



TECHNICAL

NOTES & MANUALS

IMF Engagement on Education Spending in Surveillance and Program Work

Mauricio Soto, Geremia Palomba, Fernanda Brollo, Nick Carroll, Zsuzsa Munkacsi,
Alberto Tumino, Tohid Atashbar, Baoping Shang, and Dawit Tessema

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Executive Summary

Engagement on education spending supports the delivery of the IMF's macroeconomic mandate. Education is a key determinant of economic growth and development and plays a fundamental role in reducing inequalities. Public intervention in education is widespread and is generally justified on both efficiency and equity grounds. Large gaps exist across countries in both education access and learning outcomes. Low-income developing countries, in particular, face significant challenges in expanding education spending to make substantive progress along the Sustainable Development Goals.

Following the IMF's 2019 social spending strategy, this note guides IMF staff on how to engage on education spending issues in surveillance and program contexts (IMF 2019). The engagement is guided by an assessment of macrocriticality, which can arise through three channels: spending adequacy, spending efficiency, and fiscal sustainability. Spending adequacy refers to the capacity to provide quality education services consistent with a country's education and growth objectives. Spending efficiency refers to the ability to meet national educational objectives in a cost-effective way and with maximum impact on inclusive growth (for example, on labor supply and productivity). Fiscal sustainability refers to a country's ability to finance education sustainably without undermining public debt sustainability or crowding out other priority spending. This note aims to guide IMF staff on how to assess these channels.

The extent and purpose of engagement on macrocritical education spending issues may vary across countries and programs. In *surveillance contexts*, focus on macrocritical education spending is warranted if such issues affect or have the potential to affect domestic or external stability. In *program settings*, engagement on macrocritical education issues may arise when such issues are critical to achieve program objectives or to monitor program implementation.

When engaging on macrocritical education spending issues, it is important to collaborate with development partners. Bearing in mind the limited role and expertise of the IMF in education spending issues, the starting point for IMF staff should be to leverage development partners' extensive knowledge and resources in this area.

I. Introduction

This note focuses on IMF engagement on education spending issues. In 2019, the IMF Board approved “A Strategy for IMF Engagement on Social Spending” (IMF 2019) and supported the systematic incorporation of social spending issues, including education spending, into the IMF’s analytical, surveillance, and program activities.¹

Education spending can have positive effects on economic growth and development and help reduce inequalities.² For individuals, education can increase labor productivity and earnings, enhance the adaptability to shocks, and lower the risks of unemployment. At an aggregate level, education widens the set of available skills and facilitates innovation and technological diffusion (Hanushek and Woessmann 2021; Valero 2021; OECD 2022a). Good-quality education can, through its individual and society-wide effects, boost human capital and reduce poverty and intergenerational disadvantages (Heckman, Humphries, and Veramendi 2018; Hofmarcher 2021).

Following the IMF’s 2019 social spending strategy, IMF staff engagement on education spending issues is guided by an assessment of macrocriticality. Education spending issues can become macrocritical through a combination of three, often interrelated, channels:

- *Spending adequacy* refers to whether education spending is sufficient to provide people with quality education services consistent with a country’s education and macroeconomic objectives.
- *Spending efficiency* refers to the ability to meet national education objectives in a cost-effective way and with maximum impact on inclusive growth (for example, on labor supply and productivity).
- *Fiscal sustainability* refers to the countries’ ability to finance education sustainably without undermining public debt sustainability or crowding out other priority spending.

IMF staff engagement on education spending issues can benefit from leveraging external resources with specialized sectoral knowledge. Education is influenced by a host of social, cultural, and political factors unique to each country that affect its macroeconomic impact. Because of the specific expertise required, for example, to link inputs and outcomes, IMF staff engagement on economic and fiscal policies related to education would benefit from collaborating with other institutions with specialized knowledge, including the Global Partnership for Education, World Bank, International Labour Organization (ILO), UNESCO, and UNICEF.

This paper aims to further IMF staff’s understanding of education spending issues in the context of the IMF’s work. This paper outlines key objectives and features of education systems (Section II), provides guidance on assessing the macrocriticality of education spending (Section III), and discusses how to include education spending issues in country work (Section IV). Annex 1 provides a list of resources available to IMF staff.

¹ For more details on surveillance and program work, see IMF (2022, 2024).

² The focus of this note is spending in education services. Education spending also includes research, which is only a small share of education spending and is beyond the scope of this note.

II. Objectives and Features

- *This section discusses the economic importance of education spending and reviews the levels of education spending across countries.*

Education is a key determinant of economic growth and development, plays a fundamental role in reducing inequalities, and generally involves significant public spending. Education supports the formation of human capital, a key determinant of economic growth, because it increases labor productivity and facilitates innovation and technological diffusion (Annex 2; see Lucas 1988; Romer 1990; Mankiw, Romer, and Weil 1992; Hanushek 2013; Acemoglu, Gallego, and Robinson 2014; Jones 2016; Biasi and Ma 2022; OECD 2022b). Inclusive access to education can support more equal health, employment, and other social outcomes, and reduce inequalities across genders, which in turn can reinforce improvements in educational outcomes (World Bank 2018). Consistent with this importance, countries typically spend between 5 and 7 percent of GDP on education services (public and private) (Figure 1).

Education is critical to providing individuals with the needed abilities to meet skill requirements in the labor market. Education and training initiatives can allow workforces to adapt to technological innovation, as well as increasing connectivity, globalization, and demographic changes. For example, the transition to a low-carbon economy and the systemic use of artificial intelligence in workplaces might require transformations that affect the demand for skills (UNESCO 2016b).

Governments play a key role in the funding, provision, and regulation of education services. Public intervention in education can be justified on efficiency (that is, education has positive externalities for society as a whole) and equity grounds (that is, private markets might underserve children from low-income households). Efficiency arguments focus on (1) externalities, as education often benefits society as a whole—beyond the benefits accruing to individuals—because an educated workforce can be a key driver of economic growth and innovation and (2) market imperfections, for example, liquidity-constrained households may not be able to finance high-return investments in education. The equity perspective emphasizes the importance of equal educational opportunities for all. In private education markets, children from lower-income households might receive less education, which can translate into gaps in lifetime disparities. Governments typically deliver educational services through public schools, subsidies to private education institutions, and transfers to households to finance education. Governments also supervise private education providers. Public spending on education amounts to 5.0 percent of GDP on average in advanced economies (AEs), 4.5 percent in emerging market economies (EMEs), and 4.2 percent in low-income developing countries (LIDCs). About three-quarters of public education spending is on primary and secondary education (Figure 2).

Households contribute to funding education, especially in LIDCs. About 40 percent of education spending in LIDCs is private, and this share varies substantially, from 10 percent in São Tomé and Príncipe to 80 percent in Mauritania. Direct household expenses can include school fees, uniforms, textbooks, and other learning materials. Indirect costs include foregone household earnings for secondary and tertiary schooling.³ Private expenditure can complement government expenditure (World Bank 2018; Naurin and Pourpourides 2023; World Bank and UNESCO 2023).

³ Social safety nets are associated with greater expenditures on education (Alderman and Yemtsov 2013), but the effect on learning outcomes is mixed (Beegle, Coudouel, and Monsalve 2018).

Figure 1. Education Spending by Source
(Latest available year)

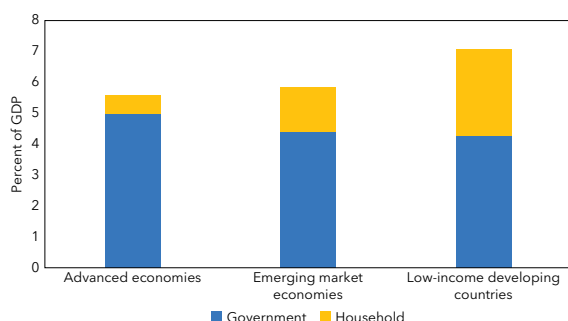
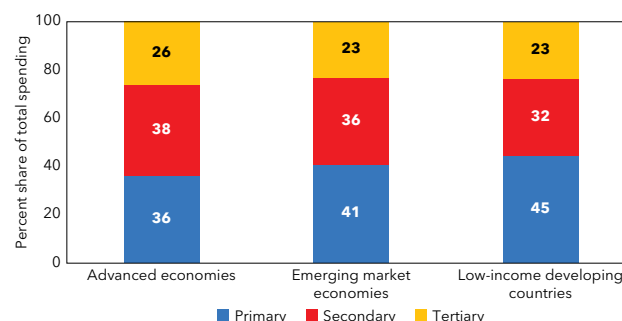


Figure 2. Share of Government Education Spending by Level
(Latest available year)

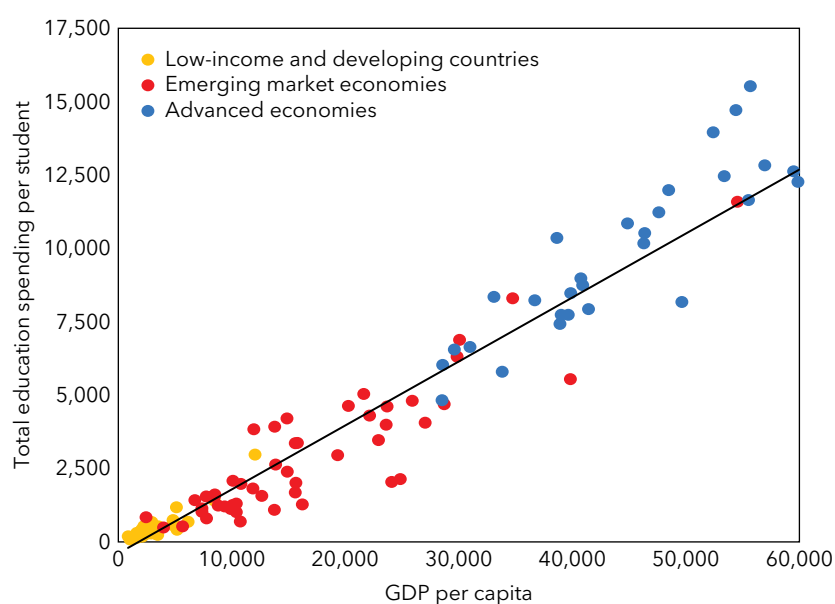


Source: IMF staff calculations using World Bank and UNESCO Education Finance Watch data.

Note: Primary includes preprimary spending; secondary includes postsecondary nontertiary education.

Disparities in spending per student across countries are largely explained by income levels. Expressed in purchasing-parity dollars, annual total education spending per student ranges from about \$12,500 in AEs to under \$1,000 in LIDCs. These disparities largely reflect differences in GDP per capita, because spending per student is about 25 percent of GDP per capita across countries at different income levels (Figure 3). There are also sizable differences in spending per student across education levels *within* countries—spending per student in tertiary education is about eight times that in primary and secondary education in LIDCs, three times in emerging markets, and two times in AEs.⁴

Figure 3. Total Education Spending per Student and GDP per Capita
(Latest available data)



Source: IMF staff calculations using World Bank Education Statistics and World Economic Outlook data.

