

Report

# Pathways towards quality primary education

Improving completion and learning outcomes

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# Acronyms

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<b>CRS</b>	Creditor Reporting System (CRS)
<b>EU</b>	European Union
<b>GDP</b>	gross domestic product
<b>GPE</b>	Global Partnership for Education
<b>HIPC</b>	Heavily Indebted Poor Countries Initiative
<b>HMIC</b>	higher-middle income country
<b>LIC</b>	lower income country
<b>LMIC</b>	lower-middle income country
<b>MDG</b>	Millennium Development Goal
<b>ODA</b>	Official Development Assistance
<b>OECD</b>	Organization for Economic Co-operation and Development
<b>OECD-DAC</b>	OECD Development Assistance Committee
<b>OLS</b>	Ordinary Least Squares
<b>PCR</b>	primary completion rate
<b>RCT</b>	randomised control trial
<b>SDG</b>	Sustainable Development Goal
<b>UHC</b>	universal health coverage
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>WFP</b>	World Food Programme

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# Executive summary

This paper explores **pathways towards quality primary education** by identifying and analysing strategies used in 38 countries that have made faster progress in primary completion rates (PCR) – and, where discernible, learning outcomes – between 2000 and 2017. It further considers which social and economic groups within these countries are being left behind or excluded from the rise in completion rates, why that may be happening and what governments are doing to address those gaps.

We found that **critical enablers and drivers of progress** in primary education completion could be identified across four areas:

1. In most countries showing progress in primary completion, the **political environment** involved both the role of decentralisation and high engagement with international donors as important, with an education champion or long history of prioritising education driving progress in some cases. However, there was limited evidence in the literature that teachers' unions or grassroots movements improved completion.
2. **Legal aspects of provision** in the form of free and compulsory primary education were introduced in nearly all our countries during the 1990s, with around half subsequently introducing free and compulsory early childhood education (ECE). Three-quarters of the countries register an increase in private schools over this period, perhaps indicating a demand for education partly met by growth in the private sector.
3. Countries tended to sequence the different **strategies** they employed to improve PCR. Teacher training and curriculum change

typically occurred in tandem, and were often accompanied by the provision of free textbooks. These prefaced learning assessment updates, which in turn tended to precede quality assurance measures in schools.

4. Strategies used to **reduce household barriers** to education involved expansion of school infrastructure, together with school feeding, at an early stage in two-thirds of our sample countries. Adult literacy programmes had been introduced before 2000 in most countries. Many of these countries also shifted towards instruction in mother tongue in the first years of primary education.

To interrogate the significance of these factors, we use multivariate analyses on PCR and learning outcomes, and run a series of robustness tests. As part of this we find **corroboration as to the importance of context**, with countries with low PCR in 2000 making the greatest progress possibly because they were oriented towards increasing coverage and reaching excluded groups. In contrast, in countries with already high or moderate PCR, it was more difficult to reach those still excluded. Analysis further showed that **faster progress was achieved by countries that put in place laws targeting enrolment and completion for girls**, and in countries that collected data on education for girls, with scholarships for girls attending primary education particularly significant. **Infrastructure expansion was negatively associated with improvements in learning outcomes**, indicating that countries heavily focused on expanding the education system overlook issues of education quality or perhaps sacrifice quality for coverage. Our regressions also showed that **making primary education free mattered more than**

**making education compulsory**, and countries that introduced **changes in teacher training made faster progress on improving learning outcomes. Education gains** – at least in terms of PCR – **were found to be significantly better when expenditure per student is higher**, when we extended analysis from our sample countries to a broader set of 137 countries. While we were further able to see an association with increased foreign aid and debt relief, this did not necessarily seem to be a determinant factor in education progress. Finally, the **importance of policy sequencing** emerged in our sample, showing that a trade-off between completion and learning is not inevitable. Countries such as Kyrgyzstan, Lesotho, Guatemala, Ghana, Rwanda, Albania, Ecuador, Poland, Morocco and Oman had strategies that positively impacted both completion rates and learning outcomes in primary education.

Once large-scale primary education progress has been made it is **the most marginalised that continue to be excluded**, with policy commitments to reach these groups falling far short of what is needed to maintain progress in our sample of countries. Our analysis shows **governments operating along a hierarchy of priority** when it comes to marginalised children in the sector, largely recognising that economic and intersecting inequalities are a source of disadvantage in education. There is generally a **high level of education policy attention** given to children in rural and remote areas, disadvantaged linguistic groups, children with disabilities and special needs and girls. **Moderate to low levels of policy attention** were found in relation to religious groups, children without registration, orphans and children connected to the street. Government plans were **largely silent on education for other groups**, including

children displaced by conflict, non-documented migrants, those living in informal settlements or enslaved children.

As the world finds its way past the school closures and disruption that have come with the Covid-19 pandemic, identifying effective pathways to education progress has never been more important than it is now. Additionally, as countries work towards SDG4 and its targets for 2030, there is only a small window of opportunity for new educational initiatives to have time to show results. The main implications stemming from our research include:

1. Starting points and context matter to education progress, with urbanisation and income as critical factors.
2. Government leadership, effectiveness and spending on education are all critical.
3. A combination of strategies appears to enable gains in education over and above a single-strategy approach.
4. Efforts to leave no one behind, and particularly a focus on girls' education, can drive faster progress towards quality primary education.

# 1 Introduction

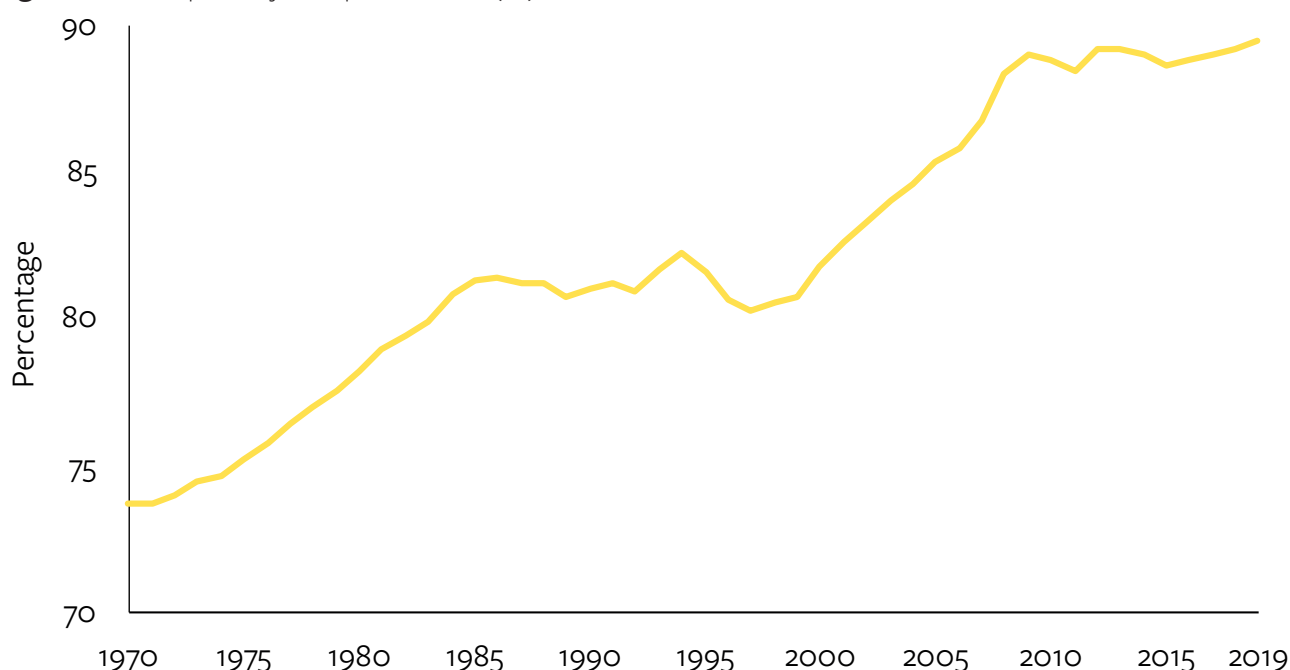
Over past decades, the share of children completing primary school globally has increased markedly, from 73.7% to 89.5% over the past 50 years (Figure 1). Improvements in enrolment and primary completion rate (PCR) notwithstanding, learning outcomes have not kept pace. Even after four years of school around 125 million children do not attain functional literacy, while the majority of primary school students in many education systems fail to obtain the minimum competencies in reading or arithmetic needed to continue learning (World Bank, 2018b based on UNESCO data from 2014).

The learning crisis – that despite being in school children are not learning – has been acknowledged

in Sustainable Development Goal (SDG) 4, which emphasises the need to ‘ensure inclusive and quality education for all and promote lifelong learning’, moving beyond the focus on access in Millennium Development Goal 2 to a focus on both quality and equity.

Our aim in this research is to understand what has enabled selected countries to improve the provision of quality primary education, with an added focus on marginalised groups (Box 1). Both completion rates and learning outcomes have been used as measures of education quality, as distinct from education coverage. While coverage refers to access to schooling (and is reflected in measures such as enrolment), quality

**Figure 1** Global primary completion rate (%)



Note: UNESCO Institute for Statistics ([uis.unesco.org](https://uis.unesco.org)). Data as of September 2020. Downloaded from: <https://data.worldbank.org/indicator/SE.PRM.CMPT.ZS>.

Source: Figure refers to primary completion rate, or gross intake ratio to the last grade of primary education.

is conventionally defined to include literacy, numeracy and life skills (UNESCO, 2003).<sup>1</sup> The focus on quality has gained traction as the scale of the 'learning crisis' has been better understood (World Bank, 2018b) and in recognition that access to schooling has not always led to learning achievement. To understand more about determinants of quality, in this paper we explore determinants of PCR. We acknowledge that they

are imperfect measures of learning achievement,<sup>2</sup> but they are an important measure going beyond enrolment of what matters for children in school. While data on PCR is available comprehensively for the majority of countries in the world, we lack corresponding data on learning achievement. However, where we have data on learning outcomes for selected countries, we explore the relationship with PCR.

### Box 1 Primary education and the leave no one behind (LNOB) agenda

Underpinning the SDGs is the fundamental aspiration to 'leave no one behind'. This has two key aspects: to 'see the Goals and targets met for all ... segments of society'; and to 'reach the furthest behind first' (UNGA, 2015).

Five factors have been proposed as key to understanding who is 'left behind' and why: discrimination, place of residence, socioeconomic status, governance and vulnerability to shocks (UNDP, 2018).

While the SDG outcomes document provides an illustrative list of the groups who are left behind consistently, it stresses the need for countries to identify and illuminate the circumstances of disadvantaged or marginalised groups in each national context (McDonnell et al., 2020: 7).

Looking at SDG4 on education, our interest in this paper is to illustrate which population groups across countries have not been reflected in the increased completion rates alongside an attempt to understand why progress in PCR has missed them.

1 In recent decades, this understanding has expanded in the face of criticism that literacy and numeracy are minimum measures: 'While in the past much of the emphasis on education related to cognitive understanding and development, now there is a need to also address the social and other dimensions of learning. Education is expected to make a contribution to sustainable human development, peace and security, and the quality of life at individual, family, societal and global levels' (UNESCO, 2003: 2).

2 Work by Sandefur and Pritchett (2020) shows that quality – measured by female literacy – varies markedly across populations who have completed primary education: '...across 51 countries, they find 'only about half of women who completed grade 6 (but no higher) could read a single sentence.'

This paper takes inspiration from the methodological approach taken by McDonnell et al. (2020) in mapping pathways to universal health coverage (UHC) and applies it to explore enablers and pathways to improved PCR. With our focus on education, we identified 38 geographically, economically, and culturally diverse countries that made faster progress than others in increasing their PCRs (Box 2). For each country, we reviewed a breadth of literature to identify political factors and enabling strategies that explain the rise in PCR across our sample.

In Chapter 2, we give an overview of the state of knowledge on cross-national determinants of quality education before moving on to discuss our methods of data collection and analysis in Chapter

3. In Chapter 4 we explore political environment factors that emerge as salient in the rise of PCR and learning outcomes for the 38 countries and follow this up in Chapter 5 by exploring specific groups of strategies associated with improvements in PCR and learning outcomes. We close Chapter 5 by assessing the degree to which our findings are significant through multivariate regressions. In Chapter 6 we highlight strategies that have worked to incorporate left-behind groups in these countries while also exploring which groups have not benefited from the increase in PCR. In Chapter 7, we summarise the main implications from our work for policymakers seeking to close the gap between coverage and completion rate in education and learning outcomes in their countries.

## Box 2 Significance of primary school completion rate

We use PCR or gross intake ratio to the last grade of primary education as a ‘core indicator of an education system’s performance’ (World Bank, 2020) in the absence of both a global composite index for education quality overall, or a widely and frequently used cross-national method of learning assessment. In the past, PCR has been used as a measure of adult literacy (UNESCO, 2006, cited in Huebler, 2007), as well as school system performance (Bruns et al., 2003), with the evidence suggesting that it is a reasonable albeit imperfect proxy (Guadalupe and Louzano, 2003; Huebler, 2007). We focus on primary education as our entry point into investigations on quality because it is the most widely available type of education around the world (compared to early childhood education (ECE), secondary and tertiary) (Roser and Ortiz-Ospina, 2016) and consequently, data on this system of education is more comprehensive and available for most countries.<sup>3</sup> We acknowledge, however, that SDG4 is widely interpreted to call for 12 years of schooling, but are unable to analyse determinants in relation to secondary educators as part of this research.

<sup>3</sup> Because of the nature of the indicator, countries may have completion rates in excess of 100% owing to the enrolment of students who are outside the age group for the last year of primary school grade. This may happen due to repetition, or children who are advanced according to their age.

## 2 Literature review

A high proportion of cross-national literature on global primary education is focused on access to schooling. The wealth of information corresponds to global and national investments in advocacy and finance in expanding access. Global enrolment has increased dramatically since the 1990s particularly at the primary level – worldwide, more than 90% of primary school-age children were enrolled in school by 2018 (UNESCO Institute for Statistics global databases, 2019).

Global recognition of a learning gap has in part been made possible by data emerging from cross-country assessments on tests conducted over the last decades. Globally available systems of assessment include the Programme for International Student Assessment (PISA), the Progress in International Reading Literacy Study (PIRLS) and the Trends in International Mathematics and Science Study (TIMSS). Regional systems include the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), the Programme for the Analysis of Education Systems (PASEC) and the Latin American Laboratory for Assessment of the Quality of Education (LLECE). Although the number of countries participating in cross-national assessments has nearly doubled, to 137 since the first rounds in 1999–2000,<sup>4</sup> a large proportion of participating countries are still from Europe and North America (UNESCO, 2019b).

As a general indication – keeping in mind the non-universal participation in global assessment as well as the low frequency with which these assessments are conducted<sup>5</sup> – student learning is far from universal. In 2018, over 10 million students represented by PISA, which measures basic numeracy and literacy, were not able to complete even the most basic reading tasks – and these were 15-year-olds living in the 79 high- and middle-income countries that participated in the test (Schleicher, 2019). Meanwhile, an estimated 53% of children in low- and middle-income countries cannot read proficiently by age 10 (Imchen and Ndem, 2020). The cross-national results thus confirm that bringing children into school does not automatically increase learning.

Where it has been tried, research to understand drivers of quality primary education – i.e. considering completion rates plus learning outcomes – are often focused on individual countries<sup>6</sup> (e.g. Kuh et al., 2010 in the US; Muvawala, 2012 in Uganda), on understanding the evolution or impact of a particular reform (e.g. McEwan, 2008 on multi-grade school reform; Aladjem, 2010 on Comprehensive School Reform Implementation and Outcomes (ECSRIO)) or randomised control trials (RCTs) set in very specific contexts to assess interventions (e.g. Lai et al., 2015 in Beijing; Mbiti et al., 2017 in 10 districts in Tanzania). Since 2000, however, there have been a few studies focused on cross-national

4 The number of countries participating in TIMSS increased from 42 in 1995 to 64 in 2019. In the case of PISA, the number of participants rose from 42 in 2000/2001 to 79 in 2018 (UNESCO, 2019).

5 Both these factors mean the available data is likely to overestimate quality.

6 Based on linear regression models, other studies have identified factors such as family income or wealth, parental education, empowerment and education of the mother, credit constraints, age and gender of the child, family size or presence of siblings, caste affiliations, place of residence and educational infrastructure as determinants of PCR (Akhtar, 1996; Deolalikar, 1997; Tansel, 2002; Brown and Park, 2002; Connelly and Zheng, 2003; Boissiere, 2004; Desai and Kulkarni, 2005; Das and Mukherjee, 2008; Mike et al., 2008).

understanding of drivers of education quality, which in turn have highlighted a variety of factors underpinning education quality. Interestingly with the exception of Bruns et al. (2003) (discussed below), studies do not necessarily differentiate between the inputs and processes that lead to improved completion rates as distinct from enrolment and learning outcomes.

In its most recent *World development report*, the World Bank (2018b) identified children's lack of readiness to learn, weakness in teacher and school management skills and inadequate school inputs (e.g. textbooks, technology or school infrastructure) as proximate determinants of the learning crisis. It argued that inadequate financial resources were not as central to the issue of low-quality education – although many weak systems are also under-resourced – as 'misalignment' between learning goals, policies and practices, exacerbated by lack of information on performance metrics throughout the school system. At the same time, evidence has shown that financial resources are needed to guarantee a minimum number of teachers. For example, Fehrler et al. (2009) find that a ratio of student to teacher that exceeded 60:1 began to show a detrimental impact on learning outcomes.

In its focus on the local context and environment within which a school operates, the Bank's report expands on Masino and Niño-Zarazúa (2016), who suggest – based on evidence from experimental and quasi-experimental studies – that interventions are more effective at improving student performance and learning when social norms (e.g. around discrimination) and the choices of teachers, students and parents across time are integrated within education policies. However, Masino and Niño-Zarazúa (2016) find

that supply-side interventions are less effective alone than when accompanied by incentives and interventions that affect preferences and behaviours at the community level.

Meanwhile, Ewan and Popova (2015) examine six meta reviews on student learning in low-income countries to draw out factors that are supported broadly across the studies as having an impact on quality of education.<sup>7</sup> Across the reviews, they find support for:

- (i) *pedagogical interventions that match teaching to students' learning, including through the use of computers or technology*
- (ii) *individualized, long-term teacher training*
- (iii) *accountability-boosting interventions, such as teacher performance incentives and contract teachers* (Ewan and Popova, 2015: 3).

Older studies, such as Hanushek and Woßmann (2007), emphasise other factors, including creating greater choice and competition between schools; greater school autonomy through decentralisation and parental involvement; and greater accountability through national and international assessment systems that can provide data on school performance. Another approach to the determinants of education outcomes has been taken by Bruns et al. (2003), which examines primary school completion rates for a sample of 47 countries to identify patterns among countries that perform the best and worst in this respect. Based on their approach of exploratory correlations and regressions of possible inputs that impact PCR, they developed a set of indicative benchmarks for key parameters of the primary education system associated with the best performance with regard to progress towards universal primary completion. The relevant key

<sup>7</sup> The reviews are Conn (2014), Glewwe et al. (2014), Kremer, Brannen and Glennerster (2013), Krishnaratne, White and Carpenter (2013), McEwan (2012) and Murnane and Ganimian (2014).

parameters are teacher salary, the pupil–teacher ratio, non-salary spending, repetition rate, government revenues as a percentage of gross domestic product (GDP), recurrent spending on education and private enrolment.

While comprehensive political economy studies of education system performance are rare, there are a few that merit mention. Hickey and Hossain (2019) fill the gap with a recent edited collection that employs the domains of power framework to analyse the evolution and performance of education systems in six countries. Based on conclusions from the six countries, Hickey, Hossain and Jackman (2019) highlight the role of political settlements as integral to the degree of commitment elites show to reform in education, and note the relative ease of moving ahead on access to education, compared to quality. Among other factors, the latter is stymied by a lack of power within the education system among actors for whom quality is significant, namely middle-class parents.

Distinct from the review of reviews cited above, and more in line with Bruns et al. (2003), in this paper we investigate a number of countries that have shown progress in increasing completion rates from 2000–2017. Overall, the studies above indicate three broad areas that can cut across different levels of a school system (e.g. national, local, school) which are relevant to keeping children in school and improving learning outcomes:

1. The **political environment**, which determines the school structure, autonomy, advocacy and the level of investment in quality of education, including legal strategies. In doing so the political context creates conditions for optimal or sub-optimal functioning of local governments

and their regulation of schools; on households' interest and capacity in attaining schooling and the level to which international bodies (e.g. UNESCO) can influence or add to inputs into the schooling system.

2. **Technical interventions** that directly affect the knowledge and workload of teachers aiming to teach or already teaching in a school and thus mediating how curriculum within a school will be implemented and how resources at the school level are utilised to deliver quality teaching.
3. Factors affecting **barriers to staying in school within communities and households** are relevant in understanding why enrolment figures may not translate into completion rates at the school level in the face of 'hidden' costs of free education (Williams et al 2015) that can keep children out of school.

We use these areas as points of departure – later separating political environment from legal strategies – to guide the qualitative data strategy (see Box 3 in Chapter 3) at the country level for each of the 38 countries.

## 3 Methodology used to analyse trends

In this paper our aim is to identify common factors amongst countries that have achieved high PCR, and where possible also learning outcomes, between 2000 to 2017. We further explore which social and economic groups within countries are being left behind or excluded from the rise in completion rates, ask why that may be happening and consider what the governments in question are doing to overcome those gaps.

The central research questions we aim to address in this study are thus:

Q1. What factors have enabled some countries to achieve high PCR rates?

Q2. What was the relationship between PCR and learning outcomes across countries?

Q3. Within countries with high completion rates and (relatively) strong learning outcomes, which groups or areas have been left behind?

