The Learning Generation

Investing in education for a changing world

A Report by The International Commission on Financing Global Education Opportunity

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Preface — Education: The best investment the world can make

Left to right:

Tabitha Ross/ Theirworld

Pius Utomi EKPEI/AFP/ Getty Images

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Bloodied bodies in ambulances. The faces of kidnapped schoolgirls. The tiny lifejacket washed up on the shore. Little hands taught to hold weapons. Tired limbs walking halfway around the world.

These children's stories of 2016 have no "Happily Ever After." From the Boko Haram insurgency of Nigeria, to the devastated earthquake-hit communities of Nepal and the war-torn Syrian refugee camps, millions of girls and boys are condemned to child marriage or labor or trafficked as children. Millions more are simply denied the teachers and classrooms they need. All are deprived of hope when they should be enjoying a quality education at school.

In 2016, a quarter of a billion children and young people are out of school. Another 330 million are not learning because we fail to invest in them even when they are in school. We cannot accept another year or decade like this. It is time we started telling new stories about our children. Time we offered them not just safety, but a real future — not just freedom from fear, but the freedom to realize their potential through education.

The challenge

So with this report we attempt to start a different story — about securing every child the right to an education, making a promise that this time we will keep. This is the civil rights struggle of our generation. For unless we change course now, nearly 1 billion school-aged children will still be denied basic secondary-level skills in 2030. Even in 2050, one child in three in Africa will not be able to complete basic secondary education. By then, Korea, Japan, and Taiwan will be delivering higher educational opportunity for 80 percent or more of their school graduates, while the Central African Republic, Democratic Republic of the Congo, and Niger will, at best, struggle to reach 5 percent.

It is time to turn the page and to state that every child counts, is precious and unique; that instead of developing some of the potential of some of the world's children, we should be developing all of the potential of all of our children. That we will make sure that the promise of a quality primary and secondary education for every child by 2030 will be honored by the combined efforts of the international community.

The International Commission on Financing Global Education Opportunity was formed to summon the best evidence necessary to inform what we present today: an agenda for action that will add up to the largest expansion of educational opportunity in modern history. I am grateful to the governments of Norway, Indonesia, Malawi, and Chile, the UN Secretary-General, and the Director-General of UNESCO for giving us the chance to make these recommendations. This report is a tribute to the commitment, passion and insight of our Commissioners, and the more than 300 partners in 105 countries who shared their expertise and experience. Our Commission starts from a belief in a future filled with opportunity — a future where, with the right education and skills, developing countries can find new routes to growth, built on human capital. It believes that education and skills provide the best route out of poverty, inequality, and instability, and our best safeguard against climate change, disease, and extremism. And we are clear that in an increasingly interconnected global economy and society, the social and economic costs of failing to give young people the skills they need will affect us all. We do not have to look far back in history to see what happens when young people are denied the future they have been promised — the unskilled, the discontented, and the disconnected are easy prey for those wishing to spread anger and fear and radicalization.

The turning point

We are at a turning point. Without a renewed effort to expand opportunities for education for all children, we will not fulfill the unfinished business of the Millennium Development Goals, ever meet the 2030 deadline for the Sustainable Development Goals, or create the means by which low-income countries can become high-income countries. As we show in this report, education — especially the education of girls — is a catalyst for cutting child and maternal deaths, and lifting people out of poverty. Investing early and sufficiently, including everyone, and leveraging synergies with other sectors is the best way to reap the benefits of education. Indeed, in the absence of a major drive on education, we shall not complete the great social reform struggles of the 19th and 20th centuries — the struggles against child labor and child marriage.

The first generation where every child goes to school

Inspired by examples of extraordinary educational advancement around the world, and challenged by the urgent need to continually reshape education to meet the needs of a new generation, the Commission articulates a progressive way forward for global education. We show how our vision of a world in which all children and young people are in school and learning is not a dream. It is an achievable reality already witnessed in some countries. If we transform the performance of education systems, unleash innovation, prioritize inclusion, expand financing, and motivate all countries to accelerate their progress to match the world's top 25 percent fastest education improvers, we can build the Learning Generation.

Securing the finances to fund the Learning Generation

Creating the Learning Generation requires closing the gap between today's $1.2 trillion in annual education spending and the $3 trillion level needed in low- and middle-income countries by 2030. We expect national governments to lead in financing education, leveraging the dividends of growth and meeting realistic targets for education spending. Their commitment to reform and investment will be the most important driver in achieving the Learning Generation. For those governments willing to substantially invest and reform, we believe the international community has a responsibility to provide concomitant financial assistance and support.

The global investment mechanism

The Commission envisions a Financing Compact for the Learning Generation where one country's pledge to invest in education will trigger the support of the international community. Mobilizing new finance will require innovative approaches to financing and new ways to leverage existing resources. In today's world of economic insecurity and cynicism about the potential impact of international spending, making the smart and evidence-driven case for more funds — louder and more effectively — is vital. But it simply won't be enough. We need to find new and creative ways to shake up the global financing of education.

The Commission makes bold recommendations to bring together the one set of institutions that can make the biggest difference today — the Multilateral Development Banks (MDBs) that have the power to leverage up to $20 billion of extra funding for education annually. Our proposal for a groundbreaking Multilateral Development Bank Investment Mechanism for Education combines the unique opportunity to leverage substantial additional MDB financing and scale financing for education with key strengths of earlier proposals for a global fund for education. Raising international funding levels for education to match those already achieved by the health community is not just a moral imperative. In an inter-connected global economy, it is a smart and vital investment.

Value for money

We need more resources for education, but we must also utilize existing resources more effectively. We need to raise new resources, cut waste, and ensure that every dollar delivers real learning. A 21st century education should not just confer a credential; it must expand the capabilities of all. Therefore, innovations in teaching and learning must move to the center of the education agenda. As factories are automated, hospitals digitized,

and homes hardwired, what message do we send when classrooms today mirror those from centuries ago? We need to invest in the education workforce and reimagine what it could become. We need to place the teacher at the center. This means thinking of the skills of the teacher in a new and most positive light — the guide by your side as well as the sage on the stage — and investing in the entire education workforce. And we need to get all classrooms online with a scalable digital infrastructure. Under our plan, all classrooms — from the remotest village and the most desolate refugee camp to the most crowded city — will be online with a scalable digital infrastructure.

Progressive universalism

In all this, we need to give greatest priority to those children most at risk of being excluded from learning so unequal opportunities in one generation do not lead to unequal outcomes for the next. And we need to give greater emphasis to the needs of the rural child, the street child, the refugee child, and the child who is disabled or visually impaired. Each of them need more resources and a willingness to harness new technology to meet their needs. We can accomplish this only through a progressive universalism that will combine a commitment to every child with more resources devoted to those children who need most help.

The civil rights struggle of our generation

We have, as this report sets out, the means, the knowledge, and the tools to get all children learning. Harnessing the reform momentum already underway in some countries, and working within the confines of expected growth rates and feasible budgetary expansions, the Commission's recommendations are both radical and credible. But alarmingly, few governments are under sufficient public pressure to resolve education shortcomings where they exist. Rarely do leaders believe they might lose an election over their failures over education, even if their education systems are in a state of collapse. So this report, in part, endeavors to create a public opinion groundswell where parents, pupils, students, teachers, and all interested in the future of education demand that every child's right to an education be honored. To support this, we call for new action to ensure that all countries — developing and development partners — are held accountable for meeting their responsibilities to children, and for the United Nations to scrutinize countries' educational advancement and draw attention to any who are failing to invest and improve. As parents and teachers — as influencers and change makers — we all can do a better job upholding this promise. We know learning unlocks hope, develops talent, and unleashes potential. Now we must reaffirm education's status as a human right, a civil right, and an economic imperative.

It has been said that every moment is an opportunity. If that is true, then we must seize ours now. This Commission asserts that potential is best developed, talents best unleashed, and dreams best fulfilled at the point a child and teacher are brought together. Most of all, it is education — our ability to plan and prepare for the future — that gives us hope. Let us remind people of a basic equation: child + teacher equals infinite hope.

Rt Hon Gordon Brown

Chair, International Commission on
Financing Global Education Opportunity

United Nations Special Envoy
for Global Education

The International Commission on Financing Global Education Opportunity

The International Commission on Financing Global Education Opportunity was set up to reinvigorate the case for investing in education and to chart a pathway for increased investment in order to develop the potential of all of the world's young people. The Commission was convened by the Prime Minister of Norway, the Presidents of Malawi, Indonesia, and Chile, and the Director-General of UNESCO, following the 2015 Oslo Summit on Education for Development. The UN Secretary-General welcomed its creation, and agreed to receive the report of the Commission and act on its recommendations.

The Commission's members are current and former heads of state and government, government ministers, five Nobel laureates, and leaders in the fields of education, business, economics, development, health, and security. The Commission's members endorse the findings and recommendations made in this report. They serve on the Commission in a personal capacity and not as part of the institutions with which they are affiliated.

The Commission's mandate was to identify the most effective and accountable ways of mobilizing and deploying resources to help ensure that all children and young people have the opportunity to participate, learn and gain the skills they need for adulthood and work in the 21st century.

The Commission's work builds upon the vision agreed to by world leaders in 2015 with the Sustainable Development Goal for education: *To ensure inclusive and equitable quality education by 2030 and promote lifelong learning opportunities for all.* The aims and actions set out in this report are in line with, and intended to help to deliver this goal.

The Commission now proposes what would be the largest expansion of educational opportunity in modern history. Its success depends upon implementing the agenda for action set out in this report.

To achieve its goals, the Commission proposes a range of measures to finance education and a set of strategic reforms necessary for ensuring finance delivers real learning results. These actions aim to engage domestic and international partners across governments, the private sector, and civil society. It is impossible to separate out the financing of education from *how* resources are used – more *and* better spending will be vital to the realization of the Commission's ambitions, and ensuring more effective and efficient spending is critical for mobilizing more resources for education. To support its recommendations, the Commission articulates a renewed and compelling investment case for education. The Commission looks forward to mobilizing a virtuous circle in which investment in education leads to reforms and results, and reforms and results lead to new investment.

This report summarizes the Commission's findings and conclusions. It draws upon new research by partners around the world, new expert analysis of the existing evidence base, and wide-reaching global consultations with practitioners, education providers, ministers of finance and education, policymakers, and partners in education.[1] More than 300 partners in 105 countries engaged in this process. The report also draws on the conclusions of dedicated expert panels on technology, health and education, and finance, as well as a youth panel.

The focus of the Commission's work is on low- and middle-income countries, but many of the challenges considered, such as the imperative of reducing in-country inequalities, will be applicable to high-income countries as well.

The Commission's recommendations address all those who contribute to the success or failure of education: policymakers and system leaders; teachers and the wider education workforce; decision-makers in the public and private sectors and civil society; international institutions; and central, state and local governments across developing countries and in advanced economies. Taken as a whole, the Commission's recommendations offer an agenda for action for all who make and influence the major decisions that affect the future of our children and young people.

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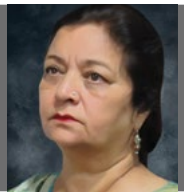

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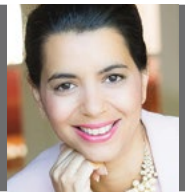

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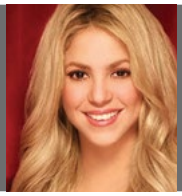

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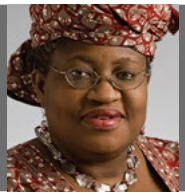

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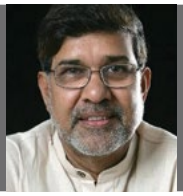

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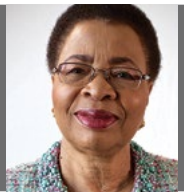

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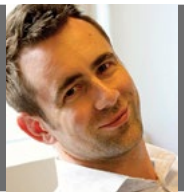

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The Learning Generation

Executive Summary

Today's generation of young people faces a radically changing world. Up to half of the world's jobs — around 2 billion — are at high risk of disappearing due to automation in the coming decades. In contrast to the impact of innovation in previous generations, new technologies risk not creating new jobs at anything like the scale they are eradicating them. Due to shifts between industries and the changing nature of work within industries, demand for high-level skills will grow, and many low- and medium-skilled jobs will become obsolete. Jobs open to those without high-level skills will often be insecure and poorly paid. Only quality education for all children can generate the needed skills, prevent worsening inequality and provide a prosperous future for all.

Young people in developing countries will face the greatest challenges in the years ahead. In the past, many developing economies achieved growth by moving farm workers into factories. In the future, new growth models will need to be found, but these will require higher levels of skills than many economies are currently set to offer. Demographics will exacerbate the challenge. The greatest population increases will occur in countries already lagging furthest behind in education. Africa will be home to a billion young people by 2050.

The growing skills gap will stunt economic growth, with far-reaching social and political repercussions.

Already today, some 40 percent of employers globally are finding it difficult to recruit people with the skills they need. The ability to acquire new skills throughout life, to adapt and to work flexibly will be at a premium, as will technical, social, and critical thinking skills. If education in much of the world fails to keep up with these changing demands, there will be major shortages of skilled workers in both developing and developed economies as well as large surpluses of workers with poor skills. The growing skills gap will stunt economic growth around the world, and threatens to have far-reaching economic, social, and political repercussions.

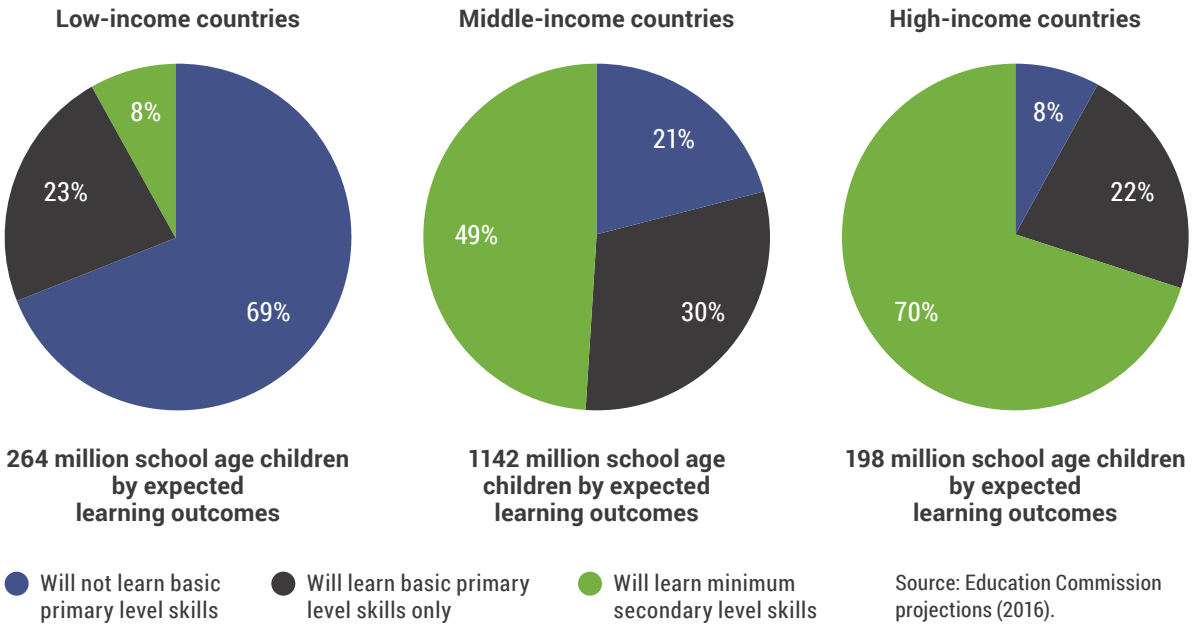
In 2030 in low-income countries, under present trends, only one out of 10 young people will be on track to gain basic secondary-level skills.

And yet despite the overwhelming case for investing in education and the promises made and remade by generations of leaders, in recent years, domestic and global investment has flat-lined, education has dropped down the priority list of world leaders, and too often money invested has led to disappointing results.

Education in many countries is not improving and children are instead falling dangerously behind; 263 million children and young people are out of school, and the number of primary-school aged children not in school is increasing. For those children who are in school, many are not actually learning. In low- and middle-income countries, only half of primary-school aged children and little more than a quarter of secondary-school aged children are learning basic primary- and secondary-level skills.

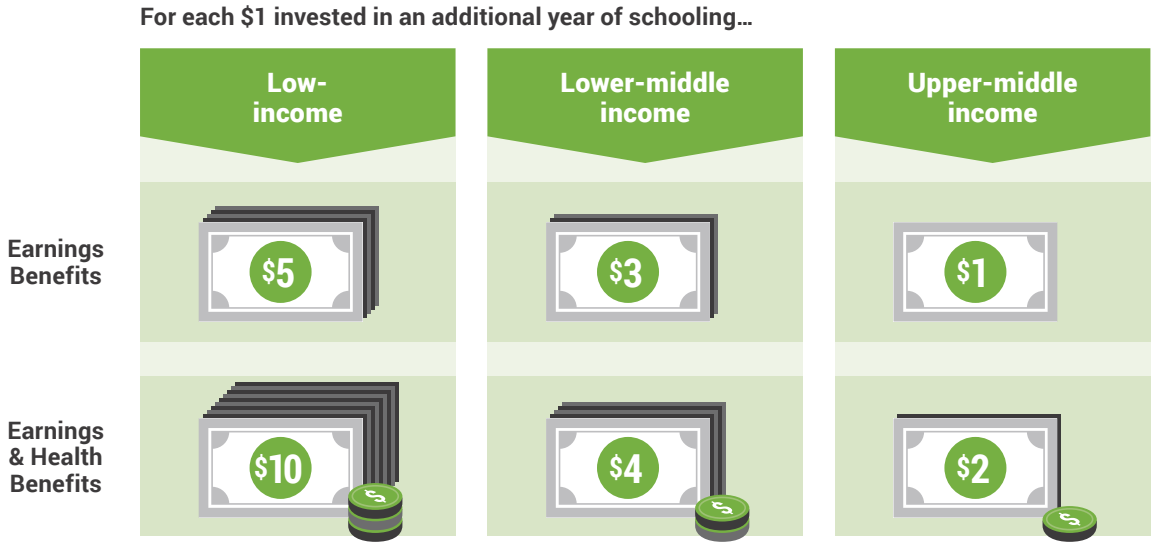
The Commission projects that if current trends continue, by 2030 just four out of 10 children of school age

A global learning crisis: The expected learning outcomes of the cohort of children and youth who are of school age in 2030



Source: Education Commission projections (2016).

Education is the smartest investment – benefit-cost ratios are high



Source: Jamison and Schäferhoff (2016).

in low- and middle-income countries will be on track to gain basic secondary-level skills. In low-income countries, only one out of 10 will be on track.