⁴ The gaps across education levels are partly explained by differences in salaries across education levels (OECD 2019).

III. Assessing the Macrocriticality of Education Spending

- *This section assesses how education spending can be evaluated through the three channels of macrocriticality: spending adequacy, efficiency, and fiscal sustainability. Macrocriticality of education spending can arise from any one or a combination of these channels.*

Evaluating the macrocriticality of education spending requires an integrated assessment of spending adequacy, spending efficiency, and fiscal sustainability. The connections across these three different channels can be critical when examining policy options. For example, in emerging market economies and low-income developing countries, there might be a trade-off between enhancing spending adequacy and efficiency (better coverage and outcomes, which often require additional human resources and infrastructure) and safeguarding medium-term fiscal sustainability, especially in countries where a large share of the population comprises children and young adults. The trade-off could be less binding in the long term if the potential economic growth associated with education were to materialize (Annex 2).

A. Spending Adequacy

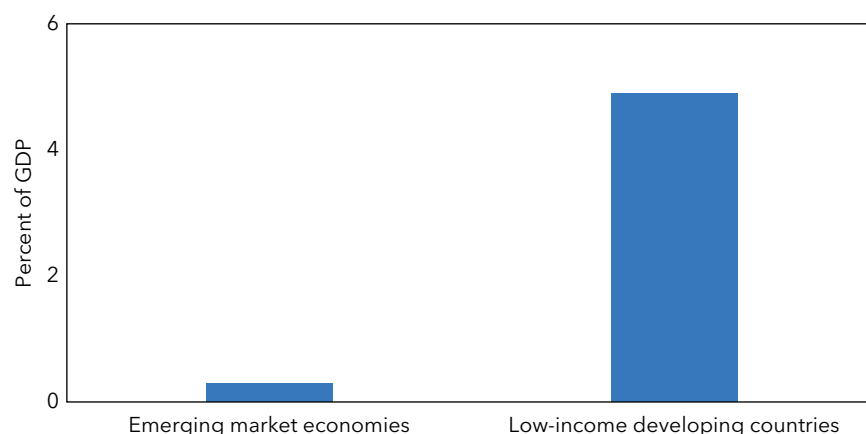
Spending adequacy refers to whether total education spending is sufficient to achieve a country's education and developmental policy objectives. SDG4 of the 2030 Agenda for Sustainable Development provides a general benchmark focused on education and aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all."⁵ Authorities' specific objectives in terms of access to and quality of different education services vary across countries depending on a wide range of economic, historical, political, and social factors. Where relevant, assessments might focus on various levels of education, from preprimary to tertiary, as well as vocational education (ILO 2023).

An assessment of spending adequacy should account for resources available for education in relation to peers. The level of education spending to GDP and education spending per student could be the starting point of the assessment, taking into account country characteristics such as the level of development, the size of student-aged population, and the public-private allocations of spending (see discussion in the previous paragraphs).⁶ Spending gaps between countries and their high-performing peer countries in the education sustainable development goal (SDG) can be used to assess spending adequacy. Based on this approach, Carapella and others (2023) estimate that the additional education spending needed to make substantial progress along the education SDG is about 0.3 percentage points of GDP for EMEs and 4.9 percentage points of GDP for LIDCs, annually by 2030 (Figure 4). The relatively high additional spending for LIDCs largely reflects their large share of student-aged population (28). Alternative measures of adequacy

⁵ SDG4 is made up of seven outcome targets and three implementation targets. Outcome targets are universal primary and secondary education, early childhood development and universal preprimary education, equal access to technical/vocational and higher education, relevant skills for decent work, gender equality and inclusion, universal youth literacy, and education for sustainable development and global citizenship. The three means of implementation are effective learning environments, scholarships, and teachers and educators.

⁶ Government education spending should be measured in a comprehensive way. Nonetheless, there might be limitations, for example, in some cases, the UNESCO's government expenditure on education data may refer to spending by the ministry of education only (<https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>).

Figure 4. Additional Spending Needs to Meet the Education SDG
(Percent of 2030 GDP)



Source: IMF staff calculations based on Carapella and others (2023).

Note: Estimates are based on GDP-weighted averages; unweighted averages would be 1.1 percent of GDP for emerging market economies and 5.3 for low-income developing countries. Advanced economies are not included because on average (weighted and unweighted), their spending is deemed adequate to meet the education SDG.

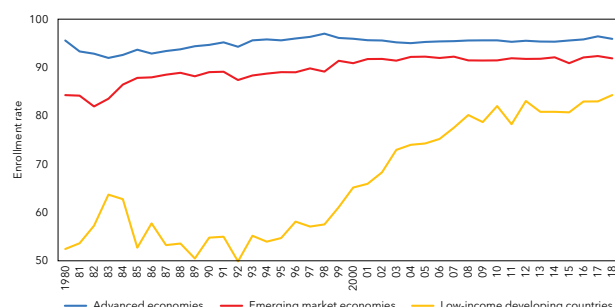
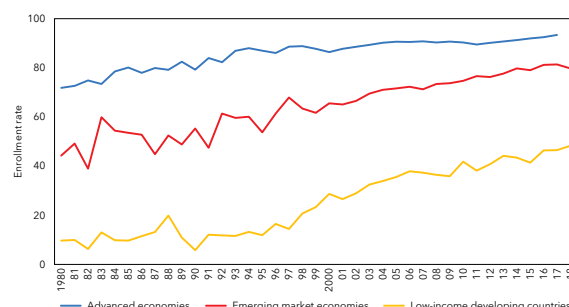
provide a range of spending for quality education. For example, the *Education 2030 Framework for Action* (UNESCO 2016a) sets 4–6 percent of GDP and 15–20 percent of public expenditure as useful reference points for adequate levels of education spending.

The share of household spending in total education spending can be a marker for adequacy. Household education spending can represent a significant burden for poorer households, often restricting access to education for children from disadvantaged socioeconomic backgrounds. Higher reliance on household financing of education can also increase the volatility of education outcomes because the higher marginal propensity to consume poor households could cause budget reallocations in the event of negative economic shocks (World Bank and UNESCO 2023).

Education enrollment data provide an indication of the extent of education services delivered to the population. Enrollment rates—the number of students as a share of the population by level of education for each corresponding age group—are useful for tracking progress in access to education. Enrollment rates have increased at all levels in most countries, with strong expansions in primary education enrollment in LIDCs from 1995 to 2010 (Figures 5–7). Globally, about 90 percent of school-age children were enrolled in primary education. Nevertheless, significant enrollment gaps exist in emerging market economies and low-income developing countries, particularly for secondary and tertiary education.

Education quality indicators can help assess spending adequacy. Improving education quality is at least as important as improving education access (Hanushek 2020b; Hanushek and Woessmann 2022). Performance on standardized international tests such as Program for International Student Assessment (PISA) or Trends in International Mathematics and Science Study (TIMSS) provides useful information on education quality.⁷ In

⁷ These scores are based on standard international test score units (typically measured at about 15 years of age), as measured by the OECD's PISA assessment and the TIMSS. A score of 350 shows low proficiency; 500, average proficiency; and 650, high proficiency.

Figure 5. Net Enrollment Rate, Primary**Figure 6. Net Enrollment Rate, Secondary**

Source: IMF staff calculations using World Bank Education Statistics.

Note: Net enrollment rate is defined as the ratio of children of official school age who are enrolled in school to the population of the corresponding official school age.

addition, other measures can help assess proficiency, such as the ability of children by age 10 to read with a minimum level of comprehension (“learning poverty”).⁸

- *As measured by PISA scores, education performance has been declining since 2012 in many countries.* The 2022 PISA assessment shows a significant gap in performance, with students from AEs outperforming students from developing countries (Figure 7). Compared with 2012, average PISA scores were lower in 2022 in advanced economies and emerging market economies (Figure 8). Among the AEs, particularly large declines in average scores were observed in Cyprus, Finland, Iceland, and the Netherlands. Thailand and Jordan suffered the largest drops in average scores among EMEs. Test scores declined particularly in the past four years, partly reflecting disruptions from COVID-19.⁹ Other factors in play include the increasing use of mobile phones and other technological devices, which might impede learning if used in excess (Annuziata 2023; OECD 2023), and teacher shortages and concerns about teaching quality (Almeida, Avitabile, and Shmis 2023).
- *In a broader set of countries, “learning poverty” seems to be increasing.* In 2019, 57 percent of all children in developing countries could not read with comprehension by age 10. After COVID-19, learning poverty in developing countries increased to an estimated 70 percent in 2022 (World Bank and other institutions 2022; Figures 9 and 10).¹⁰ The proportion of children achieving a minimum proficiency level in mathematics is also low in numerous countries. By the end of primary education, only about 14 percent of students in low-income countries will have acquired basic mathematical skills, against 37 percent and 61 percent in lower- and upper-middle-income countries, and nearly 100 percent in high-income countries (World Bank 2018).

⁸ The learning poverty metric focuses on the ability to read by age 10 with at least a minimum level of comprehension, that is, it is defined as the percentage of 10-year-old children who cannot read and understand a short passage of age-appropriate material (Azevedo and others 2021).

⁹ Although indicators of quality are declining in many countries, some increases have been observed in several Middle Eastern and North African countries (from a low base) and in several high-performing East Asian countries (Angrist and others 2021).

¹⁰ Overall, analyses point to significant learning losses caused by school closures related to COVID-19 (Betthäuser and others 2023; Jakubowski, Gajderowicz, and Patrinos 2023, 2024; Dela Cruz and Barcelona 2024). At the same time, OECD (2023) finds no effect.