Building on the methodological approach taken by McDonnell et al. (2020) in their study on UHC, we explore these questions based on a rigorous review of evidence from a wide range of literature. We put together a unique database which we then use to identify main patterns and analyse the underlying data.

### 3.1 Data on PCR and learning outcomes

We used data from the UNESCO Institute for Statistics on PCR or gross intake ratio to the last grade of primary education (see Appendix 1 for methodological details). The PCR indicates the number of students who complete primary school education as a proportion of the primary school age population.<sup>8</sup> SDG Indicator 4.1.2 measures primary completion with data on census or household surveys, but this is not collected as regularly. PCR is a good proxy and has wider coverage, spanning the whole period 2000–2017 for all 38 countries in our sample.<sup>9</sup> To look further at those left behind, we used disaggregated data on PCR from the World Inequality Database on Education.<sup>10</sup>

On learning outcomes, we used the learning assessment score harmonised by the World Bank's Human Capital Project (World Bank, 2018e). The harmonisation uses a conversion factor to compare international and regional standardised achievement tests on reading and maths (see methodology in Patrinos and Angrist, 2018). We acknowledge that there is some sensitivity while analysing changes over time, especially when countries have used different achievement test systems.<sup>11</sup>

<sup>8</sup> Note that the numerator may include late entrants and overage children who have repeated one or more grades of primary education as well as children who entered school early, while the denominator is the number of children at the entrance age for the last grade of primary education.

<sup>9</sup> We applied interpolation for some countries (see highlighted countries in Table A1 in the Appendix).

<sup>10</sup> Note that WIDE follows SDG Indicator 4.1.2 methodology, meaning that we count with disaggregated data only for a very few sets of countries and data years.

<sup>11</sup> We restricted the analysis to countries with data ranging from 2007 to 2013. See methodological details in the Appendix.

### Box 3 Selected countries with high improvement in completion rate from 2000–2017

Albania	Costa Rica	Iran	Morocco	Rwanda
Algeria	Côte d'Ivoire	Kazakhstan	Mozambique	Senegal
Azerbaijan	Dominican Republic	Kyrgyzstan	Myanmar	Thailand
Benin	Ecuador	Laos	Nepal	Togo
Burkina Faso	Ghana	Lesotho	Niger	Tunisia
Burundi	Guatemala	Madagascar	Oman	Vietnam
Cambodia	Hungary	Mauritania	Papua New Guinea	
Colombia	India	Mexico	Poland	

We chose to look at PCR and learning outcome indicators independently, instead of aggregating into a composite index, for two reasons: 1) we have comprehensive data on PCR for all 38 countries, but on learning outcomes we have data only for 28 countries and some years; and 2) we expected to see differences in the strategies that work for improving PCR and for improving learning outcomes. Further details on measuring PCR and learning outcomes in Appendix 1 – Methodological notes.

## 3.2 Country selection

Box 3 lists the 38 countries included in our analysis. These countries have made the most progress between 2000 and 2017 in improving primary school completion.<sup>12</sup> We measure progress as the difference in shortfall on PCR against a goal of 100% completion (Appendix 1). We then restricted the sample to low- and middle-income countries (as per the year 2000), and those with a population in excess of 2 million people.<sup>13</sup>

These filters leave us with a set of geographically and economically diverse countries that have performed well in improving PCR. Thirteen countries are from sub-Saharan Africa, two from South Asia, five from the Middle East and North Africa, six from Latin America, six from Europe and Central Asia and six from East Asia and the Pacific. In terms of income levels, 21 are low-income countries, 12 are lower-middle income countries and five upper-middle income countries.

## 3.3 Country-level data

We collected data on enablers of PCR in each selected country by investigating the three areas identified in the literature review as drivers of primary education performance:

- Political environment, including legal strategies.
- Technical interventions at the school level.
- Interventions affecting barriers to staying in school at community and household levels.

<sup>12</sup> Country selection was undertaken in August 2020, using the most recent available data at that time. The quantitative analysis in this paper uses more recent data updated in September 2020.

<sup>13</sup> High-income countries are unlikely to feature given that most have already achieved nearly universal coverage and so are unlikely to show a high degree of progress in the way we measure progress in this paper.

We built a dataset giving an overview of each country's primary education system and progress. We use the three areas identified above as points of departure to guide the qualitative data strategy for each of the 38 countries. We framed specific questions under each of the three areas that sought to gain information on each country's general primary education coverage trends, the strategies linked to increased completion rates (or progress in this direction), and factors underlying implementation and design of the same. (See Appendix 2 for details.)

In our review of literature, we included approximately 500 sources of data in our country-level analysis (available on request). We searched for government documents (focusing especially on education sector plans and laws related to education), academic and grey literature for each country in Google Scholar, EBSCO services and data produced by organisations including UNESCO, GPE, the World Bank, the EU and the OECD. In French- and Spanish-speaking countries, searches were conducted in English as well as French and Spanish respectively; in countries where Arabic was the main language, we relied on online translation tools.<sup>14</sup> In a small number of cases, newspaper feature articles and reports were also used for countries where data seemed scant (e.g. Iran, Oman and Tunisia).

This research provided a range of complex details on the period under study. To analyse them, we identified common patterns to create categories of strategies under the 22 main questions.<sup>15</sup> We then assigned each country's experience to the relevant categories, thereby standardising 38 stories to identify overall trends. Next, we narrowed the categories down based on our confidence in the data sources and frequency of occurrence in our sample<sup>16</sup> – given our focus on factors we could identify as universal to the countries under study. Since we relied on diverse accounts of education systems, it is possible that two very similar processes could be described differently, or conversely that different processes end up in the same category. We tried to limit this potential bias by having two people compare the literature and categorisations separately and coding the variables as narrowly as possible (see the underlying database in Appendix 3 and the codebook in Appendix 4).

### 3.4 Cluster analysis and regressions

We use a combination of data reduction techniques, including Two Step Cluster Analysis to reveal underlying groupings (or clusters) subjacent in the data and identify the most common patterns. The result is a classification or taxonomy, where countries are classified in clusters or types grouping cases that are as similar

<sup>14</sup> We read what is available in English, Spanish and French, but it is possible that we have missed literature in local languages as well as literature (including government documents) not available on government websites and/or in grey literature.

<sup>15</sup> Based on team meetings and discussions we identified emerging themes under each of the 22 questions; once we identified the themes, we returned to the data to double-check to ensure that we employed a consistent definition to investigate the category across all countries, and updated data where this was not the case.

<sup>16</sup> Once the data was cleaned and had been double-checked for accuracy, we extracted our final set of categories using two criteria. First, at least 45% or more of our sample showed the variable was significant in their context (negatively or positively). The threshold of 45% was employed because we were interested in identifying factors that were present for a large proportion of countries in our sample, while also recognising that we did not have the capacity to systematically deal with each discrete observation that was only common across a small number of countries (e.g. double shifts in a classroom, which was only present in five countries in our sample and 'de-worming' as a strategy found in three of our sample countries. Second, to ensure our data was robust we independently checked the same observation in at least two data sources.

as possible in terms of the type of strategies they followed, and as distinctive as possible with other types. We therefore use the cluster analysis to help identify associations within our database allowing us to see various distinctive bundles of strategies associated with faster progress in PCR which we would not have been able to see by viewing the database alone.<sup>17</sup>

As part of the exploratory analysis, we also evaluate the association between each cluster and either progress in completion rate or progress in learning outcomes (exploring bivariate association) to check whether a certain bundle of strategies is associated with faster or slower progress. We then looked at the interaction between PCR and learning outcomes as part of the paper's final discussion section.

Finally, we ran a series of Ordinary Least Square (OLS) regressions to test whether the associations established – between progress in completion or learning outcomes, and the emerging categories from our database – are significant in a multivariable setting and which ones emerge as especially significant in having an impact on PCR and learning outcomes. We ran two sets of regressions. In one set we regressed speed of progress in primary completion rate, and in the other speed of progress in learning outcomes as the dependent variable. In both cases the speed of progress was measured with the difference in shortfall as explained above in the selection of countries (see Appendix 1 for further details). Since our sample is limited to countries that made quick progress, our models

only test if any category is significantly associated with faster progress among this set of countries.<sup>18</sup> Data emerging from the literature review was complemented with quantitative data from a range of sources. As control variables, we included data from the World Bank on GDP per capita, World Bank income classification, percentage urban population and population size. We included data on government expenditure on education from the UNESCO Institute for Statistics. We included data on Official Development Assistance (ODA) to education from the OECD's Creditor Reporting System (CRS) published in the *Global education monitoring report 2019* (UNESCO, 2018).

<sup>17</sup> Note different paths can lead to faster progress. In other words, various combinations of strategies could lead to similar outcomes.

<sup>18</sup> We only count with a subsample of countries: those making faster progress in primary completion. The regression would show different results if our sample included the whole world, or a larger number of countries. This has quite important implications. We cannot assess factors that may explain why our sample countries are faster in relation to other countries in the world. For example, government expenditure as we explain in later sections. We can only explain why some countries in our sample are faster than others.

## 4 Approaches to improving primary education

Our literature review indicated three broad areas of an education system relevant to explaining education quality: the political environment; technical interventions at the school level; and interventions to address barriers to staying in school. In studying our database, we address legal interventions around primary education distinctly from political environment to highlight the difference between a clear policy mandate and the features of a general enabling/disabling environment. Our review found there were four foundational enablers with a set of common

features that support progress toward quality primary education, as summarised here in Table 1. In line with the general inductive approach adopted for this paper, we now discuss key findings that emerged from our analysis of the database. For each level of the education system where we discuss the common features, we also highlight whether cluster analysis showed any notable associations between certain features (e.g. whether countries that employed strategy M always also employed strategy N).

**Table 1** Foundational enablers and common features supporting progress toward quality primary education

Foundational enablers	Common features
1. Political environment	<ul style="list-style-type: none"> <li>● Effort toward decentralising education</li> <li>● International engagement (discourse on education and/or donors)</li> <li>● Presence of education champions</li> <li>● Long-term national imperative for education</li> </ul>
2. Legal aspects of provision	<ul style="list-style-type: none"> <li>● Early introduction of free and compulsory primary schooling</li> <li>● Addition of free and compulsory early childhood education</li> <li>● Openness to private provision to help meet increased demand</li> </ul>
3. School-level technical strategies	<ul style="list-style-type: none"> <li>● Updates or reform to curricula</li> <li>● Changes in both pre- and in-service teacher training</li> <li>● Provision of free textbooks to students</li> <li>● Establishment or upgrading student learning assessments</li> <li>● Quality assurance for schools</li> </ul>
4. Reduce household barriers	<ul style="list-style-type: none"> <li>● Expansion of school infrastructure</li> <li>● School feeding programmes</li> <li>● Adult literacy programmes</li> <li>● Instruction in a native language</li> </ul>

## 4.1 Political environment

Under political environment we grouped those features of a country's broader political landscape that, while not specifically focused on primary education quality, were still strongly linked by our data sources to improvements in PCR. Four clear features emerged from our database: the presence of education champions, a national imperative/history driving long-term emphasis on education, government engagement with international stakeholders and policy rhetoric around (which we use as a proxy<sup>19</sup> for efforts towards) decentralisation.

In 12 countries **education champions** were linked to a rise in PCR. Our database showed a plurality of profiles of education champions involved in furthering policy on education delivery and reform in countries, from political party leaders to education ministers. For example, Education Minister Leonardo Garnier Rimolo was an important figure in championing curricular reforms in Costa Rica. We also found the presence of a **national imperative driving focus on education** in Colombia, Mexico, Myanmar, Oman, Poland, Thailand and Tunisia. 'National imperative' is the label we use to mark observations of focused rhetoric on the importance of education and its quality over a sustained period. These countries were characterised by a very high completion rate at the beginning of 2000 – the starting point of our analysis. For Colombia, Mexico and Myanmar we found the national imperative or focus on education emerged in the aftermath of conflict or state fragility.

Meanwhile, we did not observe a clear association between a rise in completion rates and pressure

by teachers' or parents' unions or youth-based grassroots movements. Out of the 38 countries in our sample, the literature we reviewed did not commonly perceive teacher unions to have a significant impact on improving completion rates (only evident in six countries), while in three<sup>20</sup> of the six countries, the effect of teachers' unions on improving PCR was perceived to be negative.

The importance accorded to state-level interventions and commitments to primary education in the literature for the countries discussed above and the comparative minimal impact recorded on the same by grassroots movements echoes recent discussion in the field of the political economy of education. Recent work on political determinants of mass education provision finds regime type, and in turn regime responsiveness to citizens, to be an inadequate explanation for the spread of primary education in non-democratic as well as democratic settings (Pritchett, 2004; 2019). Instead, Paglayan (2017) and Hickey and Hossain (2019) show the significance of top-level, political and elite consensus in expanding coverage of primary education. Literature from the 1970s and 1980s has explained the top-down focus in providing mass education across regime types in terms of nation-building rather than redistribution (Weber, 1976; Gellner, 1983; Boli and Ramirez, 1987), and recent scholarship has also discussed the nation-building role of primary education (Aghion, Jaravel, Persson and Rouzet, 2013; Ansell and Lindvall, 2013; Soifer, 2015). While the political settlements approach provides nuance on the degree to which formal and informal consensus shapes a country's performance on learning outcomes (Hickey and Hossain, 2019), there is

<sup>19</sup> In the absence of systematic work on our 38 countries evaluating the nature and adequacy of decentralisation along different dimensions (e.g. financial, administrative).

<sup>20</sup> Ecuador, Guatemala and Mexico.

no one political settlement that is reliably linked to increasing learning outcomes or an ‘effective politics of learning’ (Pritchett, 2019).

A third recurring feature of the political environment for 23 countries in our database was the presence of high country government engagement with **international donors** as well as international **discourse** on EFA and MDGs around education. In some cases, this was accompanied by **debt relief**.<sup>21</sup> Further exploration showed that high international involvement often occurred in countries where primary completion rates were on average relatively low at the starting point. Countries with low completion rates and high international involvement also tended to be low-income countries, and included all the sub-Saharan African and South Asian countries in our sample. Given that countries in our sample with low PCR tend to be low-income countries, it is unsurprising that they experience debt relief. However, it is interesting to note that debt relief can be accompanied by infrastructure expansion, highlighting that infrastructure to accommodate children of school-going age had remained a significant barrier to PCR. It is likely that financing made available from debt relief was able to meet that need. For example, we know that the debt relief (IMF, 2002) Ghana received in 2002 under the Heavily Indebted Poor Countries (HIPC) Initiative was used in part to abolish primary school fees in 2004 (Jubilee Debt Campaign, 2016). Similarly, debt relief in Niger in 2000 was used directly for school infrastructure, particularly in rural areas (IMF, 2000; Sacredoti and Calier, 2008).

Finally, we find **policy rhetoric**<sup>22</sup> around **decentralisation** across 28 of our sample countries. We emphasise the term ‘rhetoric’ here since we were only able to assess the degree to which country governments supported decentralisation in their official and public discourse. For 15 of the 28 countries, emphasis on decentralisation as a form of governance was accompanied by rhetoric that specifically promoted local ownership or management of schools. Rhetoric around decentralisation of education in our literature did not comprehensively cover decentralisation’s main features, i.e. financial means, administration, curriculum planning, participatory decision-making or devolution of human and physical resources. However, we acknowledged a country as having rhetoric around decentralisation of schooling if multiple sources mentioned at least one of the elements listed above. The focus of our sample on decentralisation is unsurprising given its centrality to educational policy reform studies from the late 1990s onwards (Zajda and Gamage, 2009), as well as support for decentralisation from international donors and international NGOs (Fritzen and Lim, 2006). In Chapter 6, we discuss further how decentralisation was considered a common approach to increasing school enrolment and attendance in poorer areas of a country in the time period under consideration.

<sup>21</sup> There is some association between these conditions and having low levels of completion in 2000. We expect the relation to reduce when controlling by PCR in 2000. We present this analysis in Chapter 5.

<sup>22</sup> Given the many facets of decentralisation – operational, financial, technical, in personnel and management – it was beyond the scope of this piece to assess whether each country’s practice of decentralisation between 2000 and 2017 matched their rhetorical support for it.

## Box 4 Albania and Lesotho: looking deeper into enabling political environments

Albania is among the countries with the highest progress in terms of learning outcomes. The start of the 1990s was marked by the dissolution of the Soviet Union, which for Albania also entailed the collapse of the education system and the need to come up with a new system of education (Sota, 2012). European integration became a national goal, and EU accession requirements guided education reforms. Curricular changes in basic education implemented in 2010 remain an ongoing process with the goal of making the curriculum modular and competence-based, so that comparisons can be made with EU member states (Mico, 2019). Education policy has been accompanied by a rhetoric of decentralisation, evident as early as 2000 with Law 8652 'On the Organization and Functioning of the Local Government', which set the pillars for decentralisation of local government and, simultaneously, of the education system (Garunja, 2018). Although decentralisation included administrative and financial decentralisation, the education sector is still described as centralised, with local governments executing a centrally designed policy (Nikolovska, 2008; Lama, Sula and Gjokutaj, 2011).

Lesotho is one of the countries in our sample that has made the most progress in terms of learning outcomes. Education in Lesotho has been held in high regard since independence as it is considered a pathway to socio-economic development (Nieuwenhuis, 1996). National education plans highlight the role of the Basotho philosophical values of justice, equality, peace, prosperity, participatory democracy and mutual coexistence, and how these values ought to be integrated into educational curricula (MOET, 2008). Education was championed by political leaders in the early 2000s, when the Lesotho Congress for Democracy made free primary education a key element of its political campaign in 2000 (Lekhetho, 2013). It is important to highlight that this national imperative does not exclude international involvement; in fact, international assistance supported reforms throughout this period and donors continue to play an important role in financing the education system. Lesotho has also pursued a rhetoric of decentralisation, characterised by a strong partnership between the government and churches. The curriculum is centrally developed, while District Offices support schools through administrative assistance and professional guidance (UNESCO, 2006; 2010).

We also explored how different features of the political environment clustered together to see if there were correlations between characteristics, i.e. whether countries tended to favour a group of strategies together or not. The clustering confirmed that the majority of countries – in Cluster 1 and Cluster 4 – that featured a high level of international engagement had low completion rates in 2000 relative to other countries in the

sample. Interestingly, in a few countries – Algeria, Azerbaijan, Burundi, Iran and Kazakhstan making up Cluster 5 – while there was a distinct donor presence in the education space, there was very limited evidence of country government(s) engaging with the discourse on EFA or MDGs. Donors, rather than government engagement with the international environment on education, might be the most distinctive feature because

these were conflict-affected countries with long-standing ethnic tensions and central governments that lacked legitimacy. We also noticed that, for three middle-income countries in our sample – the Dominican Republic, Ecuador and Hungary in

Cluster 2 – an education champion was present alongside a national imperative on education. These countries had minimal engagement with international donors, international discourse on education or debt relief (see Table 2).

**Table 2** Clusters of political environment features

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Number of countries	9	3	7	14	5
Education champion	Yes	Yes	No	No	No
Levels of engagement with international actors, education discourse and debt relief	Always donor. Often debt relief and/or international discourse	Minimal – only int. discourse in 1 case	Minimal – only int. discourse in 2 cases	Always donor and int. discourse. Often debt relief	Always donor. In 1 case debt relief. Never int. discourse.
Rhetoric of decentralisation	In most cases (7)	In fewer cases (2)	In most cases (5)	In most cases (12)	In fewer cases (2)

Note: Cluster 1: Costa Rica, Ghana, Lesotho, Mauritania, Morocco, Papua New Guinea, Rwanda and Senegal. Cluster 2: Dominican Republic, Ecuador and Hungary. Cluster 3: Colombia, Mexico, Myanmar, Oman, Poland, Thailand and Tunisia. Cluster 4: Albania, Burkina Faso, Cambodia, Cote d'Ivoire, Guatemala, India, Kyrgyz Republic, Lao PDR, Madagascar, Mozambique, Nepal, Niger, Togo and Vietnam. Cluster 5: Algeria, Azerbaijan, Burundi, Iran and Kazakhstan.

## 4.2 Legal strategies

Under legal strategies we explored laws and legislation that directly or indirectly targeted primary education. Our database showed the following frequent and recurring strategies across countries:

- Introduction of free and compulsory primary education.
- Introducing ECE and making it free.
- Regulation (directly/indirectly) of private primary school enrolment over time.

Free and compulsory primary education are the most common and widely pursued strategies across our sample and tended for the most part to happen in three waves: before the 1990s, after

2000 and after 2010. Almost all the countries reviewed (90%) mandated primary education to be free, with most countries introducing the measure in the 1990s. In our sample, a larger number of countries made primary education free compared to countries that made it compulsory: 32 countries in our sample (85%) made primary education compulsory in the 1990s, and seven countries had done so before the 1990s. Eight countries introduced and enforced compulsory primary education after 2000, including five that did so during the 2010s. Exceptions to this pattern are Niger, Oman and Papua New Guinea, where primary education is free but not compulsory. Elimination of tuition fees has been documented to be a driver of increased enrolment rates

(Kattan, 2006), but there is less evidence<sup>23</sup> that free primary education as a single strategy can be responsible for high PCR (Earle et al., 2018).

Work on the impact of early childhood on cognitive development and learning outcomes, as well as research on the impact of pre-primary education in improving a child's school readiness, supports the notion that making ECE free and widely available may increase PCR in countries where the gap between enrolment and PCR remains high (Camilli et al., 2010; Earle et al., 2018). In our sample of countries, however, free and/or compulsory ECE appears to be a more recent strategy than making primary education compulsory or free. Eighteen countries in our sample had compulsory ECE and eight introduced it after 2000. Five countries instituted compulsory ECE in the 1990s, while only one did so before 1990. Following the pattern in primary education, more countries made ECE free than compulsory: 21. The ratio is encouraging in highlighting the relative importance of reducing the cost of going to and being in school relative to making it compulsory and encouraging non-compliance in the face of untenable costs.