Without action, this learning crisis will significantly slow progress toward reaching the most fundamental of all development goals: ending extreme poverty. On current trends, more than one-quarter of the population in low-income countries could still be living in extreme poverty in 2050. The impact on health will be equally severe. Projections suggest that on current trends, by 2050, the number of lives lost each year because of a failure to provide adequate access to quality education would equal those lost today to HIV/AIDS and malaria, two of the most deadly global diseases.

If inequality in education persists, the implications for stability are also dire. Historical analysis shows that inequality fuels unrest; in countries with twice the levels of educational inequality, the probability of conflict more than doubles. Unrest is likely to be greatest where the gap is widest between the expectations of young people about the opportunities that should be available to them and the realities they face. Population movements could further compound these pressures. Today, the number of people displaced by conflict is at an all-time high and migration from conflict, climate change, and economic strains is set to increase. The number of international migrants, many of whom will have been denied the opportunity to acquire skills, is expected to grow to around 400 million people by 2050. With education critical to resilience and cohesion, the dearth of skills will increase vulnerability to shocks and the risks of instability. In a globalized world, these risks will cross national borders and become global problems requiring global action.

Where economic, technological, demographic, and geopolitical trends collide with weak education systems, the risks of instability, radicalization, and economic decline are at their greatest. If the world does not equip all young people with the skills they will need to participate in the future economy, the costs of inaction and delay could be irreparable. There is and must be a better way.

A dollar invested in an additional year of schooling generates $10 in benefits in low-income countries.

The case for investing in education is indisputable. Education is a fundamental human right. It is critical for long-term economic growth and essential for the achievement of all of the United Nations Sustainable Development Goals. A dollar invested in an additional year of schooling, particularly for girls, generates earnings and health benefits of $10 in low-income countries and nearly $4 in lower-middle income countries. Around one-third of the reductions in adult mortality since 1970 can be attributed to gains in educating girls and young women. These benefits could be even higher in future with the improvements in

education quality and efficiency proposed in this report.

Ultimately the value of education is increasing because it is education that will determine whether the defining trends of this century – technological, economic, and demographic – will create opportunity or entrench inequality, and because it is the common critical factor for successfully addressing the global challenges humanity is facing.

Creating a Learning Generation

The Education Commission concludes that it is possible to get all young people into school and learning within a generation – despite the scale of the challenge, we can create a Learning Generation. The Commission is challenging development partners to rally behind this bold vision.

This would be the largest expansion of educational opportunity in history.

We know it is possible because a quarter of the world's countries are already on the right path. If all countries accelerated progress to the rate of the world's 25 percent fastest education improvers, then within a generation, all children in low- and middle-income countries could have access to quality pre-primary, primary, and secondary education, and a child in a low-income country would be as likely to reach the baseline level of secondary school skills and participate in post-secondary education as a child in a high-income country today.

Within a generation, the world can achieve critical education objectives:

- **Quality preschool education for all children.**
- **All girls and boys completing primary school, and all 10 year-olds having functional literacy and numeracy.**
- **The proportion of girls and boys achieving secondary level skills in low-income countries to reach current levels in high-income countries.**
- **Participation in post-secondary learning in low-income countries to near levels seen today in high-income countries.**
- **Inequalities in participation and learning between the richest and poorest children within countries very sharply reduced, coupled with strong progress in reducing other forms of inequality.**

This would be the largest expansion of educational opportunity in history. Countries that invest and reform to achieve these objectives will reap huge benefits that far outweigh the costs. They will gain the economic advantages that come with an educated workforce with the skills necessary to compete in the 21st century economy. The overall economic benefits will translate into sweeping gains in income and living standards at the individual level as well. Overall, the Commission estimates that if children in low-income countries who start preschool today were to experience the benefits of the Learning Generation vision, over the course of their lifetimes they could expect to earn almost five times as much as their parents, a value that would exceed the total costs of their education by a factor of 12.

A Financing Compact for the Learning Generation

To achieve the Learning Generation, the Commission calls for a Financing Compact between developing countries and the international community, realized through four education transformations – in performance, innovation, inclusion and finance.

Under this Compact, national governments would commit to reform their education systems to maximize learning and efficiency and to ensure that every child has access to quality education, free from pre-primary to secondary levels, through the progressive and sustained increase of domestic financing.

Where countries commit to invest and reform, the international community would stand ready to offer the increased finance and leadership necessary to support countries working to transform education. This would include mobilizing new finance from a wide range of sources, including through the establishment of a new education investment mechanism to help scale financing from Multilateral Development Banks.

The Compact would mobilize a virtuous circle in which investment in education leads to reform and results, and reform and results lead to new investment.

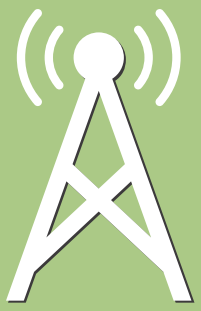
The Compact should be underpinned by new accountability mechanisms making transparent whether developing countries and the international community are meeting their responsibilities to education.

Four Transformations for Achieving the Learning Generation

Making the Learning Generation a reality will require more financial resources, measures to ensure that those resources are invested efficiently and deliver the greatest possible returns, and reforms to ensure that children enrolled in school are actually learning – gaining the education and skills they will need to become productive and successful adults. To achieve the Learning Generation vision, the Commission has identified four education transformations that national and international decision-makers need to undertake:

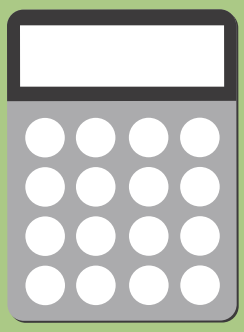
I. Performance

To succeed, the first priority for any reform effort is to put in place the proven building blocks of delivery, strengthen the performance of the education system, and put results first.



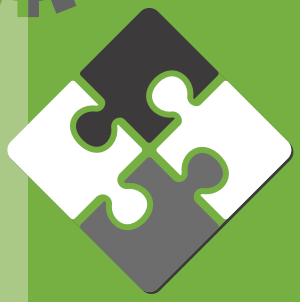
II. Innovation

Successful education systems must develop new and creative approaches to achieving results, capitalizing on opportunities for innovation in who delivers education, where and how, in order to meet the education challenges ahead.



IV. Finance

Successful education systems will require more and better investment. This investment must be based upon the primary responsibility of national governments to ensure that every child has access to quality education, free from pre-primary to secondary levels. It must be supported by the resources and leadership of international partners, prioritizing their investment in countries that demonstrate commitment to invest and reform.



III. Inclusion

Successful education systems must reach everyone, including the most disadvantaged and marginalized. While the first two transformations will help to ensure more effective learning systems, they will not close the learning gap unless leaders also take additional steps to include and support those at greatest risk of not learning – the poor, the discriminated against, girls, and those facing multiple disadvantages.

Evidence is clear that ensuring more effective and efficient spending will be critical for mobilizing more financing for education from current or new sources. These four transformations are therefore intended as a holistic approach – each depends on the other.

Transformation I: Performance – reform education systems to deliver results.

Leaders must strengthen the performance of education systems by designing in a focus on results at every level, learning from the best results-driven systems in education and across sectors.

Today, in too many parts of the world, more money is not leading to better outcomes. Efforts to improve education are leading to huge variability in results, with similar investments and reforms producing widely different outcomes in different places. For example, Vietnam spends about the same amount per pupil on education as Tunisia, as a percentage of GDP per capita. Yet, in Tunisia only 64 percent of students passed the secondary international learning assessment, while in Vietnam it was 96 percent.

The Commission's analysis finds that improvements in the design and delivery of education will succeed only if they are underpinned by a system that is built to deliver results. Strong results-driven education systems — which ensure coherence across policies, a clear route from policy to implementation, and effective governance and accountability — are necessary for strong outcomes and lasting change.

As a first step toward creating these results-driven systems, **the Commission recommends that national decision-makers set national standards, assess learning, and monitor progress.** Today, the majority of children in the developing world are not tested systematically. Only about half of developing countries have a systematic national learning assessment at primary school level; far fewer do at lower secondary level. Only half of countries report data on government expenditure on education.

Assessing learning enables teachers to tailor teaching and helps leaders to target efforts and resources where they are most needed. Publishing information about outcomes and expenditure helps to strengthen accountability and improve efficiency and results.

Countries should develop their own national assessments as part of a sustainable infrastructure of data collection and analysis. Countries should also track expenditure from system to school level and publish national education accounts to facilitate improvements in efficiency. Data should be made public to enable communities and families to help drive results by holding leaders and schools to account. To galvanize attention globally, a single global indicator of learning should be agreed on to complement national measures of learning. The international community should track, rank, and publicize countries' progress in getting all children learning. And, to provide the technical, financial, and capacity-building support necessary for all of this, global partners should establish a Global Initiative for Learning.

The Commission recommends that decision-makers invest in what is proven to deliver the best results. Funding should be shifted to the best-proven systemic changes and specific practices that improve learning, selected and adapted according to different country contexts. What works best in improving learning is better understood than ever. Unfortunately, too little of this knowledge makes it into education policy. Some of the most proven approaches remain overlooked and underfunded, while money continues to be spent on other, much less effective, practices and interventions. For example, while evidence on the benefits of mother-tongue instruction is strong, half of all children in low- and middle-income countries are not taught in a language they speak. To keep investment focused on the reforms and practices that work best requires building systems that continuously seek out and act upon the best new information on what delivers results, including by increasing the share of funding that goes towards research, development, and evaluation.

Developing countries spend 2 percent of GDP on education costs that do not lead to learning.

Finally, **improving performance requires cutting waste and cracking down on the inefficiency and corruption that inhibit students from learning.** On average, low- and middle-income countries spend 2 percent of their GDP each year on education costs that do not lead to learning. One key reason is that due to a number of factors, too much of teachers' time is spent not in the classroom. A survey in seven African countries found that on average primary school students received less than 2.5 hours of teaching per day, less than half the intended instructional time. Increased investment and improved efficiency cannot substitute for one another.

Both will be needed. More resources are urgently needed, but if all resources were better managed, teaching and learning could improve sharply and returns on investment in education would become even stronger.

Spending that does not lead to real learning or progression through education, poorly targeted resources, and weak financial management are the biggest sources of waste. Corruption is also a serious problem in some countries. Decision-makers should take action, including establishing reliable education management information systems, enabling teachers to spend their time teaching, tackling the systemic causes of absenteeism, and cutting the costs of learning materials.

Transformation II: Innovation — invest in new approaches and adapt to future needs.

Improving the performance of current systems is not enough. Far-reaching innovation is needed to equip young people with the new knowledge and skills they need for the new economy, to provide education to millions more children effectively and efficiently, and to take advantage of new technology and new understanding of how children learn. Leaders must foster innovation across education systems by creating an environment in which innovation can emerge and scale, and by prioritizing innovation in three key areas identified as critical for future success: the education workforce, the use of technology, and the role of non-state partners.

Low-income countries will need twice as many teachers by 2030.

Innovation will be essential to strengthening and expanding the education workforce. Demand for teachers in developing countries will grow dramatically in the years ahead. In low-income countries it is set to nearly double by 2030. This presents a challenge in terms of training and recruiting enough teachers, but also an opportunity to take a new look at the education workforce and how teachers teach. **The Commission recommends leaders strengthen and diversify the education workforce.** This includes the systematic professionalization of both teaching and non-teaching roles within education, by improving teacher training and support for teachers, alongside distinct training and support for non-teaching roles. Teachers must be paid a livable wage that properly reflects the importance of the profession and makes it an attractive career option. Decision-makers also need to diversify the composition of the education workforce to leverage teachers, reduce the time teachers spend on non-teaching activities, and improve and personalize learning. This may include bringing in pedagogic assistants, health practitioners, psychologists, and administrative support to allow teachers to harness their teaching skills to the fullest. To facilitate these actions and develop specific proposals, the Commission recommends an international high-level expert group on the expansion and redesign of the education workforce.

Harnessing technology for teaching and learning offers huge opportunities to transform education at all levels. By 2020, virtually everyone will have a mobile phone, 2.6 billion people will have smart phones, and 56 percent of people will have Internet access. Digital learning makes it possible to reach new and excluded learners, lower costs, enhance teaching, and offer new ways for all learners to gain skills. It could be particularly key for post-secondary education where increasing access, affordability, and relevance of learning will become ever more critical. But today, uneven access to the Internet and digital technologies risks exacerbating existing inequalities in learning. In the poorest countries only 1 out of every 10 people is online. Across many developing countries, less than 10 percent of schools are connected to the Internet.

To fully harness technology's power, the Commission recommends cross-sector investment to get every school online and establish the broader digital infrastructure necessary for learning. Investments in digital infrastructure must be supported by measures to provide skills and best practice to teachers, policymakers, employers, and leaders on how to maximize the impact of digital innovation on teaching and learning. To facilitate the expansion of high-quality digital learning, governments should establish common learning platforms and introduce pro-innovation regulation. In addition, to encourage innovations in delivery, it will become increasingly important to innovate in the recognition and accreditation of skills, to allow students learning in different ways to gain equally valuable qualifications.

Innovation in education can also benefit greatly if governments improve partnerships with non-state

actors. While governments have the ultimate responsibility for ensuring all children have access to a quality education, there is great potential for a diverse set of organizations from every sector to help expand and improve education if partnered and regulated effectively by governments. Civil society organizations, businesses, and employers of all sectors play important, and, in many countries, expanding roles in education – in leadership, advocacy, and accountability, as well as in being education providers and investors. Whether non-state actors increase capacity and innovation or instead entrench inequalities will depend on how their role is managed and regulated. The Commission recommends governments strengthen their capacity to harness the potential of all partners. In particular, this should include improving the regulation of non-state providers of education in order to enhance their contributions and protect rights, and expanding the role of employers in the design and delivery of education.

A Financing Compact for the Learning Generation: 12 recommendations to get all children learning

I. Performance

Successful education systems put results front and center

1. Set standards, track progress and make information public
2. Invest in what delivers the best results
3. Cut waste

II. Innovation

Successful education systems develop new and creative approaches to achieving results

4. Strengthen and diversify the education workforce
5. Harness technology for teaching and learning
6. Improve partnerships with non-state actors

III. Inclusion

Successful education systems reach everyone, including the most disadvantaged and marginalized

7. Prioritize the poor and early years — progressive universalism
8. Invest across sectors to tackle the factors preventing learning

IV. Finance

Successful education systems require more and better investment

9. Mobilize more and better domestic resources for education
10. Increase the international financing of education and improve its effectiveness
11. Establish a Multilateral Development Bank (MDB) investment mechanism for education
12. Ensure leadership and accountability for the Learning Generation

Transformation III: Inclusion — target efforts and resources at those at risk of not learning.

Leaders should prioritize inclusion by expanding provision of education in a progressive way and mobilizing every sector to address the multitude of factors that determine whether a child starts school, stays in school, and learns in school.

Poverty is a major cause of children not entering or completing school, and of not learning once in school. In developing countries, the gap in primary school completion rates between the richest and poorest children is more than 30 percentage points. For those in school, the average gap between the chances of the richest and poorest children achieving primary-level skills is 20 percentage points. These inequalities are compounded by other disadvantages. A child's gender, family, ethnic, cultural, and economic background, geography, health or disability, and exposure to poverty or disorder, conflict or disaster all play a major role in whether a child will learn and succeed. In rural India, for example, there is a 20 percentage-point gap in rates of learning between poorer and wealthier children. Add the impact of gender, mother's education, and regional disparities, and the gap rises to 80 percentage points.

Low-income countries spend 46 percent of their education budgets on the top 10 percent most educated students.

The Commission recommends applying the concept of progressive universalism as a way to close this learning gap. Progressive universalism means expanding provision of quality education for everyone while prioritizing the needs of the poor and disadvantaged. It provides a guiding principle to inform spending decisions, recognizing the scarcity of public funding. The Commission recommends that, when balancing spending across different levels of education and population groups, decision-makers should prioritize the poor and early years where social returns are highest, and minimize household spending on basic education by the poor.

Unfortunately, education spending in most countries today strongly favors the richest and most educated, and is usually skewed toward higher levels of education. On average in low-income countries, around 46 percent of public education resources is allocated to educate the top 10 percent most educated students. And despite high public returns on pre-primary education, it accounts for just 0.3 percent of education spending across Sub-Saharan Africa.

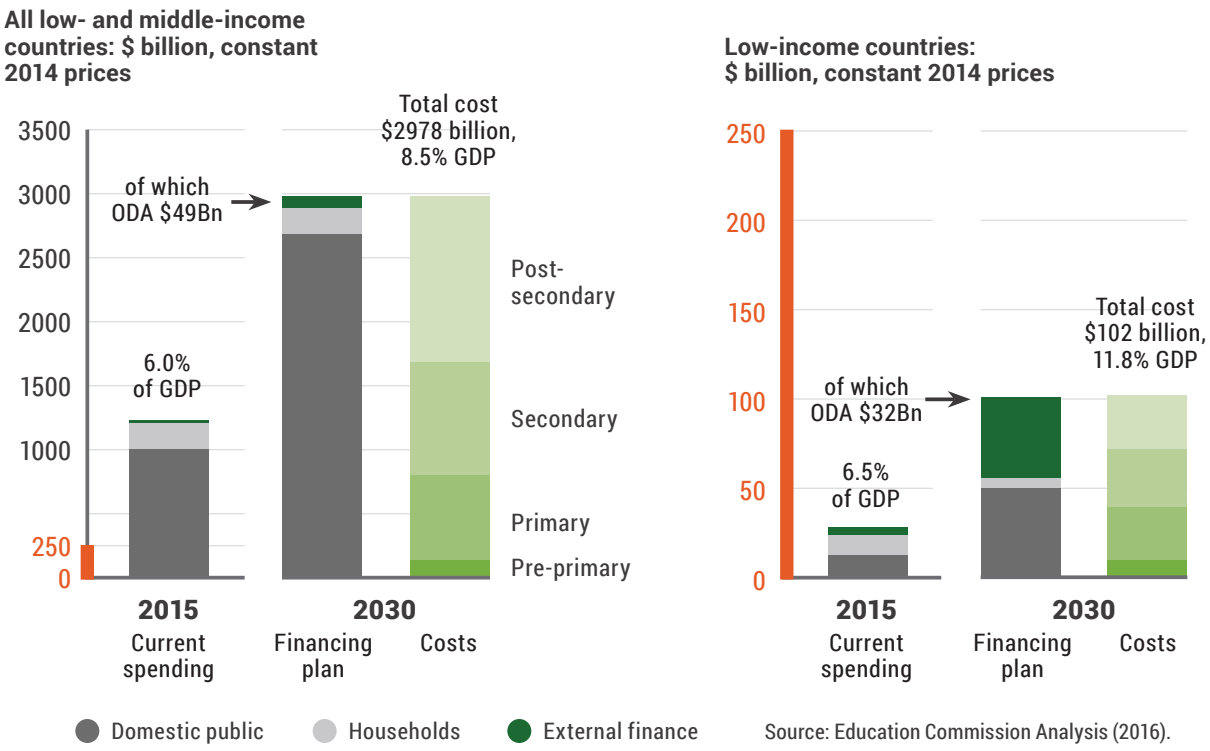
Governments should develop financing formulas that factor in the higher investment needed to reach those children who are disadvantaged due to poverty, disability, or other factors. They should also support the complementary role for private financing and cost recovery for higher levels of education where appropriate, recognizing the high private returns.

