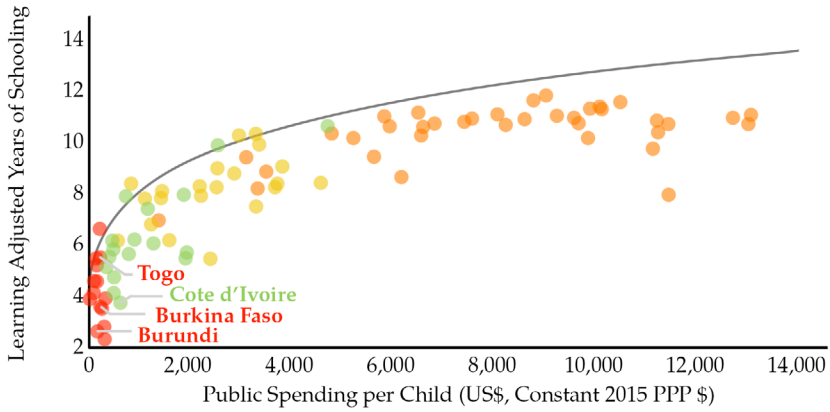

Fig. 7. Association between spending per child and enrollment-adjusted learning. Source: Expenditure Per Child and Learning-Adjusted Years of Schooling (LAYS), 2015. World Bank calculations based on HCI, UIS, and IMF data. Note: The stochastic frontier is drawn from data and analytical work described in Al-Samarrai et al. (2019).

Looking at the relationship between spending and outcomes over time suggests that recent spending increases have not had a big effect on learning outcomes. Cross-sectional comparisons are only a rough indication of how efficient countries are in translating spending into outcomes. Another way to explore the efficiency of public education spending is to look at changes in spending in countries over time. While data limitations make this difficult, the evidence suggests that, on average, a doubling of spending per child improves outcomes by about a half of a learning-adjusted year of schooling (Al-Samarrai et al., 2019).[3] However, the effect of spending increases in countries that spend relatively little per child and are inefficient are more promising. For most low-income countries, this suggests that spending increases are likely to have a larger effect on outcomes (a finding that complements those of Crouch and Slade on investments among learners at the bottom quintile—see their chapter in this volume).

There are many proximate causes of spending inefficiencies, and their relative importance differs for each country. The previous section highlighted how inequitable spending can lead to an inefficient use

3 The size of the effects is similar to those seen in health (Gallet & Doucouliagos, 2017).

of resources. For example, student-teacher ratios in some districts in Indonesia are sub-optimal, and redistributing teachers to districts where student-teacher ratios are very high would likely lead to an efficiency gain (see again Box 1 above). This is important to keep in mind, as improving the efficiency of public spending can also improve equity outcomes through a better distribution of existing resources. There are many sources of inefficiency in the education sector, and estimates of the costs of inefficiency are high. For example, estimates from India suggest that inefficiency may account for as much as 60 percent of public primary-school spending (Pritchett & Aiyar, 2014). In Indonesia, inefficiencies in teacher distribution were estimated to account for approximately 17 percent of the overall teacher wage bill (Chang et al., 2013). While the magnitude and type of inefficiencies will vary across countries, they result from a combination of two main factors: spending decisions that are not aligned with learning equity and outcomes, and the failure of allocated funds to reach schools and be used as they were intended.

Sub-optimal spending decisions

Overall levels of spending and the decisions on how funds are used are often not aligned with sector objectives. Despite most education-sector plans identifying learning as a key objective, few include it as a key performance indicator when making budget decisions. For example, in the Philippines, government strategies and spending documents state that the overarching mission of the Department for Education is to promote the right to quality, equitable, and culture-based basic education (Republic of the Philippines, 2016). Yet the key performance indicators that are part of the budget process for the department focus only on whether students enroll and complete schooling, with no specific indicators included for equity or learning outcomes. And even where equity and learning are key goals, the way governments are organized can often mean that responsibility for key tasks is split between different agencies, with no single agency accountable for the final outcome (World Bank, 2018).