When we next cluster countries to see if any of the characteristics occur together, we notice that ECE was both free and compulsory in countries with a relatively high PCR in 2000, and was also free (though not always compulsory) in countries that had the next highest average PCR at the beginning of 2000. Paradoxically, it seems that, while ECE may be needed as one strategy among others to boost PCR, countries that adopt and move towards free ECE often tend to do so

after reaching a point of relatively high PCR. This contrasts with recent findings by Earle et al. (2018), who create a globally comparable measure of pre-primary education for 104 countries, and show that, 'while there was no association with provision of at least 1 year of free pre-primary education, [there was] a significant positive effect when policies require that a final (or only) year of pre-primary education is compulsory as well as free, and that the magnitude of the effect was larger for countries at the lower end of completion rates' (p. 19).

Finally, given the wide range of regulatory environments across the 38 countries in our sample, we looked at changes in the share of private sector enrolment in primary education as a proxy for legislation that facilitated the establishment of private schools in the country. We observe that 28 countries in our sample (74%) registered an increase in uptake of private provision of primary education between 2000 and 2017 from varied starting points. While 50% of the countries had a low share of private primary enrolment in year 2000 (under 5%), around 44% began 2000 with above 5% share of private enrolment.<sup>24</sup> In the cluster we see that the set of countries that on average have a low PCR in 2000 – Cluster 2 – all register increases in private sector enrolment, perhaps indicating a demand for schooling that was partly met by growth in the private sector. However, in their extensive literature review on the impact of private education in low-income countries, Day Ashley et al. (2014) note that 'there is little evidence to support or refute the question of the system-wide effects of private education' (p. 3).

<sup>23</sup> Zhang and Minxia (2006) and Brunello et al. (2009) show some evidence that free primary education can increase PCR.

<sup>24</sup> We found weak negative association (significant at 0.01 level) between PCR in 2017 and share of primary completion in 2017. Association is negative and non-significant for 2000 levels. There is no association between share of private enrolment and progress in PCR (measured with shortfall).

### Box 5 Burkina Faso and Nepal: a closer look at legal strategies

In Burkina Faso, completion increased from 25.4% (2000) to 63.5% (2017), average learning outcomes improved and the gap between boys' and girls' learning has started to narrow.<sup>25</sup> To achieve these results, in 1996 primary education was made free and compulsory. The reform was further facilitated by the 2007 Education Act and promotion of private provision of primary education. The Act set up a fund to support private entrepreneurship, especially pertaining to education for girls and schooling in rural areas, reduced taxes and fees for private schools, gave private providers equal access to teacher training programmes and allowed for private schools' associations (Dembélé, Some and Ouédraogo, 2015). The share of students enrolled in private education increased from 11.4% to 20% between 2000 and 2017.

Nepal employed a largely similar strategy, although in addition to making primary education free and compulsory, and promoting private provision, it also made early years education free (2002) and mandatory (2015). The share of primary private enrolment increased from 6.6% in 2001 to 16.6% in 2017. This was partially driven by the 7th Amendment of the 2001 Education Act, which allowed for the reopening of private schools nationalised between the 1960s and 2000s. Fees in private schools are regulated by the government, and part of the profit from private schools (1.5%) is set aside for scholarships and a Rural Education Development Fund. Promotion of the private sector is seen as an effective way to reduce the financial burden on the central government (Carney and Bista, 2007). As specified in the 2007 Interim Constitution, the strategy of making ECE and primary free and mandatory prioritises learning among girls, orphans, children with disabilities, ethnic or religious minorities and other disadvantaged groups.

<sup>25</sup> Based on PASEC test scores harmonised by the World Bank male versus female scores in 2006: 402 (m) vs. 397 (f); 2016: 404 vs. 400.

**Table 3** Clusters of legal strategies

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
	Focus on primary with a mix of ECE and private provision	Focus on primary, supported with increase in private provision	Full provision (primary and ECE)	Weak focus on primary
Number of countries	5	15	8	10
Compulsory primary	Yes	Yes	Yes	+/-
Free primary	Yes	Yes	Yes	Frequently (10)
Compulsory ECE	Rarely (1)	Rarely (9)	Yes	No
Free ECE	Frequently (4)	Rarely (9)	Yes	No
Increased enrolment in private education	+/-	Yes	No	No

Notes: +/- indicates a split between yes and no. Cluster 1: Albania, Cote d'Ivoire, Algeria, Thailand, Vietnam. Cluster 2: Burkina Faso, Costa Rica, Dominican Republic, Ghana, Iran, Cambodia, Laos, Lesotho, Morocco, Madagascar, Mauritania, Nepal, Poland, Rwanda, Tunisia. Cluster 3: Azerbaijan, Colombia, Ecuador, Guatemala, Hungary, Kazakhstan, Kyrgyzstan, Mexico. Cluster 4: Burundi, Benin, India, Mozambique, Myanmar, Niger, Oman, Papua New Guinea, Senegal, Togo.

### 4.3 School/technical interventions

In this section we found five strategies common across our sample countries aimed at improving the quality and supply of education at the school level by working on the knowledge and workload of teachers and, by extension, the content they teach, their role as evaluators and their responsibility and accountability within the school system:

- Changes to primary school curricula (in 29 countries or 76% of our sample).
- Changes or updates in pre- and/or in-service teacher training (in 28 countries or 74% of our sample).
- Provision of free textbooks to students (in 24 countries or 63% of our sample).

- Establishment or upgrading learning assessments for students (in 18 countries or 47% of our sample).
- Institution or update of quality assurance mechanisms at the school level (in only 13 countries or 34% of our sample).

Changes in the **curricula of primary education and teacher training** go almost hand in hand. The correlation between these strategies is not surprising given that any changes in the primary curriculum will also require changes in what teachers are taught in their training. Nevertheless, some countries did not implement the two changes in tandem: Mauritania, Iran, Côte d'Ivoire, Ghana and Vietnam updated or changed teacher training curricula in the period under discussion but did not update syllabuses for students.

Madagascar, Morocco, Myanmar, Oman and Tunisia pursued reform of their primary school curricula but not teacher training curricula.

Countries in our sample implemented these strategies for the most part over the 2000s.<sup>26</sup> On paper, the content of these reforms focused attention on shifting away from a teacher-centred education towards a child- or learner-centred education which ‘[places] the child at the notional centre of the learning process in which they are active participants. Involves giving children choices of learning activities, with the teacher acting as facilitator of learning’ (International Bureau of Education, 2021). We identified 14 countries with curricular reform at the primary level focused on lifelong education and acquisition of life skills: Algeria, Cambodia, Costa Rica, Guatemala, Hungary, Kyrgyzstan, Lesotho, Myanmar, Nepal, Niger, Poland, Rwanda, Senegal and Tunisia. Additionally, eight countries in our sample explicitly expressed as the intention of curricular reform in their national strategies the achievement of a child-centred education: Albania, Benin, Cambodia, Guatemala, India, Lesotho, Myanmar and Papua New Guinea. Another popular theme among the curricular reviews at the primary level was to incorporate the local context to make the curriculum more relevant, e.g. in Costa Rica, the Dominican Republic, Ecuador, Guatemala, India, Laos, Mozambique, Nepal and Niger.

Under **teacher training (both pre-service and in-service)** we recorded countries implementing changes in the minimum standards (around years of education and education content) required for instructors to teach, changes in pre-service and in-service training curricula as well as the provision of incentives to engage teachers in

in-service and pre-service training. In Papua New Guinea, the Dominican Republic and Nepal, higher education was made a pre-requisite to teach. In other countries, such as Laos, teachers were allowed to enter the teaching profession with nine years of education (so without having completed high school) but were then required to complete three years of pre-service training. Those who had completed high school require two years of pre-service training. Incentives there often consisted of scholarships for teachers and prospective teachers to engage in some form of higher education or training. In some countries, incentives also included increasing the wages of teachers to make the profession more attractive. For example, in the Dominican Republic the minimum wage for teachers at the basic level increased by 40% between 2012 and 2017 and the country entered into agreements with national and international higher education institutions to offer pre- and in-service training programmes as well as providing scholarships to teachers to participate in them. In Kazakhstan, the minimum wage for teachers in the public sector increased, with the goal of matching wages in the private sector by 2015, while also providing scholarship grants aimed at teacher training, with a focus on teachers of Kazakh and foreign languages. The emphasis on teacher training echoes the importance ascribed to it in primary education in the broader literature on education quality (Akyeampong, Lussier, Pryor and Westbrook, 2013; Slot, Leseman, Verhagen and Mulder, 2015).

The **provision of free textbooks** was a strategy identified in 24 of the countries studied, the majority of which began to switch to free textbooks and supplies during the 2000s. Textbooks and supplies are often mentioned together in the sources and education plans we

<sup>26</sup> Over the decade 24 countries implemented changes in how teachers are trained, and 25 countries introduced changes in the primary education curriculum.

analysed, but it was often unclear what supplies other than textbooks were included in the provision. Often, we found that free textbooks were provided to particular grades and particular populations first, rather than supplied universally right from the start. Azerbaijan and Hungary are examples where provision and roll-out favoured particular grades, with the former targeting grades 1 to 5 in 2004 and the latter grade 1 in 2013–2014. In a few countries, free textbooks were provided to a target group before provision was expanded to include the entire primary population. This was the case for Vietnam and Albania,<sup>27</sup> for example, where national poverty thresholds were used as the main determinant for targeting free textbook provision. Free textbook provision was a strategy favoured predominantly by the low-income countries in our study: 15 out of 24 countries that implemented free textbook provision were considered low-income in 2000: Azerbaijan, Benin, Côte d'Ivoire, India, Kyrgyzstan, Laos, Madagascar, Mozambique, Myanmar, Nepal, Niger, Rwanda, Senegal, Togo and Vietnam. The other nine countries that provided free textbooks are Albania, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Hungary, Mexico, Papua New Guinea and Thailand.

The institution or updating of **national learning assessments** in primary education was a strategy implemented by 18 countries in our sample (or 64%). For 14 countries the strategy came into effect after 2000, as completion rates begin to rise. Among the countries that pursued the strategy, some, such as Poland and Rwanda, implemented a form of systematic evaluation for the first time, while others, such as Hungary and Niger, sought to standardise existing measures.

In Poland, all student evaluations were based on teachers' subjective assessments until 1999–2000, when an educational reform sought to organise a system of evaluations supervised by the Central Examinations Commission, under which teachers were tasked with defining educational goals for students to accomplish, and standard criteria for assessment were established. Rwanda began to track and monitor the educational attainment of pupils in 2002 through pass or fail exams at the end of primary school.<sup>28</sup> Hungary implemented the Individual Student Assessment Code in 2008 to bring a universal standard to existing learning evaluations, and Niger sought to centralise existing evaluations in order to have a coherent national method of assessment. Despite the frequency of learning assessments evidenced in our sample countries, the results of national evaluations were not always accessible or available. It was unclear to the authors whether national assessments were carried out regularly and results recorded.

Thirteen countries in our sample undertook measures to establish or improve **quality assurance mechanisms at the school level**. The main thrust of the strategies under this category was to enforce accountability of staff involved in delivering primary education from a managerial perspective. Measures included capacity-building training of administrative and supervisory education staff and/or assessments of teacher knowledge, often alongside mechanisms to ensure teacher attendance. In Burkina Faso, with the involvement of the World Bank, funds were directed at building capacity through management training and building education structures for coordinating external assistance. In Senegal, elements of quality monitoring were implemented

<sup>27</sup> Albania favoured textbook provision to poor families in 2001, but in 2004 there was a shift in education plans and strategies to target all primary students.

<sup>28</sup> The pass or fail examinations were changed in 2009 to allow for a grading scale between 1 and 9, in order to provide a more objective student attainment metric.

in 2005 to update the existing Ten-Year Education and Training Program by decentralising management and broadening the role of the community in this area through additional funding. Teacher assessment is apparent in the national strategies of Colombia, where establishing a system of evaluation for teachers and school directors was one of the three basic education

policies put in place in 2003.<sup>29</sup> The challenges and impact of teacher absenteeism were recognised in India's Twelfth Plan of 2013, which explicitly prioritised and directed investments towards improving educational leadership and management at the district, block and school levels in order to improve accountability of the school system to different stakeholders.

**Table 4** Common technical strategy bundles across 38 countries

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
	All strategies except learning assessments	Absence of teacher training; presence of a mix of other strategies	All strategies except quality assurance for schools	Teacher training, updates to primary curricula and quality assurance
Number of countries	6	10	14	8
Changes in primary curricula	Yes	+/-	Yes	Frequent (5)
Began or updated teacher training (pre- and/or in- service)	Yes	No	Yes	Yes
Instituted or updated learning assessment	No	+/-	Yes	Rarely (3)
Free textbook provision	Almost always	+/-	Yes	No
Instituted or updated quality assurance for school management	Yes	Rarely (3)	No	Almost always

Notes: +/- indicates a split between yes and no. Cluster 1: Albania, Cote d'Ivoire, Algeria, Thailand, Vietnam. Cluster 2: Burkina Faso, Costa Rica, Dominican Republic, Ghana, Iran, Cambodia, Lao PDR, Lesotho, Morocco, Madagascar, Mauritania, Nepal, Poland, Rwanda, Tunisia. Cluster 3: Azerbaijan, Colombia, Ecuador, Guatemala, Hungary, Kyrgyz Republic, Mexico. Cluster 4: Burundi, Benin, India, Myanmar, Mozambique, Niger, Oman, Papua New Guinea, Senegal, Togo.

As with legal strategies, we observe that, in school-level interventions, countries tend to sequence the types of strategies they employ to improve PCR. Teacher training and curriculum change<sup>30</sup> precede

learning assessment updates, which in turn tend to precede measures to assess the quality of the education process at the school level.

<sup>29</sup> The other two main policies were the expansion of coverage and the improvement of efficiency in the education sector.

<sup>30</sup> Provision of free textbooks as a strategy preceded or quickly followed the implementation of changes in teacher training. The exceptions are (year of teacher training changes, year of free textbooks strategy): Hungary (2006 and 2013), Thailand (1999 and 2009), Papua New Guinea (2001 and 2004), Dominican Republic (2002 and 2013) and Nepal (2004 and 2007).

## Box 6 Guatemala and Mozambique: looking deeper into teacher training and the primary curriculum

In Guatemala, changes to how teachers are trained can be traced back to 2004 with the programme ‘Salvemos el Primer Grado!’ (‘Let’s Save Grade One!’), with a focus on building the capacity of teachers and household heads to improve learning outcomes, retention and promotion among students in grade 1 (Guatemala Sageco, 2015). While Salvemos el Primer Grado serves as an example of in-service training, the national education strategy (running between 2002 and 2015) also highlights objectives to improve pre-service training of teachers (Guatemala, Plan Pais, 2006). Changes in the primary curriculum were identified around 2010, with a focus on pre-primary and the initial grades of primary education (grades 1 and 2). Three themes stand out: making education student-centred, curricular skills for lifelong learning and the contextualisation of curricula to local and cultural needs. These strategies are backed by the provision of free textbooks to students, beginning in the 1990s.

In Mozambique, primary curricular changes took place just before changes in teacher training. A curricular revision in 2004 focused on integrating the seven grades that make up the basic education cycle in the country under the same curricular nucleus, to ensure continuity and relevance, alongside the introduction of a compulsory nucleus focused on learning outcomes. The revision also called for the introduction of a localised curriculum focusing on the child’s lived context, including a bilingual component, to make up 20% of the overall study plan (Milkeen and Chen, 2008). Changes to teacher training began in 2006. Pre-service training saw the implementation of new education programmes depending on the years of education of the trainees. Those with 10 years of education would serve in the initial primary cycle (ES1) after one year of pre-service training, and those with 12 years of education would serve in the upper primary education level (ES2) after one year of pre-service training (MoEC, 2006). In-service training programmes were also upgraded, and virtual training was introduced and expanded, including the provision for trained teachers with 10 years of previous education to upgrade their credentials to teach at the ES2 level. At a general level, education for children with special learning needs became part of teacher training as these children were integrated into the main education system (MoEC, 2012).

When we explore clusters of countries to identify correlations between different strategies, we note that countries appear to employ a bundle of strategies. Across these strategies, more than 50% of our sample often chose to pursue two strategies together rather than in isolation. Twenty-three countries (61% of our sample) instituted changes in curriculum and in teacher training at the same time. Meanwhile, a smaller

proportion of our sample – 45% or 17 countries – instituted changes in the primary curriculum, in teacher training and in the provision of free textbooks at the same time. We also note that countries with the lowest completion rate in 2000 comparative to the rest of the sample were also those that employed all strategies except learning assessments, as their focus was on increasing

coverage in real time while also improving PCR. These countries included Burkina Faso, India, Laos, Mozambique, Papua New Guinea and Senegal.

#### 4.4 Reducing household barriers

Overall, literature tracking student attendance, retention and learning demonstrates that students who drop out, those who enter late and those whose performance in school is low is attributable to poverty and its impact on household resources in accessing schools for children, children's readiness to learn and parents' own educational outcomes (e.g. Huisman and Smits, 2015; Maligalig et al., 2010; Bano, 2018; Albert and David, 2012).

In this section we look at strategies for removing or minimising the obstacles households face when sending children to school and/or keeping them in school. In addition to elimination of school fees mentioned above, the following strategies emerge as common across our sample of countries.

- Expansion of school infrastructure (both the expansion and renovation of physical infrastructure including classrooms, provision of water, electricity and toilets).
- School feeding programmes.
- Adult literacy programmes.
- Instruction in a native language.<sup>31</sup>

A total of 23 countries – 60% of our sample – worked to increase **provision of school infrastructure**, with 11 doing so in the 2000s and seven in the 2010s. Investment in infrastructure was in line with emerging data on education at the time, which showed that facilities played a significant role in increasing enrolment and

retention in schools (Schady and Paxson, 1999), particularly following the introduction of free primary education (Chapman et al., 2010). In their sector plans, countries in our sample acknowledged an insufficient supply of school buildings and/or classrooms either nationally or in remote areas. The main goal of governments via this strategy was to increase physical access, especially in remote areas where long distances to schools also entail danger, especially for female students. In 20 of the countries expansion of school infrastructure was, together with school feeding (and after the introduction of free and compulsory primary education) one of the earlier strategies pursued towards the goal of universal primary education.

We also found that **school feeding programmes** were frequently implemented across our sample of countries – 21 countries or 55% of our sample – as a strategy to reduce household food expenditure and thereby encourage households to send children to school. Although evidence on the impact of school feeding on learning outcomes remains mixed (Drake et al., 2017), evidence is more promising on enrolment and retention (Krishnaratne, White and Carpenter, 2013). Additionally, school feeding as a strategy was recognised by education sector documents in our sample as directly impacting children's readiness to learn by improving their nutrition and well-being. Most countries had school feeding programmes in place before 2006, e.g. Lesotho (Devereux et al., 2018). In India, the flagship Mid Day Meal Programme was introduced in the 1990s at the provincial level, and later universalised in 2004. It is possible that a similar trend – emphasising some local provision first,

31 'Instruction in native language' refers to the provision of primary education in native/ethnic languages in public schools. Countries that were coded as having instruction in native language equipped some of their public schools to teach the first few years of primary in a set number of native languages before transitioning primary students to learning in the country's official language (French/English/Spanish).

followed by universal school feeding programmes later – was also implemented in other countries. Similarly, Lesotho has a long history of school feeding programmes tracing back to the 1960s through the involvement of Save the Children and the World Food Programme (WFP). In 2000 a new school feeding model was rolled out nationally along with the Free Primary Education programme. For a wide sample of our countries, it appears that WFP was central in supporting the initiation of school feeding before programmes were taken over by governments and scaled up.

**Adult literacy programmes** emerged as significant in educating parents and household heads and raising the importance of education amongst them. The lack of education in parents/caregiving adults has been identified as a barrier to children enrolling (Handa, 2002) and staying in schools (Ghanney, 2018), particularly the impact of maternal literacy and education (Birdsall et al., 2005). We identified adult literacy programmes in the majority of our sample – in 30 countries or 79% – with 22 countries introducing initiatives before 2000. Interestingly, none of the countries with transition economies<sup>32</sup> – Albania, Azerbaijan, Cambodia, Hungary, Kazakhstan, Kyrgyzstan and Poland – in the sample had an adult literacy programme. This is attributable to higher rates of adult literacy: i.e. Azerbaijan 98.7% (1999), Albania 99% (2001), Cambodia 67.3% (1998), Hungary 99% (1980), Kazakhstan 99.5% (1999), Poland 99% (1998), Kyrgyzstan 99% (1999) (World Bank, 2021).

Over the last few decades, the significance of **native language in early years education** (Bensen, 2005; Dutcher, 2003) has prompted countries – including those in our sample – to introduce a variety of methods for incorporating

multiple languages. These include changing the language of instruction to the mother tongue in the first years of primary education (24 countries in our sample), native languages as a subject or second language within school (four countries in our sample) and/or introducing multilingual instruction outside the formal education system (nine countries in our sample). Many of the countries in our sample are host to a large number of native languages (e.g. 850 in Papua New Guinea, 24 in Guatemala, 22 in India). Historically, the majority of our sample have also inherited post-colonial education systems (e.g. Colombia, Mexico, Senegal) where the language of instruction and/or the official language of the country is different from the native language(s). In Chapter 6 we discuss the regional variation in our sample whereby countries in Latin America have been more successful in shifting the language of instruction into native languages for the majority of students compared to other countries in our sample.

When we explore correlations between different strategies, we note that countries mostly employed a set of strategies in tandem. However, a majority of countries<sup>33</sup> in one cluster – Hungary, Kazakhstan, Kyrgyzstan, Madagascar, Mexico, Papua New Guinea, Poland and Tunisia – only employed native-language instruction as a strategy, with a marked absence of other strategies. These were countries that had a relatively high PCR in 2000, indicating that the barriers were different for these countries, and/or they had already addressed barriers discussed in this section by 2000.