Across Sub-Saharan Africa just 0.3 percent of education budgets is spent on pre-primary education.

Of course, providing educational opportunities is not always enough. **Countries must also invest beyond education to tackle the other factors preventing learning.** For many of the children and young people who are not in school or not learning today, the causes of their educational exclusion or disadvantage lie far beyond the education system. For example, in low-income countries, up to 500 million school days are lost due to ill health each year, often from preventable conditions, while one in three girls in the developing world marries before the age of 18, usually leaving education when they do.

The Commission recommends that governments undertake and encourage joint planning, investment, and implementation across sectors to tackle the most prevalent learning barriers. Efforts often require community action and advocacy, critical to challenging norms and supporting local change. Innovation and technology can be vital for inclusion, helping children find new ways to learn and participate. National legislation and international action can be key to underpinning and embedding these inclusion efforts. For example, joint action and investment on education and health is especially important. The Commission proposes that decision-makers in a set of pioneer countries invest in joint education-health initiatives, and recommends particular investment in early childhood development and in services for adolescent girls, which can deliver strong complementary health and education benefits.

Costing and financing pathway for the Learning Generation



Transformation IV: Finance — increase and improve financing for education.

Getting all children learning will require a fourth transformation – mobilizing more money for education and ensuring all money is spent better. Implementing reforms in performance, innovation, and inclusion will not only improve the impact of investment in education, but will also be critical for mobilizing more resources for education. No country that has committed itself to investing in and reforming its education system should be prevented from achieving its objectives because of a lack of resources.

The Commission's vision for the Learning Generation will require total spending on education to rise steadily from $1.2 trillion per year today to $3 trillion by 2030 (in constant prices) across all low- and middle-income countries. Recommendations for how this can be achieved are informed by analysis of the levels of domestic resource mobilization achievable by different countries and by the most current needs and opportunities for reshaping the international financing of education.

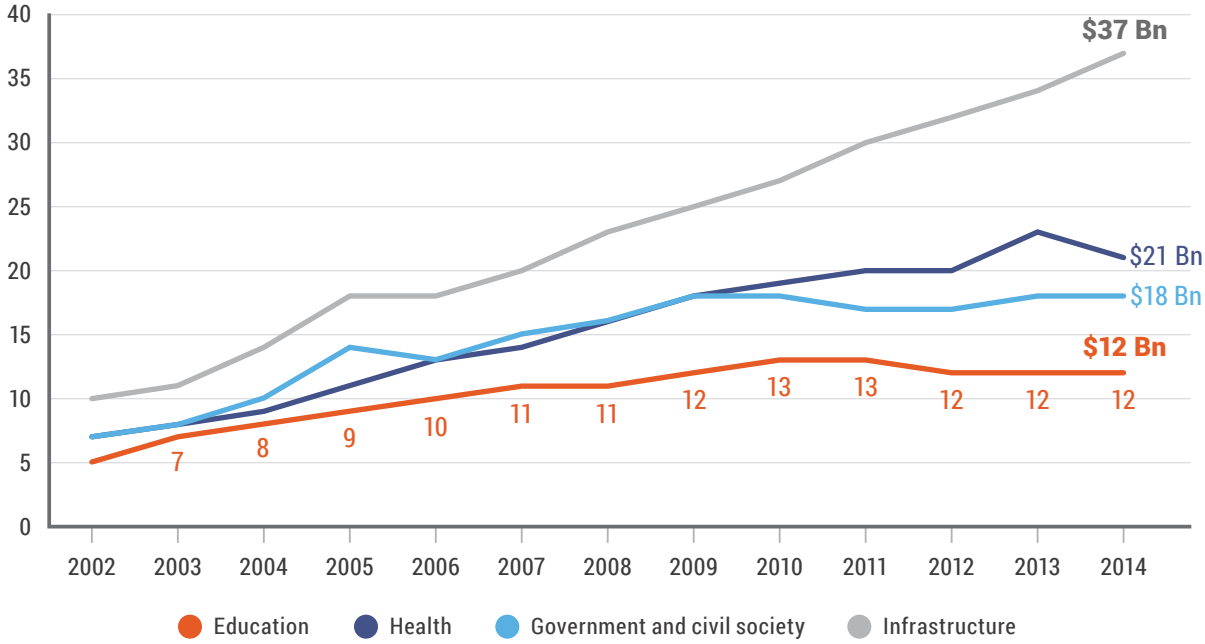
A large majority of this money must come from domestic governments whose commitment to investment and reform will be the most important driver in achieving the Learning Generation. Much of the necessary increase will come from the fiscal dividend available to governments from economic growth, but increases are also needed in the share of public expenditures allocated to education. This will not be enough, though, particularly in the case of low-income countries where substantial international support will be needed. International finance should be available for all countries that need it, but should be prioritized according to where needs are greatest and where commitment to reform is demonstrated, with extra support for fragile states. The Commission's costing and spending estimates project increased efficiency in the use of resources, in line with this report's recommendations.

To achieve this investment plan, the Commission recommends action to increase and improve domestic and international financing of education.

Leaders should mobilize more domestic resources for education. The Commission's investment plan calls for low- and middle-income countries to increase

Trends in sectoral ODA

US$ Billions (2014 constant prices)



Source: Education Commission analysis based on OECD-DAC (2016). Note: Includes only sector-allocable direct aid, with no sectoral attribution of budget support.

domestic public expenditures on education from an estimated $1 trillion in 2015 to $2.7 trillion by 2030, or from 4 to 5.8 percent of GDP, requiring an annual rate of growth in public education spending of 7 percent. Governments should devote more of the proceeds of growth to education through reallocating spending, raising more revenues, or both. IMF estimates show that almost all developing countries have the potential to increase their tax revenues substantially, by an average of 9 percentage points in low-income countries. The Commission's financing plan calls on countries that are below the average predicted resource mobilization for their income level to rise to that level, and countries that are above that level to maintain it. In addition, governments should consider reallocating resources from, for example, expensive energy subsidies and consider earmarking resources for education, alongside wider tax reforms. Although domestic public spending on education has risen at an annual rate of just under 6 percent per year since 2000, on average education's share of total public expenditures has slightly declined across all income groups. This needs to be reversed.

The international community — governments, financial institutions, investors, and philanthropists — should increase international financing of education and improve its effectiveness. The Commission projects that with greater efficiencies and considerable expansion of domestic financing, only 3 percent of total financing will be needed from international sources. But this still means international financing for education will need to increase from today's estimated $16 billion per year to $89 billion per year by 2030, or to an annual average of $44 billion between 2015 to 2030. These funds will remain critical for low-income countries, covering on average half of their education costs.

Since 2002, the share of education in total aid has fallen from 13 to 10 percent, while the share of infrastructure increased from 24 to 31 percent.

This will require overcoming key challenges in the mobilization and deployment of international financing. Education's share of official development assistance (ODA) has fallen from 13 percent to 10 percent

since 2002, while the share for health has risen from 15 percent to 18 percent and infrastructure from 24 percent to 31 percent. Among multilateral donors, education's share of aid has declined from 10 to 7 percent over the past decade. Education ODA has been insufficiently targeted to countries who need it most, or those committed to invest and reform. Only 24 percent of all education ODA was disbursed to low-income countries in 2014. Strikingly, less than 70 percent of education aid actually reached recipient countries in 2014, in part because a large share of aid for higher education is spent on scholarships in donor countries. There is also a lack of financing for specific priority issues in education. For example, while the need for funding for education in emergencies has increased by 21 percent since 2010, international financing for it has declined by 41 percent over the same period. Finally, efforts to use international finances to incentivize domestic spending, drive a focus on results, or leverage new sources of finance have been limited.

To achieve international financing goals, the Commission calls on the international community to significantly scale up financing from all sources and sets ambitious but achievable targets for each. The Commission calls on bilateral donors to allocate a higher share of their GDP to ODA and to increase the share which goes to education from 10 to 15 percent. To inspire and mobilize new giving, the Commission calls for the development of an "Education Giving Pledge" encouraging high net worth individuals to make a substantial public commitment to education, and in doing so motivate their peers to do likewise. Funding for education in humanitarian crises should be increased to a level of 4-6 percent of humanitarian assistance.

Donors should also improve the effectiveness and impact of international finance by re-examining the frameworks within which they make allocations. An education equivalent of the Equitable Access Initiative in health to bring partners together to develop a shared and coordinated approach to allocation would be a valuable tool. A much higher share of ODA should go through multilateral institutions to improve coordination and support long-term system strengthening.

Donors, investors and institutions should also support innovative financial mechanisms for mobilizing new sources of education finance. At most $500 million of innovative financing has been raised for education since 2000, compared to $14 billion for energy and $7 billion for global health. The Commission evaluated 18 innovative financing mechanisms for education against a number of criteria including impact, potential for additional financing, and feasibility. The five most promising proposals that should be further developed include education bonds, innovative post-secondary student financing mechanisms, disaster insurance for education, impact investing, and solidarity levies.

Finally, the Commission recommends the establishment of a Multilateral Development Bank (MDB) investment mechanism for education. This mechanism would ensure that education benefits from the unprecedented opportunity to increase MDB financing through much greater leveraging of their capital bases. This could increase MDBs' lending capacity by more than 70 percent. The Commission estimates that establishing such a mechanism could potentially mobilize $20 billion or more annually from MDBs for education by 2030 (up from $3.5 billion today).

The mechanism would encourage MDBs to prioritize and innovate in education, with an objective of allocating a 15-percent share of MDB financing to education. It would improve coordination of financing and enhance sharing of data and knowledge among MDBs and with others. The mechanism would also include a financing platform that would raise funding from bilateral donors, philanthropists, and charitable organizations (in addition to the $20 billion from the MDBs directly). This grant funding would be used to encourage combinations of different types of financing to better tailor financing instruments to the needs of different countries. Financing packages would be linked to increased domestic financing and focus strongly on innovative and results-based approaches. The platform would also engage with the private-sector arms of MDBs and commercial and impact investors to further scale finance and enhance impacts. The approach would pioneer a new form of collaboration among MDBs and scale financing in line with proposals laid out in the "Billions to Trillions" vision prepared by the MDBs for financing the SDGs. It combines the unique opportunity to leverage MDB resources with key strengths of earlier proposals for a global fund for education.

Building momentum and accountability is critical to success. The Learning Generation vision is ambitious but achievable. Its full implementation and ultimate success will depend on strong leadership and on empowered citizens, able to hold those leaders to account for their action or inaction. To facilitate this and to ensure that countries are given appropriate support by the international community, **the Commission recommends development of a transparent framework outlining the responsibilities of governments and that independent reporting against this framework be encouraged.** To ensure this accountability is accorded the highest importance, the Commission recommends that the United Nations General Assembly pass a resolution requesting the Secretary-General to appoint a Special Representative for Education, tasked with upholding children's rights by holding developing countries and the international community to account for meeting their responsibilities, including by reporting annually at the highest global levels to the General Assembly, Human Rights Council, and the Security Council.

To set the direction for all countries to follow and to sustain momentum, **the Commission calls on an initial set of pioneer countries to commit to adopting the recommendations set out in this report.** The Commission calls for a global movement to advocate for the rights of everyone to an education and to make the case for educational investment and reform — a movement of young people and families, teachers and faith leaders, communities, civil society and business leaders, and political leaders at all levels. Finally, to keep education high on the global agenda, the Commission recommends the UN Secretary-General establish an independent high-level body with the Special Representative as an independent chair to provide global leadership and advocacy and to move the Learning Generation vision forward.

More than ever, education now offers the world the opportunity to secure the future of the global economy and global stability, and to improve the lives of millions of young people. We need to act now to seize this opportunity together.

Contents

PART 1

Creating a Learning Generation

Education and skills are essential for realizing individual potential, enhancing national economic growth and social development, and fostering global citizenship. In the coming decades, as technology, demographic change, and globalization reshape the world we live in, they will become ever more important.

Economies will rise or fall depending more on their intellectual resources than their physical resources. The valuation of companies will depend more on human capital than physical capital. The pathway to growth for developing economies will depend less on traditional forms of export-led growth and more on a route that has so far been less travelled: education-led growth.

And yet despite the known and increasing benefits of education, the world today is facing a global learning crisis. The international community has set 2030 as the date for attaining quality secondary education for all. If we carry on as we are, however, less than 10 percent of young people in low-income countries will be on track to gain basic secondary level skills. The gap between what young people want, demand, and believe they have a right to, and what young people can actually access and receive, will grow ever wider. The costs of this learning crisis – unemployment, poverty, inequality, and instability – could undermine the very fabric of our economies and societies.

It is possible to ensure that all children and young people are participating in education and that all are learning and gaining skills. This can be achieved within our generation if all countries accelerate their progress to that of the world's 25 percent fastest education improvers.

This chapter examines the case for investing in education; sets out the Commission's vision for the future; and introduces the Financing Compact through which this vision can be realized.

The unfolding learning crisis

If current trends continue, hundreds of millions of children and young people will be denied an education at a time when learning matters more to their life outcomes than ever before.[2]

Today, 263 million children and young people are out of school.[3] In the Millennium Development Goals set in 2000, the world promised that by 2015 all children would have completed a primary education. Yet today, in low-income countries, only an estimated 67 percent of children are completing primary school. On current trends, it will take until the end of this century to get all children in these countries completing primary school.

Levels of actual learning are even more alarming. In low- and middle-income countries, only half of primary

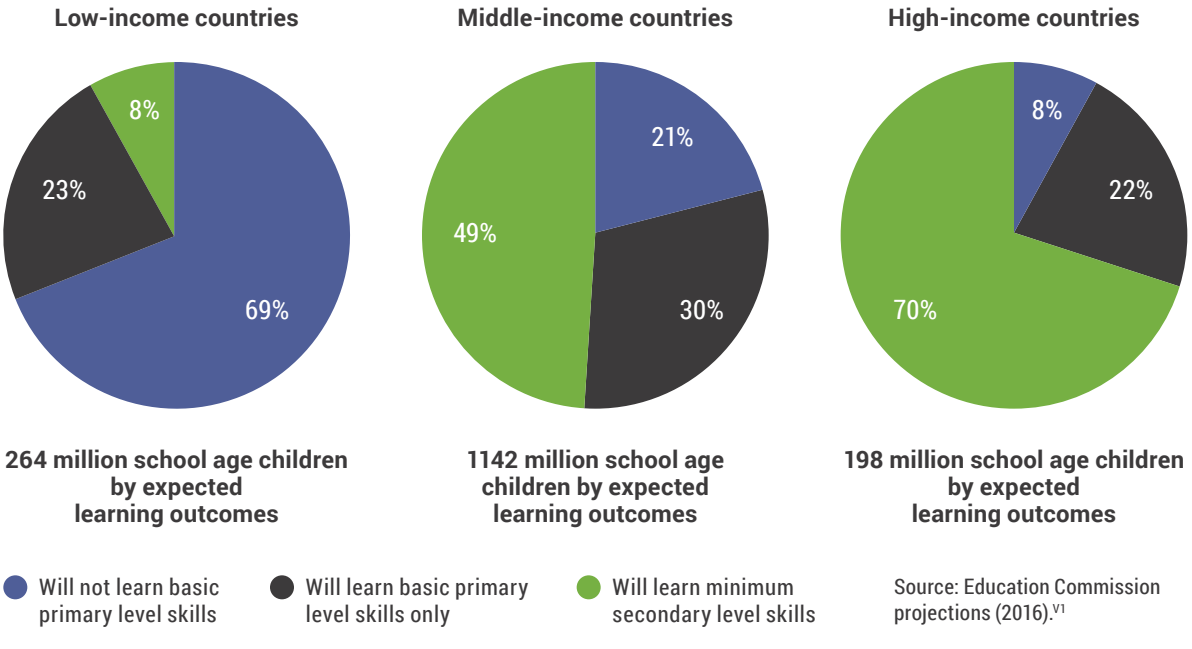
school-aged children and little more than a quarter of secondary school-aged children are learning basic skills today. The Commission finds that if current trends continue, only seven out of 10 children of school age in low- and middle-income countries will be on track to achieve primary-level skills in 2030. In low-income countries the situation will be worst, with just three out of 10 school age children on track to achieve primary-level skills. **It also projects that only four out of 10 children of school age in low- and middle-income countries will be on track to achieve minimum secondary-school level skills in 2030. In low-income countries, less than one in 10 will be on track.** This means that, of the 1.4 billion school-age children in low- and middle-income countries in 2030, the Commission estimates that 420 million will not be on track to learn the most basic skills in childhood, and 825 million will not be on track to acquire basic secondary-level skills (see Figure 1). The already vast gap in post-secondary learning between the poorest and richest countries will worsen. Without urgent change, more than 1.5 billion adults will have no education beyond primary school in 2030.

The challenge facing all countries is not simply to get children learning, but to adapt education systems to the fast-changing needs of the global economy. The task of every government is to prepare young people for a radically changing world.

Up to half of today's jobs – around 2 billion – are at high risk of disappearing due to automation by 2030, radically altering the demand for skills.[4] In some countries, up to 80 percent of today's jobs could become automated.[5] In contrast to the impact of innovation in previous generations, new technologies risk not creating new jobs at anything like the scale they are eradicating them.[6] Due to shifts between industries and the changing demands of work within industries, demand for high-level skills will grow, and many low- and medium-skilled jobs will become obsolete. Under current trends, many of the new jobs that replace those lost to automation will be open only to those with higher levels of skills; many other jobs will be unskilled, insecure, and poorly paid.[7] The workforce is set to become more polarized and an already damaging skills and income divide will widen.