Inefficiencies also arise from spending and policy decisions that fail to make the best use of resources. The internal efficiency of education systems in many low-income countries is low because of high rates of

repetition in the lower grades of primary school (Bashir et al., 2018). It is estimated that this repetition in the early grades costs between 5 and 10 percent of the overall education budget each year (Crouch et al., 2019). Addressing the "early-grade bulge" by expanding access to early childhood education or by introducing guidelines to ensure a better intra-school distribution of teachers and resources has the potential to improve efficiency and raise education outcomes using existing funding.

The evidence base for improving policy and decision-making on resource use has grown significantly over the last decade. For example, the number of evaluations of interventions aimed at improving learning outcomes in developing countries increased from 19 to 299 between 2000 and 2016 (World Bank, 2018). This growing evidence base can help policymakers choose the most appropriate interventions to improve learning. It can also help identify the most appropriate mix of inputs and actions required to ensure that resources are used effectively. For example, school funding may be used more effectively when the systems used to govern the use of these funds is also simultaneously strengthened. In Indonesia, a randomized control trial found that the provision of school grants alone did not have an effect on student achievement, but when grants were coupled with efforts to strengthen the link between schools and local village councils, learning outcomes improved (Pradhan et al., 2014). Other evidence suggests that coupling school-level funding with incentives for teachers to utilize these funds to improve student performance can also raise outcomes and improve efficiency (Mbiti et al., 2019).

Understanding the political economy of the education sector is critical in order to successfully apply insights from this evidence base to improve efficiency. Education systems are complex and involve many different actors (e.g., parents, teachers, children, private providers) with different interests that are not always aligned. This can often mean that introducing changes to an entire education system that have been shown to work in a small number of test schools is not so simple. For example, the Kenyan government recently tried to introduce teacher-related reforms that had been introduced successfully by an NGO in a small number of schools. However, scaling up the reforms failed because of a combination of implementation challenges and political economy issues (Bold et al., 2013; Duflo et al., 2015). Experiences like

this demonstrate that reforms that aim to improve spending efficiency must be both technically and politically feasible to be effective.

Redirection of education funds

Inefficiencies in education also arise because funds do not get to where they are supposed to go, or are not used for their intended purposes. When funds fail to reach schools or when funds are diverted or unused, the quality of education suffers. Surveys that track the flow of funds within the public financial management system have highlighted many of these issues. For example, in primary and secondary schools in the Philippines, 23 percent of budgeted operational funds were not received (World Bank, 2016). In some cases, schools receive resources, but do not distribute them in the way that central authorities intended. Inefficiencies in textbook distribution systems, for example, prevent many books from actually reaching children (Read, 2015). In Sierra Leone, even when textbooks were successfully distributed, school principals were reluctant to distribute them because they were unsure whether or when they would receive future deliveries (Sabarwal et al., 2014). In other cases, funds allocated to improve education services remain unused because of limited planning capacity and weaknesses in public procurement systems.

Inefficiencies also arise because funds are not available for maintenance, or because staff are unable to carry out their duties due to lack of complementary funding. Weaknesses in planning can result in situations where schools are built, but teachers are not recruited or maintenance funds are not provided, resulting in faster depreciation rates of key infrastructure, books, and other equipment (Read, 2015). Often complementary resources needed for other inputs to be effective are not available. In Bangladesh, district education officers found it challenging to carry out their school quality-assurance duties because travel allowances were not released (FMRP, 2005). These relatively small travel payments reduced the overall efficiency of the much larger salary payments of district education officers.

Spending inefficiencies of this kind can disproportionately affect poorer households and children. When budgets are tight or not released, it is often the poorer and more remote schools that suffer. In the example

of school operating expenses in the Philippines, per-student allocations for poorer schools are actually much larger than for schools serving wealthier students. However, schools that serve a greater proportion of poorer children receive a smaller proportion of their allocated funds, which results in similar levels of per-student funding for poor and wealthy students (Figure 8). This further reinforces the inequality in total education spending per student (Figure 8).