Figure 7. PISA Scores, 2022
(Average across subjects)

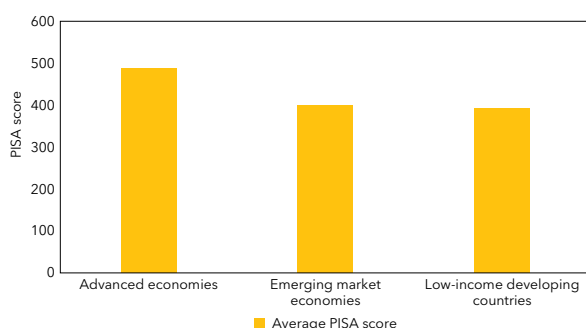


Figure 8. PISA Scores, Trend

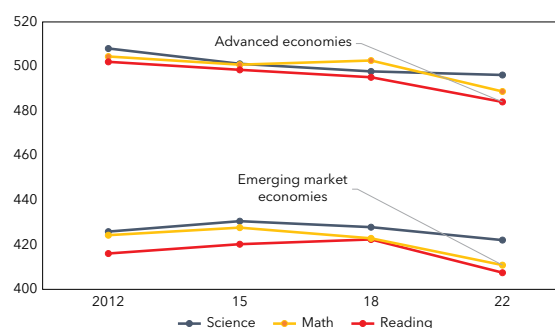


Figure 9. Learning Poverty Rates, 2022
(Percent)

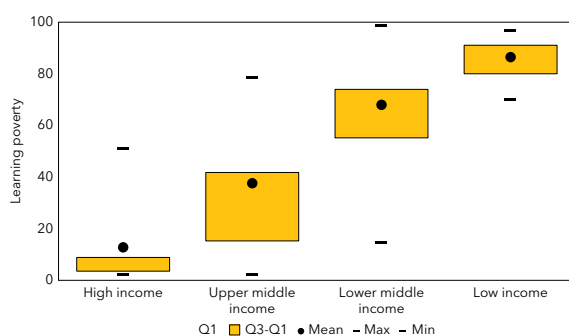
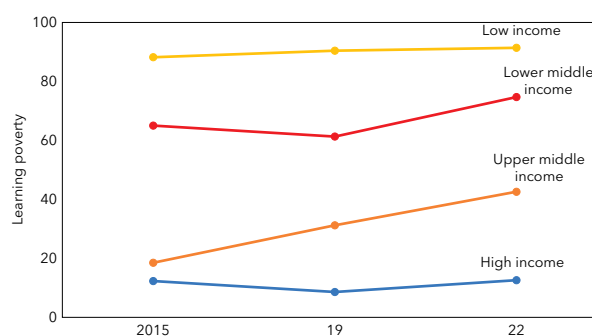


Figure 10. Learning Poverty, 2015-22
(Percent)



Sources: World Bank and others (2022); and IMF staff calculations using Organisation for Economic Co-operation and Development PISA scores.

Note: Robust PISA test scores are based on 57 countries continuously present in PISA assessments between 2012 and 2022. Advanced economies, emerging market economies, and low-income developing countries follow IMF classification, whereas the country groupings in Figures 9 and 10 come from the World Bank.

Educational outcomes are affected by a complex interplay of factors. Although traditional inputs like spending levels, school infrastructure, and the number of teachers have an effect, family background and teaching quality are pivotal for learning outcomes (Hanushek 2016a). Teachers play a key role in driving learning outcomes, with teachers' quality affecting both students' achievements and lifetime earnings (Chetty, Friedman, and Rockoff 2014a, 2014b; Card, Domnisoru, and Taylor 2018; Chetty and Hendren 2018).¹¹ Moreover, the use of technology in education can further enhance learning (Amaglobeli and others 2023). Broad shocks can affect educational outcomes by their effect on school infrastructure (that is, climate events) or household choices regarding education (that is, economic shocks) (UK Foreign, Commonwealth and Development Office 2022).

¹¹ Effective strategies to boost teaching quality involve attention to teacher recruitment, curriculum development, professional growth, and robust leadership and governance within the education sector (Hanushek and Rivkin 2004).

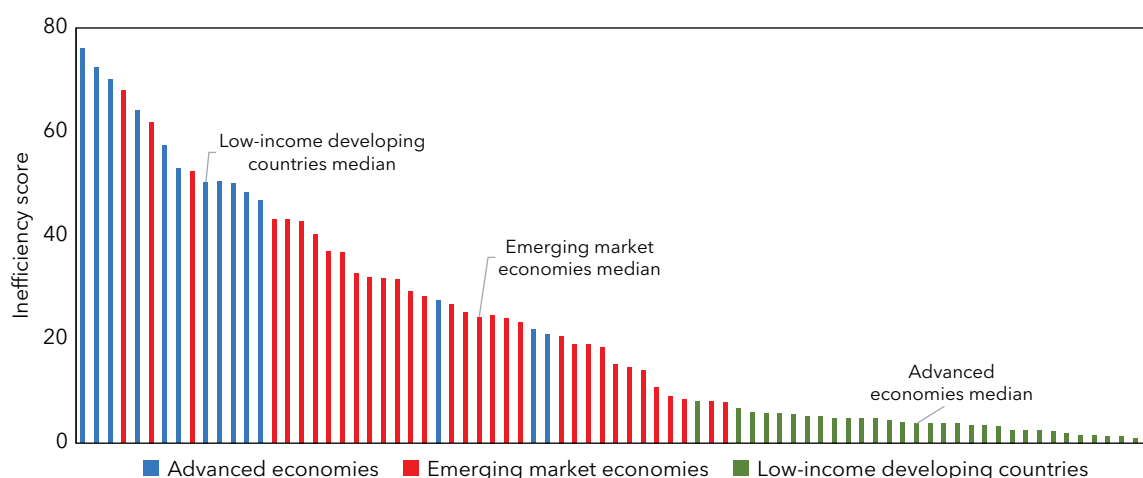
B. Spending Efficiency

Spending efficiency refers to the ability to meet national education objectives in a cost-effective way. The efficiency of education spending refers to the relationship between the level and composition of inputs (spending on teaching staff, other current spending, infrastructure), outputs (enrollment), and outcomes (learning). Spending efficiency also needs to account for the distribution of resources across different groups to achieve equitable access to quality learning opportunities, particularly as an investment in disadvantaged children may have higher rates of return (Cunha and Heckman 2007).

Countries differ on how education spending translates into schooling and learning. For a given level of education spending, there is a large variation in education outcomes, potentially reflecting differences in education spending efficiency. Comparing the education outputs countries could achieve using inputs in the most efficient way versus the observed outcomes suggests that inefficiencies reduce education outcomes by 4 percent in AEs, 30 percent in EMEs, and 50 percent in LIDCs (Figure 11; IMF 2021). Various factors can affect the interaction between education inputs and outcomes (¶17; Hanushek 2020a), and efficiency analyses require specialized knowledge that goes beyond the scope of this paper.

The composition of education spending can affect efficiency. Spending on wages for teaching staff typically accounts for most education spending (Figure 12).¹² An important consideration for efficiency is whether to raise teachers' salaries or increase the number of teachers for a given spending envelope. Although the evidence on the link between teacher wages and teachers' quality is mixed (Hanushek and Rivkin 2007; Bau

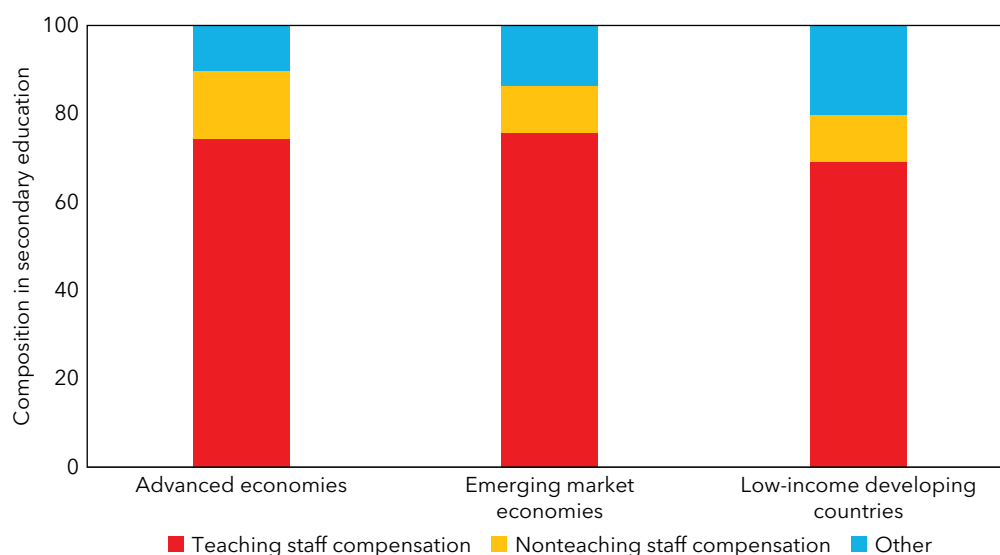
Figure 11. Government Education Spending Inefficiency Score



Source: IMF (2021).

Note: The inefficiency score measures the increase in output that a country could achieve, keeping inputs constant, if it reached the efficiency frontier. The calculations account for two outputs, harmonized test scores (Patrinos and Angrist 2018) and net secondary education enrollment rates (World Bank).

¹² There is variation within each economic group. For instance, according to World Development Indicators, the share of spending on compensation in secondary education ranges from 19 percent in Bangladesh to 62 percent in Afghanistan; in advanced economies, it varies from 45 percent for Finland to 82 percent for Israel.

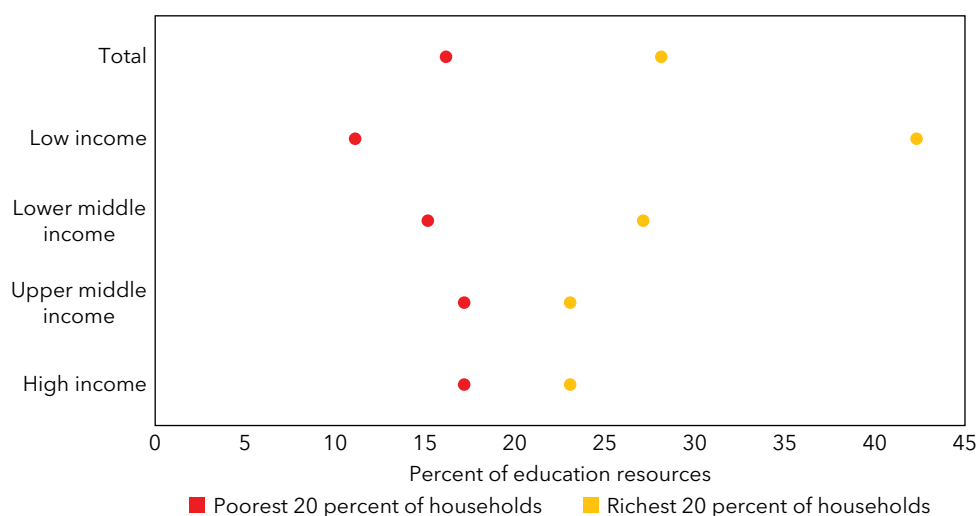
Figure 12. Staff Compensation Spending in Secondary Education*(Public education, latest available year)*

Source: World Bank Education Statistics.

and Das 2020), top-performing Organisation for Economic Co-operation and Development countries tend to prioritize teacher quality and pay competitive salaries (Akiba and others 2012). In many LIDCs, however, raising the number of qualified teachers in primary and secondary education remains a priority to address shortages (UNESCO 2022). Investments in infrastructure, instructional materials, and transportation are needed to get the benefits of investing in teaching (Teixeira, Amoroso, and Gresham 2017). Continuing professional development of teachers, improving living and working conditions of teachers, and helping vulnerable students with transportation and equipment can also help secure better education outcomes.