The ability to acquire new skills throughout life, to adapt and to work flexibly will be at a premium, as will technical, social and critical thinking skills. Those with high skills, capacity to adapt to change, and access to technology will expect an ever greater share of earnings, while the majority of young adults in developing countries without skills beyond primary school will face

Figure 1. A global learning crisis: The expected learning outcomes of the cohort of children and youth who are of school age in 2030



Source: Education Commission projections (2016).[V1]

a lifetime of long-term unemployment, insecure or irregular employment, and low wages.[8] These trends will be exacerbated by the fact that many advanced economies are aging and will face shrinking workforces. As they seek to maintain productivity and embrace technology, their demand for high-level skills and dependence on the global labor supply will grow. The evidence before the Commission suggests that **more than ever before, human capital will be the most critical determinant of economic success around the world.**

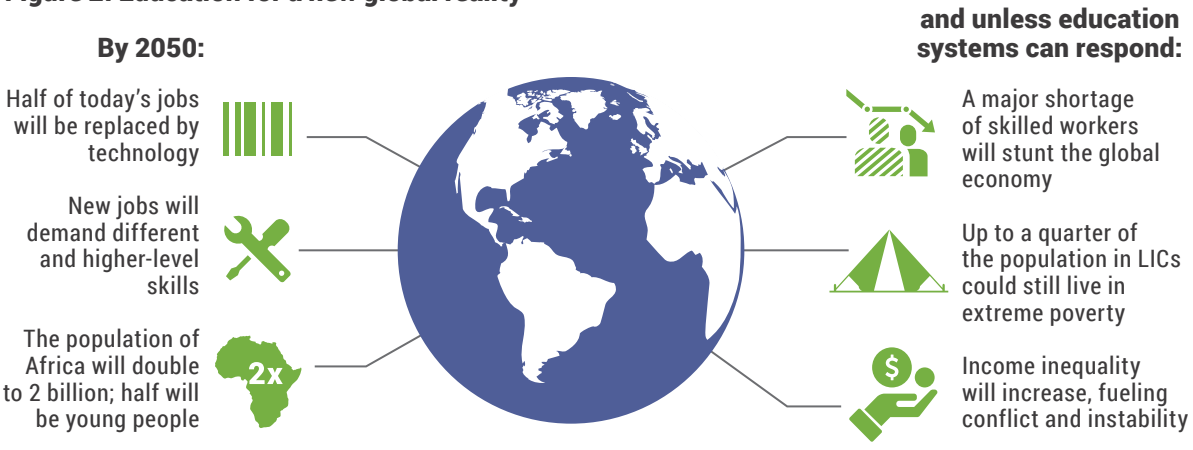
With many of the world's low-skilled jobs most susceptible to automation, developing economies will in time be at greater risk of technology-induced unemployment. Those who have nascent manufacturing sectors may struggle to grow and find it increasingly difficult to compete with more established manufacturing in emerging economies.[9] In the past, many emerging economies achieved growth by moving farm workers into factories. As automation reduces the need for cheap labor and increases the opportunity to onshore previously outsourced production and services, however, it will be harder for manufacturing in developing countries to create jobs in the same numbers or value as some countries were able to in the past. They may be subject to what is sometimes called "premature deindustrialization."[10] New growth models will need to be found, but these will require higher levels of skills than developing economies are currently set to offer.

Already some 40 percent of employers globally are finding it difficult to recruit people with the skills they need.[11] If education in much of the world fails to keep up with the changing demand for skills, there will be major shortages of skilled workers in both developing and developed economies as well as large surpluses of workers with poor skills. **This skills gap will stunt growth in the global economy.**[12] Young adults around the world are already three times more likely to be unemployed than older adults because they lack the skills that employers want. Prospects for young adults with poor skills will only get worse in the decades to come.[13]

Changing demographics will exacerbate the challenge. Education plays a critical role in reducing fertility, by empowering women, reducing child deaths and boosting jobs and growth. If we fail to get all children learning, the population of Africa is expected to double to 2 billion by 2050 and include 1 billion young people.[14] While labor forces in advanced economies will decline, Sub-Saharan Africa will account for 20 percent of the world's workforce by 2050, up from 10 percent today.[15] Unless education systems can respond, the mismatch between the demand for skilled labor and its supply will lead to growing inequalities. The OECD estimates that in the 50 years between 2010 and 2060, income inequality will rise by 24 percent in Brazil, 21 percent in China, 20 percent in Indonesia, and 10 percent in India.[16]

Failing to educate children and young people will carry huge social and economic costs. The growing skills gap will prevent the world from reaching the most fundamental of all development goals: ending extreme poverty. By 2050, when the children affected by today's educational policy choices will have entered the labor market, on current trends 26 percent of the population in low-income countries will still be living in extreme poverty. The number of people in absolute poverty in these countries could be stuck at around 300 million for the next 35 years.[17] **Yet absolute poverty could be**

Figure 2. Education for a new global reality



reduced by a third from learning improvements presented in this report alone, and further still if additional policy steps were taken.[18] Although the education crisis will hurt the poorest the most, there is a large price to be paid across the entire economy. Evidence considered by the Commission suggests that in 2050, GDP per capita in low-income countries would be almost 70 percent lower than it would be if all children were learning – this amounts to an estimated loss of $1.8 trillion for low-income countries alone.[19] The losses from failing to educate children in middle-income countries would be far greater.

The negative impacts on income and economic performance are only the beginning. The impact on health will be equally severe. Projections suggest that by 2050, the number of lives lost each year because of lower levels of education would equal those lost today to HIV/AIDS and malaria, two of the most deadly global diseases.[20] By 2050, population growth would be at least 15 percent higher than if all children were learning – a critical factor in development as a whole.[21]

If children and young people are denied opportunity and if inequality in education persists, the implications for stability are also dire. Historical analysis shows that inequality fuels unrest and it has been shown that in countries with twice the levels of educational inequality, the probability of conflict more than doubles.[22] Low levels of secondary education among young males are strongly associated with higher levels of social disorder and disturbance.[23] Unrest is likely to be greatest where the gap is widest between the expectations of young people about the opportunities that should be available to them and the realities they face. Population movements could further compound these pressures. Today, the number of people displaced by conflict is at an all-time high and migration from conflict, climate change, and economic strains are set to increase. The number of international migrants, many of whom will have been denied the opportunity to acquire skills, is estimated to grow to around 400 million people by 2050.[24] With education critical to resilience and cohesion, the dearth of skills will increase vulnerability to shocks and the risks of instability.[25] In a globalized world, these risks will cross national borders and become global problems requiring global action.

Where economic, technological, demographic, and geopolitical trends collide with weak education systems, the risks of instability, radicalization, and economic decline are at their greatest. If the world does not equip all young people with the skills they will need to participate in the future economy, the costs of inaction and the costs of delay could be irreparable.

Why invest now? The case for action and the price of delay

The case for investing in education and skills is overwhelmingly strong and getting stronger, encompassing shared global priorities including economic growth, health and development, and peace and stability. On the basis of this investment case, the Commission calls for developing countries, the international community, and partners across sectors to scale up their efforts, and to begin now.

The scale of the task is not diminishing, but growing with time. There will be a 13 percent increase in the number of children in low- and lower-middle income countries between 2012 and 2030, and the greatest increases will occur in the countries already lagging furthest behind in education.[38] As more of the poorest or most marginalized students, and those with particular needs or risk factors, enter school, even greater effort and investment will be needed to help these children catch up with children in the wider population. The higher population growth in low-income countries makes it more difficult to get all children into school. Despite recent increases in enrollments, if we continue on current trends, the number of out-of-school children in many of the poorest countries will increase in the years ahead.

And the longer we wait, the harder it will be to get all children into school and learning. If action starts immediately, total spending on education in low- and lower-middle income countries will need to increase by 7 percent each year to reach the Commission's 2030 targets. If the world waits until 2020 to take action, that becomes 11 percent per year. If action starts now, countries will need to get 3 percent more children into secondary school each year; if it delays to 2020 the task becomes 5 percent growth per year. Start now, and countries will need to get 3 percent more children on track to hit learning benchmarks each year; delay to 2020 and that becomes 5 percent per year.[39]

The case for investment is irrefutable. The costs of delay are clear.

Box 1. Where are we today?
Access to education: Progress made but big challenges remain

- In the last 15 years, the number of children in preschool, primary, and secondary school has increased globally, by 20 percent or 243 million students, from 1.224 billion in 2000 to 1.467 billion in 2013.[26]
- In spite of this progress, 61 million primary-school aged children – 10 percent of all children in low and lower-middle income countries – and 202 million secondary-school aged children are out of school today.[27]
- Population growth has made it more difficult to get all children into school; the number of primary out-of-school children has *increased by 7 percent* since 2010 and will continue to increase in many poor countries.[28]
- Today, an estimated 67 percent of children are completing primary school in low-income countries and 88 percent are doing so in lower-middle income countries. In high income countries, it is 99 percent. Just 24 percent of children are completing secondary school in low-income countries and just 50 percent in lower-middle income countries. In high-income countries it is 76 percent. Just 11 percent of youth in low-income countries attend some form of post-secondary education (including vocational and tertiary education), compared to an average of 80 percent in high-income countries.[29]

Learning: Too many children in school are not learning the basics

- New Commission research finds that the learning crisis today is worse than was previously estimated. In low- and middle-income countries, only half of primary-school aged children (337 million out of 611 million) and little more than a quarter of secondary-school aged children (194 million out of 662 million) are on track to complete primary/secondary school and on track to reach at least the "low" learning levels on the international learning assessments[30] that the Commission has used as a standard for learning, with the remainder either not in school, not completing school or in school but not learning.
- One in four primary-school aged children who are not learning the basics are not in school. But three out of four children who are not learning are failing to achieve *despite being in school*.[31]

Equity and inclusion: Large inequities exist within countries

- Twice as many girls as boys never start school.[32]
- Sixty-three million out-of-school girls and boys are living in conflict-affected areas.[33] Children in these countries are 30 percent less likely to complete primary school and half as likely to complete lower-secondary school.
- Across low- and middle-income countries, there is on average a 32 percent gap between the chances of children in the poorest quintile and richest quintile completing primary school. For those children who are in school, 54 percent of the richest children learn the basics, while only 35 percent of the poorest do so.[34] In 10 out of 25 low- and middle-income countries with data, wealth-related inequalities in primary completion rates are getting worse.[35]
- Gender, geography, family, and ethnic and cultural backgrounds, together with other factors, compound the effects of poverty. Fewer than one in 20 poor, rural girls in Sub-Saharan Africa are on track to complete secondary school, seven times less likely than non-poor, urban boys.[36]
- The Commission estimates that as many as half of the estimated 65 million primary and lower secondary-school age children with disabilities in developing countries are out of school.[37]

Education is a fundamental human right

Access to education is a basic human right, enshrined in the Universal Declaration of Human Rights and reaffirmed in every generation. In making possible "the full development of the human personality," education serves as the basis for all rights, and a precondition for their safeguarding and realization. This is no abstract concept — it is what we hear every day from children and parents in every corner of the world. In the United Nations My World survey, education was by far the top priority for the 7 million citizens in 194 countries who were asked which issues were most important for a better life.[40] In surveys of refugees in Europe and Africa, education is identified as a critical emergency need.[41] Above their most basic needs, citizens demand an education for their children and are often prepared to take great risks or spend large portions of their incomes to send their children to school. Hard evidence supports their view that it is a vital investment.

Education benefits the economy and individual incomes

Improvements in human capital are critical to long-term economic growth for countries.[42] Cross-country studies show more schooling is positively related to economic growth.[43] When measures of learning and skills are included in addition to years of schooling, the impacts on growth are even stronger. Recent evidence shows that two growth scenarios – the "Latin American growth puzzle" and the "East Asian miracle" – are almost entirely explained by investment in learning and skills.[44] Other studies show countries with higher test scores had economic growth rates that were 2 percentage points higher each year for the subsequent 40-year period.[45]

The impact of education on individual earnings is widely proven to be large and positive. **A dollar invested in a one-year increase in the mean years of schooling generates more than $5 in additional gross earnings in low-income countries and $2.5 in lower-middle income countries.** This is the case even after taking into account the costs incurred by governments and individuals and the current variability in education quality across countries.[46] This is equivalent to a rate of return of 10 percent and 7 percent, respectively.[47] These returns to education are well above average returns to investment in stocks (4.6 percent), bank deposits (4.6 percent), housing (2.8 percent), and long-term bonds (2.7 percent).[48] Evidence from advanced economies also shows that improving quality and learning outcomes, in addition to years of schooling, delivers even greater benefits than improving enrollment alone.[49]

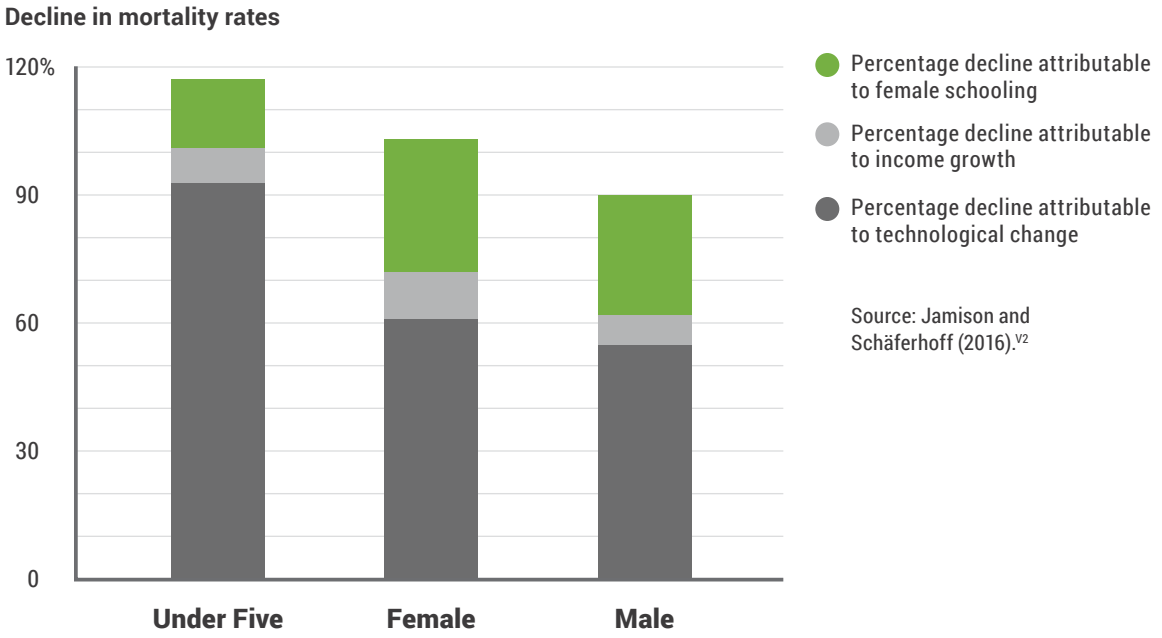
Education, especially for girls, is the 'vaccine' for healthier populations

Assessments of the impact of education have generally focused on increased wage earnings without accounting for its wider impacts. New research for the Commission quantifies the health benefits from education and expresses them in dollar terms, allowing us to calculate a fuller "social rate of return."

Higher levels of education, and in particular girls' education, have had significant impacts on life expectancy and mortality. Around one-third of the reductions in adult mortality and nearly 15 percent of the reductions in infant mortality from 1970 to 2010 can be attributed to gains in female schooling (see Figure 3).[50] **Educating girls averted more than 30 million deaths of children under five years old and 100 million deaths in adults** (age 15 to 60).[51] This is because educated women have increased access to health services, a better understanding of healthy behavior for themselves and for their children, and increased decision-making power within the household.[52] Each additional year's increase in average years of schooling has decreased adolescent birth rates annually by 8·5 births per 1000 girls since 1990, even when growth in national wealth is controlled for.[53] While years of learning matter, low-quality schooling is associated with smaller reductions in fertility and smaller increases in child survival. Research for the Commission finds that while each additional year of female primary schooling is associated with a reduction of roughly six deaths per thousand live births, these returns to schooling are roughly two-thirds larger in countries with the highest versus lowest quality school systems.[54]

These health improvements have generated considerable additional economic value, over and above the direct impact of education on increased earnings. In low-income countries, the health benefits of education nearly double the earnings-only benefit-cost ratio,

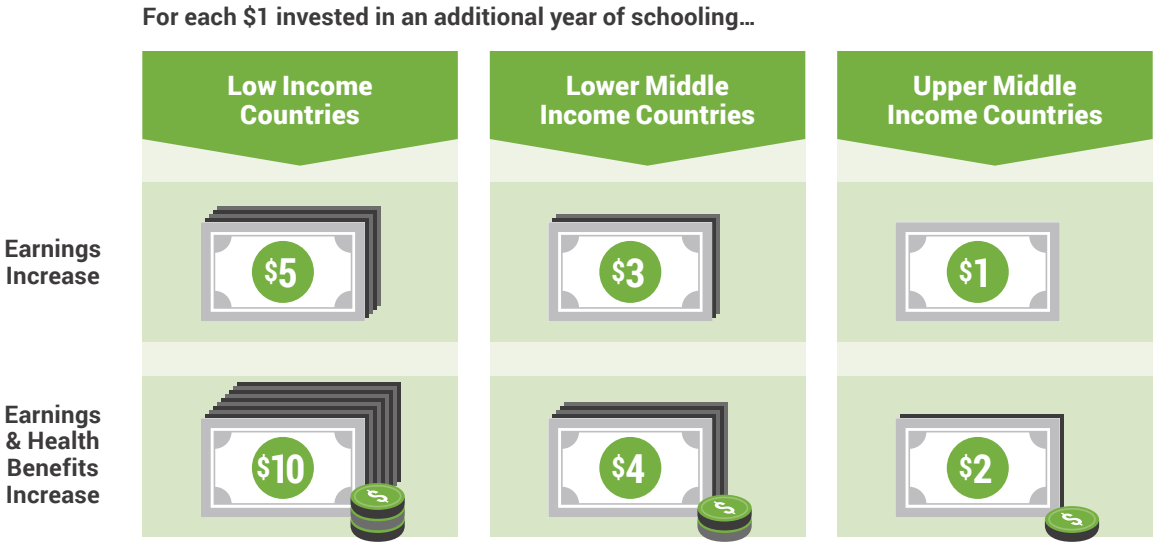
Figure 3. Educating girls saved over 130 million lives – Declines in mortality rates (per 1000) in low- and middle-income countries (1970-2010)



while in lower-middle income countries, health increases the benefit-cost ratio by nearly half. In other words, **every dollar invested in a one-year increase in mean years of schooling, in particular for girls, has generated an impressive 10-fold health-inclusive benefit of $10 in low-income countries and nearly $4 in lower-middle income countries** (see Figure 4).