<sup>32</sup> These are countries that transitioned from a centrally planned to a market economy in recent history.

<sup>33</sup> In the case of Iran, we were unable to find data that confirmed absence or presence. Azerbaijan mentions instruction in native language as a second language (which is not the same as the language of instruction being used).

### Box 7 Ecuador and Niger: Multiple vs. singular strategies to address barriers

In Ecuador, the combination of a robust school feeding programme, instruction in native languages during the first years of primary and the rollout of a nationwide adult literacy programme is associated with both improvements in learning outcomes (from 373.5 to 420 average score or a 12.45% increase) and a rise in completion rates (from 97% to 105%). The school meal programme (*Colación Escolar*) was started with international aid in the late 1990s. By 2005, the programme was funded by the national government. Through the programme children receive lunches, mid-morning snacks (in urban areas) and breakfast (in rural areas). As of 2013, 2.1 million students were benefiting from the programme (Estarellas and Bramwell, 2015). Since 2008, teaching in native languages, including Quincha, had become part of the main education system. Prior to 2008, instruction in indigenous languages was available mostly through alternative and community schools. The push to make teaching in native languages available in mainstream schools was driven by the Council of Indigenous Nationalities of Ecuador (CONAIE), and the issue featured in several presidential campaigns. The main youth and adult literacy programme (Proyecto de Educación de Jóvenes y Adultos) was founded by the Ecuadorian Ministry of Education in 2011 as part of a goal to raise the literacy rate above 96%. Basic literacy courses in the programme last for about six months, and target left-behind groups such as Montubio people and the indigenous and Afro-Ecuadorian populations (Hanemann 2018).

Niger is a stark example where the increase in completion rate (from 18% to 68%) did not correspond to improvements in learning outcomes as average test scores decreased from 370 to 304. Although education strategies by international donor agencies discuss quality of education, in practice the expansion of physical infrastructure took priority. The first 10-year education strategy in Niger began implementation with the 2003 Basic Education Strengthening Project, co-led by the World Bank and UNESCO. It aimed to build close to 5,000 classrooms over four years. This ambitious infrastructure and school equipment programme was driven by Niger's rapid population growth compared to other low-income countries, e.g. 3.6% from 1988 to 2001, compared to an average of 2.4% in Africa (AFDB, 2003). As of 2017, Niger remains one of the youngest countries in the world, with over 50% of its population aged 14 and younger.

**Table 5** Cluster of strategies reducing barriers

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Number of countries	10	11	6	11
Primary Completion Rate 2000	66	81	49	63
School feeding programme?	Yes	No	No	Yes
Expansion in infrastructure?	+/-	Almost never	Yes	Almost always
Taught in native language?	Yes	Frequently (8)	Frequently (4)	No
Alternative schools in native language?	Rarely (4)	No	Almost never	Rarely (4)
Adult literacy programme?	Almost always	+/-	Almost always	Almost always

Notes: +/- indicates a split between yes and no. Cluster 1: Albania, Burundi, Costa Rica, Ecuador, Ghana, Guatemala, Lesotho, Mozambique, Nepal, Thailand. Cluster 2: Azerbaijan, Hungary, Iran, Kazakhstan, Kyrgyz Republic, Madagascar, Mexico, Papua New Guinea, Poland, Togo, Tunisia. Cluster 3: Burkina Faso, Mauritania, Niger, Oman, Rwanda, Vietnam. Cluster 4: Benin, Cote d'Ivoire, Colombia, Dominican Republic, Algeria, India, Cambodia, Lao PDR, Morocco, Myanmar, Senegal.

## 5 Working out significance to coverage and quality

We have shown that there is no single strategy path or ‘magic bullet’ to achieving high PCR. In this section we use OLS regression to interrogate factors associated with improving both PCR and learning outcomes.<sup>34</sup> We adopt a multivariate analysis, so we can control the effect of different variables and assess for statistical significance. We run two sets of analysis, one focusing on PCR and the other on learning outcomes.<sup>35</sup> The three models that best fit the data with the most statistically significant factors are presented in Tables A4 and A5 in the Appendix. We also run a series of robustness tests, available on request.

We follow a similar method to McDonnell et al. (2019), and in line with their method we also caveat that ‘Overall, it is difficult to establish causality because countries that choose [certain] strategies that correlate with better outcomes in our analysis might do so because of greater capacity to implement them more successfully or take other decisions that improve education outcomes. However, it is nonetheless valuable to highlight the types of strategies that more successful countries have undertaken’ (p. 23).

Overall, we find low statistical significance across most variables, which is expected given the small number of observations in our database. We focus on describing strategies most significantly associated with progress in education outcomes.

Note that we are looking at what factors would make countries in our sample outperform others, or factors that would place countries that already did well in the top or bottom tier among their counterparts.

### 5.1 Country contexts as a contributing factor

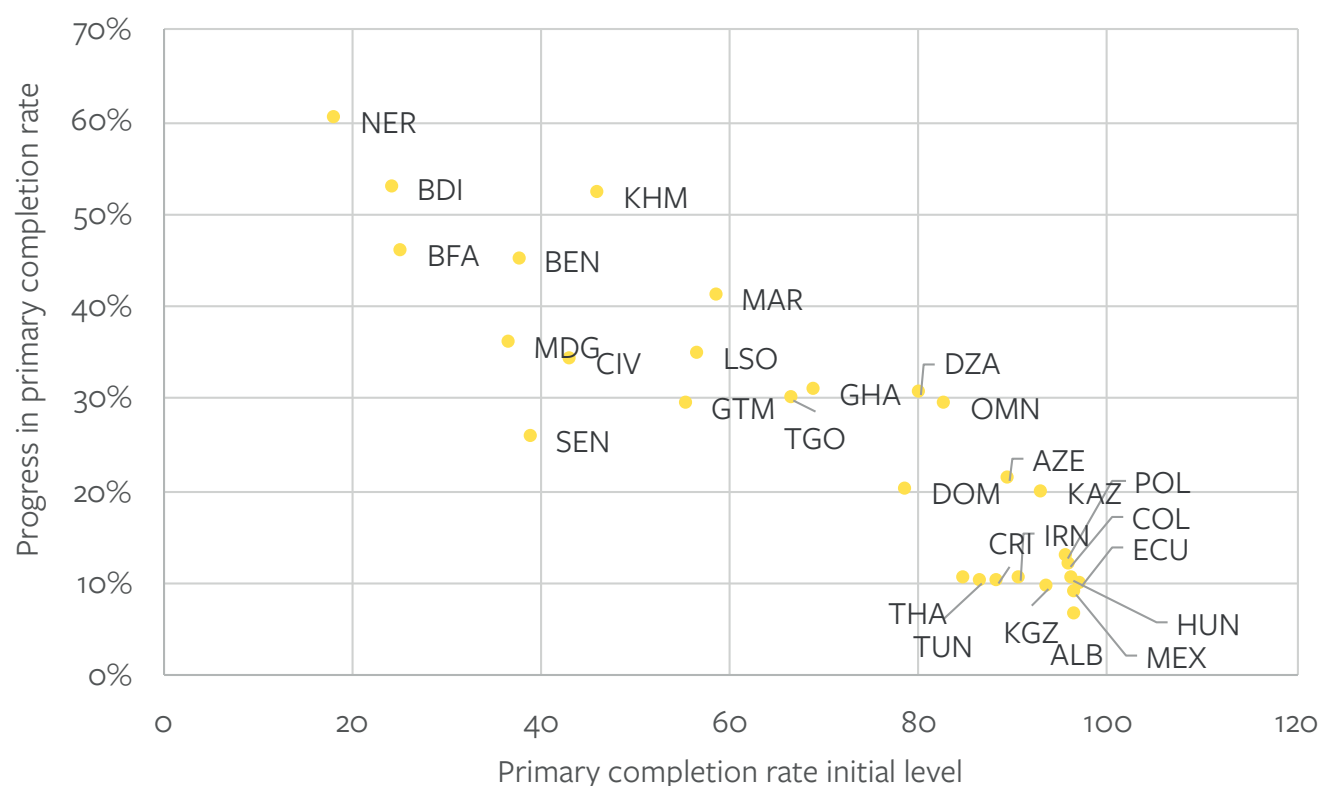
Countries in our sample are diverse: they show a range of incomes (from low-income countries like Burundi to upper-middle income ones like Colombia) and geographies (e.g. rural and agrarian, such as Niger, and more urban and industrialised, such as Hungary). We find these factors play an important role in mediating the direction a country follows in improving the coverage and quality of education.

**Starting points in PCR matter** – Countries that started with a low level of PCR appeared to make faster progress than countries starting at a higher level, as shown in Figure 2.<sup>36</sup> Countries such as Niger, with a low PCR in 2000, made remarkable progress over the two decades under observation, while countries with a higher initial PCR like Ghana made more modest progress. Given our dataset and methodology it is difficult to disentangle the effect or association between various policy strategies and progress in PCR because the relationship is mediated by the

<sup>34</sup> As noted earlier, given the paucity of standard data on learning outcomes for our set of 28 countries we were unable to examine learning outcomes using the database alone.

<sup>35</sup> In the first set, we regress progress in PCR as a dependent variable against a range of highly associated strategies. In the second set of analysis, we regress progress in learning outcomes against a strategy oriented to improving quality of education.

<sup>36</sup> Note that this is not the result of the metric we use. We have chosen to measure progress with the shortfall difference precisely to avoid penalising countries with a higher initial level. See methodology for further details.

**Figure 2** Association between initial level and progress in PCR between 2000–2017

Note: Progress in PCR is measured with the difference in shortfall (see Appendix 1). The figure includes all 38 countries in our sample corresponding to the best performers in improving completion rates among countries in the world with available data. See Appendix for further details.

starting levels of PCR in 2000.<sup>37</sup> Countries with low PCR in 2000 made the greatest progress possibly because their policy strategy was mostly oriented towards increasing the coverage of education and reaching populations that had been excluded from the education system. In contrast, it is more difficult to reach those still excluded from the primary education system in countries with already high or moderate PCR. It is likely that progress for left-behind groups in the latter set of countries will be slower because of the high marginal costs involved in reaching each additional

student who has been out of the school system for a long time. In addition, countries with high or moderate PCR may have turned their attention to improving quality of education and away from increasing coverage.

**The more rural a country the greater room for progress in PCR** – We found the level of urbanisation to be the most statistically significant factor associated with rate of progress on PCR<sup>38</sup> (see Table A4 in the Appendix). The less urbanised the country the faster progress it

<sup>37</sup> Our regression analysis on PCR as an outcome variable confirms this hypothesis that many relationships stop being statistically significant when we control by 2000 completion rate level (see Table A4 in the Appendix).

<sup>38</sup> A set of control variables were included in the model.

made on PCR.<sup>39</sup> We also examined World Bank income classifications for the countries in our sample and found that low-income countries disproportionately made quicker improvements. This is not surprising given that they also started with a low PCR.

### **Government effectiveness and income level is linked to fast progress in learning outcomes –**

The majority of our sample – 51% – are low-income countries, 29% are lower-middle income countries and 12% upper-middle income countries. In all three models we tested for the level of income. In relation to PCR, we found that level of urbanisation together with initial PCR level was a more significant factor than income. However, for learning outcomes we find the level of income is statistically significant,<sup>40</sup> i.e. the poorer the country the slower progress it made in learning outcomes between 2000 and 2017. It appears that low-income countries saw faster progress in PCR, but made minimal gains in learning outcomes.<sup>41</sup>

In parallel, we found that government effectiveness also had a positive and significant association with rate of progress in learning outcomes. We measured government effectiveness with a composite indicator from

Worldwide Governance Indicators (Kaufmann et al., 2010).<sup>42</sup> Therefore a combination of higher income and a more effective government contributes to faster progress in learning outcomes. Oddly, we found that voice and accountability had a negative and significant association. This was harder to explain and requires further research, but it appears that once you control by effectiveness, countries where citizens are less involved in education have been able to achieve faster progress.<sup>43</sup>

## **5.2 Statistically significant strategies for faster progress**

### **Closing gender inequality gaps in PCR is key**

We examine a range of strategies that focus specifically on girls' education.<sup>44</sup> We see for example in Figure 3<sup>45</sup> that the fastest progress was achieved by countries that put in place laws targeting enrolment and completion for girls, and in countries that conducted data collection on education for girls.

Our regression showed that the most positive and significant association with improvements

39 Note that, if we included income level (log GDP per capita), then urbanisation stops being significant in our model, while log GDP remains statistically not significant.

40 Measured as log GDP per capita for a nonlinear relationship.

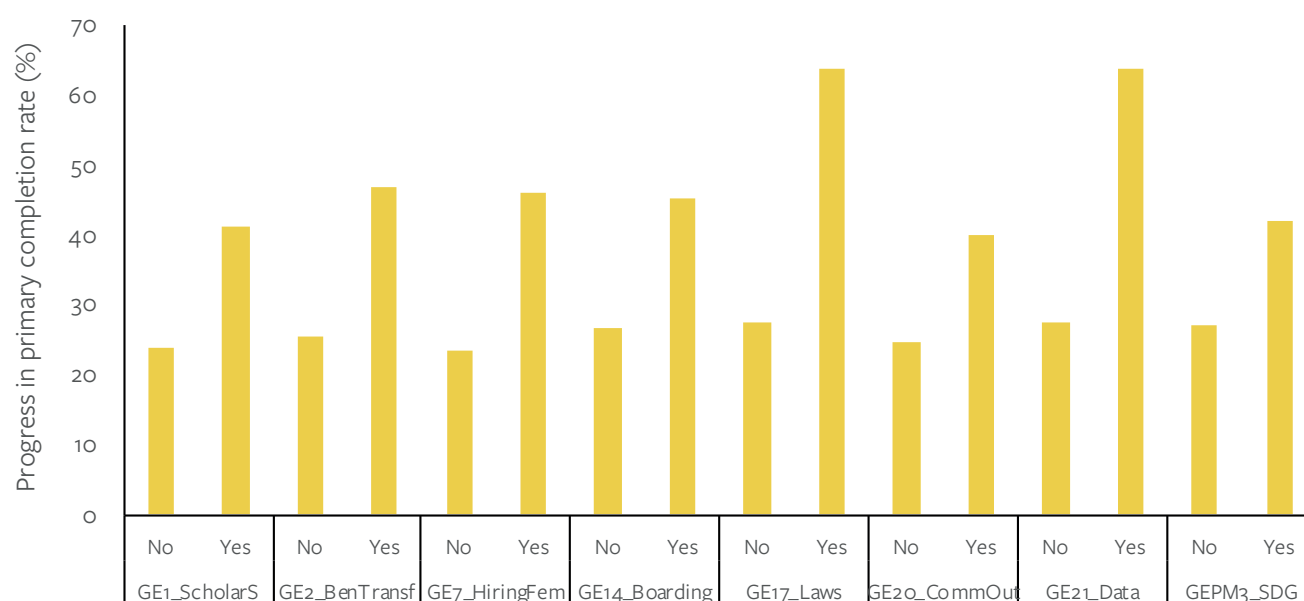
41 We tested low-income countries as a dummy in the PCR model and found it statistically significant.

42 It captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressure, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

43 Voice and accountability indicators were also measured with data from Worldwide Governance Indicators (Kaufmann et al., 2010). It captures the perception of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association and media freedom.

44 We look at other groups being left behind but only found weak significance regarding ethnic minorities. We look also at whether targeting the poor, rural areas or children with disabilities was associated with fast progress in PCR but did not record any statistical significance.

45 Figure 3 presents the set of categories related to girls' inclusion that showed the most statistical significant differences in being associated with fast progress in primary completion rate. The graph does not control by mediating factors such as the initial level of PCR. We therefore included these factors in the OLS regression model.

**Figure 3** Progress in primary completion associated with specific strategies focused on girls' education

Note: Progress in primary completion rate is measured with the difference in shortfall (see methodological section). GE1\_ScholarS: Scholarships to girls; GE2\_BenTransf: Benefit & transfer (non-conditional) to the families who send girls to school; GE7\_HiringFem: Hiring more female educational staff; GE14\_Boarding: Boarding or Dormitories Supply; GE17\_Laws: Education Specific Laws specifically targeting enrolment and completion of female primary education; GE2o\_CommOut: Community outreach or sensitisation on girl education; GE21\_Data: data collection on girls; GEPM3\_SDG: Girls's primary education was prioritised as part of the MDGs/SDGs.

in PCR (after controlling for other variables) was the provision of scholarships for girls attending primary education. Countries which implemented this strategy saw the greatest progress in our sample, i.e. Nepal, Rwanda, Cambodia, Burkina Faso, Benin, Laos, Ghana, Algeria, Guatemala, Thailand and Mexico. The gender gap was considerably higher in 2000 in countries with a low completion rate. Closing this gap would lead to fast progress. While these countries recorded a high PCR, they are still behind on achieving universal completion rates. These countries continue to struggle with exclusion of girls from primary education (see Chapter 6 for further discussion on this).

### Infrastructure expansion impacted PCR but not learning outcomes

We find that school infrastructure expansion is significant in explaining rises in PCR and a key factor associated with why some countries outperform others in improvements in PCR. Countries that improve school infrastructure include Nepal, Rwanda, Niger, Cambodia, Burkina Faso, Benin, Morocco and Laos. Interestingly, we also found that infrastructure expansion is negatively associated with improvements in learning outcomes, indicating that countries heavily focused on expanding the education system overlook issues of education quality, or perhaps sacrifice quality for coverage as school systems adapt to meet the needs of additional numbers of children. Increases in PCR are

mediated by infrastructure but are not a guarantee of a child's readiness to learn, particularly for children who enrol in the first grade of primary school without having attended ECE. Our observation in Chapter 4 that countries tend to sequence interventions in primary education would hold that part of the reason teacher training and school feeding make up the second wave reforms after infrastructure expansion is precisely because, once enrolment increases, difficulties around retention, PCR and learning outcomes become obvious to observers as infrastructure declines in significance as an explanation for why children are not in school.

### Making primary education free mattered more than making education compulsory

Making primary education free is significant in some models on improvement in PCR. We find that countries that introduced this policy after 1997 enjoyed faster progress than others in our sample. Other factors, such as introducing compulsory education after 1997 or introducing compulsory/free ECE, did not appear to be significant in explaining rises in PCR. Therefore, making primary education free was more significant than making it compulsory.<sup>46</sup>

### Teacher training is significantly linked to improved learning outcomes

Our regression analysis confirms our finding in Chapter 4 that countries that made changes in teacher training made faster progress on improving learning outcomes. We found that changes in teacher training were positively and

significantly associated with faster progress in learning outcomes, e.g. in Kazakhstan, Albania, Lesotho, Ecuador, Ghana, Poland and Guatemala.

## 5.3 The importance of adequate financing for education

Domestic public spending is by far the most important source of finance for basic education (Steer and Smith, 2015). In 2012, \$11 billion of domestic public spending was directed to basic education in LICs compared to \$2.3 billion from ODA; meanwhile in LMICs \$110 billion came from domestic public spending, and \$2.6 billion from ODA. In HMICs \$263 billion came from domestic public spending, while \$0.7 billion came from ODA (Steer and Smith, 2015). Against this landscape Steer and Smith (2015) argue that aid needs to be judged by its catalytic impact instead: i.e. aid helps by focusing on areas national resources would not, and being catalytic by helping overall expenditure to have greater effect.

In previous sections we found donor presence, international discourse and experiencing debt relief to be common factors present in the countries in our sample. In this section we test the statistical significance of these categories after controlling other factors such as initial PCR/learning outcomes level and income levels. We also look at the amount of ODA oriented to primary education that came from foreign aid versus government expenditure. We used data on ODA oriented to basic education from the OECD-DAC and CRS databases (published in UNESCO, 2018), and data on government expenditure from the UNESCO Institute for Statistics (updated by September 2019). In this section we explain the main findings.

<sup>46</sup> We did not find private education or school feeding to be associated with faster progress in PCR in our model.

## Box 8 Exploratory analysis with a set of 137 countries

We find that expansion in infrastructure, providing scholarships for girls and making primary education free were all associated with greater improvements in PCR. Intuitively we would expect that countries that did better had also increased spending, as one needs resources to apply any of these policies. However, we found that level of spending as well as level of foreign aid were not statistically significant in our regressions. This is of course puzzling and made us consider the hypothesis that funding levels may not be responsible for the difference among countries in our sample that were all already achieving fast progress in PCR. We thought financing may become more relevant when comparing a wider set of countries. To test this hypothesis, we compared levels of spending among 137 countries.<sup>47</sup> Figure 4 presents the results from our calculations. We confirm our hypothesis: countries that increased government expenditure on primary education and spent a higher amount experienced faster progress in PCR. Countries in our sample increased expenditure on education by 29%, significantly higher than the 10% among countries with slower progress. The amount spent per student in primary education increased by 27% among countries in our sample, while it only increased by 16% in countries with slower rates of progress. These figures confirm that increasing funding to primary education matters in accelerating progress in PCR. Note that both groups of countries equally increased expenditure on education as a proportion of total expenditure, demonstrating that the difference between both groups of countries is not related to increases in the share of the budget, but to the total amount oriented to education (measured as a proportion of GDP). We also observe a decrease in expenditure on education as a proportion of total expenditure on education, highlighting that, in parallel, countries were simultaneously orienting resources to other education levels, most likely secondary education.

### Level and rate of government expenditure matters for PCR and learning outcomes

We tested various indicators of government expenditure and find increases in learning outcomes to be positively associated with government expenditure per student in primary education (% GDP per capita). That is, the level of expenditure per student in 2000 is significant and positively associated with improvements in learning outcomes. Therefore, countries in

our sample did significantly better when their expenditure per student was higher, which is consistent with the received wisdom that greater spending leads to improved learning outcomes (Vegas and Coffin, 2015; World Bank, 2018b).