Targeting resources to disadvantaged students and allocating more resources to basic education can help increase both equity and spending efficiency. The distribution of public education spending can be highly unequal depending on access to education across income groups. Inequalities tend to be higher in poorer countries, where differences in enrollment rates by income quintile tend to be most pronounced, with low access at low-income levels. On average, in low-income countries, households in the poorest quintile receive only 11 percent of public education funding, whereas households in the richest quintile receive about 42 percent (UNICEF 2023) (Figure 13). In high-income countries, households in the poorest quintile receive 17 percent of public education funding, whereas households in the richest quintile receive 23 percent. Inequalities in education embrace dimensions other than income, such as gender (UNICEF 2022) and rural/urban settings (UNICEF 2018; UNESCO 2020). Addressing these inequalities can help increase spending efficiency. Countries can also increase the efficiency and equity of education spending by allocating resources to early childhood education and basic education.¹³ Evidence suggests that the public returns to education spending, particularly for the disadvantaged, are higher at early childhood education and younger age groups than at higher levels (Cunha and Heckman 2007).

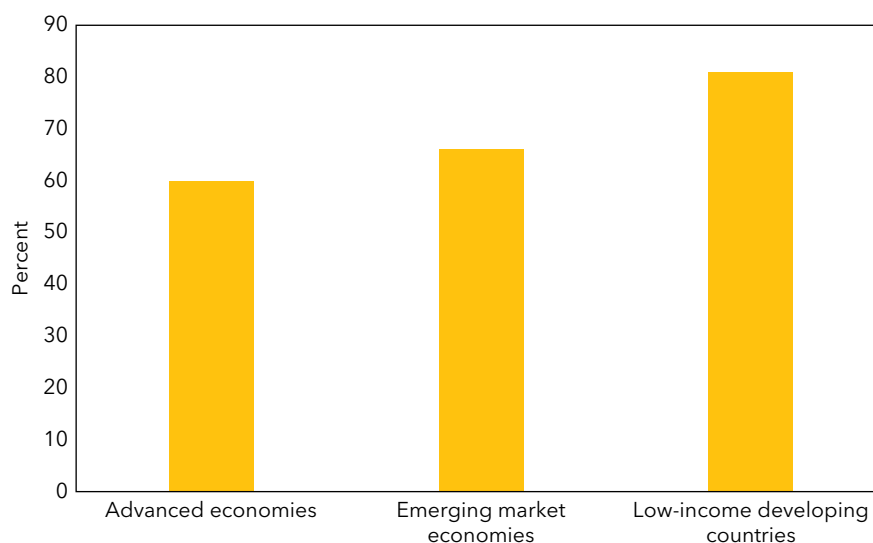
¹³ Early childhood education refers to the teaching and care of children before they reach the age of attending school (the particular age varies by country).

Figure 13. Distribution of Public Education Funding

Source: UNICEF (2023).

Note: Data are across all education levels. UNICEF (2023) is based on certain assumptions that do not exclusively represent students in public institutions.

Local governments often play a key role in education spending, which can influence equity and efficiency. In many countries, government education spending is highly decentralized, reflecting preferences to be responsive to local demands. On average, about 35–40 percent of government spending takes place at the subnational government level in AEs and 26 percent in LIDCs (Figure 14). Reliance on subnational governments can bring challenges to equity (wealthier areas might devote more resources) and accountability (some local governments might depend on central fiscal transfers), and can sometimes worsen the efficiency of public services (Sow and Razafimahefa 2015). The empirical evidence is mixed, with findings indicating a

Figure 14. Share of Central Government Education Spending out of Total Government Spending

Source: IMF staff calculations using IMF government statistics.

positive effect of education decentralization in cases such as Argentina and Colombia, but not in others, for example, Bolivia (Channa and Faguet 2016).¹⁴

Digital tools are becoming essential to support spending efficiency in modern schools. Empirical evidence shows that digitalization can improve education outcomes (Kumar, Amaglobeli, and Moszoro 2023). Moreover, blended learning and online tutoring showed promise in raising educational outcomes in a cost-effective way during COVID-19 (Carlana and La Ferrara 2024). However, the internet may also serve as a distraction and a source of misinformation, which can impede learning or have negative consequences on mental health (Lazer and others 2018; Malamud and others 2019; Braghieri, Levy, and Makarin 2022). Training teachers is essential to enhance the effects of the internet on students' learning (Benalcázar and others 2021).

Other factors can contribute to enhancing efficiency. Spending inefficiencies can result from suboptimal spending decisions, limited monitoring, evaluation and accountability, and the diversion of public education funds for other uses. Some factors relate to country characteristics; for example, it is generally more efficient to provide education services in densely populated and more urbanized countries. Reducing dropout rates and repetition could also contribute to lower spending inefficiency (World Bank 2023). High performance in education often involves consistent adequate resourcing with a strong focus on educational system design and teaching (Box 1).

BOX 1. Increasing Enrollment and Improving Learning Outcomes

Kenya (<https://documents1.worldbank.org/curated/en/099430006062288934/pdf/P17496106873620ce0a9f1073727d1c7d56.pdf>) has made impressive gains in enrollment and learning outcomes. The World Bank highlights the following critical priorities: (1) adequate resources to achieve sector objectives and implement ambitious reforms; (2) allocating resources more equitably, particularly development spending, teachers, and school capitation grants; and (3) using resources efficiently by exploiting data in management, particularly at the local level, as well as reducing fragmented management of the sector.

Vietnam (<https://openknowledge.worldbank.org/server/api/core/bitstreams/28cb377b-08f3-55fd-a804-a0ff51679b79/content>) outperforms Organisation for Economic Co-operation and Development countries on harmonized testing. Some keys to success beyond cultural aspects include: (1) prioritizing investment in primary and basic literacy education, (2) policies to attract and support qualified teachers through incentives and continuous professional development, (3) public spending on preschool enabled the government to achieve universal preschool education for five-year-old children, and (4) benchmarked its student assessment system against international good practices and used assessment results to improve the system.

C. Fiscal Sustainability

Public spending on education is sustainable if it can be financed without undermining government debt sustainability or crowding out other high-priority spending. Assessing sustainability requires a comprehensive review of current and planned education spending to ensure alignment with a medium-term fiscal framework and overall fiscal constraints. A medium-term budget framework can help define affordable

¹⁴ Nakatani, Zhang, and Valdes (2022) find that decentralization of education expenditure to local governments improves educational outcomes only when countries have stronger government effectiveness and better control of corruption.

education levels, identifying education funding sources and possible financing challenges and addressing trade-offs across spending priorities.

Analyses of the sustainability of education spending should consider spending levels and trends, and the potential impact of policy reforms. LIDCs have significant development challenges that require higher and sustained public spending on physical and human capital investment in a range of areas, which are crucial for promoting inclusive growth and long-term poverty reduction. Certain types of spending may be more prone to rapid cost growth than other components, for example, the wage bill and tertiary education. Educational infrastructure spending may be needed to foster learning environments and for addressing climate change (Aggarwal and others 2024).

Assessing sustainability should account for available resources and fiscal space. In the past two decades, LIDCs increased public education spending by 0.6 percentage points of GDP on average. Despite still significant spending gaps to reach the SDG, public spending on education in these countries already accounts for 16.7 percent of primary spending, a larger share than both EMEs and AEs (Figures 15 and 16). As emphasized by the Addis Ababa Action Agenda (see https://sustainabledevelopment.un.org/content/documents/2051AAAA_Outcome.pdf), adequate domestic revenue mobilization is paramount.

Demographics can have important implications for assessing the sustainability of education spending. For example, education spending pressures are expected to be high in LIDCs, where over half of the population is of school age (Figure 17). Such pressures are expected to be persistent because the share of the population under 21 is projected to remain above 40 percent by 2050. In theory, the reduction in student-cohort size from an aging population, for example, in some AEs, might lead to lower education spending or higher spending per student (Luethi and Zumbuehl 2022).¹⁵ The experience from AEs might be illustrative of the potential outcomes going forward. For example, in Italy, the share of the population aged 19 and younger declined from 30.6 percent in 1980 to 17.8 percent in 2020, whereas education spending remained relatively stable at 4.2–4.4 percent of GDP, after peaking at 4.7 percent in the early

Figure 15. Government Education Spending as Share of GDP, 2000–21

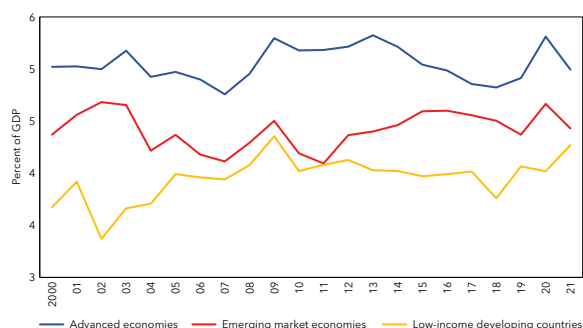
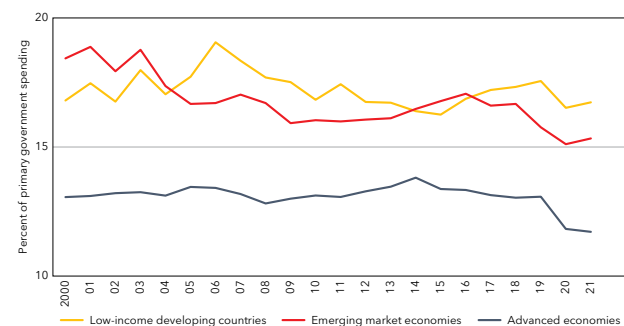
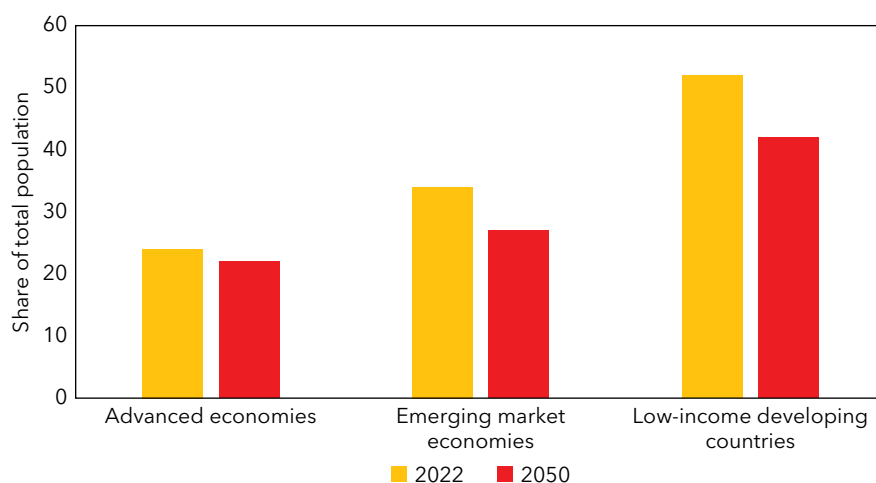


Figure 16. Government Education Spending as Share of Primary Government Spending, 2000–21



Source: IMF staff calculations using World Development Indicators and World Economic Outlook 2023 data.