The impacts of education on health go beyond advances in years lived. Across a range of studies, quality education consistently shows positive outcomes for improvements in sexual and reproductive health,[55] better mental health,[56] lowered risks of non-communicable diseases later in life, reduced tobacco smoking and drug use,[57] and fewer incidents of violence.[58] Staying

Figure 4. Education is the smartest investment – benefit-cost ratios are high



Source: Jamison and Schäferhoff (2016).[V3] Note: Health benefits are based on reductions in under-five and adult mortality.

in secondary school can reduce HIV infection rates by as much as 60 percent.[59] Adolescents with lower-secondary education have been found to have a 50 percent lower rate of problems related to mental health, alcohol use, and sexual health than those with only a primary school education.[60]

Education increases peace and stability

Education helps build more peaceful and equal societies, and more resilient populations. High levels of secondary school enrollment have been shown to increase a country's level of stability and peace, and reduce crime and violence.[61] Evidence strongly suggests that increasing secondary-school enrollment and literacy rates decreases the probability of civil war, and that increasing education expenditures has a pacifying effect on internal conflict. **Every additional year of schooling reduces an adolescent boy's risk of becoming involved in conflict by 20 percent.[62]** This effect reflects both education's economic benefits and its role in social cohesion and national identity. Lack of education often leads to political disempowerment and regression to group allegiances. When education is coupled with strong curricula that promote tolerance and social cohesion, and with opportunities for youth employment, the risks of participation in extremist activities are reduced.[63] Education promotes stability because it improves productivity, provides care and support, and gives people the skills and tools to resolve disputes peacefully.[64]

More generally, education can promote greater participation in society – from voting to chairing local committees to giving blood.[65] Education enables people to exercise their rights and access justice and legal protection. It equips people with the skills that make them more resilient in the face of unexpected economic or political shocks or natural disasters[66] by reducing negative impacts and increasing capacity to adapt.[67]

Education is essential for sustainable development

Education is essential for development, and has a critical role to play in achieving the Sustainable Development Goals (SDGs). Most fundamentally, education is essential for lifting people out of poverty, increasing equality and social cohesion, and improving health. But education's overall impact on development is far wider. Education empowers women by facilitating access to information about rights and services, increasing confidence to challenge unjust norms and inequality, and enabling participation in decision-making and accountability.[68] Education is important for sustainability in all its forms. By improving skills and understanding, better education increases the likelihood that people will adapt farming or production methods and energy use to more sustainable approaches, increases their awareness of and commitment to conservation and climate change, and reduces fertility – a key factor in mitigating long-term climate change.

Critically, what matters is not just education per se, but what that education seeks to do. While rapid educational and economic progress can have negative environmental and sustainability impacts by leading to increased consumption, education that explicitly seeks to encourage positive behaviors can be important to many development objectives. The right education fosters increased tolerance and resilience; more environmentally sustainable choices in planning, production and consumption; improved hygiene and health; and greater civic participation. As the 2016 UNESCO Global Education Monitoring Report sets out in detail, education is vital for achieving the Sustainable Development Goals of poverty reduction, hunger eradication, improved health, gender equality and empowerment, sustainable agriculture, resilient cities, and more equal, inclusive, and just societies. In fact, education is so central for facilitating development that each one of the 17 SDGs includes a target which relates to or depends upon learning and educating.[69]

Education's value is increasing with time

Technology is changing the shape of work at an unprecedented pace, eroding many traditional industries and making many low- and medium-skill jobs obsolete. The demand for higher-level skills will increase as advanced economies look for new ways to increase productivity and as emerging economies seek to move up the global value chain. Education will be key in determining whether the growing youth population in developing countries is a demographic dividend or a development burden. Economic progress will be driven

by knowledge and skills embedded in individuals, firms, and society more generally – and by how that knowledge changes, is transferred, and is put to use.[70] It will be people, knowledge, and innovation that will drive or constrain growth during this century.

Migration from conflict, climate change, and lack of economic opportunity is set to increase. Education is essential for maintaining cohesion and stability in the face of mass migrations, providing people on the move with the skills and values necessary to integrate, recover, and rebuild. As violent conflict continues and shocks from climate change increase, education's role in building resilience and facilitating cooperation and peace will be critical. Universal education could reduce future climate change-related deaths by tens of thousands in the coming decades by improving awareness, risk reduction measures, and disaster preparation and response.[71] And it could be key to reducing long-term threats from climate change, through education's impact on fertility, technology, and innovation, and the promotion of sustainable choices for individuals and economies.[72]

As people, information, jobs, goods, and ideas move further and faster around the world, and people interact physically and virtually with more people from diverse cultures, education for tolerance and common values will also become even more important for stability and peace.

Ultimately the value of education is increasing because it is education that will determine whether the defining trends of this century – technological, economic, and demographic – will create opportunity or entrench inequality, and because it is the common critical factor for successfully addressing the global challenges humanity is facing.

A vision for the Learning Generation

Despite the current state of global education, the Commission finds that it is possible to get all young people into school and learning within a generation.[73] It is this bold vision that the Commission is challenging the international community to rally behind— the Learning Generation.

We know it is possible because a quarter of the world's countries are already on the right path.[74] In fact, if all countries accelerated progress to the rate of the world's 25 percent fastest education improvers, then within a generation, all children in low- and middle-income countries could have access to quality pre-primary, primary, and secondary education, and a child in a low-income country will be as likely to reach the baseline level of secondary-school skills and participate in post-secondary education as a child in a high-income country today.[75]

This report outlines the priorities for achieving the Learning Generation and the trajectories that show how they can be met. The Commission calls on leaders to commit to these priorities and on citizens and the international community to hold them accountable. The Sustainable Development Goal for Education (SDG4) calls for "inclusive and quality education for all" by 2030. The Learning Generation vision builds on this Goal, by defining the desired learning outcomes and by setting out the specific measures necessary for the Goal's achievement, together with their trajectories. They are consistent with the approach and indicators being developed to measure progress toward SDG4.

Where the SDG did not specify details of a target – such as for quality education or learning outcomes – the Commission has proposed specific targets. Where the SDG did specify details – such as the target of ensuring that all girls and boys complete free, equitable, and quality primary and secondary education – the Commission undertook detailed analysis of what would be required to achieve these targets as stated by 2030. Achieving universal primary and secondary completion by 2030 would require all current school-age children to start primary school within the next two years, and would require a level of secondary school completion in poor countries exceeding that seen in rich countries today.[76] This would require many countries to achieve a rate of progress never before achieved by any country. The Commission therefore interprets the SDG goal of universal education by 2030 as meaning that by 2030 all children who reach school age will have equal access to free, quality primary and secondary education, and all those who start school will be on track to complete pre-primary, primary, and secondary schooling, and achieve learning levels and access to post-secondary education on par with children in rich countries today.

The 25 percent fastest movers

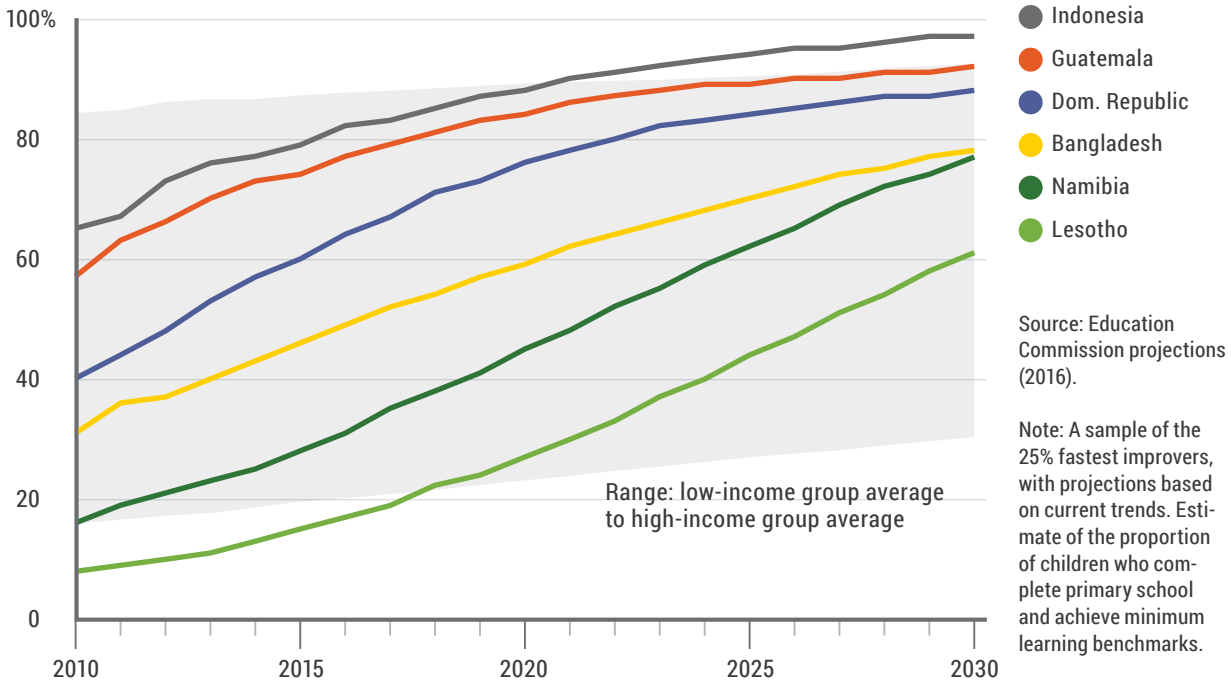
To achieve the Learning Generation vision, what matters is the pace of progress that individual countries are able to make. By analyzing historical trend data, the Commission observed that growth rates for education – for access and for learning – are highest in the early stages, when absolute values are low, and taper off to zero as universality is approached. *Countries that are furthest behind can achieve the highest growth rates,* helping them to catch up.[77]

To find ambitious but achievable growth paths for the future, the Commission identified countries which had, in the recent past, improved fastest on each of the range of measures the Commission is concerned with - in participation and in learning, and at each level of education. To do this, it identified the 25 percent of countries whose rates of growth most outperformed that of countries with a similar starting point on a given measure. All countries with available data were considered.

The group of the fastest 25 percent is a geographically and socially diverse class, including low-income, rapidly growing countries, countries in Africa, Asia, and Latin America, and small countries as well as large ones. Commission analysis found remarkable improvements in Ethiopia and Togo for preschool expansion; countries such as Burundi and Malawi for primary and secondary expansion; and countries such as Lesotho, Ghana, and Namibia for improving learning. It may seem unusual to see some of these countries at the top of education rankings because typically countries are ranked by their access and quality levels rather than by their relative rate of improvement. For achieving progress however, the rate of improvement is the key indicator. It is on the basis of the improvement rates achieved by the fastest moving countries that the Commission set its goals for what could be achieved by all countries. Considering the wide range of factors behind these differences in rates of progress – the relative impact of their differing contexts, levels of investment, policies, leadership, and so on – has helped to inform the Commission's proposals for reform.

By considering multiple improvement scenarios, the Commission finds that the average growth paths of *the fastest improving 25 percent of countries* would generate an acceleration that would result in all children learning and a substantial closing of the education gap within a generation for almost all countries.

Figure 5. Some of the fastest movers show what is possible



Source: Education Commission projections (2016).

Note: A sample of the 25% fastest improvers, with projections based on current trends. Estimate of the proportion of children who complete primary school and achieve minimum learning benchmarks.

There is a very small group of countries in Sub-Saharan Africa that will need additional support to increase improvement enough to catch up. They are either so far behind that even accelerating to the rate of the fastest 25 percent will not be sufficient or their finance needs are so high that they cannot come close to carrying the costs (see Figure 6).

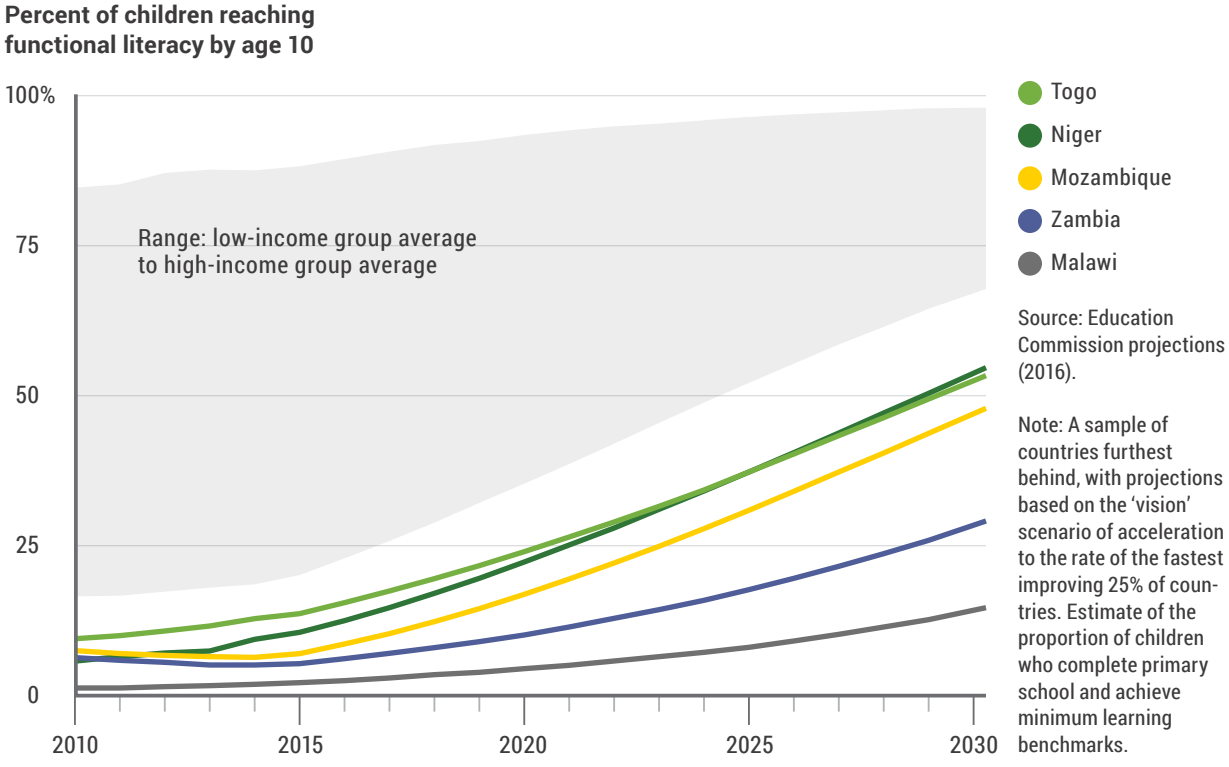
Priorities for achieving the Learning Generation

In setting out this vision, the Commission seeks to highlight the need for a focus on learning and not just access, and the need for quality learning opportunities across the age spectrum. To achieve the trajectories set out below, special attention will need to be paid to the needs of the poorest and those at risk of educational exclusion and to children in emergency contexts. Achieving these trajectories and doing so efficiently also depends upon countries prioritizing the early years and preschool to ensure the building blocks for later educational achievement are in place.

Skills needs are changing. Education does and must continue to do much more than simply develop core academic skills. It must foster the wider capabilities essential for citizenship and employment in the 21st century. The skills which young people will need in order to successfully transition into work and adulthood are changing – social and communication skills and higher-order thinking skills (problem solving, critical thinking, and decision-making) are becoming ever more vital.[78] The importance of education systems nurturing skills for environmental sustainability and the range of skills required to support technological innovation is also increasing. Governments should consider carefully how their education systems can best foster these skills, including through the ways explored in this report. However, most existing learning assessments measure basic academic skills such as reading, mathematics, and science. While their scope should be expanded to include other skills, the Commission strongly believes that acquiring core academic skills is a fundamental foundation for broader learning and that the assessment of these basic skills remains critical for educational reform.

On the basis of this analysis of the improvement rates achieved by the fastest-moving countries and of the goals and targets in SDG4, the Commission sets out its aims for the Learning Generation.

Figure 6. Some countries are very far behind and will require additional support



Source: Education Commission projections (2016).

Note: A sample of countries furthest behind, with projections based on the 'vision' scenario of acceleration to the rate of the fastest improving 25% of countries. Estimate of the proportion of children who complete primary school and achieve minimum learning benchmarks.

If all countries progress at the rate of the fastest quarter of countries, then within a generation, or by 2040 at the latest, the world can achieve vital education objectives[79] (see Table 1 and Figure 7).

1. A quality preschool place for all children.

Today, preschool enrollment is just 23 percent in low-income countries, compared to 87 percent in high-income countries.[80] Based on current trends, the figure for low-income countries will reach 42 percent by 2030 and 54 percent by 2040. **Following the Commission's Learning Generation pathway, enrollment would jump to 89 percent by 2030 and 99 percent by 2040.**

As with all levels of education, the focus must be on improving quality as well as expanding access, with countries measuring their success in terms of children's development and learning outcomes rather than the availability of preschool alone. Today, preschool quality is not measured consistently, although there have been attempts to measure cognitive and emotional growth in preschoolers that could be used as examples for future international assessments.[81] To maximize benefits, preschool should be complemented by wider multi-sectoral interventions to support early childhood development, particularly for children at risk.

2. All girls and boys completing primary school and all 10 year-olds having functional literacy and numeracy.[82]

In order to reach the SDG target of quality learning in primary school, children must be able to read and have basic numeracy skills early on. With math and reading scores closely correlated, the Commission's analysis focuses on reading data, and it proposes an early reading target at age 10, which also implies that children should start primary school on time at age six or seven. Today in low-income countries, just 19 percent of children complete primary school and reach basic international learning benchmarks, compared to 88 percent in high-income countries. Based on current trends this figure will be 30 percent in 2030 and 37 percent by 2040. **Following the Commission's Learning Generation pathway, in 2030, 98 percent of girls and boys in low-income countries will complete primary school and 68 percent will achieve learning benchmarks. In 2040, 100 percent will complete and nearly 90 percent will achieve learning benchmarks.**

3. The proportion of girls and boys achieving basic secondary-level skills in low-income countries reaching the levels seen today in high-income countries.

Starting primary school on time is also critical for ensuring that young people can complete secondary school within adolescence. Today in low-income countries, with the combination of low access and low estimated learning levels, just 4 percent of adolescents are reaching basic ("low") learning levels on international assessments at secondary school, compared to 64 percent in high-income countries.[83] Based on current trends, this will increase to only 10 percent by 2030 and 15 percent by 2040. **Following the Commission's Learning Generation pathway, in 2030 62 percent of girls and boys in low-income countries will complete secondary school and 28 percent will achieve learning benchmarks. In 2040, 83 percent will complete and 53 percent will achieve learning benchmarks, close to levels in high-income countries today.**

Secondary education encompasses several options, mainly academic secondary and vocational secondary education. The Commission emphasizes the importance of general secondary school skills that are critical in preparing young people for a wide range of employment options as well as further learning. Too much focus on narrow vocational skills at the expense of general learning may deliver short-term employment gains, but can reduce longer-term employability, especially as flexibility will be at a premium in the future.[84]

4. Participation in post-secondary learning in low-income countries nearing levels seen today in high-income countries.

Today in low-income countries, an estimated 11 percent[85] of young people access post-secondary learning, compared to over three-quarters in high-income countries. Based on current trends, this will only reach 22 percent by 2030 and 29 percent by 2040. **Following the Commission's Learning Generation pathway, almost half of youth in low-income countries would participate by 2030 and almost three-quarters by 2040.[86]**

5. Inequalities in participation and learning between the richest and poorest children within countries very sharply reduced, coupled with strong progress in reducing other forms of inequality.