We also investigated whether countries were meeting the spending targets established by the Education 2030 framework for action (SDG4EDUCATION 2021) and ratified in Addis Ababa (Financing for Development, 2021). The two targets are: 1) allocating at least 4%–6% of GDP on

<sup>47</sup> Includes low- and middle-income countries with more than 2 million inhabitants. That is the 38 countries from our sample plus an additional 99 countries.

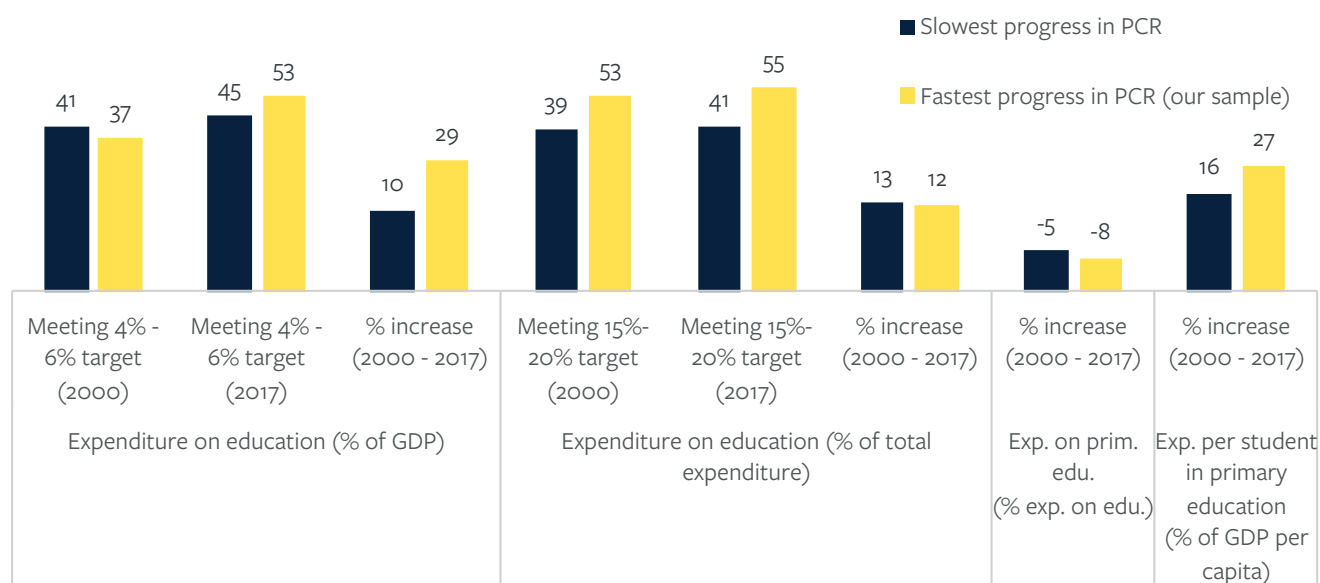
education and/or 2) allocating at least 15%–20% of public expenditure on education. The difference is clear in the case of the first target. By 2017 a larger percentage of countries in our sample met the target. The percentage of countries meeting the target went from 37% in 2000 to 53% in 2017. We found that 24 countries in our sample saw an increase in education expenditure as a fraction of GDP meeting or moving closer to the target. The greatest increase was observed in Ecuador, where national allocation rose by a factor of 3.4. Burkina Faso, Laos and Myanmar doubled their expenditure as a percentage of GDP. Eight other countries increased their expenditure by more than 50%.<sup>48</sup> However, not all stories are positive. During this period, 12 countries in our sample

reduced their expenditure in relation to GDP, although in most cases only by a small fraction.<sup>49</sup> Nonetheless, as Figure 4 shows, a larger number of countries in our sample met the target by 2017 compared to countries that made slower progress and are not in our sample. Most countries in our sample were meeting the second target in 2000, while some 55% of countries in our sample met the target in 2017.

### Foreign aid may have limited catalytic effect

Most countries, 21 cases or 60% of our sample, experienced an increase in the total amount of foreign aid for basic education between 2005 and

**Figure 4** Increase in government expenditure in primary education



Note: Data on government expenditure comes from UNESCO Institute for Statistics (updated by September 2020). Progress in PCR is measured with the difference in shortfall (see methodology). Yellow bars correspond to the 38 countries in our sample. Blue bars correspond to the counterpart 99 countries that made slower progress and had not been selected. The combination of blue and yellow bars corresponds to low- and middle-income countries with more than 2 million inhabitants.

<sup>48</sup> Including Mozambique, Nepal, Senegal, Burundi, Kyrgyzstan, Benin, Costa Rica and Oman.

<sup>49</sup> All but Azerbaijan and Rwanda saw a reduction no greater than 33%. Rwanda saw a reduction of 41%, and Azerbaijan 67%.

2016. Myanmar is an outlier, with an increase of 15 times the initial level, followed by Kyrgyzstan, with an increase of five times the initial level.<sup>50</sup> An additional 14 countries saw a substantial increase, between double and four times the levels of 2005.<sup>51</sup> The remaining five countries experienced only partial increases in foreign aid to basic education.<sup>52</sup> Twelve countries, or 34% in our sample, experienced a reduction in foreign aid for basic education (in most cases the reduction was less than 50% of the original level).<sup>53</sup> We tested the statistical significance with data from OECD-DAC and CRS databases. We found that growth in foreign aid was significant, while contributing only slightly to faster rates of progress in PCR and learning outcomes. After controlling for other factors, we did not find significance either for PCR or learning outcomes. The level of or growth in foreign aid does not seem to be a determinant factor and may have only a catalytic contribution effect, but the whole amount does not come close to domestic financing on education (Steer and Smith, 2015).

In some model specifications<sup>54</sup> for PCR, we did find that experiencing debt relief or receiving foreign aid was significant, but it stopped being significant when we controlled by initial level of PCR. Simply put, countries with a low level of PCR in 2000 were, for the great part, low-income countries<sup>55</sup> and are the same countries that experienced debt relief and were often recipients

of foreign aid. Does this mean that receiving foreign aid or being a recipient of debt relief did not matter? We do not think so. Aid or debt relief may have had an effect, but this is intricately linked to overall progress in PCR. We can observe an association, but we cannot interpret it as causation or conclude that aid/debt relief are or are not a significant factor contributing to improvements in PCR.

## 5.4 Relationship between PCR and learning outcomes

We next investigate the association between PCR and learning outcomes. We start by looking at the bivariate relationship, and then assess whether there is a trade-off between progressing PCR or improving learning outcomes, or whether it is possible to pursue both at the same time.

We did not find a statistically significant correlation between rate of progress in PCR and rate of progress in learning outcomes for our sample countries, as shown in Figure 5. We tested the association next in a multivariate setting by including different factors in the regression models but did not find a statistically significant association between either rate of progress or level. In relation to our data constraints and our initial findings, the investigation between PCR and learning outcomes requires us to therefore look in greater detail at the bivariate association between

50 Myanmar went from \$4 million in 2005 to \$60 million in 2016. Kyrgyzstan went from \$4 million in 2005 to \$20 million in 2016.

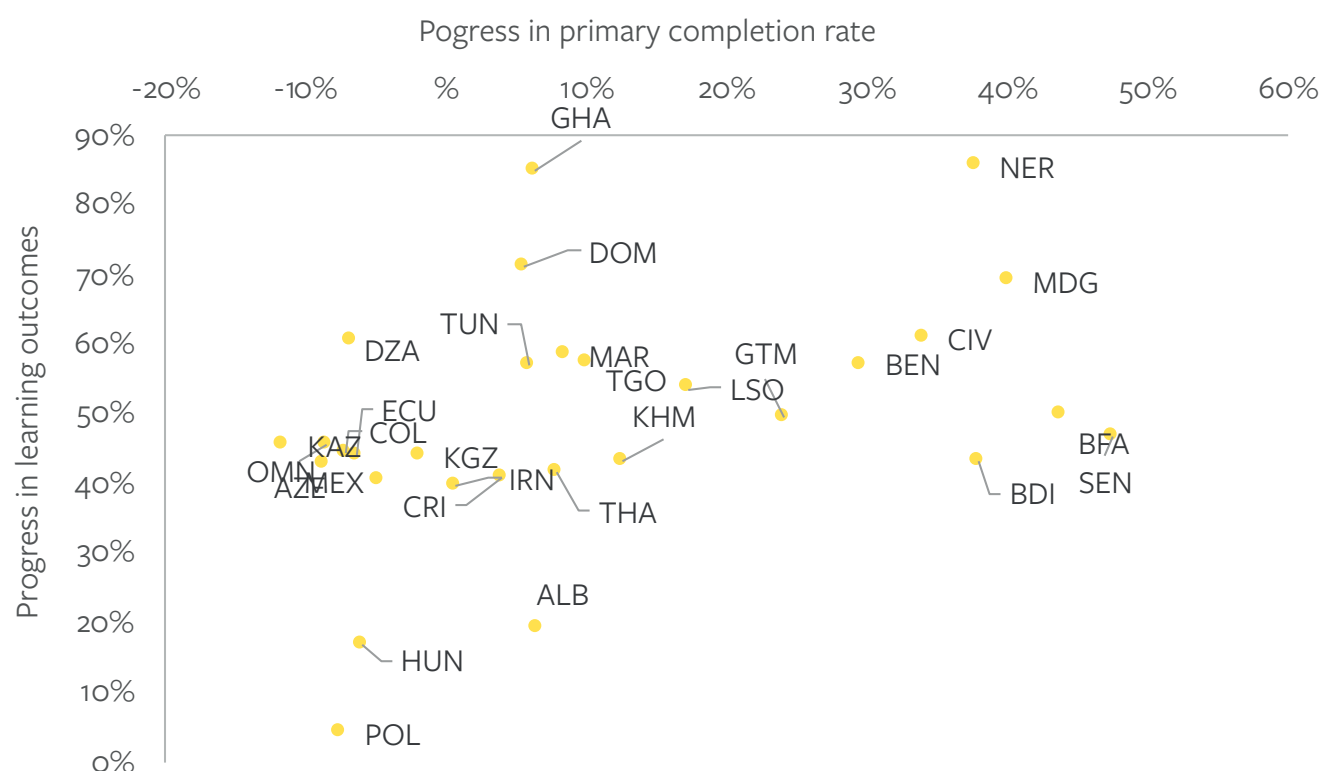
51 Morocco, Togo, Nepal, Mexico, Colombia, Kazakhstan, Cambodia, Dominican Republic, Ecuador, Tunisia, Costa Rica, Thailand, Laos and Côte d'Ivoire.

52 Guatemala and Rwanda saw a 70% increase, Senegal 60%, Niger 40% and Mozambique just 10%.

53 50% in India, 40% in Benin and Madagascar, 30% in Albania and Ghana, 20% in Vietnam and 10% in Burkina Faso.

54 We also tested other categories: donor presence and international discourse and experiencing debt relief. We found that, after controlling by other factors, the relationship with rate of progress was mostly non-statistically significant.

55 Note that a dummy variable for low-income countries was significant even when we did not control for the initial level of completion.

**Figure 5** Association between progress in PCR and progress in learning outcomes

Note: Progress is measured with the difference in shortfall. Graph includes the 29 countries with enough data on harmonised learning outcomes in our period of study. See methodological section for further details.

each factor, as well as the policy sequencing we observe across government strategies to increase PCR.

An initial assessment on bivariate correlation highlights the following:

- Initial completion level is positively associated with learning outcomes in 2000 and 2017, demonstrating that the initial **PCR level is a good predictor of learning outcomes** at the start and at the end of the period.
- Completion in 2017 is positively associated with learning outcomes in 2017, but not significant in 2000, demonstrating that level of PCR and learning outcomes are more aligned by the end of the period.

- Rate of progress in PCR is negatively associated with learning outcomes in 2000 and 2017, highlighting that the most progress in PCR is experienced in countries with lower learning outcomes.
- Rate of progress in learning outcomes is negatively associated with the level of learning outcomes in 2000, again showing that countries with lower learning outcomes in 2000 improve faster.

### Limits to improving quality and potential trade-offs

Our findings highlight the role of policy sequencing and, in association with the results from the bivariate correlation, show that countries in our sample made trade-offs between pursuing

progress in PCR and learning outcomes. Figure 6 illustrates the case by displaying the association between progress in learning outcomes and the PCR initial level. Although the association is not statistically significant, we can identify a clear pattern. Countries which started with low PCR (in blue) always experienced low or negative progress in learning outcomes. In contrast, countries with moderate or high PCR in 2000 may or may not have improved learning outcomes. Red-shaded countries experienced low or negative progress, while green-shaded countries experienced moderate or high progress in learning outcomes.

It appears that, for our sample countries that began with a low PCR, pursuit of increased education coverage means they are unable to make improvements in learning outcomes and many even experience reversals. There is a reason for this. These countries start with very low PCR, less than 50%. They have a mountain to climb when it comes to expanding coverage. If progress is rapid, then it is difficult to keep up with quality. The key is to avoid quality of education deteriorating in the process of expansion. For instance, learning outcomes deteriorated considerably in Madagascar, Niger, Mozambique and to an extent Papua New Guinea.<sup>56</sup> The exceptions are Rwanda and Benin, which managed to improve coverage and made moderate gains in quality of education.

The story is different for countries with moderate or high PCR at the outset. Some countries were able to advance both PCR and learning outcomes simultaneously (green-shaded countries). Meanwhile, a set of countries saw learning outcomes worsen while PCR increased: Kazakhstan experienced the largest decline, and we also registered a decline in learning outcomes

for Togo, Algeria, Thailand, Costa Rica, Vietnam and Hungary (as part of those highlighted in red). The range of experiences within our sample shows that a trade-off between completion and learning is by no means inevitable, once PCR is moderate or high, because some of these countries were able to improve both simultaneously – Kyrgyzstan being the most extreme case, but also Lesotho, Guatemala, Ghana, Rwanda, Albania, Ecuador, Poland, Morocco and Oman. The countries in this group not only had strategies aimed at both education access and quality, but in these countries both sets of strategies were implemented simultaneously or with a limited time lag, as illustrated in the cases of Poland and Rwanda in Box 9. These examples were by no means the only cases. Kyrgyzstan, for example, started providing free textbooks and eliminated contributory fees in 2006, while also reforming the education curriculum, teacher training, learning outcome evaluations and textbook content between 2007 and 2010. The wave of education reforms in Guatemala after 2000 followed a similar pattern, with the introduction of a conditional cash transfer (CCT) programme and the expansion of school infrastructure pursued in tandem with the expansion of bilingual education and curriculum development.

When comparing these countries with countries that saw a decrease in learning outcomes, we notice that policies were not pursued together as a single package. In the case of Kazakhstan, policies on primary education access consisted mainly of the expansion of school infrastructure in rural areas in 2003, while an official system to measure learning outcomes was not put in place until four years later, and evaluation results do not appear to be publicly available. In those four years there was no policy on curricular reform or teacher

<sup>56</sup> As with all countries in our sample, PCR improved in these countries.

training. Costa Rica is another case of a country that followed strategies on access and education quality with a significant time-lag. Most of the interventions that favoured education access were implemented in the late 1990s and early 2000s in the form of Conditional Cash Transfers and increased school infrastructure. However, it was not until 2008 that quality-related strategies were

pursued, such as learning outcomes evaluations and curriculum reform. These observations suggest that it may not be enough to pursue policies that increase access and quality, but that these should also be pursued together to achieve progress in learning outcomes and take advantage of potential synergies from these strategies.

## Box 9 PCR and learning outcomes progress: the cases of Poland and Rwanda

### Poland – proportional progress

Poland experienced simultaneous progress in primary completion rates and learning outcomes with shortfall differences between 10% and 15% for both cases in contrast to most countries in our sample where learning outcomes either stayed the same or declined as PCR increased. This is even more surprising when considering that the country did not directly focus on learning outcomes in primary education; rather, investment in education focused on pre-school and secondary education rather than the primary sector.

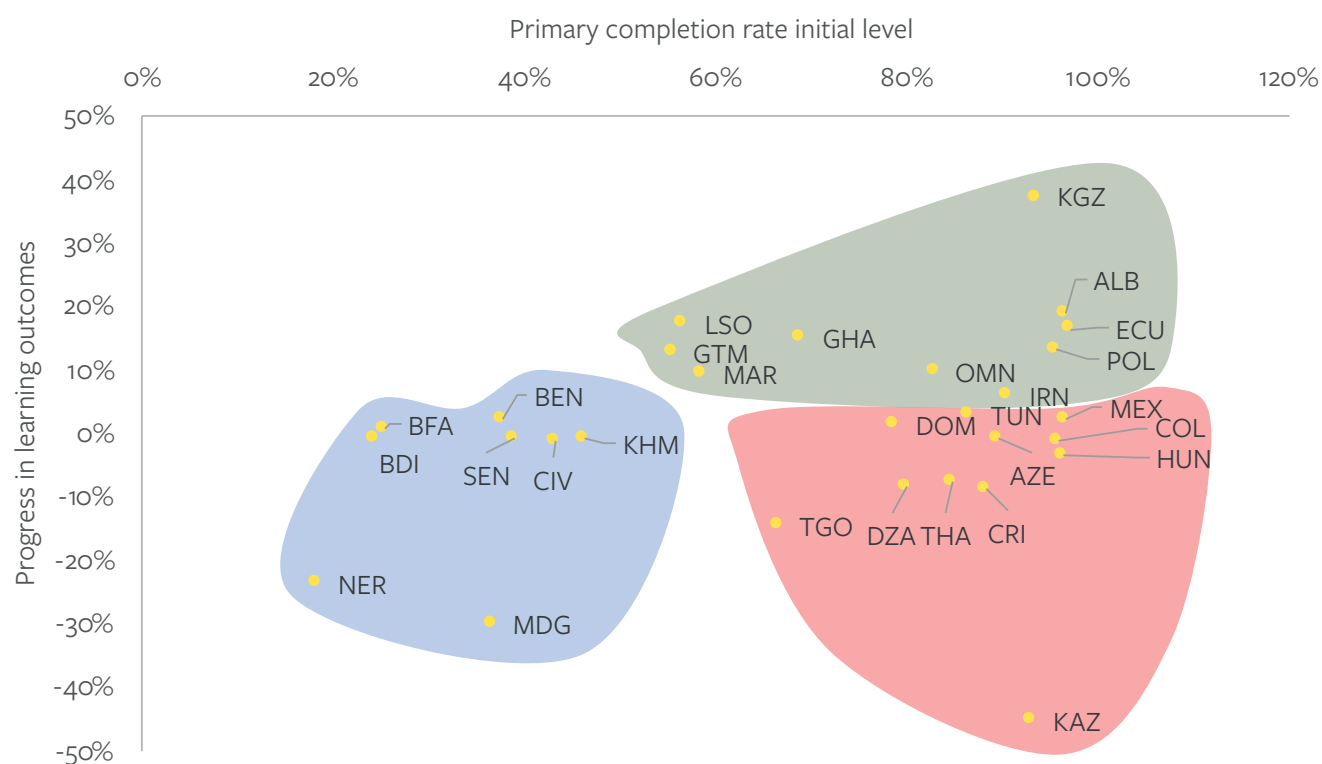
Similar to other countries that were part of the Eastern Bloc in our sample, Poland inherited a system with high primary enrolment without substantial gender imbalances. However, in contrast to countries like Kazakhstan and Azerbaijan, Poland embarked on systemic and curricular reforms early on (the late 1990s and early 2000s) with the goal of joining the European Union. Early interventions from 1999 included reduction in the length of primary education from eight years to six, thereby reducing students' long-term commitment (Jakubowski, Patrinos, Porta and Wiśniewski, 2016). The country also introduced, for the first time, an evaluation system assessing pre-determined learning goals (Anceswska and Charynska, 2012). One of the defining features of the Polish system is the lack of specific teaching content, with the focus instead on outlining the learning outcomes of the system and giving teachers autonomy over the specific content taught and the materials used to achieve those outcomes. Subsequent interventions, instead of dealing with education content, focused on raising the educational requirements of the teaching profession and improving pedagogical supervision (Mazurkiewicz, Walczak and Jewdokimow, 2014; Mazurkiewicz, 2004). As a result, teachers were better prepared, had more autonomy and were better supervised, enabling them to develop approaches customised to the needs of their students, particularly in the case of children with special learning needs. Lastly, one year of pre-primary education was made compulsory in 2011, a measure which not only increases the probability of enrolling into the primary cycle (which already had high enrolment rates), but also provides better preparation for children entering the system (Anceswska and Charynska, 2012).

### Rwanda – avoiding the trap

Whereas Poland already had a system with high primary enrolment rates, the same cannot be said of Rwanda. Rwanda's initial PCR was below 20% and yet the country was able to achieve a shortfall difference above 60% without a deterioration in the learning outcomes of students.

This was most likely possible thanks to the joint pursuit of education access and quality strategies backed up by external financing and technical assistance. By 2002 the World Bank and the Asian Development Bank were already involved in the construction of new schools and classrooms. At the same time, Rwanda was setting up in-service and pre-service centres to increase the number of qualified teachers (MINEDUC, 2002). This contrasts with countries such as Niger, where teacher supply was expanded by reducing the length of pre-service training and hiring teachers on a contract basis. When free and compulsory education was expanded from six to nine years in 2003, the National Examination Council (NEC) was created with the task of assessing learning outcomes of primary and secondary students (Article 2 & 25, Law 29/2003, 2003). The NEC evaluations for grade 6 students were updated in 2006 from a pass/fail assessment to a 1–9 grading scale for a more precise assessment of student performance (Paxton, 2012). This indicates that, while access was a key strategic priority policy, monitoring was not ignored. This is further exemplified by the fact that Rwanda is the only country in our sample which explicitly included among its strategies the collection of data on girls' enrolment, performance and needs (MINEDUC, 2002).