¹⁵ For example, projections for education spending in the European Union suggest a potential decline by 0.5 percentage points of GDP between 2022 and 2070, in a no-policy change scenario (European Commission 2024).

Figure 17. Share of Student-Aged Population, 2022 vs. 2050

Source: IMF staff calculations using UN Population Prospects.

1990s. These outcomes depend on political choices, with mixed evidence on the effects of population aging on public education spending.¹⁶

Stable, sustained, and predictable financing is critical for education. Enabling education is one key function of modern states. Given its essence, links with inclusive growth, and reliance on current spending to deliver services, domestic revenues are critical to ensure the financing of education services. In some countries, donor financing can also be an important lifeline. Official development assistance accounts for up to 30 percent of education spending in the least developed countries (UNICEF 2023; World Bank and UNESCO 2023), below the 50 percent that was encouraged by the Addis Ababa Action Agenda (UNICEF 2023). Nevertheless, donor financing for education might require careful management as it can be volatile—official development assistance declined by 7 percent in real terms between 2020 and 2021, after increasing by 15 percent over the previous five years (World Bank and UNESCO 2023).

¹⁶ Although older voters might have less interest in education spending (Cattaneo and Wolter 2009), future pensioners might have an interest in a highly educated future generation, in anticipation of an increased return on their savings (Gradstein and Kaganovich 2004).

IV. Incorporating Education Spending Issues into Country Work

A. General Considerations

Fund engagement on issues related to education spending has typically been less frequent than on other social spending areas. In general, such engagement has focused on the role of education spending in supporting inclusive growth and long-term productivity, thus, focusing on trends in public education spending (South Africa 2023 SIP, South Sudan 2023 SMP, Sierra Leone 2022 SIP, and Annex AIV), efficiency of such spending (Hungary 2015 SIP, Malawi 2018 SIP, Côte d'Ivoire 2021 SIP, and Guinea 2021 AIV), and macroeconomic gains from closing education gaps, including the gender gap (Senegal 2019 SIP and Niger 2023 SIP).

The rationale for IMF staff to engage in education spending issues depends on whether such engagement occurs in a surveillance or program context. In surveillance contexts, engagement on macrocritical education issues is warranted if such issues have significant implications for domestic or external stability, including intertemporal effects of education spending. In program settings, engagement comes into play when such issues are critical to achieve the objectives of the IMF-supported programs.

Analyses should start with assessing the channels through which macrocriticality of education spending issues can arise and following a set of key steps (Table 1). The objective is to conduct an evaluation of the adequacy, efficiency, and fiscal sustainability of education spending to provide a foundational understanding of the issues (Section III). This requires first presenting key facts about current educational spending and intended reforms, ensuring that there is a coherent relationship between objectives, quality, and allocated resources. Some of the key indicators to examine include student enrollment rates, completion rates, pupil-teacher ratios, literacy rates, and public expenditure on education as a percentage of GDP and its composition. Comparing these indicators against international benchmarks can help identify initial areas needing improvement and reform. Subsequently, specific issues should be tied to actionable policy options and recommendations, including by drawing upon insights from other institutions with sectoral expertise in education (see Box 2 on typical policy recommendations). The last step is to assess the wider macroeconomic ramifications of proposed policy options.

When evaluating the macrocriticality channels of education spending, IMF staff should consider countries' specific circumstances. These encompass the country's level of development, macroeconomic conditions, societal preferences and norms, capacity limitations, political preferences, the role of nongovernmental entities, and any historical and recent reforms. For instance, in low-income countries where the population may have limited access to basic education, the economic focus of education spending may be on ensuring resources to support increases in enrollment and on improving school infrastructure. On the other hand, in AEs, the focus may shift to improving the quality of education and fostering innovation. In countries with a high degree of inequality, educational policies may play a role in fostering a more equal access to education services and human capital formation. In countries where private schools or donors are active players in the education sector, their role should be considered when assessing education spending issues. Box 2 provides examples of typical education spending reforms.

In examining education spending issues, the starting point for IMF staff should be leveraging the specialized knowledge of other institutions. The micro and sectoral knowledge and resources of development partners, like the Global Partnership for Education, World Bank, ILO, UNESCO, and UNICEF, are instrumental to avoid duplication, support the understanding of the macroeconomic impact of education spending, and help define macroeconomically relevant policy responses.

Table 1. Key Illustrative Questions

Establish Macrocriticality	Lay Out the Facts and Proposed Measures	Identify Specific Policy Concerns	Formulate Policy Options	Integrate into Broader Macroeconomic Analysis
Is education spending adequate and able to deliver on its intended objectives?	What are the key characteristics and objectives of the current education system and reform proposals?	Where do concerns lie? Is it with the design? The implementation? The effect?	If education spending is inadequate, is there fiscal space to improve it? If not, identify measures to increase fiscal space.	How do policy recommendations align with broader fiscal and macroeconomic objectives? What are the trade-offs or inconsistencies?
How efficient is the education system? Are there any inefficiencies related to design or implementation?	Why are changes needed? What specific proposals are on the table?	Are efficiency concerns new or were articulated in previous staff reports? Are there any analytical gaps?	If education spending is inefficient, identify measures to increase value for money (for example, better monitoring and oversight).	Are there any political economy considerations? How widespread is stakeholder buy-in for the educational change?
Is the financing of the education spending fiscally sustainable? Does its continuation, expansion, or lack thereof threaten macroeconomic stability? Is it urgent, time-sensitive for macrofiscal stability?	What is the role of education spending in fiscal redistribution? What is its role in the broader human capital formation?	Is the financing of the education spending eroding fiscal sustainability?	If the financing of the education system is unsustainable, what is the size and timing of the needed adjustment?	Is the proposed timing and sequencing of reforms realistic and feasible?

Source: IMF staff summary.

BOX 2. Typical Education Spending Policy Reforms

The nature of policy reforms depends on whether the issue relates to spending adequacy, spending efficiency, or fiscal sustainability.

- *Spending adequacy:* To address education spending adequacy issues, medium-term fiscal frameworks and medium-term budget frameworks should be used to guide a reprioritization of resources while preserving the desired balance across competing spending priorities.
- *Spending efficiency:* There is generally the need to assess measures that affect both the composition of spending and nonspending factors. There may be scope to reassess the mix of inputs where fiscal consolidation is needed, which can also help maintain fiscal sustainability. More decentralization of resources and decision making at the local level may enable decision makers to better account for the needs of individual schools, but this may lead to

disparities in the treatment of schools across regions. Public financial management can help by encouraging moving away from input-based to results-based financing, aligning resources with goals, and better planning.

- *Fiscal sustainability:* Reform measures can focus on rationalizing human resources, nonteaching spending, or capital spending. There may be opportunities to consider optimizing workforce distribution, renegotiating salaries, and reassessing nonessential expenditures to ensure long-term fiscal sustainability. Countries can consider options to raise revenue to meet educational needs without crowding out priority spending. Governments may be able to finance additional spending needs through tax financing, household contributions (including fees at higher levels of education and for vocational education), or other sources.¹

¹ In many countries, private, especially household, funding significantly contributes to education, mainly in early childhood and higher education. Although this financing model offers flexibility and support, it is crucial to ensure that it promotes equity and does not deepen intergenerational inequality. Policymaking must focus on creating equitable funding policies to avoid exacerbating disparities and ensure inclusive access to education.

B. Surveillance

In surveillance activities, IMF staff is expected to engage in education spending issues when such issues affect or have the potential to affect external or domestic stability (IMF 2022). This evaluation is country specific and varies with each member's unique circumstances; hence, an issue deemed macrocritical in one country may not bear the same weight in another. In deciding about the depth and type of engagement, IMF staff must strike a balance between the level of risk, the urgency of the concerns, and the availability of internal expertise and resources.

Analyses of economic issues related to education spending should account for both short-term and long-term considerations. Short-term issues may include immediate challenges like resource constraints (for example, leading to teacher shortages, overcrowded facilities), which need prompt attention for the smooth functioning of educational institutions. In addition, education spending issues have typically long-term economic implications, such as the effect on economic growth, human capital development, labor market skill gaps, and income distribution. Furthermore, it is crucial for effective policy formulation to also consider how structural shifts, including demographic transformations and changes in labor market skill demands, affect the level and time of education spending.

Discussions on economic issues related to education spending should be contextualized within medium-term fiscal frameworks and existing fiscal rules. Education spending dynamics and the implementation and operationalization of educational reforms might create trade-offs with other spending priorities or pose medium-term sustainability issues that fiscal frameworks and rules can help identify and address. In some cases, such trade-offs may lead to the reformulation of education initiatives and affect practical choices, such as teacher salaries and infrastructure budgets.

Analyses should consider the interplay between public and private financing of education spending, as well as governance issues and links with the labor market. Interconnections between private and public financing can directly affect the adequacy, efficiency, and sustainability of education spending, as well as have significant redistributive and access implications. At times, governance features can drive specific

trends in education spending, including the allocation between the private and public sectors. Analyses of skill mismatches in labor market can help identify skill needs and guide policy and resource allocation in the education sector. Such a broad approach supports an evaluation of how efficiently the resources are being used and how well the institutional structure supports education outcomes.

Surveillance findings are typically expected to lead to policy advice on education issues that support broader economic and development goals. For instance, evidence may suggest that education access affects economic growth and poverty levels, which could inform the design of educational policies as a tool to support economic development and long-term growth. Likewise, if such linkages hold, analyses could identify connections between specific policy interventions, such as school-feeding programs or social safety nets and school attendance and access. This would help inform advice in these areas, because they would indirectly support long-term economic growth.

Examples of past engagements on education spending issues in surveillance cases offer insights into the nature, modality, and extent of engagement, as well as about the collaboration with other institutions. Typically, the focus, breadth, and depth of engagement on education issues have been adapted to country-specific circumstances, as shown by the recent experience of engagement in various countries (Box 3).

BOX 3. Country Experiences in Addressing Education Spending Issues in Surveillance

France 2022 Article IV

In the 2022 Article IV Consultation for France, a critical examination of public education spending reveals significant inefficiencies and disparities in educational outcomes. Despite allocating 5.2 percent of GDP to education—higher than most European peers—French spending is heavily skewed toward secondary education, with disproportionate compensation for nonteaching staff and varying expenditure per student across education levels. This imbalance in funding does not translate into superior educational performance; French students exhibit lower PISA test scores in key areas compared with counterparts in Germany, the United Kingdom, and other AEs. Moreover, the country faces challenges in tertiary education attainment, with a notably lower completion rate of postsecondary education cycles compared with Germany and the United Kingdom. Compounding these issues are socioeconomic disparities influencing educational attainment and program selection, particularly evident in the overrepresentation of lower socioeconomic background students in vocational programs and the underrepresentation in tertiary education.