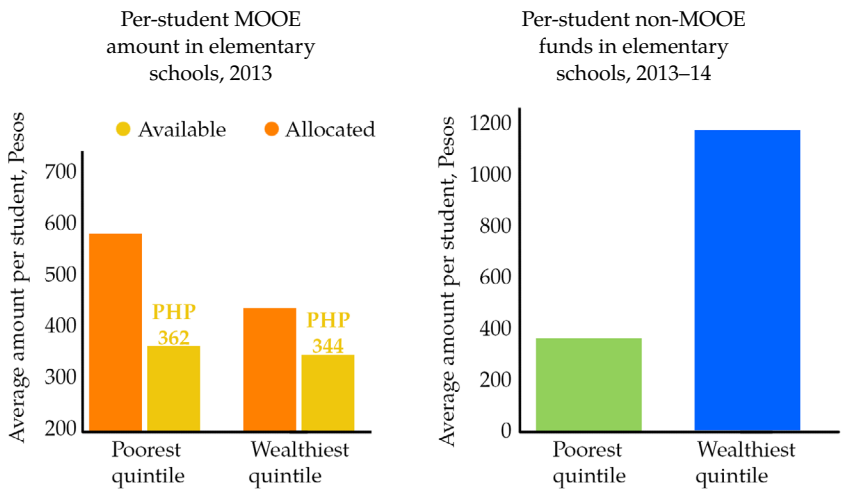

Fig. 8. Elementary school per-student funding by source, 2013 and 2013/14 school year. MOOE refers to maintenance and other operating expenses. Funds that schools receive do not reduce inequalities in overall school funding in the Philippines. Source: World Bank (2016).

Improving efficiency and equity

Tackling many of these identified inefficiencies requires strengthening public financial systems. However, the ability of government agencies to manage public funding is sometimes limited. For example, Public Expenditure and Financial Accountability (PEFA) assessments suggest that many low- and middle-income countries have low levels of capacity in key areas of service delivery (Figure 9). For example, only around a half of the 70 countries assessed had any kind of system in place to check that resources intended for schools, health clinics, and other service delivery units actually reached the frontline and were used as intended. More detailed capacity assessments in education also show that public

financial management systems have been slow to change, even when significant investment has been made to strengthen them (World Bank, 2013).There are many aspects to strengthening the way government systems plan, budget, and utilize funding, but the remaining part of this section focuses on three: (1) improving sector financial planning; (2) strengthening the links between spending and outcomes; and (3) procuring better data for monitoring and accountability.

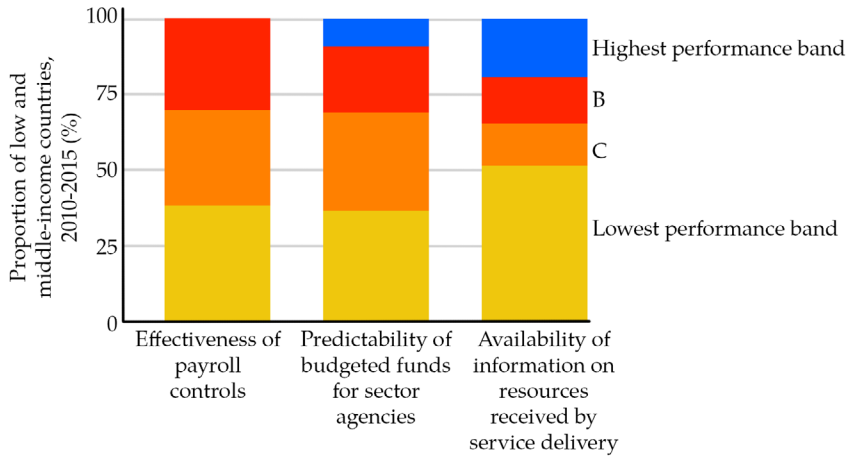

Fig. 9. Government planning and monitoring capacity for service delivery is weak. Proportion of low- and middle-income countries by Public Expenditure and Financial Accountability (PEFA) rating, 2010–2015. Source: Public Expenditure and Financial Accountability database. Notes: A four-point ordinal scale based on specific criteria for each dimension is used to score country performance.