It is not possible to achieve these first four outcomes without addressing inequalities within countries. Analysis of poor countries with available data show that on average primary-school age children from the wealthiest 20 percent of households are four times more likely to be learning at the desired levels than children from the poorest 20 percent of households.[87] Based on current trends, this gap will remain unchanged by 2040. Other risk factors widen the gap, especially when multiple factors coincide. For example, being a poor girl takes another 10 percent off the chances of learning[88] and living in poor regions or having a disability can further compound disadvantage. **Following the Commission's Learning Generation pathway, if learning levels among the poor in all countries**

Table 1. Five aims of the Learning Generation

% of children or youth			All countries	Low-income	Lower-middle income	Upper-middle income
Preschool gross enrollment		2015	51	23	53	68
	Trend	2030	68	42	72	80
		2040	74	54	78	84
	Vision	2030	96	89	97	99
		2040	100	99	100	100
Complete primary AND learning		2015	51	19	50	73
	Trend	2030	68	30	72	88
		2040	74	37	81	92
	Vision	2030	85	68	87	94
		2040	95	88	96	98
Complete secondary AND attaining higher learning skills		2015	31	4	27	54
	Trend	2030	44	10	44	68
		2040	50	15	51	73
	Vision	2030	64	28	67	86
		2040	81	53	85	95
Accessing post-secondary		2015	35	11	29	53
	Trend	2030	47	22	44	67
		2040	53	29	50	71
	Vision	2030	69	43	69	88
		2040	87	71	88	96
Equity measure for: complete primary AND learning		2015	4.3			
	Trend	2030	3.5			
		2040	3.9			
	Vision	2030	1.5			
		2040	1.0			

Source: Education Commission projections (2016). Including data from Research for Equitable Access and Learning Centre (REAL), University of Cambridge (2016).[V4]

Note: Equity measure is the average ratio wealthiest 20 percent/poorest 20 percent of primary-school age children (LIC and LMIC together).

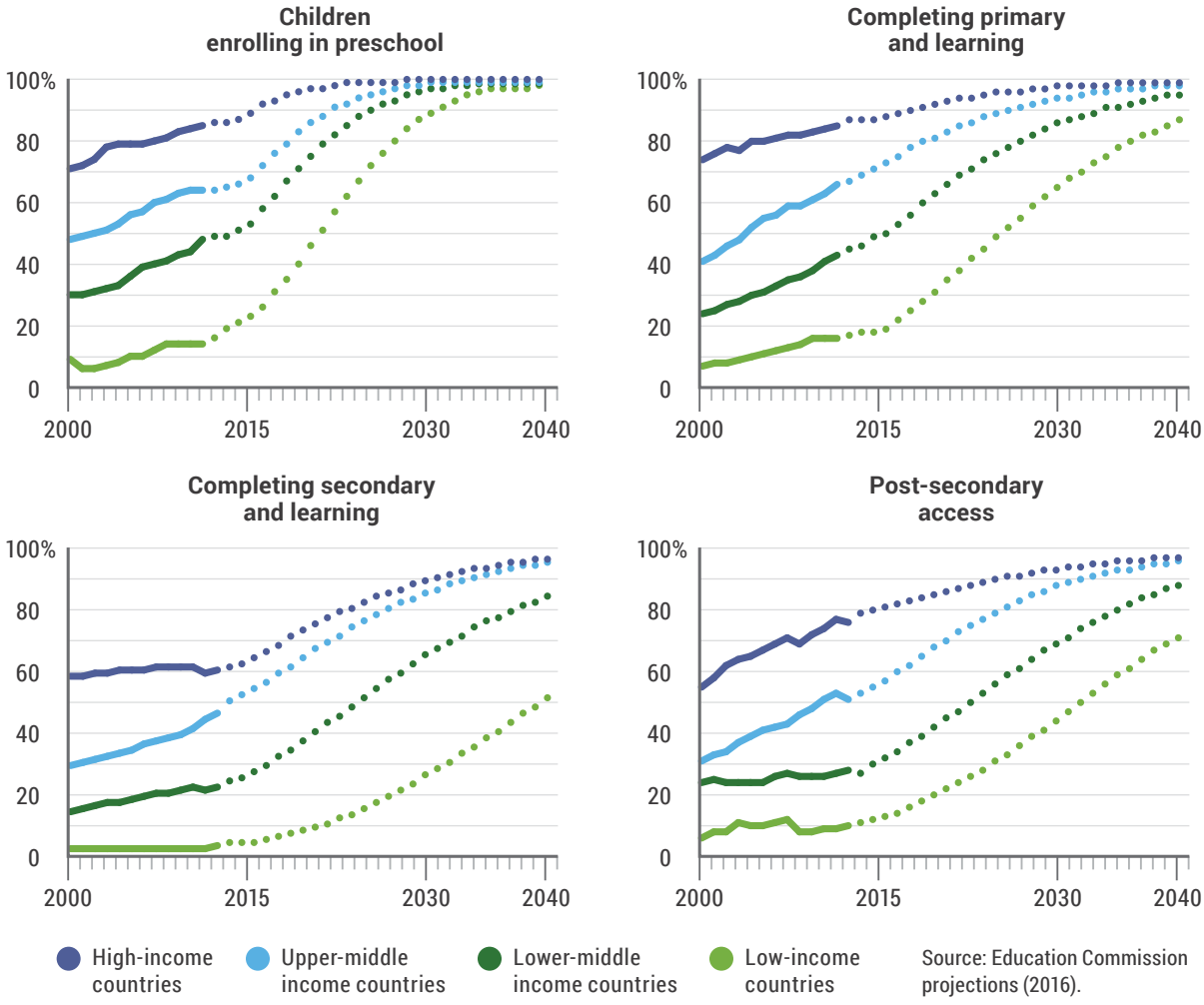
improve as fast as in the top 25 percent, all children will be able to achieve minimum primary learning benchmarks, sharply reducing wealth-related inequalities in one generation. In low- and lower-middle income countries, the ratio at which the wealthiest children complete primary school and achieve minimum primary learning benchmarks compared to the poorest children could reduce from over 4:1 today, to near parity by 2040.

Investing in the Learning Generation will deliver large returns

Achieving this vision will deliver wide-reaching benefits and strong returns on investment. New analysis for the Commission projects that **if the Learning Generation's goals are achieved, GDP per capita in low-income countries will be almost 70 percent higher by 2050** than it would be if current trends continued.[89] Extreme poverty rates would reduce by a third because of education alone. The mortality reductions from education improvements in 2050, measured in years of life gained, would almost be equivalent to eradicating HIV and malaria deaths today or equivalent to reducing the two main causes of death in 2050 – cancer and cardiovascular disease – by two-thirds.[90]

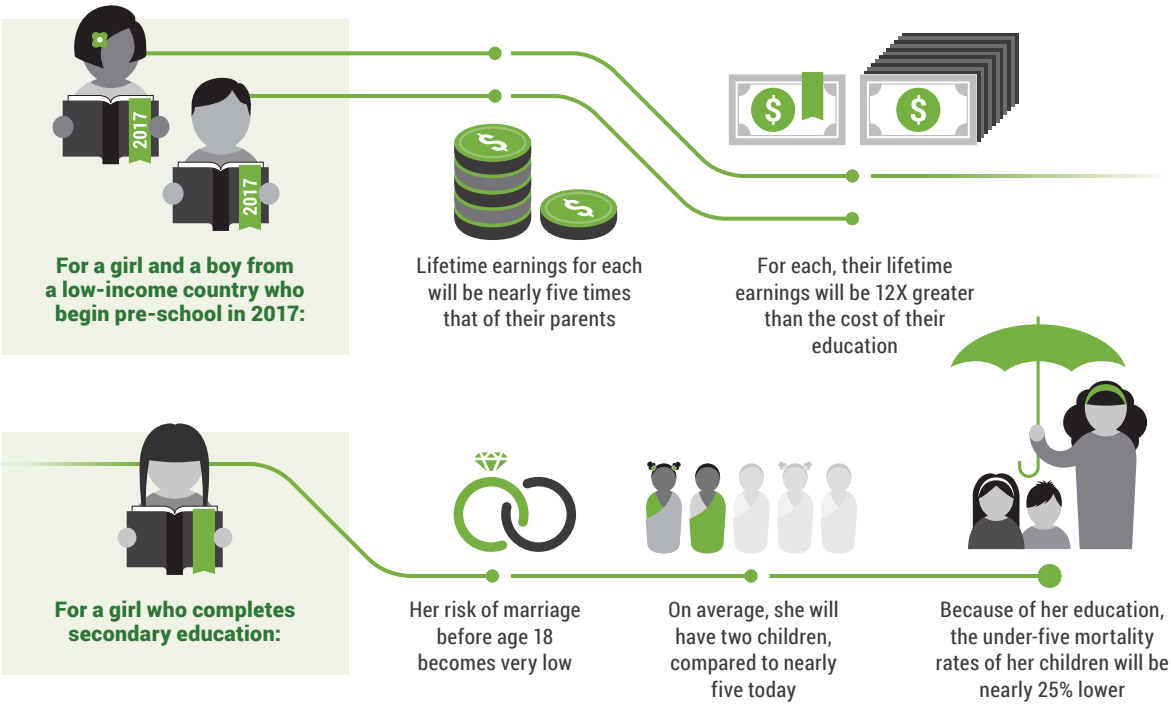
While these potential gains are impressive, they are moderated because in 2050 there will still be many older adults with lower education levels. Estimating what the Learning Generation would mean for the young people who directly benefit from receiving a better quality education illustrates the true potential impacts. The Commission estimated how a boy and a girl from a low-income country starting preschool in 2017 would benefit if they experienced the Learning Generation

Figure 7. Projections for the Learning Generation pathway



Source: Education Commission projections (2016).

Figure 8. Some benefits of the Learning Generation pathway



pathway. **Over the course of their lifetimes they could expect to earn almost five times as much as their parents, a value that would exceed the total costs of their education by a factor of 12.**[91] Because she would likely be in school until the end of the secondary level,[92] the girl's risk of marriage before she is 18 would be very low, compared to one-third for teenage girls in developing countries today.[93] She would have, on average, two children, compared to almost five today.[94] And she would pass on her education benefits, as **the under-five mortality rates of *her children* would be almost 25 percent lower due to her education**[95] **(see Figure 8).**

A Financing Compact for creating the Learning Generation

To put genuine opportunity in the hands of the Learning Generation, the Commission calls for a Financing Compact between developing countries and the international community. The Compact would be realized through four education transformations – strengthening performance, fostering innovation, prioritizing inclusion, and increasing financing (discussed in part II of this report).

The Compact is founded on three core assertions: that each individual has a basic human and legal right to quality education; that education is essential – and will become ever more so – for economic progress within individual countries and around the globe; and that an educated population and workforce is the foundation for all development and is therefore vital for achieving the full set of Sustainable Development Goals.

The centrality of education as a basic right and as an economic and development imperative is well established. Its status is affirmed in the Universal Declaration of Human Rights and the Convention on the Rights of the Child, as well as in the Millennium Development Goals and the Sustainable Development Goals. These each place obligations on national governments and the international community. Until now, we have lacked a comprehensive global strategy for ensuring that these goals are met.

The Financing Compact for a Learning Generation would comprise the following principles:

1 **Developing countries have a duty to invest and reform in order to get all children into school and learning.** Universal education must begin with individual countries and their responsibility to their citizens. National governments and local stakeholders, from teachers and communities to businesses and civil society, must commit to providing education for all. The Commission calls on developing-country governments to commit to reforming their education systems to maximize learning and efficiency, and to the progressive and sustained increases in domestic financing necessary for achieving these objectives. To deliver sustainable change, reforms must focus on strengthening the performance of education systems from their basic foundations upwards, innovating so that those systems are fit for the future, and including all in learning, especially those at risk of being left behind.

2 If countries commit to invest and reform, then **international leaders must stand ready to offer the increased finance and leadership** necessary to support national governments in transforming education. This will require an international coalition of partners working together to deliver reinvigorated financial support alongside wider efforts to support and drive progress. The Commission calls on all members of the international community to substantially increase their financing of global education and work together to improve its effectiveness. To help ensure this, the Commission also calls for the establishment of a Multilateral Development Bank (MDB) Investment Mechanism for Education to capitalize on the unique opportunities MDBs currently have to leverage their capital bases. The international community, which is charged with upholding universal rights and which has a direct stake in the economic and development progress of all countries, should support all national governments that demonstrate they are committed to universal education.

3 **The Compact requires measures for holding the international community and developing countries accountable** for meeting their responsibilities and obligations for ensuring access to quality education. A transparent framework for monitoring and accountability, outlining which governments are living up to their responsibilities, must be established and independent reporting against this framework be encouraged. While incorporating a range of measures, the framework should ultimately be outcome-focused – *are children and young people learning the skills they need*. To ensure this information is considered at the highest levels, a UN Special Representative for Education should be appointed and tasked with upholding children's rights, including through annual reporting to the General Assembly, Human Rights Council, and the Security Council. These actions would aim to make the steps that all countries are taking to ensure inclusive and quality education transparent to and measureable by the international community, citizens, and civil society. They would also show employers and potential investors whether and how a country is investing in building a skilled workforce.

4 **The Compact should be supported by high-level advocacy.** Getting all children learning is in the interest of all countries. Achieving it will require strong collective leadership at the national and global level and across many sectors. It will require pioneers amongst developing and development partner countries, who can lead the way and demonstrate what is possible. Delivering the Compact is not just the job of governments. Education is a shared goal, which benefits all countries and sectors, and its achievement will depend on the actions and advocacy of partners across society. Mobilizing, empowering, and sustaining this leadership is vital. Education must never be allowed to slip down the agenda of those with the power and influence to transform it.

This report details the Commission's case for the Compact and the actions through which it can be established.

Box 2. It can be done – Vietnam's path to success

Vietnam's educational progress over the last 20 years has been remarkable. Primary-school enrollment is now nearly universal; rapid expansion has taken lower secondary-school enrollment to over 90 percent; and a threefold increase in upper-secondary school enrollment has been achieved since the 1990s. Vietnam surprised the world with its first participation in PISA (Program for International Student Assessment) in 2012, scoring higher than the OECD average and outperforming many developed economies. Education in Vietnam has both contributed to and benefitted from a wider policy and economic environment which has led to strong economic development.

Vietnam invested early in improvements in school and teacher quality. It developed and enforced minimum quality standards for schools and professionalized its teaching force, setting standards around content knowledge, skills, and behaviors. Vietnam was also an early adopter of standardized assessments of literacy and numeracy. Vietnamese teachers display a strong professional ethos despite relatively low pay. When compared to other developing countries, their performance is more likely to be monitored, with higher emphasis on student achievement and on making information about that achievement public.

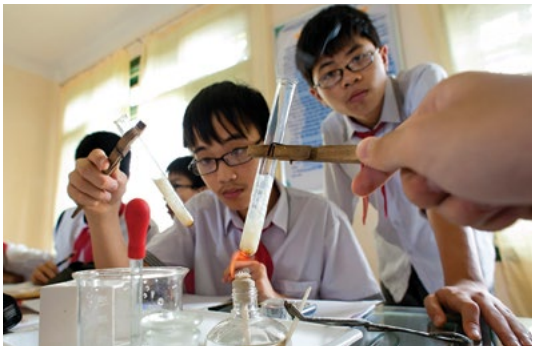
High levels of political and parental commitment to education, translating into strong public and private investment and student engagement, has been key to progress. Education financing grew from 7 percent of the national budget in 1986 to 20 percent in 2008 – 5.3 percent of GDP. Overall efficiency has been improved through effective investments in preschools, incentives for teachers and mother-tongue learning in the early years. Vietnam's centralized government structure has facilitated a large-scale rollout of policies to provide schooling to the remotest districts. Gender parity in enrollment has been nearly achieved. While children from poorer households and ethnic minority groups tend to complete fewer grades of school and score less well in assessments, learning gaps have been narrowing over time.

Cultural factors play an important role. Parents in Vietnam are likely to be more involved in the school life of their children than parents of students in other developing countries. They are also more likely to volunteer, take part in school, and help teachers as classroom assistants. Students are likely to behave with more discipline at school, skip fewer classes, and assume greater responsibility for their own learning. Two-thirds of all children take extra classes outside school – almost 90 percent of children from better-off households, but just a third from poorer homes.

Particularly notable is Vietnam's outward-looking approach, as it has sought to learn from and adapt what is working in high-performing countries such as Korea and Singapore. As its economy evolves, Vietnam recognizes that foundational skills and rote learning no longer suffice, and is developing student-centered curricula to foster critical thinking and knowledge application.

See Source Materials for sources and more information.

Khin-Chau Doan / World Bank



Asian Development Bank

PART 2

Four Education Transformations

To get all children into school and learning within a generation, global leaders and decision-makers will need to address the root causes of today's learning crisis and consider how education will need to be transformed to prepare young people for citizenship and employment in the 21st century.

Studies for the Commission highlight a number of key factors which led us to where we are today.

Education often lacks the political and system leadership required to drive through long-term reforms. Strong and sustained leadership is required to keep making progress in the face of competing priorities, opposition, or difficulties in implementation.[96] The length of time needed to deliver change and see results is often out of sync with short-term electoral cycles; public and political mobilization for change has often been insufficient to keep education on the top of leaders' agendas. Partly as a result of this insufficient political prioritization, investment has often been inadequate and inefficient at domestic and international levels. The link between investment and outcomes has often not been or perceived to be strong enough, and the case for increasing investment in education has not been made effectively enough. Weak management of resources has led to glaring inefficiencies and corrupt practices. Resources and policies have often been highly inequitable, failing to address the causes of educational exclusion.[97] Too little attention has been paid to tackling inequalities in the earliest years of life, compounding later disadvantages.

Where investment and reform have been undertaken, efforts have focused primarily on increasing the number of children in school. Relatively little attention has been paid to whether these children are learning. Focus has been on what goes into education – classrooms, teachers, and textbooks – but too little attention has been paid to monitoring what comes out – the skills that children acquire and their outcomes as adults.[98] In many countries there has been underinvestment in the workforce. Where teachers are in short

supply, poorly trained and supported, undervalued, absent, or unaccountable, learning suffers.[99] Where teachers and educational leaders are not supported to innovate and improve on the basis of the best evidence of what works, teaching and learning stagnates and fails to keep pace with the changing needs of children and society.[100]

Many case studies of success or failure clearly show that education systems can operate effectively only when underpinned by robust and stable governance and infrastructure. Where public services and systems are weak overall, improving education has been very difficult. This is a particular challenge in fragile or post-conflict states or those facing crisis.