Policy recommendations:

- *Rationalize Education Spending:* There is potential for efficiency savings in education by reviewing and adjusting current spending practices, particularly in the compensation of nonteaching staff and resource allocation across different education levels.
- *Improve Secondary Education Outcomes:* Initiatives to enhance PISA test scores and overall student performance in secondary education are crucial. This could involve revising curricula, enhancing teacher training, and reducing class sizes.
- *Address Socioeconomic Disparities:* Policies must be implemented to reduce the educational attainment gap linked to socioeconomic status. This includes providing targeted support to disadvantaged students and reviewing the distribution of students in vocational versus general programs.

- *Focus on Tertiary Education Completion:* To improve France's position relative to its peers, efforts should be made to increase the completion rates of tertiary education, especially at the master's degree level and above.
- *Comprehensive Review of Education System:* A thorough examination of the entire education system is necessary to identify areas of inefficiency and imbalance, ensuring that future investments yield better educational outcomes and greater equity.

Sierra Leone 2022 Article IV

In Sierra Leone's 2022 Article IV Consultation (Selected Issues Paper), a key focus is on harnessing the demographic dividend through strategic investments in education. The country, characterized by a young and rapidly growing population, stands at a pivotal point where an increasing number of young individuals are poised to enter the labor market in the coming decades. This demographic trend presents a unique opportunity for economic growth and development, but only if these young individuals are equipped with the necessary education and skills. The government's Free Quality School Education program has made strides in improving access to education, showing early positive results. However, to fully capitalize on this demographic shift, Sierra Leone faces challenges that need to be addressed, such as optimizing educational spending, bolstering teacher quality, and enhancing educational opportunities for disadvantaged groups. The consultation paper underscores the critical role of effective educational policies in transforming the demographic potential into a tangible demographic dividend, contributing to Sierra Leone's macroeconomic and development objectives. The success of these efforts depends not only on internal policy reforms but also on collaborative efforts with international partners and alignment with global educational standards and labor market needs.

Policy recommendations:

- *Optimize Education Spending:* Prioritize the allocation of resources within the education sector, balancing between salary and nonsalary expenditures to improve learning environments and outcomes.
- *Support for Disadvantaged Groups:* Develop targeted policies for underprivileged children, addressing issues like weak infrastructure, teacher quality, and accessibility to enhance equitable learning opportunities.
- *Link School Subsidies to Performance:* Tie financial support for schools to specific performance indicators, such as student and teacher attendance, and exam pass rates, to incentivize improvement.
- *Improve Teacher Quality:* Strengthen the teacher registration and licensing process, ensuring that only qualified educators are added to the payroll, and expand the infrastructure for teacher training.
- *Strengthen Quality Assurance:* Enhance monitoring mechanisms beyond government schools, focusing on quality assurance across all educational subsectors and at the district level.
- *Education Funding:* Establish a robust fiscal framework to support increased and efficient education spending without compromising macroeconomic stability. Implement revenue mobilization strategies for additional education funding.
- *Collaborative Human Capital Development:* Promote a whole-of-government approach, integrating efforts across basic, higher, and technical education, and supplementing with cross-sectoral interventions in health, food security, and social protection.

Morocco 2020 Article IV

The Morocco Article IV report assesses the country's education system reform as a macrocritical issue because of its "critical" impact and "essential role" on human capital development and long-term productivity. Morocco's educational system faces multifaceted challenges that have been exacerbated by the COVID-19 pandemic. The lingering issues include low net preschool enrollment rates, high school dropout rates, and the low quality of learning. In addition, there exists a significant disparity in educational opportunities and outcomes across income groups and geographical regions, manifesting as a pronounced urban-rural divide. The 2019 Education Act represents a comprehensive effort by the Moroccan authorities to address these issues. The Act introduces specific contract programs with performance-based indicators, signed by all parties involved, including ministries and local authorities.

Policy recommendations:

- *Strengthening Implementation of the 2019 Education Act:* Authorities must regularly monitor progress in the performance-based indicators included as part of the 2019 Education Act. This would be a crucial step in addressing the existing challenges effectively.
- *Inclusive Growth and Human Capital Development:* Continued efforts in implementing the educational reforms are vital for the long-term development of human capital. Authorities should focus on reducing disparities across income groups and regions.
- *Financing and Fiscal Policy:* Morocco uses special budgetary funds (*Comptes Speciaux du Trésor*) to finance key missions like education reform. Although these funds aim to provide continuity and predictability, they could also fragment policymaking and implementation. The integration of these funds into a unified and comprehensive multiannual budget process could enhance consistency with broader macro, fiscal, and social objectives.
- *Transparency and Accountability:* Given the complexity of the reforms and the limited fiscal space, it is imperative that the authorities adopt a medium-term fiscal framework that is transparent and clearly outlines the path to lower public debt ratios. This would bolster public confidence in the government's commitment to educational reform while safeguarding fiscal space in the short term.

Kyrgyz Republic 2021 Article IV

The Article IV Consultation identifies education as a macrocritical issue in the Kyrgyz Republic's economy, because it is "essential" to close the skills gap, boost labor productivity, and increase growth. It leverages findings from the World Bank's Public Expenditure Review Policy Notes on Education in the country to formulate its advice. The Kyrgyz Republic allocates a higher per capita expenditure on education compared with its peer nations but lags in key performance indicators such as school enrollment and test scores. A significant portion of the education budget is consumed by wages, leaving inadequate resources for essential quality-enhancing measures like modern teaching practices, advanced learning strategies, and updated textbooks and materials. Moreover, the current education system is not effective in addressing the skills gap and boosting labor productivity. The quality of education has been identified as a concern for firms and is considered a bottleneck to economic growth.

Policy recommendations:

- *Develop an Education Reform Strategy:* A comprehensive education reform strategy is essential for delivering better educational outcomes. The strategy should focus on modernizing teaching practices, learning strategies, and educational materials.
- *Reprioritize Education Budget:* Authorities and staff agreed that reprioritizing the budget to allocate more resources toward quality improvement measures is critical. This includes investing in modern teaching practices, new learning strategies, and updated educational materials.
- *Improve Vocational Education and Training system:* Enhancements in vocational education and training could assist over 3,000 students in securing employment annually. This calls for a more focused and effective vocational education system aligned with labor market needs.
- *Inclusive Growth through Quality Education:* To transition from a remittance and aid-dependent economy to a diversified, private sector-led one, quality education is vital. Special focus should be given to integrating women into the labor market and supporting youth employment through quality education. For women, this also includes the availability of childcare, flexible work arrangements, and better access to finance.
- *Address Human Capital Bottlenecks:* As part of a broader strategy to achieve higher and more inclusive growth, it is imperative to improve the quality of education. This fits within a larger framework of structural reforms needed to strengthen governance, reduce corruption, and improve other sectors such as health care and infrastructure.

Lithuania 2019 Article IV

Education-related issues. This Article IV Consultation identifies the oversized educational system as a macrocritical issue affecting the country's fiscal standing. Despite *high spending*, the system yields poor outcomes and contributes to a mismatch between education and occupational choices. This system's inefficiency comes at the expense of quality and opportunities, thereby having a macroeconomic impact through reduced productivity and potential future labor force competitiveness.

Policy recommendations:

- *Address Overcapacities:* To tackle the macrocritical issue of an oversized system, it is recommended to reduce the number of teachers and consolidate school and university infrastructure.
- *Review Nexus between Universities, Financial Incentives, and Quality Standards:* A review of the relationship between university funding, financial incentives, and educational outcomes is essential to address the inefficiencies in the system.
- *Conditional Wage Increase:* Planned wage increases should be made conditional on progress in network optimization.

Two years later, in the 2021 Article IV Consultation, staff, in the implementation of 2019 AIV recommendations table, reported that implementation has not meaningfully progressed. Planned wage increases have continued, but other reform aspects have lagged. The COVID-19 pandemic has further delayed reforms. However, the government is preparing a plan to resume implementation efforts.

C. IMF-Supported Programs

In the program context, engagement on education spending issues may arise when such issues are relevant to achieve program objectives or monitoring program implementation. Experience shows that engagement on education spending issues varies among programs depending on their objectives. Engagement could aim at addressing challenges affecting employment and competitiveness including labor productivity (Armenia 2019 SBA, Solomon Islands 2012 ECF) or balancing fiscal consolidation with priority spending and minimizing adverse impacts on vulnerable groups (Ecuador 2019 EFF, Jamaica 2013 EFF). Some programs focus on tackling constraints to sustainable growth through human capital development (Tanzania 2022 ECF), whereas others involve medium-term structural measures to address labor market mismatches (Georgia 2022 SBA).

If education reforms extend beyond the length of the IMF-supported arrangements, it can be advantageous to decompose the reform agenda into smaller, more manageable elements. Proposed education reforms may have longer implementation timelines compared with the typical length of the IMF-supported programs, emphasizing the need for clear links between program objectives and planned reforms in program documents. To address possible mismatches between program and reform cycles, the reform agenda should be broken down into smaller components and prioritize those that can be accomplished within the program's timeframe (see Georgia 2022 SBA, and other program examples in Box 4). To guarantee continuity in reform efforts, it is important that any reform agenda reflects the authorities' reform priorities.

BOX 4. Country Experiences with Education Issues in IMF-Supported Programs

Armenia (2019 Stand-by Arrangement [SBA])

Context and education issues. Under the 2019 SBA, the authorities aimed to bolster human capital development through the implementation of an extensive education reform aimed at creating more employment opportunities including raising the quality of education and skills mismatches.

Reform actions. A durable reduction of unemployment required a multipronged approach including developing an employment strategy to better target existing active labor market programs, enhancing childcare systems to boost female labor force participation, and improving supply-side constraints to labor productivity. The overarching program objectives were achieved with fiscal policy striking a balance between ensuring targeted social spending while preserving fiscal sustainability. Structural reforms helped develop an education and employment strategy.

Conditionality. With the aim to strengthen education and training, the government committed to restructuring and modernizing the tertiary education system and developing a comprehensive education reform strategy with the support of the World Bank. The 2019 SBA adopted a structural benchmark (SB) on the drafting of a law on higher education and science, setting the legal ground to reform the tertiary education management system, establishing organizational and financial autonomy of higher education institutions, and supervision mechanisms for quality of education services. Although the SB on comprehensive education strategy was met, the authorities were not able to submit the draft law to the National Assembly despite undergoing a consultative process and several rounds of revisions.