**Figure 6** Association between initial PCR and progress in learning outcomes between 2000–2017



Note: Progress is measured with the difference in shortfall. Graph includes the 29 countries with enough data on harmonised learning outcomes in our period of study. See methodological section for further detail.

## 6 Progress among those being left behind

Once large-scale gains in primary education coverage and quality improvements have begun to be made, it is the most marginalised groups within particular contexts that typically continue to be excluded. In this section we analyse the extent to which disadvantaged and left-behind groups have benefited from the overall rise in completion rates since the early 2000s given that those facing multiple and intersecting disadvantages typically attain far fewer years of education than the average (Lenhardt and Samman, 2015; Rose, Sabates, Alcott and Ilie, 2017; Rose and Alcott, 2015).

The groups listed as left behind in this chapter were identified inductively through reviews of approximately 500 country-level sources (discussed in Chapter 3). The analysis was further supplemented by an additional literature search focusing specifically on left-behind groups, and analysis of relevant indicators from the World Inequality Database on Education (WIDE). Our focus is predominantly on completion rates due to the lack of disaggregated and historical data on learning outcomes among left-behind groups.

The mechanisms behind the systematic exclusion of marginalised groups from learning and completing primary education are numerous and complex. It is difficult to monitor these inequalities because comparable longitudinal data on learning, attendance and completion rates disaggregated by left-behind groups is sparse (Samman et al., 2020). Despite numerous calls by international development agencies and civil society organisations to improve data collection efforts, existing datasets on quality of education often miss information on children who belong to ethnic, cultural and linguistic minorities,

are displaced, institutionalised and exploited, homeless, face stigma and discrimination, or belong to nomadic communities (Rose, 2019; UNDP, 2018).

National education approaches to address issues faced by left-behind groups across different sectors tend to be ad hoc and typically do not address the root causes of marginalisation (Sarwar and Nicolai, 2018; Samman et al., 2021). Consequently, a rhetorical commitment to leaving no one behind does not always translate into clear plans, targets or accountability mechanisms, and is not indicative of inclusive service provision on the ground (Stuart and Samman, 2017). That said, without these kinds of policy commitments, it is likely education provision for marginalised groups is further curtailed.

### 6.1 Children recognised as ‘left behind’

Our analysis of education policies across 38 countries shows governments operating along a hierarchy of priority when it comes to marginalised groups of children in the sector. This gradation mirrors existing evidence on learning disparities and the political economy of the country. Consequently, the most well-evidenced types of exclusion are given priority, and the most politicised groups tend to be excluded from policy responses (see Table 6). Groups that received the most policy attention between 2000 and 2017 are children from rural and remote areas, disadvantaged linguistic groups, children with disabilities, children from low-income families and girls. Governments across our sample have largely taken on board widespread and global evidence that economic inequalities are a source

of disadvantage in education, and that having intersecting inequalities,<sup>57</sup> such as being both female and low-income, tends to substantially worsen disadvantages in education (UNESCO, 2010; Samman et al., 2020). Recognition of these groups appears to be partly driven by high levels of international involvement and the aim of meeting the Millennium and Sustainable Development Goals, discussed in detail in Chapter 4.

Disparities between ethnic and religious groups were considerably less frequently highlighted in policy documents. Similarly, variable attention has been paid to the difficulties orphaned children

face in countries affected by HIV/AIDS and children who are unable to access free primary education due to lack of identification documents. Government plans we reviewed were largely silent on improving learning outcomes among children displaced due to conflict, children of non-documented work migrants, children living in informal settlements, and exploited or enslaved children. Such omission seems to be driven by mutually reinforcing technical (e.g. lack of data on these populations) and political factors (e.g. a lack of incentive to obtain data on these populations, or indeed to address inequalities).

**Table 6** Prioritisation of left-behind groups in policy discourse

Left-behind groups	No. of countries discussing disadvantages of this group	Percentage of countries discussing disadvantages of this group
<b>High level of policy attention</b>		
Rural and remote areas	30	79%
Disabilities and special needs	20	63%
Linguistic Groups	21	55%
Low-income families	20	53%
Girls	18	47%
<b>Moderate to low level of policy attention<sup>61</sup></b>		
Indigenous (Ethnic) Groups	13	25.6%
Religious groups	7	18%
Children without registration	6	16%
Orphans	5	13%
Street-connected children	2	5%

<sup>57</sup> The term 'intersecting inequality' refers to the overlapping of various group identities, for example being female, poor and from a marginalised ethnic minority (Samman et al., 2020).

From a technical standpoint, we lack information on left-behind children as they are hard to reach, especially when they live outside households and therefore will not be included in household surveys (UNECE, 2017). In cases where the household survey is representative, the unit of analysis (i.e. the household) might not necessarily reflect the actual situation a child lives in (Gordon et al., 2003).<sup>58</sup>

In our sample of low- to middle-income countries, the extent to which left-behind groups are a priority appears to have been determined by the politics of primary education reform. The order in which governments prioritise left-behind groups, and consequently the technical and financial resources available for their inclusion, seem to be dictated by the extent to which including a specific group is politically advantageous, and the bargaining power of the disadvantaged group. For example, very few countries with high numbers of children displaced due to conflict or children of unregistered migrant workers, such as Myanmar, have meaningful provision for inclusion of undocumented children. This might be because these issues are controversial, and these groups have little leverage to demand better access to quality education (Nicolai et al., 2020). In contrast, the recent expansion of free education in rural and remote locations, which most frequently gets priority on policy agendas, has political purchase because rural voters are important for maintaining electoral bases (Nicolai, et al., 2014).

Similarly, there is greater political impetus to pursue access rather than improvements in learning outcomes because the latter are more difficult for voters to monitor, and thus are less of a ‘vote winner’ than, say, reducing school fees

(Harding and Savage, 2014). Voters are more likely to reward political leaders to whom they can directly attribute specific policies, such as school fee abolition, while ongoing policies, such as the continuous development of in-service teacher training, might be overlooked. This finding corresponds with the growing consensus that ‘politics largely determine whether or not reforms aimed at improving learning outcomes are adopted and implemented’ (Hickey, 2019: 173; Verger et al., 2013).

In many cases, evidence of the systematic exclusion of marginalised groups is not enough to put a social problem on the policy agenda. Evidence shows that, in Burundi, about 4% of the population (400,000 people) are subject to modern-day slavery, yet exploited and enslaved children do not feature in any national education strategy (Global Slavery Index, 2018). This is in part because the government denies that modern-day slavery exists in the country (Norris, 2017). A similar situation has been observed in other countries such as Mauritania and Iran (ibid.). Across country contexts, technical and political drivers of exclusion reinforce each other as high-quality data follows political commitment.

## 6.2 Common strategies to reach ‘left-behind’ children

The following sub-sections highlight strategies that have worked to incorporate left-behind groups and explore the reasons why these groups have not benefited from the increase in PCR. The groups are discussed in the order set out in Table 6.

<sup>58</sup> Although household surveys are not the only nor necessarily the main source of information on children left behind. Alternative commonly used data sources include administrative data and community-level data collected by citizen-driven initiatives (Samman, Roche, Sarwar and Evans, 2021).

## Targeting rural and remote areas

A typical rural school is located in an isolated area with low population density. In our sample, 79% of countries discussed the disadvantages facing children in rural and remote areas in their education sectoral plans. Thirty-two percent mentioned specific regional targeting programmes focused on improving completion and learning outcomes in rural and remote areas. Such targeting seems to have been driven in part by the growing availability of data evidencing the persistent rural–urban completion gap. Targeting strategies entail support for multigrade learning, including the provision of instructional materials and textbooks suited to multigrade classrooms and adequate training for teaching in a multigrade setting, incentives for teachers to relocate to rural locations, building on-site boarding schools, fostering supportive networks for rural teachers and targeted school-level grants.

In Lesotho, the number of children who do not enrol in primary education is significantly higher in mountainous and remote areas: 7.7% in Quthing and 9.9% in Mokhotlong, compared to 0.1% in Berea and 2.9% in Maseru (Lesotho MOET, 2016). Mokhotlong also has one of the highest dropout rates in the country: 68% between grades 1 to 7. In 2004, the primary completion rate for rural areas was 45% and for urban 75%. By 2014, rates had improved (59% for rural areas and 81% for urban), but the considerable gap between urban and rural areas remained (WIDE dataset). In 2016, the Ministry of Education and Training set up a 10-year strategy which includes upscaling of multi-grade teaching in remote and mountainous areas, and provides teachers with cash incentives to encourage relocation to difficult-to-access schools (Lesotho MOET, 2016).

Similar targeting of rural regions was employed in the early 2000s in Colombia, and included the *Escuela Nueva*, *Aceleracion del Aprendizaje* and *Proyecto Rural initiative* (PER) programmes (Mcewan, 2008; Colombia MEN, 2006). In 2000, the rural primary completion rate was 67% and urban 88%. By 2015, the gap had narrowed to 84% for rural areas and 94% for urban.

Potentially following examples such as Colombia, in 2015 the Algerian government dedicated funding to provide an additional 3,000 primary boarding schools to accommodate students in rural areas (Rose, 2015). In 2018, Burundi collaborated with WFP to alleviate food insecurity in remote regions with poor performance on education indicators. The government has also collaborated with UNICEF to give out school kits and supplies to all children in grades 1–4 in the six lowest-performing remote regions (World Bank, 2018a, 2018d).

## Strategies for children with disabilities and special needs

Evidence shows that children with hearing or sight difficulties tend to do worse on standardised mathematics and reading tests in nearly all countries that participated in the latest PASEC assessment at primary school level (Wodon et al., 2018). Worldwide, a third of out-of-school children are disabled (Shakespeare, 2018) and 85% of children with disabilities have never attended school (Mizunoya et al., 2016). In 2007, fewer than 10% of children with disabilities in Africa were attending school (Bines and Lei, 2011).

Efforts to collect high-quality internationally comparable data on learning outcomes among children with disabilities are quite recent

(Mizunoya et al., 2016), impeding meaningful comparison of the most effective strategies for inclusion of children with disabilities.

Similar to the above studies, our analysis shows that, even in countries that have made major strides to close completion gaps, policies often fail to improve access to and the quality of education for disabled children. Lack of ramps and hand railings, stairs and accessible toilets, and long distances to schools, remains an issue. Teachers generally lack training on how to accommodate children with special needs and children struggle to learn in overcrowded classrooms. Among a dozen categories of in-service teacher training available, training on inclusion of children with disabilities has the lowest coverage rate among teachers across countries (Wodon et al., 2018).

There is some evidence that countries in our sample are adapting school infrastructure to

accommodate students with disabilities (see Table 7). Burkina Faso stands out as having achieved remarkable improvement since 2016 by increasing the proportion of schools accessible to children with disabilities from 2% in 2016 to 38% in 2019. Despite these structural improvements, disabled children in Burkina Faso continue to experience stigma and discrimination, have difficulty accessing schools due to long distances, and report that they are seen as less valuable compared to able-bodied children by their families and communities (Bezzina, 2019).

Looking at sectoral strategies, there is a concerning lack of specialist teacher training. General inclusivity training, which also addresses issues of gender, religion and ethnicity, is likely to fall short in addressing the needs of these children, reinforcing the push for a separate schooling system.

**Table 7** Proportion of primary schools with access to adapted infrastructure for students with disabilities<sup>59</sup>

	2016	2017	2018	2019
Albania			5%	7%
Burkina Faso	2%	2%		38%
Costa Rica	60%	69%	55%	65%
India	64%	63%	64%	69%
Iran	63%	63%	64%	69%
Morocco		17%	17%	20%
Rwanda		18%	24%	23%

Source: Adapted from UNESCO Institute for Statistics (updated by September 2020).

Furthermore, many of the sectoral plans for inclusion lack specific targets and references to more detailed policies where plans for inclusion are clearly laid out. This leads to ambiguity in

terms of responsibility for enacting the policy. Setting specific and realistic policy targets is important as they inspire and motivate social

<sup>59</sup> Please note small changes may be within the margin of error but data sources do not report sampling error and we cannot check for statistical significance.

actors to take action, foster accountability and provide milestones for policy evaluation and adjustment.

### Instruction in native and minority languages

According to UNESCO (2010), not speaking the official language of school instruction at home is one of the key predictors of students scoring below the lowest international benchmarks in

learning outcomes. It has also been shown to significantly increase the risk of having fewer than four years of education at age 17 to 22 (UNESCO, 2010). To evaluate the progress countries made towards closing the learning gap we looked at whether the percentage of children who do not speak the same language at home and school has decreased since 2000. This would be an indicator that teaching in native languages has increased.

**Table 8** Percentage of primary school children who speak the language of instruction at home<sup>60</sup>

Country	Year data available	Grade	Percent	Country	Grade	Year	Percent	Year	Percent
<b>Sub-Saharan Africa</b>				<b>Latin America and Caribbean</b>					
Benin	2005	2	7.8	Colombia	3	2006	96.5	2013	98.9
Burkina Faso	2007	2	7.8	Costa Rica	3	2006	91	2013	100
Burundi	2008	2	2.2	Dominican Republic	3	2006	98	2013	100
Ghana	-	-	-	Ecuador	3	2006	94.7	2013	98.9
Côte d'Ivoire	2008	2	20.2	Guatemala	3	2006	78.8	2013	86
Lesotho	2007	6	15.8	<b>Middle East and North Africa</b>					
Madagascar	2005	2	1.3						
Mauritania	2004	2	1.1	Country	Grade	Year	Percent	Year	Percent
Mozambique	2007	6	49.1	Algeria	4	-	-	2007	87.5
Niger	2002	2	0	Iran	4	2003	85.1	2015	88.9
Rwanda	-	-	-	Morocco	4	2003	76.7	2015	73.1
Senegal	2007	2	2.2	Oman	4	2011	85.7	2015	86.6
Togo	2010	2	6.1	Tunisia	4	2003	87.42	2011	62.1

Source: Adapted from WIDE dataset.

In line with the general scarcity of data on left-behind groups, data on linguistic disadvantage is often missing, especially for countries in East Asia and the Pacific. In cases where disaggregated data is available (see Table 8), countries vary in the extent to which the discrepancy between

students' native language spoken at home and the language of instruction in school has been resolved. In Latin American countries the language gap is closing, while in countries such as Morocco and Tunisia it seems to have widened. In Africa, this issue is severe. In the early 2000s, in several

<sup>60</sup> Please note small changes may be within the margin of error but data sources do not report sampling error and we cannot check for statistical significance.

countries in the continent as few as 2% of children attending primary school spoke the same language at home as the language of instruction in school. Efforts so far are not sufficient to address this. In Burundi, 98% of the population speak Kirundi, and yet children receive only one year of instruction in Kirundi as the language of instruction switches to French by Grade 2 (World Bank, 2018d).

The discussion around providing education in native languages in sub-Saharan Africa is hardly new. In countries such as Benin, the idea of teaching in local languages instead of French has been circulating from as early as the 1930s (Fichtner, 2010). And yet in Benin, Côte d'Ivoire, Niger, Senegal and Togo primary education is rarely available in native languages. In Togo, French is the official language and the language of instruction even though the most widely used national languages are Ewé and Kabyé (Grubb, 2019). In Madagascar, one of the key drivers of low learning is the switch from Malagasy to French at the beginning of grade 3. The Early Grade Reading Assessment shows that comprehension of words in Malagasy is about ten times higher than French in grade 2 (World Bank, 2018c). School-level case studies show that, contrary to official policy, in practice children do not get even two years of learning in their native language because primary teachers are permitted, but not obligated, to teach in native languages (Wills, Reuter, Gudiel and Hessert, 2014). The sectoral strategy documents we studied typically suggest that the transition to teaching in native languages is slow because of the cost of creating new curricula and textbooks and training teachers in native languages. However, in addition to technical barriers, language reform often lacks political support. For low- and middle-class parents, learning in French or English carries the promise of within-country social mobility. For political elites and their children, being taught in French and English is more advantageous

as it gives relatively well-off young people the qualifications to continue or complete their education abroad. This preference is further reinforced by the shortage of local universities (Eliot, 2016).

Latin American countries in our sample closed the language gap after a 'political shift' in language ideology in which governments started treating multilingualism as a national asset and made a clear commitment to incorporate ethnic communities in the social and political life of the country (Hamel, 2013). This change was driven by a combination of bottom-up pressure from indigenous advocacy organisations (Pena, 2005) and top-down pressure from international organisations. In these countries, strategies were able to move beyond the provision of alternative education as local advocacy groups successfully collaborated and lobbied for governments to take responsibility for the provision of education in the native language. Low teacher capacity is typically cited as one of the key obstacles to teaching in native languages. In Latin American countries, ethnic advocacy groups helped establish and run intensive teacher training programmes to facilitate reform (Baldauf and Kaplan, 2007). In this context it is worth noting that, in Latin America, the proportion of children speaking a language at home that is different from the language of instruction at school is considerably lower than in Africa. An example of best practice in Africa is Ghana, which hosts a population that speaks over 67 local languages. To cap the costs of language of teaching reform, the government focused on 11 of the most widely spoken languages and consolidated teaching guides and materials into three main language groups. Two guides have translations in four Ghanaian languages each, and one guide covers three languages (Rosekrans et al., 2012).

## Targeting materially deprived families and regions

Support for the poorest in accessing and completing quality primary education has been one of the central strategies in those countries that have made most progress in closing education gaps (see Chapter 4). Despite the breadth of strategies employed targeting low-income families and regions, in several countries in our sample poverty persists, and the biggest disparities in education were associated with regional and family-level wealth.

In Mauritania, primary completion rate for children in the lowest income quintile was 27% in 2015, while for children in the top quintile it was 84%. In Myanmar, the rate was 65% in the lowest quintile and 93% in the top quintile as of 2016. In Togo, 45% in the lowest quintile and 83% in the top quintile as of 2014 (WIDE dataset). In Madagascar, a large proportion of children continue to experience malnutrition and stunting (around 50% for children under the age of five), have limited access to resources that facilitate school readiness, make a trade-off between doing waged work instead of attending school, and experience high rates of unemployment upon school completion (Aiga et al., 2019; EPDC, 2018).

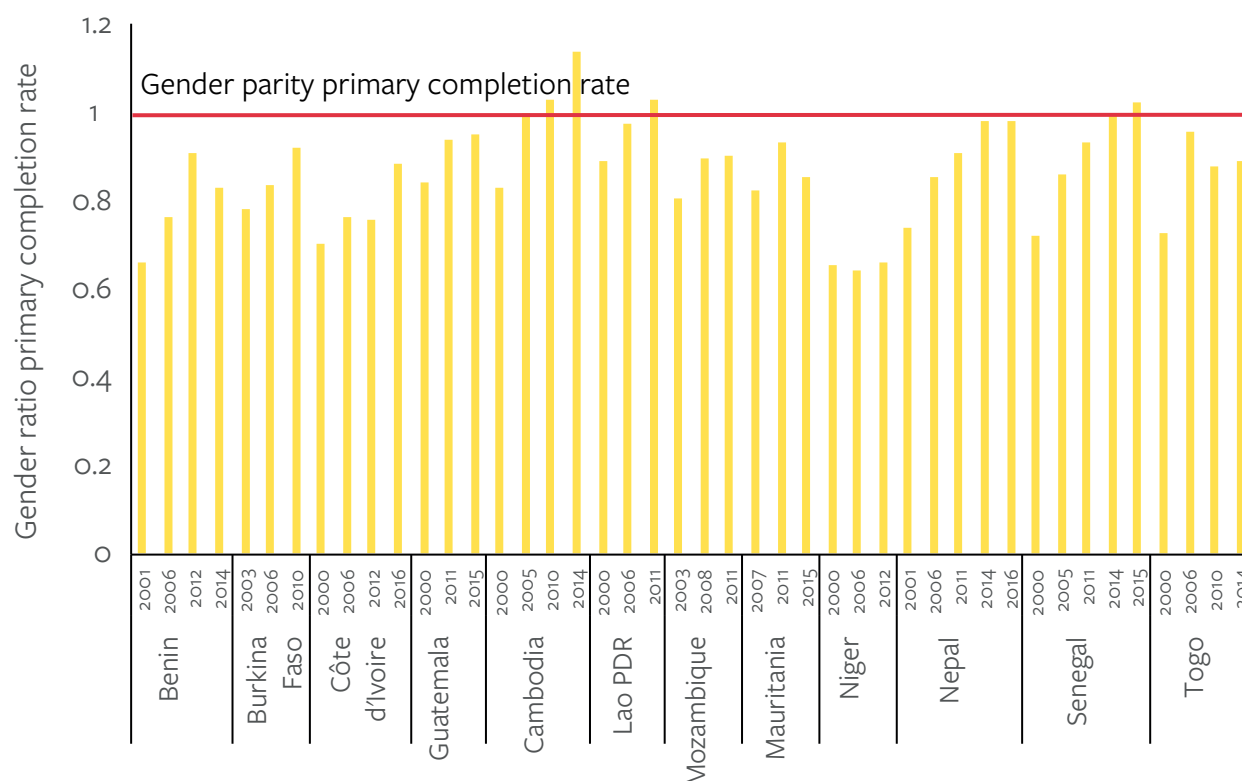
In our sample, 53% of government agencies discussed the disadvantages facing children from low-income families at primary level in their latest sectoral strategies (2016 onwards), and employed regional and family-level targeting based on multidimensional and income-based poverty measures. For example, in 2016 Cambodia added an additional strategy of providing scholarships to children in poverty (Cambodia MoEYS, 2016).

Overall, evidence suggests that long-term and sustained efforts are required to mitigate the effects of poverty on learning.