Finally, international attention to education has been declining. The rhetoric of political leaders has not translated into sufficient donor prioritization. Momentum manifested in major global summits, goals, and commitments in the 1990s and early 2000s has faded markedly over the past decade. With notable exceptions, global leadership, advocacy, and attention have waned. Few new major financing commitments for education have been made and few leaders have made it "their cause." Relative to some other sectors – such as health, climate, and infrastructure – education has struggled to capture public attention, mobilize "champions," offer a compelling vision, or convince donors. Weaknesses in global architecture and sector leadership have compounded these challenges, as has increased demand by donors and investors for rapid, visible "results," which much of the education sector has struggled to demonstrate.

Through its research and consultation, the Commission has sought to overlay analysis of these past and current challenges with an analysis of how education will need to change in the future. Transforming education for the future must go far beyond learning from past successes and failures, given the new skills that young people will need in order to work and participate; the immense potential for innovations in the delivery and organization of learning; and the increasing scale of the capacity and quality challenges facing education systems.

Informed by this work, the Commission calls for four education transformations: Performance, Innovation, Inclusion and Finance. Together they form the basis of the Financing Compact for a Learning Generation

These four transformations and the accompanying 12 recommendations are intended as a holistic approach to extending and improving learning, rather than a list of discrete actions to select from. Each depends on the other. These four cross-cutting themes – performance, innovation, inclusion, and finance – inform all of the Commission's proposals.

These transformations are not intended to offer a prescriptive roadmap for reform. They are intended to support existing and future planning by individual countries, including national education sector plans. Education investment and reform must be led by national governments with the engagement of their citizens through the democratic process. Every country will have its own starting point and unique context, its own existing plans to build on. Reforming education, like all development, will be an iterative process, not a linear one. Governments should design the process for themselves, working together with all those who can and do influence whether and how children learn – parents and communities, teachers and employers, and partners in all sectors. For a country struggling with the basics, for a fragile state or one facing conflict that is simply trying to keep children in school, some of the ambitions set out here may seem far removed from the challenges they face today. But the Commission believes that it is vital for every country to take the long-term view of what will be needed for future success, even when the immediate challenges of delivery make this hard, and that every country can begin this journey now.

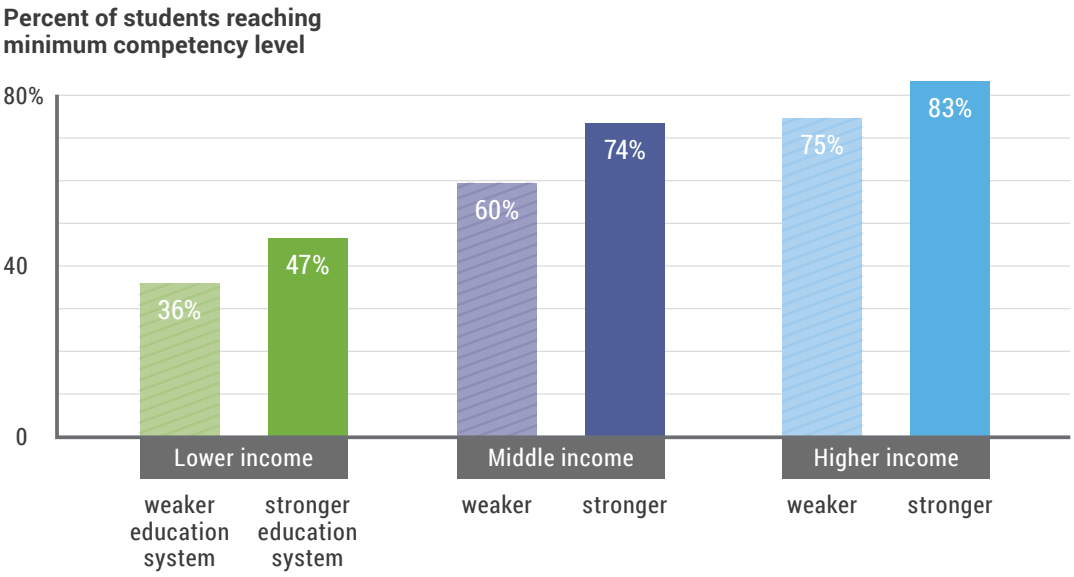
For every country, reform will require strong leadership from the top – to achieve lasting systemic change, a country's top leadership and management need to make education an explicit priority, from the president or prime minister down. Leaders need to foster public demand for education by making the case for education to the electorate and across sectors, and they must in turn respond to public demand for investment and reform. Political leaders need to put their authority behind the achievement of education results and be

held accountable for their educational commitments. If they do, extraordinary things are possible (see Box 2). **Commission research shows that countries at any income level can improve results significantly by strengthening their education systems – and that a strong system in a middle-income country can produce results which are as good as a weaker system in a high-income country (see Box 3).** And it shows that although learning is highly inequitable today, even poor countries are able to produce students who perform as well as students in high-income countries (see Box 4).

Finally, educational reform cannot be achieved nor its benefits realized in isolation from the wider policy and economic environment in each country. Education-

Box 3: Why system strengthening matters

Figure 9. Stronger systems deliver better learning outcomes



Source: Education Commission analysis (2016) based on data from the Systems Approach for Better Education Results (SABER) initiative and other systems data.[V5]

New Commission research using data from SABER and other system data shows that countries with better education systems achieve better education outcomes (for a summary of key characteristics of weak and strong systems, see Figure 12). Even after controlling for contextual variables (such as a country's income level and the education level of its adult cohorts) and inputs (such as the level of public spending for education and its annual per-student instructional time), a positive impact of being above the SABER threshold (assessed as having "established" or "advanced" systems) was observed. When expenditure was also considered, results show that countries with better systems that did not meet a threshold value for public education expenditure did not achieve as good outcomes as countries that spent more. Successful outcomes require both adequate systems and adequate expenditure.

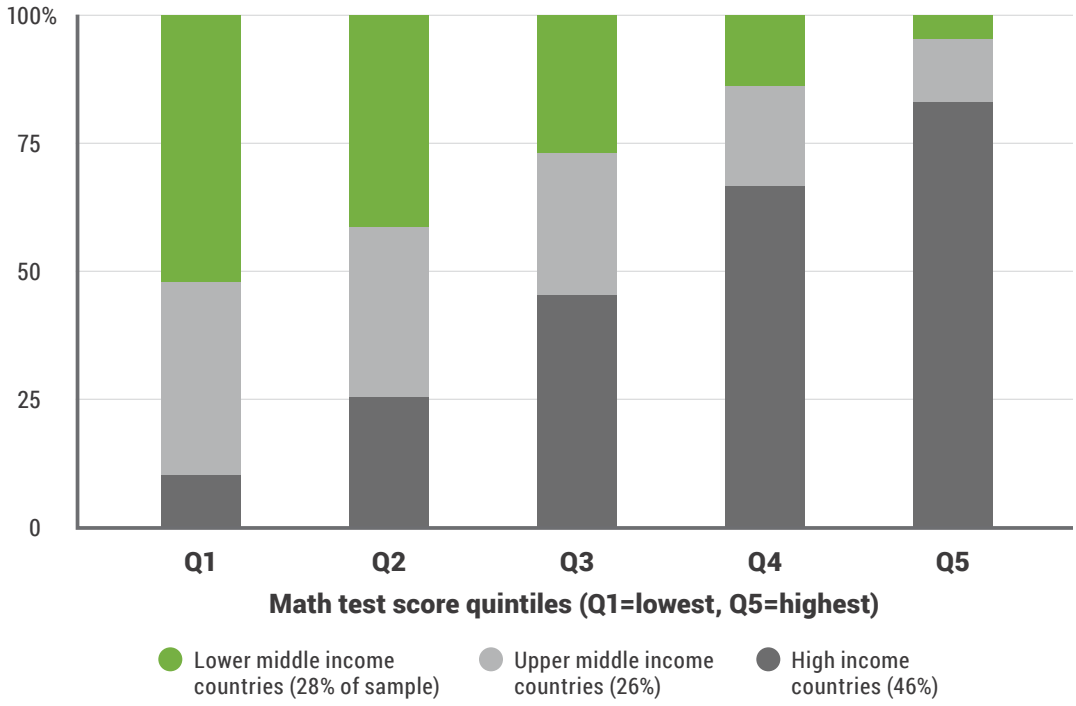
See Source Materials for sources and more information.

al reform requires effective systems of government and effective economic and public service infrastructure. Critically, the full gains from these reforms will only be achieved if economic conditions are supportive – if educational policy is reinforced by measures to support job creation, a dynamic labor market and sustainable economic growth. These things will in turn all be further strengthened by stronger education systems.

Taken together, these four education transformations, underpinned by strong leadership, will help all countries achieve the priorities of the Learning Generation and get all children learning.

Box 4. Learning is highly inequitable — but children in all countries have the potential to achieve

Figure 10. Student performance by country income group



Source: Education Commission analysis (2016) based on TIMSS 2011. Note: Graph shows distribution of student scores by quintile across countries at different income levels. Quintile 1 is the 20 percent of students with the lowest performance. Quintile 5 is the 20 percent of students with the highest performance.

Analysis of student test scores across countries shows, unsurprisingly, that the overwhelming proportion of top-performing students in the world (the top 20 percent, or quintile 5 in figure above) go to school in richer countries, while the overwhelming proportion of low-performing students (quintile 1) go to school in poorer countries. **But there is a substantial overlap in the distributions - even poor countries are able to produce students who perform as well as students in high-income countries.**

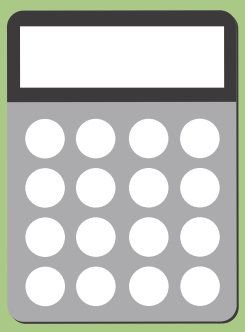
The Commission calls for four education transformations to realize the Financing Compact

I. Performance

Successful education systems must put results front and center. For any improvements in the design and delivery of education to succeed, they must be underpinned by a system that is built to deliver results. Strong leaders are very clear about the outcomes they want to achieve and they design all aspects of the system to achieve these outcomes. In education, despite huge investment and effort, progress in many countries has been limited because of weaknesses in decision-making, in capacity, or in accountability and governance. As a consequence, too many investments and reforms have failed. To succeed, the first priority for any reform effort is to put in place the proven building blocks of delivery, strengthen the performance of the education system, and put results first.

II. Innovation

Successful education systems must develop new and creative approaches to achieving results. Just doing what has been proven to work will not always be enough in the future. The scale and pace of global change is transforming the purpose and nature of education. Faced with escalating demands, constrained resources, and unprecedented opportunities for innovation, education must transform if it is to prepare young people for life in 2050 and beyond. Successful systems in the future will be those which maintain a laser-like focus on results while encouraging innovative approaches for achieving these results at all levels of education, from the classroom to the state.



IV. Finance

Successful education systems will require more and better investment. Achieving the first three transformations will require a sustainable investment plan which enables all countries to increase investment in education, targets assistance where it is most needed, and maximizes the efficiency and impact of every dollar. This plan is based upon the primary responsibility of national governments to ensure that every child has access to quality education, free from pre-primary to secondary levels. It must be supported by the international partners, prioritizing their investment in countries that demonstrate commitment to invest and reform.

III. Inclusion

Successful education systems must reach everyone, including the most disadvantaged and marginalized. While the first two transformations will help to ensure more effective learning systems, they will not close the learning gap unless leaders also take additional steps to include and support those at greatest risk of not learning – the poor, the discriminated against, girls, and those facing multiple disadvantages. This means targeting public resources at areas of greatest need while expanding opportunity for everyone. And it means looking far beyond education to tackle the broader factors that can inhibit participation and learning for the disadvantaged and marginalized.

Evidence is clear that ensuring more effective and efficient spending will be critical for mobilizing more financing for education from current or new sources. These four transformations are therefore intended as a holistic approach – each depends on the other.

I. Performance: Reform education systems to deliver results

Today, in too many parts of the world, more money is not in itself leading to better outcomes.[101] Efforts to improve education are leading to huge variability in results. The Commission set out to understand why this is and why similar investments and reforms are producing such different outcomes in different places. For example, Tunisia spends about the same amount per pupil on education as Vietnam, as a percentage of GDP per capita. But only 64 percent of Tunisian students met minimum standards in the secondary school-level international learning assessment, compared to 96 percent of Vietnamese students. The same is often true within countries – in Punjab in Pakistan, the districts of Gujranwala, Bahawalpur, and Khanewal all have a similar budget per child, but learning outcomes across the three districts are very different (see Figure 11). Research by the Commission highlights that for any improvements in the design and delivery of education to succeed, they must be underpinned by a system that is built to deliver results.

An analysis of where reform efforts have failed to yield success finds that the causes of failure are often due to a focus on the wrong results – for example focusing on enrollment at the expense of learning; taking a piecemeal approach to reform rather than a systemic one; a failure to understand and manage the cultural and behavioral drivers of change; and a lack of coherence, where the focus is on changing inputs without adequately understanding the linkages between them.[102] Strong results-driven systems, on the other hand, are those which ensure coherence across goals, policies, and spending, a clear route from policy to implementation and effective governance and accountability.

The Commission recommends that greater priority be given to system strengthening by national and system leaders and by donors and investors through actions that place results at the heart of decision-making and delivery, and through strengthened accountability for these results. This could include, for example, investing in learning assessments and data collection and management as discussed below. The Commission notes that in fragile states where systems and governance may be weak, additional support for capacity-building must be provided by international partners to rebuild these critical foundations of effective education.

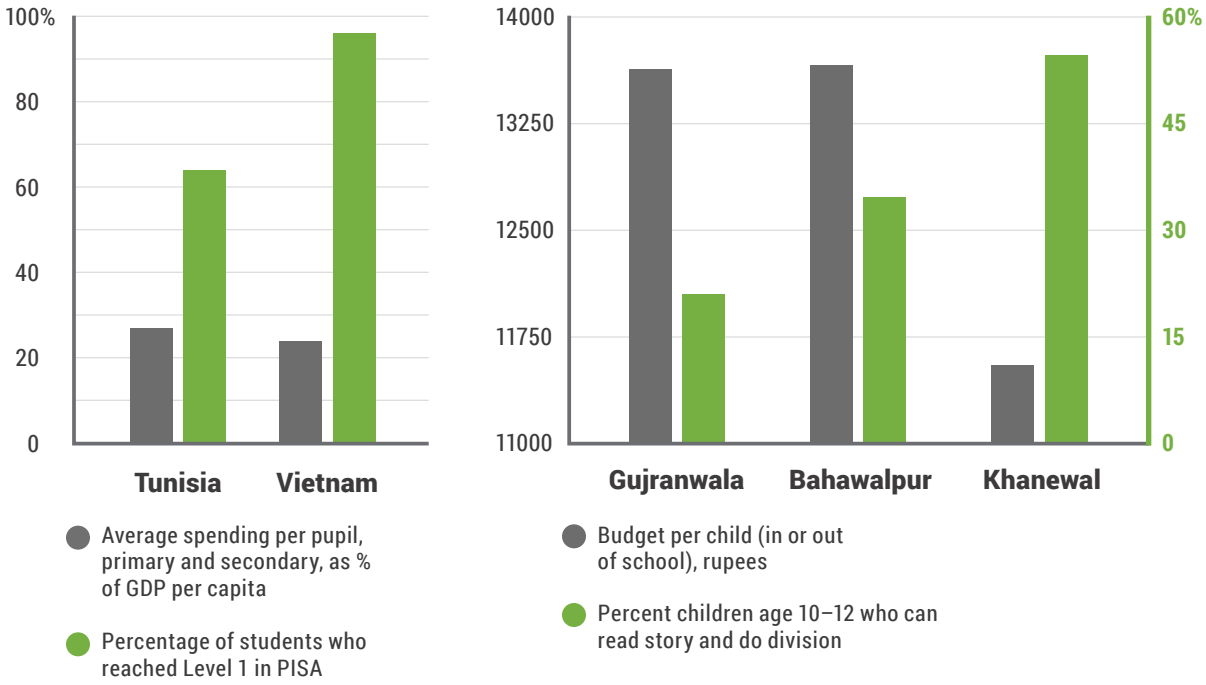
The first education transformation leaders should make is to strengthen the performance of education systems by taking systematic action to ensure that there is a focus on results at every level. While many education systems today are focused on the management and regulation of inputs – finances, buildings, teachers, and textbooks – their approach must shift to emphasizing the management of outcomes – asking and answering the question: are children and young people learning and preparing for adult life? **Learning from results-driven systems in education and across sectors, the Commission calls on decision-makers to set standards, track progress, and make information public; invest in what delivers the best results; and cut waste.**

Recommendation 1. Set standards, track progress and make information public

Setting clear priorities and high standards, collecting reliable performance data to track system and student progress, and using data to drive accountability are consistent features of the world's most improved education systems.[103] These practices are key to improving performance overall and to strengthening the links between investment and results, which is essential for mobilizing new resources. These practices are also critical to improving inclusion by enabling decision-makers to identify and target efforts and resources at those groups who are most at risk of getting left behind.[104]

When teachers regularly assess students' understanding in order to improve and tailor teaching, the gains in achievement have been found to be among the largest ever reported for educational interventions.[105] When countries introduce system-wide assessments, they enable leaders to target efforts and resources where they are most needed and help to "shift the system culture from teaching to learning"[106]

Figure 11. More spending does not necessarily lead to more learning



Sources: Education Commission analysis (2016) based on data from UIS and PISA (2012) (left graph); Bari et al. (2016) (right graph).[V6]

(see Box 5). When countries participate in international assessments of learning, the results shape education policies and fuel national debate.[107] When countries publish information about the flow of resources through the education system, more resources reach their intended destination.[108]

Introduce national learning assessments to track progress at the national, local, and child level.

Today, the majority of children in the developing world are not tested at all.[109] Only about half of developing countries have a systematic national learning assessment at primary-school level; only 7 percent of low-income countries and 26 percent of lower middle-income countries have a national learning assessment at lower-secondary level.[110] And about 30 percent of countries, mostly low-income, still do not have or report consistent data on basic education indicators such as enrollment and primary school completion. While the PISA and TIMSS Grade 8 tests have wide international coverage, fewer than 30 percent of developing countries participate in international or regional learning assessments — and many of the largest developing countries have never participated in a major international assessment.

The Commission recommends that countries develop their own national student assessments as part of a sustainable infrastructure of data collection, organization, analysis, and feedback. Assessments should not be used punitively, but for diagnosis and continuous improvement. These assessments should be regularly conducted at appropriate ages, be applied to both public and non-state institutions, be consistent with education goals and targets, and allow for cross-linking to international or regional learning assessments. Data should be sufficiently disaggregated to ensure everyone gets counted, including those who are currently invisible in statistics such as refugees, minorities, and the disabled.