Ecuador (2019 Extended Fund Facility [EFF])

Context and education issues. Rising public debt and gross financing needs necessitated fiscal consolidation under the 2019 EFF. Staff's analysis identified the need to improve competitiveness, enhance the quality of the labor force, and create jobs, and advised authorities to increase the efficiency and quality of primary education spending to address these needs.

Reform actions. To strike a balance between fiscal consolidation and meeting education spending requirements, the authorities sought to enhance the efficiency of education spending under the 2019 EFF, in partnership with the World Bank for technical assistance. The authorities sought to create fiscal space through measures including adjusting the public sector wage bill, normalizing diesel prices for industrial use, improving procurement practices through competitive bidding, and updating fees. The savings from these reforms were to be channeled to strengthening support for education and other social spending initiatives outlined in the government's flagship "Plan Toda Una Vida."

Conditionality. The 2019 EFF set an SB on the publication of an action plan to strengthen the efficiency and quality of primary education and health spending. Although reforms were not completed under the 2019 EFF, the authorities placed emphasis on improving public procurement efficiency and generating fiscal savings under the subsequent 2020 EFF.

Georgia (2022 SBA)

Context and education issues. With spillovers of Russia's war in Ukraine dampening growth and raising inflation, the authorities sought to build on the success of the previous program (2017 EFF). The program envisaged balancing medium-term fiscal adjustment with structural reforms including education and training to tackle high unemployment and address labor market mismatches.

Reform actions. Under the program, the authorities sought to tackle entrenched high unemployment by advancing education reform and strengthening active labor market policies. They viewed labor market and education sector reforms as vital for fostering inclusive growth and mitigating skills mismatches. Improving the quality of education and implementing active labor market policies in vocational education and training were seen as means to enhance human capital and stimulate job creation in high-productivity sectors of the economy. The authorities sought to improve teacher qualification standards, establish professional orientation, and transition programs and collaborate with the private sector to develop vocational education programs tailored to the specific hiring needs of businesses.

Conditionality. Under the 2022 SBA, the authorities committed to undertake a comprehensive survey of labor demand and skills needs to inform labor market policies. The SB met with the authorities establishing a periodic labor demand and skills survey to foster evidence-based labor market policies with plans to deliver vocational training based on identified areas of high demand.

Tanzania (2022 Extended Credit Facility [ECF])

Context and education issues. The objective of the 2022 ECF was to address Tanzania's development and reform challenges exacerbated by the twin external shocks of the COVID-19 pandemic and the war in Ukraine. It aimed to strengthen fiscal space to resume the structural reform agenda to address growth including by building human capital through technical education and vocational training.

Reform actions. The government committed to continue investing to reduce gaps in the number of teachers and health care workers, and to equip schools and local health facilities. It also agreed to increase spending on health and education, both in levels and as a share of GDP. The spending increase is set to continue until the floor on social spending agreed under the program is met. The authorities further committed to keep a balance of resources between primary, secondary, and tertiary education to increase the efficiency of spending. Toward this end, the government sought to improve the public program for the Higher Education Students Loans Board by refining the means-testing mechanism.

Conditionality. The ECF implemented an SB aimed at rebalancing and improving the quality of current expenditure. The authorities committed to expanding the workforce in the education and health sectors, with the appointment of an additional 10,000 health care workers and 15,000 primary and secondary teachers. Performance in raising and maintaining social spending at 6.6 percent of GDP is monitored by an IT.

Conditionality on education reforms and spending can be considered when reforms are critical to achieve program objectives. Pursuant to the standards set forth in the Guidelines on Conditionality, it is essential for program conditions, including those relevant to education spending, to adhere to the principles of parsimony and criticality. If specific education measures do not fulfill these criteria but continue to be a priority for the authorities, they can be included as commitments within the letter of intent and memorandum of economic and financial policies. IMF staff can leverage relevant institutions and the IMF technical assistant for analysis and conditionality design (for example, Latvia 2008 SBA and Ecuador 2019 EFF).

Conditionality can take different forms. It can encompass quantitative targets, for example, social spending floors, as well as structural conditionality aimed at supporting specific reform steps.

Conditionality on education in the IMF-supported programs is not used very often and, when used, is largely centered on supporting structural reforms. Among the 44 programs covering education issues between 2002 and 2022, nearly 73 percent of program conditionality took the form of structural benchmarks, with explicit quantitative conditions present in only a quarter of these programs, which largely focused on setting spending floors (Hanedar and Munkacsi 2025). However, following overarching principles, program conditionality for education sector reforms can take the following structure:

- **Quantitative conditions** encompass quantitative performance criteria (QPCs) and indicative targets (ITs) integrated into other program targets that set explicit quantitative conditions. QPCs are employed for well-defined variables that can be objectively monitored and play a critical role in achieving program objectives and implementation. However, their use in education issues is infrequent and, in the past, they have been integrated into budget management and execution systems (Kenya 2003 PRGF, Mozambique 2004 PRGF, and Uganda 2006 PSI). ITs come into play when variables of interest cannot be established as performance criteria because of the substantial uncertainty regarding economic trends, and they serve to assess progress in achieving program objectives alongside QPCs. ITs have taken various forms, including cumulative floors on education and health spending (Pakistan 2019 EFF), recurrent spending on health and education (Solomon Islands 2011 SCF, 2012

ECF), or spending floors on universal primary education (Liberia 2008 PRGF/EFF, Uganda 2010 PSI¹⁷). The challenge with quantitative conditionality, especially with spending floors in education, is that spending is fungible. Therefore, program discussions should include effective compliance tools to ensure funds are used as intended. One approach is to pair spending floors with targeted expenditure monitoring to enhance program effectiveness.

- **Structural benchmarks** serve as essential prerequisites for attaining program objectives and serve as indicators to evaluate progress on reforms vital to the program's success. In the context of education, structural benchmarks (SB) are commonly employed to support reforms aimed at enhancing coverage, quality, and spending efficiency (Armenia 2019 EFF, Ecuador 2019 EFF, and Tanzania 2022 ECF).
- **Prior actions** represent the actions a country commits to take prior to the IMF's approval of an arrangement or the completion of a program review to ensure the successful implementation of the program. Preapproval conditions related to education measures that meet the criteria mentioned can include requirements such as the regular disclosure of education and other domestically funded social spending (Haiti 2010 ECF).

Where needed, IMF staff should rely on development partners to identify and integrate educational policies and reforms into IMF-supported programs. The IMF-supported programs (Jamaica 2013 EFF; Ukraine 2014 SBA and 2015 EFF; Armenia 2019 SBA) have leveraged technical assistance by the IMF and other development partners (including the World Bank and the Inter-American Development Bank) to detailed suggestions on improving the efficiency and effectiveness of education spending. In addition, there is a longstanding practice of coordination with other multilateral institutions in designing and monitoring conditionality, particularly, in the IMF's noncore areas of responsibility. IMF staff should take advantage of initiatives like the Human Capital Project (<https://www.worldbank.org/en/publication/human-capital>) that aims to accelerate investments in people and the *Global Platform for Education Finance* (<https://www.worldbank.org/en/news/feature/2019/11/12/world-bank-launches-initiative-to-tackle-education-financing-challenges>) that can help emerging countries and LIDCs strengthen education financing systems and improve learning outcomes, in addition to bilateral support from development partners.¹⁸ The establishing, monitoring, and assessment of program conditionality remain, however, a responsibility of IMF staff.

¹⁷ In October 2023, the Executive Board of the IMF endorsed the proposal to eliminate the PSI (Press Release 23/341, <https://www.imf.org/en/News/Articles/2023/10/06/pr23341-imf-completed-review-of-the-pci-and-endorsed-proposal-to-eliminate-the-psi>).

¹⁸ Established in consultation with the IMF, UNESCO, the Education Commission, the Global Partnership for Education, and the Organisation for Economic Co-operation and Development, the Education Finance Platform seeks to create tools, build an evidence base, and provide technical support to ensure that education systems are adequately funded, and funds used equitably and efficiently.

ANNEX 1. Internal and External Resources Supporting Analytical Work and Policy Engagement

IMF staff can access a rich set of resources to establish whether education spending is macrocritical and identify the issues that should be addressed, but judgment based on these resources should be checked with functional departments or relevant development partners (particularly the World Bank). The Fiscal Affairs Department is available to assist nonspecialist staff in identifying education experts at development partners and access information and analyses, including ad hoc consultation, desk studies, and technical assistance reports. Nonetheless, the quality of education data, including completeness and timeliness, remains a major challenge (World Bank and UNESCO 2023).

A. Internal Resources

Annex Box 1.1. Internal Resources to Support Engagement on Education

The IMF Expenditure Policy Division maintains an internal knowledge exchange website, including on education. The Expenditure Assessment Tool (EAT) provides information to assess public expenditures, including spending on education, and allows benchmarking with country peers. EAT is a user-friendly Excel-based tool, offering a choice of target countries and comparator groups. Although the tool is not a substitute for an in-depth spending review, it provides a starting point to guide more detailed analysis. The Government Finance Statistics database (<https://data.imf.org/gfs>) includes expenditure by function of government, including on education. Information on costing the spending needs to achieve the education SDGs can be found here: IMF SDG costing (<https://www.imf.org/en/Topics/SDG/sdg-financing>).

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B. External Resources

Annex Box 1.2. External Resources to Support Engagement on Education

UNESCO Website (<https://www.unesco.org/en/education>)

- Data: (1) UNESCO Institute for Statistics (<http://data.uis.unesco.org>), (2) Education Finance Watch (<https://www.unesco.org/gem-report/en/publications#education-finance-watch>)
- Publications: (1) Global Education Monitoring Report (<https://www.unesco.org/gem-report/en>), (2) Pricing the right to education—UNESCO report (<https://www.unesco.org/gem-report/en/pricing-right-education>)

World Bank Education Website (<https://www.worldbank.org/en/topic/education>)

- Data: World Bank Education Statistics (<https://datatopics.worldbank.org/education/home>)
- Publications: (1) World Bank Education Public Expenditure Reviews (<https://elibrary.worldbank.org/action/showPublications?SeriesKey=2109&startPage=&ConceptID=6059>), (2) Quality Early Learning (<https://openknowledge.worldbank.org/server/api/core/bitstreams/44eaa523-faca-5760-9abc-569cfddcaea2/content>), (3) Learning for All—WB Education Strategy (<https://openknowledge.worldbank.org/server/api/core/bitstreams/0bbdc571-7507-54b1-9b3a-7cb43bbbfa12/content>), (4) The Changing Nature of Work—WB report (<https://documents1.worldbank.org/curated/en/816281518818814423/pdf/2019-WDR-Report.pdf>)

OECD Education Website (<https://www.oecd.org/education>)

- Data: Education—OECD Data (<https://data.oecd.org/education.htm>)
- Publications: Education at a Glance (<https://www.oecd.org/education/education-at-a-glance>)

ILO Website (<https://www.ilo.org/global/industries-and-sectors/education/lang--en/index.htm>)

- Publications: (1) Global Employment Trends for Youth 2022—ILO report (https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_853321.pdf)

UNICEF Website (<https://www.unicef.org/education>)

UN resources

- UN Sustainable Development Goals: Goal 4 | Department of Economic and Social Affairs ([un.org, https://sdgs.un.org/goals/goal4](https://sdgs.un.org/goals/goal4))
- UN Education Statistics: UNSD—Education statistics (<https://unstats.un.org/unsd/demographic-social/sconcerns/education/index.cshtml>)

ANNEX 2. The Returns to Education¹⁹

This Annex analyzes the relationship between education and economic growth. We estimate the growth return to education between 1980 and 2019 based on the work of Hanushek and Woessmann (2015). Our findings confirm the growth-enhancing role of education. Quality (measured by test scores) rather than quantity (measured by years of schooling) seems to matter the most. Uncertainty in magnitude and timing of returns, as well as considerations related to costs, efficiency, and institutions are also important for returns in education.