The planning process in many developing countries is ineffective at matching sector needs, with a realistic assessment of the resources available over the medium-term. Aligning education goals with credible estimates of the resources available to the sector is challenging. Most developing countries undertake a five-year sector planning cycle, often supported through Global Partnership for Education (GPE) grants and technical assistance from local education groups. A partial review of recent sector plans shows that after two years of implementation, they have funding shortfalls of between 16 and 20 percent. A recent assessment of GPE support to the development of sector plans also reported significant weaknesses in the standards associated with plan

implementation, financial sustainability, feasibility, and monitorability (Universalia, 2019).

Projections of resource availability often lie at the heart of these shortfalls, with plans including overambitious forecasts of economic growth, government revenue collection, and the priority that education will receive in annual budget negotiations. Unrealistic resource mobilization projections can result in major challenges for key government education policies. These shortfalls can leave important policies underfunded, and reduce the accountability for the ways funds are used to support learning. In Tanzania, for example, public education spending has stagnated since 2016, despite large projected increases aimed at supporting the fee-free basic education policy. As a result of the policy, significant increases in enrollment have occurred, but without additional funding, class sizes have increased, and the quality of education has deteriorated. Credible financing strategies are needed in many countries to better inform the sector planning process, align funding more clearly towards learning goals, and ensure that resources are used equitably and efficiently. These strategies need to assess macroeconomic conditions and overall fiscal space in order to accurately estimate resource availability from all sources (domestic, household, and external) over the medium- and long-term, as well as develop monitorable indicators for resource mobilization, spending equity, and efficiency.

A key element of better planning is strengthening the link between public spending and outcomes. In some cases, performance-based funding mechanisms can be used to drive better spending efficiency (Lee & Medina, 2019). For example, evidence in Zambia shows that the introduction of incentives to improve the efficiency of the book supply chain has resulted in more books getting to schools on time (Hong et al., 2020). In other cases, performance-based transfers to local governments and schools have led to improvements in outcomes and better use of public funds (Al-Samarrai et al., 2018; Loureiro et al., 2021). In other cases, shifting the focus of planning and budgeting processes towards intermediate- and higher-level outcomes can also go some way to improving the effectiveness of public education spending. For example, in Colombia, a new information system that can assess different quality dimensions has been developed to ensure that resources are targeted more effectively to schools (Cerdan-Infantes & Zavala Garcia, 2019).

Publicly available information on government budgets, allocations, and utilization of funding in the education sector is often quite limited. In 2016, only half of all countries reported basic information on public education spending to the UNESCO Institute of Statistics. At the country level, it is difficult for schools, parents, and students to assess whether they are receiving the levels of funding that they are entitled to, and in many cases they have little information on how effectively funds are being used. At the global level, efforts to monitor overall levels of government spending and aid have existed for some time, but there has been far less attention on monitoring country-level funding commitments and improving spending efficiency and equity. For example, only one in six countries has an annual education-monitoring report, and even fewer examine education funding (UNESCO, 2019). Improving the transparency of education spending has the potential to strengthen accountability mechanisms as well as help to evaluate whether scarce resources are being used efficiently and equitably.

Conclusion

In many low-income countries, improving education at the bottom of the pyramid will require mobilizing more resources. This chapter has shown that many countries need to spend significantly more on education if they are to provide good-quality education opportunities for all children. The ability to mobilize more resources and the speed at which it can be done differs across countries. The COVID-19 pandemic will undoubtedly make it much harder for many countries to mobilize the required resources. This makes it even more important to ensure that funding is used effectively and is reaching the poorest and most marginalized children. This chapter has shown that there are many areas of education spending that are inequitable and inefficient, but that a growing evidence base points to ways that these problems can be addressed. Using these experiences to generate context-specific approaches that address the twin challenges of mobilizing more funding and using it more effectively will be critical for improving education at the bottom of the pyramid.

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