## Prioritising girls

As we saw in Section 5, inclusion of girls has been a key factor in achieving fast progress on PCR for some of the countries in our sample. Our analysis shows that countries in our sample made active efforts to promote girls' education and learning: 28 out of 38 countries had strategies for inclusion of girls in the period 2000–2017, and 18 were further developing gender-focused inclusion strategies as of 2015/17. Countries that did not have a specific strategy to prioritise the education of girls were predominantly from Eastern Europe and Central Asia. Most specified that girls were no longer disadvantaged in enrolment and completion. Figure 7 shows progress in closing the gender gap in completion in countries for which we have available data, and where girls' completion was substantially lower compared to boys' in the early 2000s.

The trend in these countries has been mostly positive, with most closing the gender gap, especially those starting from quite a low level. Senegal and Nepal started with high gender inequality and have closed the gap to reach parity. In Senegal, this success is likely to have been driven by the \$4.5 million investment in girls' education between 2012 and 2017, which provided gender-sensitive training to teachers, awareness-raising activities for local communities and financial support and school kits to girls (Universalia, 2019). Laos and Cambodia have also reached parity from a relatively less pronounced level of gender inequality at the starting point. In Cambodia, the gender gap not only closed but reversed, as by

**Figure 7** Gender parity in completion rates

Source: Adapted from WIDE dataset.

2014 girls had a higher PCR than boys.<sup>61</sup> Other countries closing gender inequality include Benin, Burkina Faso, Côte d'Ivoire, Mozambique and Togo. At the same time, in some countries (e.g. Niger), gender inequality in completion rates persists, while in others (e.g. Mauritania), short bursts of progress have not been sustained.

In countries such as Thailand, gender parity in terms of completion was achieved in the early 2000s. Since the 1990s the government has been framing gender-inclusive education as essential in helping the country achieve economic competitiveness and meet the MDGs (Bualar, 2013). In addition to ongoing gender-sensitive revisions of the curriculum and learning content, the 2012–2016 education sectoral plan

called for strengthening public opinion about gender equality through the cooperation of places of worship, the media and communities. The government also rolled out a series of legal changes promoting gender equality. For example, women were given the right to maintain their last name upon marriage, and men were given the right to take parental leave (OECD/ UNESCO, 2016).

Looking at girls' learning outcomes, in 41% of our countries girls' test scores have increased in the last two decades. In line with our broader findings, trends in learning outcomes for girls do not always go hand in hand with trends in completion rates. In several countries, girls' learning outcomes have surpassed boys', while their completion rates

61 For discussion on instances where boys might be getting left behind, see Burns (2019).

have remained lower. For example, in Cambodia the learning gap measured by test scores has been closed (girls' test scores increased from 419 in 2006 to 432 in 2014, surpassing boys' (415 in 2014)), while the gender gap in completion rates remains. It appears that, even in countries where the gendered learning gap for children in school is small, girls might still be largely excluded from accessing education. This observation resonates with previous findings that school attendance by boys from the poorest backgrounds is almost always higher than that of the poorest girls (Rose et al., 2017).

Regarding strategies to promote inclusion of girls, curriculum review to incorporate a gender perspective was most common, with 24 of our sample countries engaging in this strategy in some form. Other common strategies pursued by countries in the sample include hiring more female teaching staff (21%), scholarships for girls (26%) and changing community norms through local actors such as local NGOs and churches (24%). Change of curriculum and the review of textbooks and school materials to ensure the presence of a gender perspective seem to go together. Other strategies mentioned in policy documents are the provision of benefits and non-conditional cash transfers to a girl's family or household (13%) and the construction of gender-segregated toilets or latrines (13%). Local education champions pursuing these strategies framed girls' education as an essential prerequisite for the country-level development of human capital and poverty reduction. Out of 28 countries which have pursued a strategy aimed at the education of girls, nine mentioned the influence or support of a donor agency, suggesting that technical and financial support seems to have aided a political motivation for promoting gender parity in education.

## Inclusion of ethnic and religious minorities

Improvement of learning outcomes among ethnic minorities is often targeted indirectly through strategies focusing on rural location or remoteness, family and regional deprivation and language of teaching. This observation is in line with our overall assessment that no single strategy alone is sufficient to address gaps in completion rates: what has worked for most countries in our sample has been the deployment of a system of interventions working together.

Table 9 compares completion gaps between ethnic groups in Ghana and Côte d'Ivoire. In Côte d'Ivoire, some ethnic groups had effectively zero completion rates as of 2012, while others had rates near to 80%. In Ghana, the gap between ethnic groups has narrowed and the outcomes for the most left-behind group have improved.

Faster progress on completion rates among minority ethnic and religious groups in Ghana might be attributable to the combination of an extensive language reform (discussed above), the prioritisation and targeting of 40 most materially deprived school districts, which benefited villages in Northern Ghana, scaling up of the Complementary Basic Education system, which established schools in remote and isolated communities, and extensive teacher training reforms (Adamu-Issah et al., 2007; Rosekrans, Sherris and Chatry-Komarek, 2012).

**Table 9** Disparities in completion rates among ethnic groups in Côte d'Ivoire and Ghana as of 2012<sup>62</sup>

Côte d'Ivoire		Ghana	
PCR by ethnicity 2012 <sup>63</sup>		PCR by ethnicity 2003	
Lobi	8%	Gruma	29%
Burkina Faso	23%	Mole Dagbani	41%
Mali	23%	Grusi	46%
Djimini	26%	Other	45%
Mahou/Mahouka	29%	Ewe	74%
Koyaka/Koyara	36%	Guan	67%
Dioula	36%	Ga/Dangme	76%
Senoufo	37%	Akan	82%
Guinee	38%	<b>Completion rates by ethnicity 2013</b>	
Yacouba/Dan	39%	Gruma	54%
Malinke/Maninka	42%	Mole Dagbani	67%
Gouro	49%	Grusi	68%
Baoule	50%	Other	71%
Koulango	50%	Ewe	82%
Guere	58%	Guan	87%
Agni	63%	Ga/Dangme	89%
Abron	68%	Akan	90%
Bete	75%		
Akye/Attie	77%		
Malinke/Maninka	42%		

Source: Adapted from WIDE dataset

We observe a similar trend with regard to religious groups. In Ghana, completion rates have been increasing faster among religious minorities than religious majorities – there have been greater improvements in completion rates for Muslims and traditional religious groups compared to Christians. Meanwhile in Mozambique, children from Muslim families have experienced only a 10 percentage point increase in completion rates

while there was a nearly 35 percentage point increase in completion rates for children from a Protestant background. It is also worth noting that Mozambique started from a much lower level of completion, and thus the exclusion of certain ethnic groups might not have been as visible in 2003.

<sup>62</sup> Please note small changes may be within the margin of error but data sources do not report sampling error and we cannot check for statistical significance.

<sup>63</sup> Data for other years is not available.

Disparities between religious groups tend to persist in many countries in part because children of certain religions attend alternative education systems run by religious institutions (Marshall, 2010). In cases where government regulation is weak and religious schools are not officially accredited or regulated, the quality of teaching and curriculum tends to be low. In countries with a Christian–Muslim divide, the public resists government-led education as Muslim parents fear that attending a public school will lead to

religious illiteracy. In a survey in Senegal, 98% of the population felt that religion was ‘very important’ in their daily lives, and yet only 3.4% of public schools allow students to opt into Muslim religious education. The gap in the provision of high-quality primary education that includes religious teaching has been partially met by the private sector. As of 2013, 27.7% of private schools in Senegal were Franco-Arabic (Adams, Herzog and Marshall, 2015).

**Table 10** Improvement in completion rates among religious groups<sup>64</sup>

	Ghana						Mozambique				
	Religious group	Year	PCR	Year	PCR		Religious group	Year	PCR	Year	PCR
	Catholic	2003	80%	2014	81%		Muslim	2003	16%	2011	25%
	Methodist	2003	86%	2014	90%		No religion	-	-	2011	28%
	Presbyterian	2003	85%	2014	92%		Catholic	2003	17%	2011	47%
	Other Christian	2003	77%	2014	86%		Jewish	2003	09%	2011	43%
	No religion	2003	57%	2014	71%		Protestant	2003	15%	2011	51%
	Muslim	2003	45%	2014	75%		Siao	-	-	2011	37%
	Traditional	2003	30%	2014	62%		Evangelical	-	-	2011	47%

Source: Adapted from WIDE dataset

## Children without registration

Administrative bureaucracy is a key barrier to primary school enrolment for children of migrant workers, refugees and children from rural and low-income families. When enrolling in school, children and their parents are commonly asked to present national identification documents obtained through a civil registry. In Thailand, children of Burmese migrant parents are often unable to meet this criterion due to the parents’ lack of worker registration (Austin, 2012). In Kazakhstan, children of repatriates and migrants endure expensive and lengthy administrative

procedures before they can start attending school when their official foreign documentation is not in the Russian language (Duysenov, 2013).

Meeting the requirements of a mandatory registration system can also be an issue for non-migrant children from low-income and rural areas. In 2011, Mauritania rolled out a mandatory biometric civil registration. Without registration, children are not allowed to attend public schools or sit end-of-school exams. Where a child’s birth certificate or parents’ marriage certificate is missing, or the birth took place out of wedlock, children are unable to obtain a national identity

<sup>64</sup> Please note small changes may be within the margin of error but data sources do not report sampling error and we cannot check for statistical significance.

number (Human Rights Watch, 2018). In addition, the family is required to travel to the place of birth to obtain documentation, which can be cost- and time-prohibitive, especially when multiple trips are required. Some parents enrol their children in Quranic or private schools as an alternative even though, without registration, children will not be able to sit national end-of-school examinations. Acceptance by private or religious institutions is also not guaranteed without documentation (Sy et al., 2018).

In an attempt to address this obstacle, some countries in our sample, such as Laos, have eliminated the formal registration requirement and waived registration fees (MOE, 2011). In Côte d'Ivoire, the Ministry of Education has collaborated with the Ministries of Interior and Justice to prohibit schools from refusing to accept students who lack a birth certificate (IMF, 2009; 2012b).

Despite such efforts, refugees continue to face administrative barriers due to the disconnect between official policy and practice on the ground (Mendenhall, 2017). In Ecuador, 20–30% of potential primary school students with refugee status are not attending school because they lack documentation (Rodríguez-Gómez, 2019). By law, according to 2007 constitutional amendments, immigrants, regardless of status, have the right to access education. Public schools in Ecuador are required to provide temporary enrolment even if the student has no documentation. In practice, the enrolment system lacks flexibility and access to primary education is often dependent on bureaucrats' subjective treatment of refugees (Donger et al., 2017).

## Children without parental support

Children without parental support include street children, orphans, unaccompanied migrant or refugee youth and foster children (Lorso and Vagras, 2016). The discussion here focuses on street children and orphans as they were mentioned in country-specific academic and donor agency literature on primary education. National educational strategies were largely silent regarding the teaching and learning of street children and orphans. Systematically collected and segregated data is also lacking, reinforcing the ad hoc and temporary tendency in policy responses pertaining these groups (CRC, 2017).

Street children often have a biological family, but choose to not live with them, or might technically live with the family, but spend most of their time working on the street to make a living (Owoaje et al., 2009). The key drivers of migration to the street are poverty and hostile home environments (Conticini and Hulme, 2006; Stephen and Udisi, 2016; Embelton et al., 2016). In many countries, legal frameworks, teacher training, curriculum design and school assessment practices do not take into account the educational needs of street-connected children. In Mexico, for example, conditional cash transfers are the key policy instrument supporting children's educational attainment. Most CCTs use geographical and household targeting to distribute aid. Accessing CCTs requires a household structure with a guardian who will receive payment on behalf of the child and monitor school attendance. Because of the guardian requirement, street children are typically not covered by CCTs (Lorson and Vargas, 2016).

For street-connected children, full-time public schooling might not be an effective route to inclusion. First, many do not want to leave the

street because they have a sense of duty to financially support their family, and it gives them a sense of belonging (Gebretsadik, 2017). Second, as vulnerable survivors, they need emotional and social support to succeed and stay in school (Sorber et al., 2014). Unfortunately, when enrolled in mainstream schools, street children often face harassment, humiliation and bullying by peers and teachers, contributing to their early dropout (CRC, 2017).

Drawing on the experiences of civil society organisations, government agencies can provide initial and in-service training for public teachers and other officials, such as the police, who interact with street-connected children. As an alternative to full-time schooling, street-connected children might benefit from vocational training linked with work opportunities, second-chance education, catch-up classes and mobile schools.

The exclusion of orphans became apparent through the academic literature on African countries in our sample. Ninety percent of children who lost their parents due to HIV/AIDS (about 15 million) live in sub-Saharan Africa (USAID, 2016). In cases where both parents die, children are left under the care of grandparents or older siblings.

In Mozambique, orphans constitute 12–16% of the child population and are one of the most vulnerable groups (Fox et al., 2012). Since the early 2000s, there has been a small improvement in orphans' attendance rate, but dropout rates have remained high. Orphaned children continue to face discrimination associated with HIV/AIDS and struggle to meet the hidden costs of education.

Cross-country evidence shows that the psychological well-being of in-school orphaned children is significantly lower than their non-

orphaned peers (Chi and Li, 2013; Hailegiorgis et al., 2018). Qualitative evidence further suggests that, in addition to school fee waivers, school feeding programmes and the provision of free books and stationery, orphaned students need emotional and practical support with caring responsibilities at home (Mwoma and Pillay, 2016).

## 7 Implications

As the world finds its way past the school closures and disruption that have come with the Covid-19 pandemic, identifying effective pathways to education progress has never been more important than it is now. Further, in order to support growing efforts to shift global focus from basic education to calls for a full 12 years of quality, equitable education, it is critical to understand – as much as possible – the factors that have strengthened primary completion and led to improved learning outcomes across different contexts.

As countries work towards SDG4 and its targets for 2030, there is only a small window of opportunity for new educational initiatives to have time to show results. Our research has looked back as a way to inform forward effort. We explored what has enabled selected countries to improve the provision of quality primary education over the past 20 years. We systematically looked at drivers of progress in a set of 38 countries that have made gains in primary completion and learning outcomes over the past 20 years, particularly reviewing policies and approaches used to reach marginalised children who may be ‘left behind’ educationally.

In sum, there are four main implications stemming from our research:

1. **Starting points and context matter in terms of education progress, with urbanisation and income as critical factors.** Urbanisation emerges as a more significant factor than income in progress on PCR. However, poorer countries appear to have made faster progress on PCR, but slower gains in learning outcomes. Countries that start with a very low PCR, i.e. less than 50%, experience real challenges – and have largely been unable to make gains in access and quality at the same time. However, countries with already moderate to high starting points on PCR have shown progress simultaneously.
2. **Government leadership, effectiveness and spending on education are all critical.** Political champions appear to have played a greater role over and above demand for schooling, with implications as to what will drive changes in learning outcomes. Government effectiveness in delivery of identified education strategies has been shown to have a positive and significant association with progress in learning outcomes. Growth in government expenditure on education showed stronger associations with expanding coverage than with improving quality.
3. **A combination of strategies appears to enable gains in education over and above a single- strategy approach.** Building from commitments to free and compulsory primary education, change strategies were often sequenced in our sample of countries, with teacher training and curriculum reform preceding a focus on learning assessments and school-level quality initiatives. Analysis found that teacher training in particular has been linked to improved learning outcomes; however, infrastructure expansion impacted PCR but not learning outcomes. Overall, it was found that no single strategy is sufficient to address gaps in completion rates and achieve gains in learning outcomes, but that some combinations may be particularly powerful in certain contexts.
4. **Efforts to leave no one behind, and particularly a focus on girls’ education, can drive faster progress toward quality primary education.** Our analysis shows a strong association where there has been a focus

on girls with greater progress both in PCR and learning outcomes. However, prioritisation of girls and other marginalised groups, such as linguistic minorities, children with disabilities and low-income families, tends to be ad hoc across education plans and policies. Attention to certain groups including orphans, the displaced and street children is abysmally low in policy terms.

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# Appendix 1 Methodological notes

## Primary completion rate, or gross intake ratio

We used data on primary completion rate from UNESCO Institute for Statistics <http://uis.unesco.org/> Updated by September 2020, and downloaded from World Bank Open Databases using the STATA command `wbopendata`.

As per UNESCO definition, primary completion rate, or gross intake ratio to the last grade of primary education, is the number of new entrants (enrolments minus repeaters) in the last grade of primary education, regardless of age, divided by the population at the entrance age for the last grade of primary education. Data limitations preclude adjusting for students who drop out during the final year of primary education. Data is collected by the UNESCO Institute of Statistics from official response to its annual education survey. The official SDG indicator 4.1.2. follows a different approach based on household survey data. It measures the proportion of children aged 3 to 5 years above the official entrance age for primary education who completed the last grade of primary education. Hence, the SDG indicator has an absolute limit of 100. We chose primary completion rate or gross intake ratio as it is more widely available across country and over time.

We have data from 2000 to 2017 for all countries in our sample. In a small selection of countries, we applied interpolation.<sup>65</sup> To study the group left behind by progress, we used disaggregated data on Primary Completion from World Inequality Database on Education <[www.education-inequalities.org/about](http://www.education-inequalities.org/about)>.<sup>66</sup>

**Table A1** Progress in primary completion rate 2000 – 2017 for the selected countries (ranked by shortfall difference)

	PCR 2000	Shortfall 2000	PCR 2017	Shortfall 2017	Shortfall difference
Nepal	66.7	0.399	121.7	-0.260	0.659
Rwanda	25.1	0.898	78.2	0.261	0.637
Niger	18.4	0.978	68.5*	0.378	0.601
Burundi	24.4	0.907	68.4	0.379	0.528
Cambodia	46.2*	0.645	89.5	0.125	0.519
Burkina Faso	25.4	0.894	63.5	0.437	0.457

<sup>65</sup> See highlighted countries in appendix table A1.

<sup>66</sup> Note WIDE follows SDG Indicator 4.1.2. method, but we count with data only for a very reduced set of countries and data years.

	PCR 2000	Shortfall 2000	PCR 2017	Shortfall 2017	Shortfall difference
Benin	37.8	0.746	75.3*	0.296	0.450
Morocco	58.7	0.495	92.9	0.085	0.410
Lao PDR	67.4	0.391	101.4	-0.017	0.408
Mozambique	16.6	1.000	47.1	0.634	0.366
Madagascar	36.7	0.759	66.5*	0.401	0.357
Lesotho	56.7	0.518	85.6*	0.172	0.346
Cote d'Ivoire	43.3	0.680	71.6	0.340	0.339
Papua New Guinea	50.0	0.599	77.1	0.274*	0.325
Ghana	69.1	0.371	94.7	0.063	0.307
Algeria	80.2	0.238	105.6	-0.068	0.305
Mauritania	44.5*	0.665	69.7	0.363	0.302
Togo	66.6	0.400	91.6	0.101	0.299
Guatemala	55.5	0.533	79.9	0.240	0.293
Oman	82.9	0.204	107.4	-0.088	0.293
India	71.5	0.342	94.4	0.067	0.274
Senegal	39.0	0.731	60.4*	0.474	0.256
Azerbaijan	89.5	0.126	107.2	-0.086	0.212
Myanmar	76.5	0.282	94.1*	0.071	0.211
Dominican Republic	78.8	0.254	95.3	0.056	0.198
Kazakhstan	93.2	0.082	109.7	-0.116	0.197
Poland	95.7	0.052	106.2	-0.075	0.126
Colombia	96.0	0.048	106.0	-0.072	0.120
Iran, Islamic Rep	90.7	0.111	99.4	0.007	0.105
Hungary	96.4	0.043	105.1	-0.061	0.103
Thailand	84.9	0.181	93.5	0.078	0.103
Costa Rica	88.3	0.140	96.8	0.039	0.101
Tunisia	86.6	0.160	95.1	0.059	0.101
Vietnam	99.8	0.003	108.0*	-0.096	0.099
Ecuador	97.2	0.033	105.4	-0.065	0.098
Kyrgyz Republic	93.6	0.076	101.6	-0.019	0.095
Mexico	96.6	0.040	104.1	-0.049	0.089
Albania	96.6	0.041	102.0	-0.024	0.065

Note: Figures refers to primary completion rate, or gross intake ratio to the last grade of primary education.

Shortfall and shortfall difference is measured as explained in the methodological section. Figures marked with asterisk refer to interpolation between years with available data.

Source: UNESCO Institute for Statistics (uis.unesco.org). Data as of September 2020. Downloaded from: <https://data.worldbank.org/indicator/SE.PRM.CMPT.ZS>.

## Harmonized learning assessment score

On learning outcomes, we used the learning assessment score harmonized by the World Bank's Human Capital Project <https://www.worldbank.org/en/publication/human-capital> (World Bank, 2018). The harmonization uses a conversion factor to compare international and regional standardized achievement tests on reading and math. These tests include PISA, TIMSS, PIRLS, SACMEQ, LLECE and PASEC. For the harmonization methodology see Patrinos and Angrist (2018). The harmonization allows some level of comparison, but analysis still requires to be undertaken with care. For example, some countries may use different achievement test over time. Changes over time with PASEC assessment are less robust since they did not conduct intertemporal rescaling calibration.

In contrast to completion rate, data on learning outcomes is patchy for our country sample in the period 2000-2017. For our analysis on learning outcomes, we restrict the sample to the 28 countries that have data from at least 2007 and not later than 2013. On average, data series range for 12 years, with the longer for 18 years and the shorter for 7 years. We also ran robustness test restricting the sample only to countries with same survey assessment over time.