Access to education has expanded in recent years in low-income developing countries (LIDCs) and emerging market economies, reducing the gap with advanced economies (AEs). Enrollment rates—the number of students as a share of population by level of education for each corresponding age group—have increased at all levels in most countries, with strong expansions in primary education enrollment in LIDCs from 1995 to 2010. Globally, about 90 percent of school-age children were enrolled in primary education. Despite significant improvements in the past three decades, large enrollment gaps persist in secondary education between AEs (90 percent), emerging market economies (80 percent), and LIDCs (less than 50 percent) (Section 3).

Education can foster economic growth, although the magnitude of its returns is uncertain. Empirical research consistently indicates that school attendance and the development of cognitive skills have a positive impact on output (Mankiw, Romer, and Weil 1992; Barro 2001; Hanushek and others 2008; Hanushek and Woessmann 2015; Hanushek 2016b). In the literature, the long-term impact of increasing education in one year ranges between 3 and 6 percent in the *level* of GDP per capita and between 0.4 and 1.4 percent in the *growth rate* of per capita GDP (Sianesi and Van Reenen 2003).

Key for fostering growth is to increase education outcomes. The quality of education (cognitive skills) can significantly outweigh the quantity of schooling (years) in influencing economic outcomes (Barro and Sala-i-Martin 2004; Hanushek 2020a; Hanushek and Woessmann 2022). Empirical evidence suggests that one additional *standard deviation* in average test scores leads to a 1–2 percentage point higher per capita GDP *growth rate*, with quantity of schooling losing importance when cognitive abilities are accounted for (Hanushek and Kimko 2000; Hanushek and Woessmann 2015). Hanushek and Woessmann (2022) estimate that bringing all youth up to basic skill levels would raise future world GDP *level* by 11 percent until 2100.

Other factors are relevant for the effect of education on economic growth. Weaker institutions, lower initial levels of human capital, and needs for a rapid catch-up could make economic returns to education more difficult to ripe, especially in LIDCs. Specifically:

- **Institutions.** The effect of knowledge capital on growth is significantly larger in countries with a productive institutional framework (for example, rule of law, no corruption, property rights), suggesting that good institutional quality and good educational quality can reinforce each other (Pritchett 2001, 2006; Goldin 2016; Hanushek and Woessmann 2020).

¹⁹ Prepared by Kardelen Cicek, Zsuzsa Munkacsi, and Alberto Tumino.

- **Existing levels of human capital.** Fostering human capital relies on the availability of educated individuals as inputs (Barro and Sala-i-Martin 2004).
- **Speed of human capital accumulation process.** Human capital accumulation is a gradual process. Barro and Sala-i-Martin (2004) emphasize that attempts to expedite the educational process are likely to encounter rapidly diminishing returns because of adjustment costs (for example, friction in the economy that do not allow in the short term to take full advantage of higher levels of human capital).

We estimate the growth-enhancing effect of education based on the empirical framework of Hanushek and Woessmann (2015). The analysis employs two measures from the Barro-Lee educational attainment data set (<http://barrolee.com/>) and test score data set (http://barrolee.com/?page_id=186): years of schooling and test score results (used to proxy cognitive skills), to measure the effect of education on economic growth. The analysis covers the years 1980–2019, with a broad selection of countries in both geographical and economic terms. Economic growth is measured as the change in real GDP per capita.

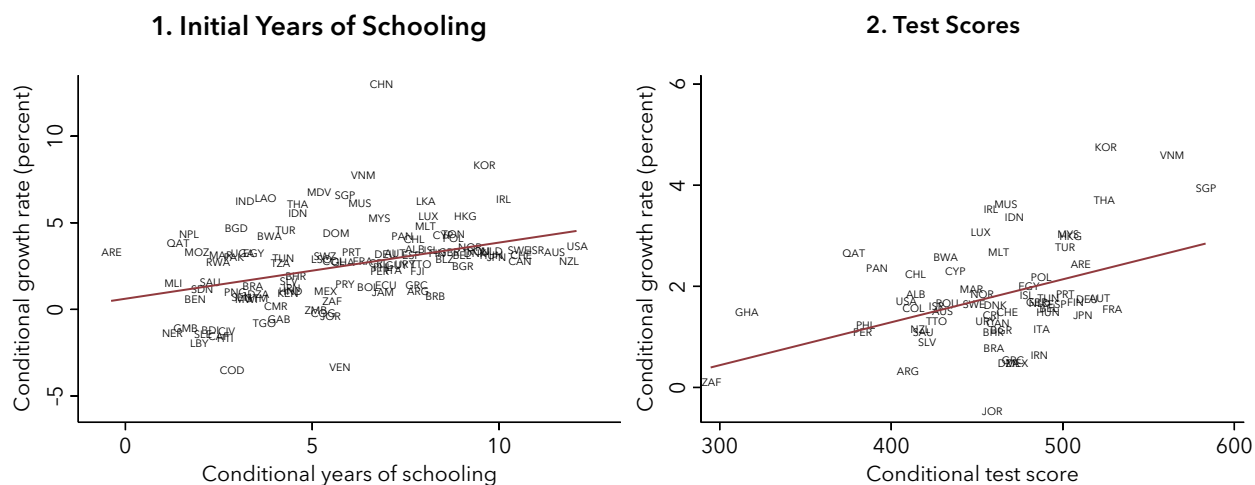
Our econometric analysis confirms the growth-enhancing impact of education. Years of schooling and cognitive skills (proxied by test scores) are positively correlated to economic growth, conditional on initial levels of GDP per capita (Annex Figure 2.1, and Table specifications (1) and (3)). As a result of test scores data availability, the number of countries is reduced to 65 out of the original 113 in panel B, with the remaining sample composed of advanced and emerging market economies, with only 2 LIDCs out of the original 38. Economic growth in China, Korea, and Vietnam outperforms predictions based on education, whereas the opposite is true for Democratic Republic of Congo, Jordan, and Venezuela. The results of the regression analysis are reported in Annex Table 2.1.

Consistent with Hanushek and Woessmann (2015), we test the robustness of the relationship between education and economic growth to different model specifications.

- *Specification 1* measures the relationship between economic growth and average years of schooling. An additional year of schooling, on average, increases the long-term per capita GDP growth rate by 0.3 percentage points, consistent with the results of Hanushek and Woessmann (2015). Over 40 years, the results imply that an increase in schooling by 4 years—equivalent to the gap between the 8.5 years of schooling in LIDCs and 12.2 years in AEs—would increase real GDP per capita by a multiple of 1.3–2.1 according to the confidence interval of the education coefficient.
- In *Specification 2*, the estimation sample is restricted to the 65 countries for which information on test scores is available. The coefficient on the initial year of schooling drops in size and loses statistical significance.
- *Specification 3* proxies education with cognitive skills, measured by test scores reported on a scale ranging between 0 and 1,000. The coefficient indicates that an increase by 100 base points in average test scores is related to an increase in real per capita GDP growth rate by 0.6 percentage points. The coefficient on standardized test scores shows that a one-standard-deviation increase in average test scores is associated with 0.5 percentage points increase in real GDP per capita growth rate. The coefficient is smaller than the 2 percentage points increase reported in Hanushek and Woessmann (2015), although comparability issues might arise as their measure is built by pooling together and standardizing different test scores across countries. Closing the 133-point gap in test scores between LIDCs and AEs would increase real GDP per capita in 40 years by a multiple of 1.2 to 1.7—a similar range to that associated with closing the years of education gap, but likely more robust because the coefficients of cognitive skills are consistently statistically significant.

- *Specifications 4–8* test the robustness of the results to different specifications. The coefficient on cognitive skills remains positive and statistically significant across all specifications, although the coefficient on the years of schooling is never statistically significant.

Annex Figure 2.1. Added Value Plot of Years of Schooling and Test Scores on Economic Growth



Source: IMF staff calculations based on data from the IMF World Economic Outlook and the Barro-Lee Educational Attainment Data Set and Test Scores Data Set. The test scores include imputations performed by the authors for missing values.

Note: Panel 1 is based on regression results from Specification 1 in Annex Table 2.1; Panel 2 on Specification 3. In both cases, unconditional means are added to conditional measures in both axes. Data labels in the figure use International Organization for Standardization (ISO) country codes.

Annex Table 2.1. Cognitive Skills and Years of Schooling in Growth Regressions

	1	2	3	4	5	6	7	8
Initial years of schooling (1980)	0.32*** (-0.0668)	0.0666 0.0509		-0.0857 0.0625		-0.0703 0.0648	-0.104 0.072	0.0633 0.0511
Initial GDP per capita (1980)	(-0.00005)***	(-0.0307)***	(-0.0308)***	(-0.0307)***	(-0.0303)***	(-0.0301)***	(-0.0240)***	
	0.00	0.0046	0.00423	-0.0042	-0.00433	0.00435	0.00445	
Cognitive skills			0.636*** 0.175	0.850*** 0.233	0.753** 0.246	0.666* 0.242	0.893** 0.291	0.996*** 0.184
Average years of schooling					-0.0597 0.0883			
log (initial GDP per capita 1980)								(-1.247)*** 0.112
Constant	1.38*** 0.47	2.046*** 0.39	-0.407 0.81	-0.781 0.85	(-0.413) 0.82	(-0.124) 0.88	-1.031 1.5	0.155 0.68
region fixed effects	No	No	No	No	No	No	Yes	No
Observations	113	65	65	65	65	65	65	65
R-square	0.25	0.42	0.51	0.52	0.52		0.65	0.7

Source: IMF staff estimations.

Note: Standard errors in parentheses. * $p < .05$; ** $p < .01$; *** $p < .001$.

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