**Table A2** Progress in learning outcomes for the selected countries (ranked by shortfall difference)

	Initial Year			Latest Year			Shortfall difference
	Harmonized learning assessment score	Year	Shortfall	Harmonized learning assessment score	Year	Shortfall	
Kyrgyz Republic	316	2006	0.814	420	2017	0.440	0.374
Albania	382	2000	0.579	434	2018	0.389	0.190
Lesotho	345	2000	0.713	393	2013	0.538	0.174
Ecuador	373	2006	0.608	420	2013	0.440	0.168
Ghana	266	2003	0.998	307	2013	0.847	0.151
Poland	493	2000	0.175	530	2018	0.043	0.132
Guatemala	369	2006	0.623	405	2013	0.494	0.129
Oman	397	2007	0.523	424	2015	0.426	0.097
Morocco	354	2003	0.679	380	2018	0.583	0.095
Iran, Islamic Rep	415	2003	0.457	432	2015	0.397	0.060
Myanmar	409	2014	0.480	425	2016	0.424	0.056
Rwanda	343	2015	0.717	358	2016	0.664	0.053
Tunisia	376	2003	0.599	384	2015	0.570	0.029
Benin	377	2006	0.595	384	2014	0.571	0.024

	Initial Year			Latest Year			Shortfall difference
	Harmonized learning assessment score	Year	Shortfall	Harmonized learning assessment score	Year	Shortfall	
Mexico	424	2000	0.427	430	2018	0.404	0.022
Dom. Rep.	341	2006	0.724	345	2018	0.710	0.014
Burkina Faso	402	2006	0.506	404	2014	0.499	0.007
India	399	2017	0.516	399	2017	0.516	0.000
Mauritania	342	2004	0.722	342	2004	0.722	0.000
Lao PDR	368	2019	0.628	368	2019	0.628	0.000
Nepal	369	2014	0.626	369	2014	0.626	0.000
Burundi	425	2006	0.423	423	2014	0.431	-0.007
Cambodia	425	2006	0.423	423	2014	0.431	-0.007
Azerbaijan	418	2006	0.447	416	2018	0.455	-0.008
Senegal	415	2006	0.459	412	2014	0.468	-0.008
Colombia	422	2003	0.433	419	2018	0.444	-0.011
Cote d'Ivoire	377	2006	0.597	373	2014	0.609	-0.012
Hungary	505	2000	0.135	495	2018	0.168	-0.033
Vietnam	533	2012	0.031	519	2015	0.083	-0.052
Papua New Guinea	381	2011	0.582	363	2018	0.645	-0.063
Thailand	448	2000	0.339	427	2018	0.415	-0.076
Algeria	397	2007	0.522	374	2015	0.606	-0.084
Costa Rica	452	2006	0.323	429	2018	0.410	-0.086
Mozambique	402	2000	0.507	368	2007	0.627	-0.120
Togo	423	2001	0.428	384	2014	0.571	-0.143
Niger	370	2002	0.620	305	2014	0.856	-0.236
Madagascar	434	2006	0.390	351	2015	0.690	-0.300
Kazakhstan	541	2007	0.003	416	2018	0.454	-0.451

Note: Figures refers to learning assessment score harmonized by the World Bank. Shortfall and shortfall difference is measured as explained in the methodological section.

Source: World Bank (2018). Human Capital Project. <https://www.worldbank.org/en/publication/human-capital>

## Shortfall measure of attainment

$ShortFall_i = \frac{100 - x_{ij}}{100}$ ; where  $x_{ij}$  is the actual value of the  $i^{th}$  indicator for the country  $j$

The shortfall measure of attainment, which captures the fall in the gap between a country's initial level and the variable's upper limit, gives more weight to progress from higher initial levels. For example, going from a primary school completion rate of 98 to 99 percent is a 50 percent reduction of the shortfall from the maximum of 100, but so is an increase from 20 to 60 percent (Gitwitz et al. 2010, Mahajan 2013). From a 'leave no one behind' perspective, this measure recognises that it may be more difficult for countries that have made more progress to close the outstanding gap.

## Difference in shortfall measure of progress

$ShortFallDifference_j = ShortFall_{i_{initial\ year}} - ShortFall_{i_{latest\ year}}$

We computed the difference in shortfall in primary completion between 2000 and 2017 and chose countries that have experienced the highest difference in shortfall during the period. As a result, we identified 38 countries for inclusion. We choose the top performers with a shortfall difference higher than 7%.<sup>67</sup> For quality of learning we compute the difference of shortfall between the closest year to 2000 and the latest available year of harmonised learning assessment score.<sup>68</sup>

## Control variables

As control variables we included: GDP per capita, PPP (constant 2017 international \$), World Bank income classification, % urban population and Population size. All data downloaded from the World Bank's World Development Indicators.

## Expenditure on education data

Data on government expenditure comes from UNESCO Institute for Statistics (updated by September 2020). We downloaded the data from World Bank Open Databases using the STATA command `wbopendata`.

## Official Development Assistance data

Data on Official Development Assistance (ODA) corresponds to data processed and published by UNESCO (2018) in their Global Education Monitoring report 2019 in their Aid tables (pages 341 – 353).

<sup>67</sup> In our initial selection we aimed to select 40 countries but had to drop two countries from the sample later since they did not satisfy the population requirement (at least 2 million inhabitants).

<sup>68</sup> Data is publicly available at [www.oecd.org/development/financing-sustainable-development/development-finance-data/idsonline.htm](http://www.oecd.org/development/financing-sustainable-development/development-finance-data/idsonline.htm).

The GME report derived the data from the International Development Statistics (IDS) database of the Organization for Economic Co-operation and Development (OECD), and from the Creditor Reporting System (CRS).

## Cluster analysis specification

We ran a Two-step Cluster Analysis technique. The Two Step Cluster Analysis is an exploratory tool used to reveal underlying grouping (or clusters) subjacent in the data. We ran separate cluster analysis in each key area: a) political environment, b) technical interventions, and c) barriers to staying in school within community and households. We included in each analysis the strategies related to each area emerging from the literature review exploration (see appendix 2). We also included the difference in shortfall for PRC and Learning outcomes.

As distance measure we used Log-likelihood which places a probability distribution on the variables. In this model continuous variables are assumed to be normally distributed, while categorical variables are assumed to be multinomial. Our variables are for the most part dichotomic variables, except for the difference in shortfall. We check for independence between categories, and recoded categories that were highly correlated in composed variables.

## Regression models specification

We ran a series of OLS regressions following the specification described in the equation bellow. We ran two set of regressions. In one set we regressed speed of progress in primary completion rate while in the other speed of progress in learning outcomes as the dependent variable. In both cases the speed of progress was measured with the difference in shortfall as explained above in the selection of countries. Our small sample (38 for PCR and 28 for Learning Outcomes) is a significant limitation. We are unable to include too many variables in the model at once. We ran a series of analysis seeking to identify significant associations and keeping the model as parsimonious as possible. We ran a series of robustness test (available upon request) and present in the paper the most parsimonious regressions with higher explanatory power. The best models on PCR explain more than 84% of the variance. The best model on learning outcomes explains 95% of the variance.

$$ShortFallDiff_{PCR} = \beta_0 + PCR_{Initial\ Year}\beta_1 + Control\beta_1 + Categories\beta_1 + Financing\beta_1 + \epsilon$$

$$ShortFallDiff_{LO} = \beta_0 + LO_{Initial\ Year}\beta_1 + Control\beta_1 + Categories\beta_1 + Financing\beta_1 + \epsilon$$

## Appendix 2 Questions for country-based literature review

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### Political environment

1. What was the political motivation for instituting improvements in completion rate?
2. Is there evidence in literature about trade-offs that were made between education and other sectors (e.g. health or security)?
3. Is there evidence that certain part of education (e.g. pre-primary, primary, secondary, tertiary) were i) prioritised and ii) under what political motivation?
4. What was the share of the private school sector when changes to promote completion rate were initiated and how did this change over the period under consideration?
5. How centralised is the education system?
6. State fragility: is there evidence of state fragility in the form of an economic shock/conflict/natural shock?
7. Was there international technical or financial support for the government's drive to improve completion rates?
8. What was the GDP per capita at the time the government instituted reforms/strategies to improve completion rate?

### Technical interventions at the school level

9. What strategies– at the school level –led to improvement in the completion rate?
10. Which strategy to improve completion rate was instituted first and when?
11. Which strategy to improve completion rate was instituted second and when?
12. Political motivation for prioritising the strategies highlighted above?
13. Is there evidence that repetition or overage students in primary school education is a problem in this context?
14. What is the national method for assessing learning during the primary completion period?
15. What was the trend in learning outcomes at the same time as we are looking at the trend in completion rates?
16. How did private sector schooling change as primary completion increased?

### Interventions affecting barriers to staying in school at community and household levels

17. What were the strategies that sought to overcome barriers to staying in school at the community and household level, that led to improvement in completion rate?

18. Is there evidence of i) strategies to prioritise girls' education, and ii) under what political motivation?
19. Were any other i) groups targeted to strengthen completion, and ii) under what political motivation?
20. What groups are still left behind when it comes to completing primary education?
21. Why are these groups still left behind?
22. What strategies are in place to improve completion rate for these groups?

## Appendix 3 Codebook

**Table A3** Placeholder title – to be added

Variable code	Variable Name	Description
PM1_Donor	Specific Donors	Indicates if one of the following donors active in the country on education include the following: WB, UNICEF, UNESCO, WFP, ADB, DFID, EU
PM2_DebtRelief	Debt Relief	Indicates if the country experience debt relief
PM3_IntDisc	SDG, EFA and other int. discourses	Reference to international discourse as significant: EFA, MDGs, or any other.
PM4_PSoviet	Post-Soviet Switch	Indicates if the country transitioned during this period or right before from a Soviet Structure to a Market Economy
PM5_HumCap	Human capital accumulation fit for market needs	
PM5_Champions	Presence of political champions	Indicates if there was a political champion in the form of an elected political party or official.
PM6_Teachers	Teachers	Indicates if there was a pressure perceived as significant (or not) at improving completion rates by teacher unions
PM9_Parents	Parents	Indicates if there was a pressure perceived as significant (or not) at improving completion rates by parent unions
PM10_Youth	Youth	Indicates if there was a pressure perceived as significant (or not) at improving completion rates by the role of mobilized youth
ST1_CPrimary	Primary Compulsory	Is primary education compulsory?
ST2_FeesPrimary	Primary Education Free	Is primary education free?
ST3_ECEComp	ECE Compulsory	Is Early Childhood Education Compulsory? (At least 1 year)
ST4_ECEFree	ECE Free	Is Early Childhood Education Free? (At least 1 year)
ST5_AdultLit	Adult Literacy Programme	Is there an Adult Literacy Programme?
ST6_SchFees	School Feeding	Is there a School Feeding Programme?
ST7_TextB	Textbook provided	Indicates if textbooks were provided to students free of charge as a strategy
ST8_TTeachers	Teacher Pre-Service and In-Service Training - Changes in Curriculum	Indicates if there were changes to the In-Service and Pre-Service training/education curricula of teachers
ST9_Infras	School Infrastructure Expansion	Indicates if there was an expansion in education infrastructure in the form of new schools or classrooms

Variable code	Variable Name	Description
ST10_Monit	Quality Monitoring	Indicates if there was a pursuit or a change in the quality assurance of the education process
ST11_EvalLO	Learning Outcomes Evaluations	Indicates if there was an introduction or change in the evaluation of student learning outcomes
ST12_CurriCh	Curriculum Change	Indicates if there was a change in the education curricula of primary students
GE1_ScholarS	Scholarships	Indicates if scholarships were provided to girls in specific at the primary level
GE2_BenTransf	Benefits & Transfers (Non-CCT)	Indicates if there was a Benefit (non-conditional) provided to the families who send girls to school at the primary level
GE3_CCTs	Conditional Cash Transfer	Indicates if there was a Conditional Cash Transfer specifically targeting girls or with a special provision for girls conditional on their school enrolment and attendance on the primary level
GE4_TextB	Textbooks & Supplies	Indicates if there was a special priority given to primary school girls when providing free textbooks
GE5_SchFding	School Feeding	Indicates if school feeding programmes were used specifically to target primary age girls
GE6_FeesAbol	School Fees Abolition (for girls)	Indicates if school fees were abolished at the primary level specifically for girls or if they were given priority when eliminating school fees for all in a progressive manner
GE7_HiringFem	Hiring More Female Staff	Indicates if female education staff was hired as a strategy to incentivise primary school girl enrolment and completion
GE8_Sensitisation	Sensitisation of staff	Indicates if education staff was sensitise on the importance of girl education and gender biases
GE9_ChFriendly	Child Friendly Schools	Indicates if Child Friendly Schools were used as a strategy specifically to target girl enrolment and completion at the primary level
GE10_Cluster	Cluster Schools for Girls	Indicates if a Cluster School education modality was pursued specifically to target girl enrolment and completion at the primary level
GE11_CurrReview	Curricular Review - Gender Perspective	Indicates if there was a curricular review to make it gender sensitive or address gender biases
GE12_TxtBContent	Textbook Content Review - Gender Perspective	Indicates if there was a textbook content review to make it gender sensitive or address gender biases
GE13_Construction	Construction of Schools (near excluded girls)	Indicates if there was an expansion of school infrastructure in the form of schools and/or classrooms specifically to target girls without access to primary education
GE14_Boarding	Boarding/Dormitories Supply	Indicates if boarding and dorms facilities for girls were constructed or improved

Variable code	Variable Name	Description
GE15_Latrine	Supply of Latrine or Toilet	Indicates if separate latrines/toilets/bathrooms were created for girls
GE16_AffAction	Affirmative Action/Female Enrolment targets	Indicates if a quota of female primary enrolment was mandated or encouraged
GE17_Laws	Education Specific Laws	Indicates the introduction of legal instruments that specifically target enrolment and completion of female primary education
GE18_Indirectly	Indirectly related to education	Indicates the introduction of legal instruments that indirectly target enrolment and completion of female primary education
GE19_Pregnant	Pregnant Students	Indicates the introduction of policies to ensure pregnant students remain or return to school
GE20_CommOut	Community Outreach	Indicates if there was some form of community outreach in the form of community mobilisation and/or community sensitisation on the importance and the right to education for girls
GE21_Data	Data Collection	Indicates if data collection on girl education and enrolment was pursued as a strategy
GE22_NoEv	No Evidence of Strategies	Indicates if there was no evidence of any education strategy prioritizing the education of girls at the primary level
GEPM1_EqEnrComp	No Difference in enrolment/ completion	Indicates if there is mention female enrolment and completion in the primary level showing no sign of disadvantage
GEPM2_Gimbalance	Gender Imbalance with Male Disadvantage	Indicates if there is a gender imbalance in primary enrolment and completion rates with negative effects on boys. Also includes if boys are disproportionately affected by a negative trend in enrolment and completion at the primary level
GEPM3_SDG	MDG/SDG	Indicates if girls' primary education was prioritized as part of the MDGs/SDGs
GEPM4_EFA	EFA	Indicates if girls' primary education was prioritized as part of the Education For All
GEPM5_Donor	Donor Support or Influence	Indicates if girls' primary education was financed, influenced, or carried out by a donor
GEPM6_Univers	Universalization of Education	Indicates if girls' primary education was targeted to achieve the overarching goal of universal education
GEPM7_PovRed	Poverty Reduction	Indicates if girls' primary education was targeted to address poverty
GEMP8_LowInc	Low-income groups	(Q5a) Additional groups targeted to strengthen completion
GEMP9_Rural	Rural Population	
GEMP10_Disabilities	Special Needs and Disabilities	
GEMP11_Minorities	Ethnic/Indigen Minorities	

Variable code	Variable Name	Description
GEMP12_IntNGOs	International Actors	(Q5b) Political Motivation for targeting additional groups International actors including IMF, ADB, UNICEF etc
PE1_LS2000	% Enrolled in private education	(Q10) Private primary education
PE2_Increase	Countries with significant increase in private education	
CS1_Retoric	Rhetoric of Decentralization	Rhetoric of Decentralization of Education is present in sectoral strategies
CS2_Devolved	Local school ownership	Passing ownership + operation of schools to local authorities
SF1_ArmConf	Armed conflict	(Q16) State Fragility Civil war or ongoing internal regional conflict of lower intensity
ET1_1YLang	First years of primary	Native languages are a medium of instruction in the first few years of primary
ET2_2YLang	Second language	Native languages are taught as a second language
ET2_AltSchol	In alternative (community) primary schools	Children can access primary education in their native language through alternative (community) schools
LB1_Rural	Rural and remote	(Q20) Groups that are still left behind . Children in rural and remote areas
LB2_Poor	Low-income	(Q20) Groups that are still left behind . Children from low-income families
LB3_Girls	Girls	(Q20) Groups that are still left behind . Girls
LB4_Disability	Disabilities	(Q20) Groups that are still left behind . Children with disabilities and special needs
LB5_Infrastr	Macro-level Infrastructure	(Q21) Reasons why these groups are still left behind. (Supply)-Shortage of schools, especially in remote areas (long distance)
LB6_Agirls	Lack of amenities for girls	(Q21) Reasons why these groups are still left behind. Lack of single-sex bathrooms and dorms
LB7_ADisable	Lack of amenities for disabled children	(Q21) Reasons why these groups are still left behind. Such as handrails etc
LB8_QualiTea	Low teaching quality	(Q21) Reasons why these groups are still left behind. Low teaching Quality/Lack of gender and region diversity amongst the teachers
LB9_Costs	Prohibitive costs	(Q21) Reasons why these groups are still left behind. The cost of uniform textbooks etc
LB10_ChWork	Child Work	(Q21) Reasons why these groups are still left behind. Child work opportunity cost

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Variable code	Variable Name	Description
IC1_RegTarget	Regional targeting	Q22) Latest strategies to improve completion. Often focuses on rural and remote areas and is based on improved data on performance indicators
IC2_ICT	Inclusion Curricular and Training	Q22) Latest strategies to improve completion. Training of teachers and reform of the curriculum with the focus on social inclusion of girls, children with disabilities and other vulnerable groups

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## Appendix 4 OLS regression tables on progress

**Table A4** OLS regression on progress in primary completion rate as outcome variable

	Model 1	Model 2	Model 3	Model 4
R Square	0.844	0.874	0.658	0.621
Adjusted R Square	0.808	0.813	0.553	0.561
Constant	0.441*** (0.055)	0.525*** (0.098)	0.490*** (0.120)	0.391*** (0.058)
Population size (in thousands)	-8.12E-08 <sup>^</sup> (0.000)	-5.49E-08 (0.000)	-1.91E-07* (0.000)	-9.96E-08 (0.000)
Percentage urban population (2000)	-0.002** (0.001)	-0.003** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)
Primary Completion Rate (2000)	-0.003*** (0.001)	-0.003*** (0.001)		
School infrastructure expansion (ST9)	0.062** (0.027)	0.055* (0.030)	0.083* (0.041)	0.080** (0.037)
Free primary education (ST2)	0.044 <sup>^</sup> (0.029)	0.061* (0.034)	6.40E-02 (0.051)	0.061 <sup>^</sup> (0.043)
Scholarships for girls (GE1)	0.101*** (0.029)	0.113*** (0.030)		
Concerns girls are still left behind (LB3)	0.072** (0.030)	0.070** (0.031)		
Log of foreign aid for basic education in 2000		-0.023 (0.035)	0.050 (0.048)	
Growth in foreign aid on basic education (2005–2016)		0.000 (0.000)	0.000* (0.000)	
Log of expenditure on primary education per capita 2000		-0.051 (0.082)	-1.69E-01 <sup>^</sup> (0.123)	
Growth in expenditure on primary education per capita		-0.016 (0.030)	-0.023 (0.047)	
Country experienced debt relief				0.089** (0.044)

Note: See variable definition in the appendix as well as a full range of regressions with robustness checks.

**Table A5** OLS regression on progress in learning as outcome variable

	Model 1	Model 2	Model 3
R Square	0.953	0.910	0.877
Adjusted R Square	0.891	0.813	0.800
Constant	-0.231 (0.350)	-0.125 (0.455)	0.233 (0.205)
Harmonised assessment (initial year)	-0.001** (0.000)	-0.001** (0.001)	-0.002*** (0.000)
Log GDP per capita (2000)	1.46E-01** (0.058)	1.55E-01* (0.075)	9.97E-02* (0.052)
Government effectiveness (2000)	0.115** (0.041)	0.045 (0.043)	0.061^ (0.036)
Voice and accountability (2000)	-0.079** (0.026)		
Expenditure per student (2000)	0.007*** (0.002)	0.005* (0.003)	0.004^ (0.002)
Growth expenditure per student (2000–2017)	-0.001*** (0.000)	-0.001** (0.000)	-0.001** (0.000)
Log of foreign aid for basic education in 2000	0.071^ (0.047)	0.058 (0.061)	
Growth in foreign aid on basic education (2005–2016)	0.000* (0.000)	0.000^ (0.000)	
Changes in teacher training (ST8)	0.070** (0.028)	0.048 (0.035)	0.063* (0.031)
Changes in learning outcomes assessments (ST11)	-0.118*** (0.024)	-0.138*** (0.030)	-0.144*** (0.028)
Changes in quality monitoring (ST10)	-0.064^ (0.037)	-0.052 (0.048)	-0.011 (0.040)
Change in education curricula (ST12)	-0.033 (0.033)	-0.027 (0.043)	0.016 (0.034)
Macro-level infrastructure issues (LB5)	-0.069** (0.025)	-0.041 (0.031)	-0.043^ (0.029)

Note: See variable definition in the appendix as well as a full range of regressions with robustness checks. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01; ^ p<0.2. See full 12 regression models and robustness tests in Annex 5.

Expenditure per student refers to Government expenditure per primary student measured as % of GDP per capita.

Source: UNESCO Institute for Statistics (updated by September 2020).

Voice and Accountability is a dimension from Worldwide Governance Indicators published by the World Bank capturing perception of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and free media. Source: <http://info.worldbank.org/governance/wgi/>

Government Effectiveness is a dimension from Worldwide Governance Indicators published by the World Bank capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Source: <http://info.worldbank.org/governance/wgi/>