Assessing core academic skills is important because of the essential foundation they provide for wider skill development and adult outcomes, but care should be taken to ensure that such assessments do not contribute to a narrowing of learning to focus only on these skills. Consideration should be given to the right

Box 5. Using assessment to drive results in Chile

Chile has a long history of publishing average test scores by school and has learned how to use this information effectively to foster community engagement and get results. In 1988, it established the *Sistema Nacional de Medición de la Calidad de la Educación* (National System for Measuring the Quality of Education, or SIMCE). SIMCE serves three main purposes: to inform policy, to provide pedagogical support to educators, and to hold schools accountable. The program compares schools serving students of similar backgrounds and in 1996 began to identify "outstanding schools" which became eligible for financial awards, an annual bonus for teachers and public identification as a high-performing school. The results were published through the press, parent-teacher associations, and banners posted on winning schools.

Chile's gains in student performance in the last decade are well documented. PISA has singled out Chile as the country that most improved in reading results between 2000 and 2009. Assessments of Chile's progress have found that systematic use of SIMCE data by ministers and policymakers has helped to inform and support effective and stable educational policy.

See Source Materials for sources and more information.

ages to conduct assessments. Assessing progress during primary schooling is important given the strong evidence of learning failures by this stage which are hard to recover from if not tackled early. Secondary-level assessments are also important to assess skills and readiness before young people enter the workforce or post-secondary learning, while developing ways to measure early childhood development is key to support quality improvements in this critical area of provision.

This effort should also include a strategy for disseminating and using data to inform policies, programs, and investments, and for addressing data gaps, such as the ability to count and track out-of-school children, reliable data on children with disabilities, and data on refugees, internally displaced children, and children in countries in crisis.[111] Innovations in data collection, including the use of new mobile technologies and crowd-sourced data, and open data initiatives that engage a wider group of actors to extend the scope and coverage of education data, offer great potential to improve data collection and reduce costs. It is estimated that equipping developing countries with basic IT infrastructure for education data collection, processing, and dissemination would amount to some 0.002 percent of the total annual revenues of the 14 biggest IT companies.[112]

Collect and publish financial data.

Today, only half of countries report data on government expenditure on education. Only 20 percent provide any data about private sources of education funding, including households, and only 30 percent provide data on their education funding from international sources.[113] While 190 countries now publish national health accounts, very few exist in education.[114] Tracking the flow of resources through the education system makes it possible to identify and address where resources are not reaching their intended destination or use. It enables analysis of the links between expenditure and outcomes, which is vital to better policymaking. And it is an essential basis for all measures to improve efficiency. **The Commission recommends that, as part of their data infrastructure, countries prioritize tracking expenditure from system to school level and publish national education accounts,** incorporating all sources of finance. This should include publishing per-pupil allocations at local or district levels to highlight variations and inequities in funding and enable linking of information about resources with outcomes. Data gaps on wider educational inputs and future resource requirements – including the workforce– must also be addressed.

Make data public and encourage community accountability.

Communities and families, teachers and their unions, and civil society organizations have a critical role in ensuring results get delivered by holding leaders and schools to account and by mobilizing for change. Respondents to the Commission's global consultation argued that greater engagement of communities, families, and young people themselves in accountability and decision-making through increased transparency was among the most important ways to drive improvement.

Data is an essential tool for active accountability, but making data public is not enough. **To really foster accountability, governments and civil society must take action to increase awareness and the use of data, and to interpret and deploy data to build pressure for change (see Box 6).** Information must be targeted in a way that makes it useful and easy to understand, localized, disaggregated, contextual, and actionable.[115] Because responsibilities for providing and financing education often sit with local or state governments, data must enable accountability at the right levels. Studies have shown that unless civil society organizations are involved in dissemination, the online release of government data often has little impact. The role of intermediaries – such as community and religious centers and community radio stations – is key to ensuring data leads to more informed and empowered citizens, and drives change.[116]

Today, citizen-led assessments such as those led by ASER (the Annual Status of Education Report), Uwezo and backed by the People's Action for Learning (PAL) Network are reaching over 1 million children in South Asia and Sub-Saharan Africa. Parents and members of the community are empowered to undertake assessments of children's learning and the results are disseminated to focus public and policy debate on the quality of learning.[117] In Australia, the MySchool website gives parents easy access to school data, enabling them to see how their schools are performing compared to schools with similar students. Access to this data has been used to increase media and public attention on school performance and enhance research into effective interventions.[118]

Agree, track, and mobilize around a global indicator of learning.

Collecting good data requires setting and communicating clear priorities and expectations – for every child, school, and country – so that what matters most gets measured. One reason for today's global learning crisis is the failure to set, measure, and follow through on the right objectives and targets.[119] Globally, the health sector's focus on under-five mortality and the climate change community's focus on 2-degree temperature change have played a major role in focusing attention on their causes and building public and polit-

Box 6. Teacher-led accountability in Uganda

In 2013, the Uganda National Teachers' Union (UNATU) joined forces with a group of civil society organizations to launch the Quality Public Education (QPE) Campaign. The campaign empowered teachers across the country to use data to call for greater accountability and efficiency in national budgeting.

The campaign brought to light findings that a large portion of the education budget was spent on "ghost teachers," refurbishing government buildings, or covering salaries and expenses for government officials. It made public the severe inadequacy of school infrastructure; in some cases, over 100 students were in classrooms meant for 40-50 students, and 35 percent of learners were attending classes under trees.

The campaign included training for union leaders on budget analysis, data collection and dissemination, and awareness-raising activities. Since its launch, school administrators have publicly shared payroll information to help tackle "ghost teachers" and the proportion of grants reaching their intended schools has increased.

See Source Materials for sources and more information.

ical pressure for action. The absence of an equivalent lead indicator in education has contributed to a lack of sustained and coordinated action and investment. Arguably, it has also contributed to lack of focus on learning outcomes.

The Commission recommends that the international community agree on a lead global learning indicator to focus national and global efforts on learning and not just participation. The indicator should be based upon the learning and skills expected by a given age, rather than by school grade. To ensure timely progress on this long-debated issue, the Commission proposes that the Technical Cooperation Group on the Indicators for SDG 4 (Education 2030) extends its remit to incorporate the development of the new lead indicator. This indicator's global comparability, as well as its technical reliability and policy relevance, will be key to its usefulness. The Commission calls on the Group to make a recommen-

Box 7. Big results in Tanzania

Tanzania has made striking progress on universalizing access and has one of the highest net enrollment rates in Africa as well as high gender parity for all primary education levels. But as schools try to cope with ever-rising numbers of children and with weaknesses in system capacity and resourcing, Tanzania has been struggling to improve results in literacy and math. To address this, the government is introducing bold nationwide reforms to improve its education system as part of its Big Results Now for Education (BRNEd) program.

BRNed came out of an intensive participatory process involving government officials, donors, civil society and stakeholders aimed at identifying evidence-based, focused interventions which could achieve high impact on student learning and fast delivery. The program includes financial rewards for school performance, early-grade student assessments, targeted support to lagging students, recognition incentives for teachers, and steps to ensure that funds reach schools in a timely manner.

A strong focus on data and evidence underpins planning and implementation, including using regular assessments of learning to identify challenges and priority activities. This approach marks a shift away from focusing largely on inputs to a strong and visible focus on results. As well as rewarding teachers and schools on the basis of their performance, part of BRNEd's own funding that comes from donors is dependent on results, including strengthening student achievement.

Although still in its early stages, BRNEd is producing results. There have been increases in the percentage of teachers found in the classroom during unannounced visits and in the efficacy of teacher deployment. Even more important, BRNEd is demonstrating improvements in learning, including an increase in average reading speed and a substantial decline in the proportion of non-readers.

See Source Materials for sources and more information.

Arne Hoel / World Bank (both images)

dation on the lead global learning indicator by April 2017, with a view to securing its agreement and adoption shortly thereafter. To ensure public accountability for results, the international community should track, rank, and publicize the progress of countries. The Commission recognizes that a single indicator of learning will not fully reflect the range of outcomes from education or provide a comprehensive assessment of educational quality. While it believes that a single learning indicator will be very valuable in enhancing accountability and shifting policy and public focus onto learning, it is just one element of improving the measurement and monitoring of educational quality and should complement broader actions to measure learning and the quality of education systems by national governments.

Launch a Global Education Data Initiative.

To enable the expansion of national assessments and the application of a global indicator, **the financial, technical, and capacity-building support of global partners in every sector should be harnessed through a new Global Education Data Initiative.** The Initiative would support developing countries in conducting their own national assessments to an appropriate standard, and in building analytical capacity for disseminating and using results, and it would support participation in international and regional assessments. To support tracking of a new global learning indicator, the Initiative would fund or coordinate efforts to develop new learning assessments if required. The foundations for this are already in place. It could build on and expand the UNESCO Institute for Statistics Global Alliance to Monitor Learning, bringing together key partners working to improve data and evidence in education alongside partners in every sector with a core mission to promote and improve country and global data on learning and ensure the high-level political support to drive this agenda. The Initiative should also support efforts to strengthen the educational evidence base more broadly in order to improve policy and investment.[120] To ensure it maintains impact and momentum, the Initiative should play a role in supporting the Financing Compact proposed by the Commission, helping to implement the proposed accountability mechanisms and reporting to the high-level leadership group (see recommendation 12).

Recommendation 2. Invest in what delivers the best results

Results-driven systems use the best available data and evidence to make good choices and to focus efforts on outcomes. Understanding of what works best to increase learning is more advanced than ever before. Large-scale programs such as the Systems Approach for Better Education Results (SABER) initiative at the World Bank and the Research on Improving Systems of Education (RISE) program initiated by DFID (Department for International Development, United Kingdom) are increasing knowledge on how to strengthen education systems. Impact evaluations related to education grew fourfold between 2008 and 2012.[121] But too little of this knowledge makes it into policy. Some of the most successful approaches lack adequate investment while money continues to be spent on other, much less effective reforms and interventions.

Shift investment into the best-proven systemic changes and specific practices.

The Commission recommends that decision-makers shift investment into the best-proven systemic changes and specific practices to improve learning. This requires building systems which continuously seek out and act upon the best new information on what works.

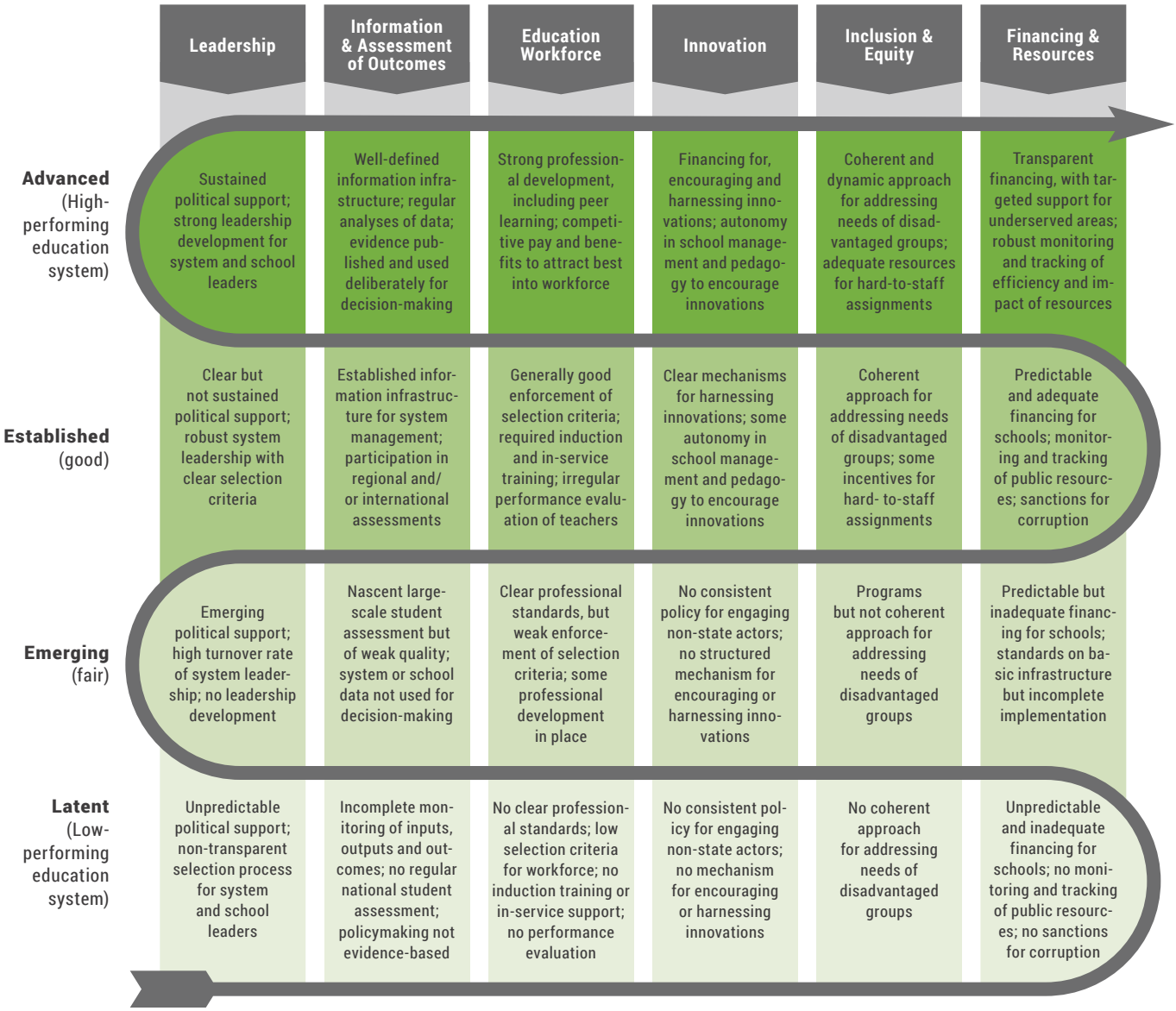
Investing in what works is not as simple as finding a reform that has been proven to work elsewhere and importing it. It often involves changing behaviors rather than applying a simple formula; building expectations from the top down that decisions will be made based on the best available evidence; expecting all professionals to be outward-looking and learning from the best; and systematically incorporating learning and evaluation into all levels of operation. Decision-makers must carefully consider whether a given reform or intervention addresses the specific needs of a given system and whether it is implementable in the institutional context. To learn from the best while avoiding "mimicry," decision-makers must assess the capacity of the system to implement an intervention effectively

and carefully monitor the right outcomes.[122]

The Commission set out to identify the key features of effective education systems, drawing on a range of research into good or improved systems, including the SABER initiative. SABER rates and develops indexes of the quality of systems and policies in different countries using administrative and survey data, policy documents, and expert opinion.[123] It considers aspects including teacher policies, student assessment, school management, information systems, finance, and workforce development. Figure 12 summarizes the key characteristics of education systems at different stages in the improvement journey, and the types of reforms which leaders should seek to make in order to strengthen system performance.

Alongside its analysis of systemic reforms, the Commission also carried out a review of the available research on which specific practices help and encourage children to come to school and learn. The impact of some of the most highly effective interventions to improve school access and learning are shown in Figure 13 and Box 8.[124] This also provides an indication of the

Figure 12. Characteristics of education systems at different stages of the improvement journey



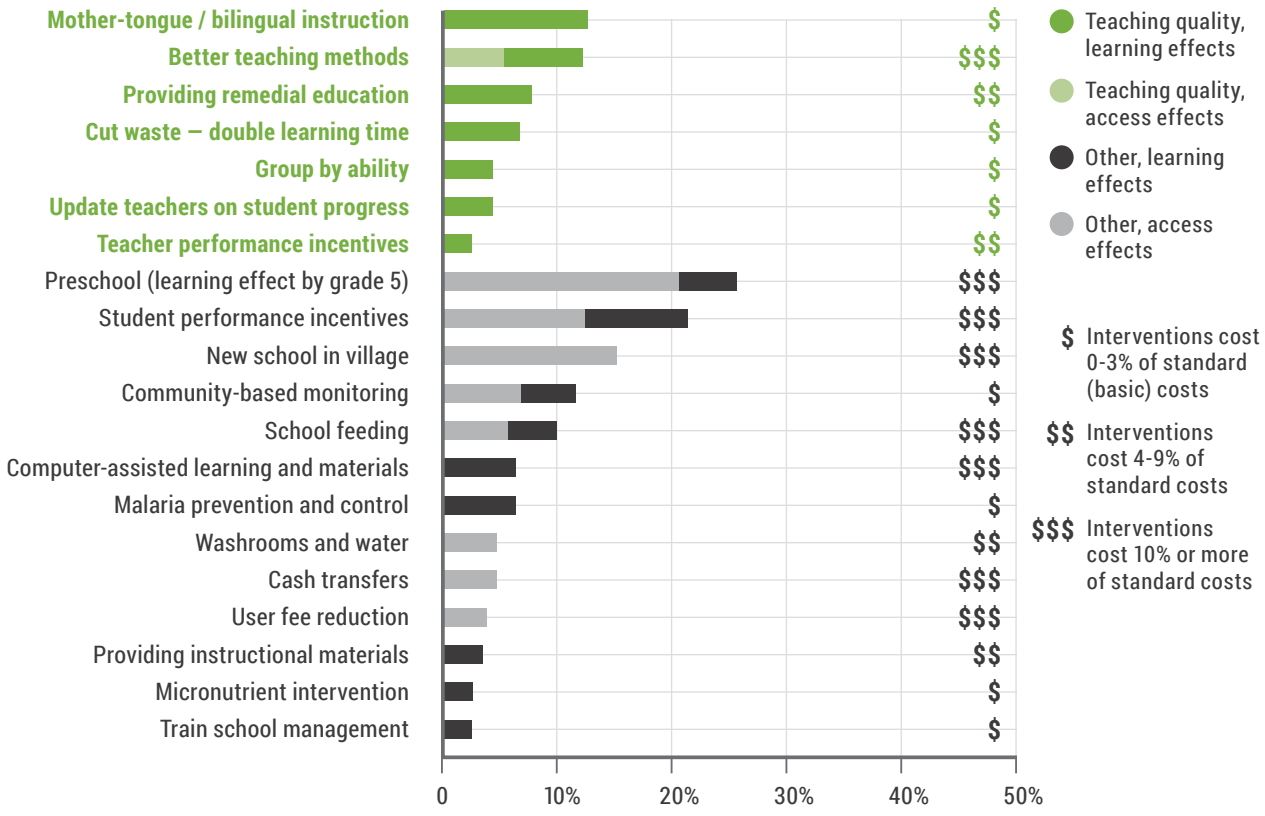
Source: Education Commission analysis (2016) drawing in particular on Mourshed et al. (2010) and World Bank SABER program.[V7]

relative costs of implementing these practices based on available evidence.[125] Both the breadth of effective measures – ranging from giving micronutrients to providing students with cash incentives to community-based monitoring – and the strong focus on practices to improve in-classroom teaching and teacher quality were striking. Notable also was the value of measures to address the wider factors which impact learning – such as tackling the effects of malnutrition on cognitive development through feeding programs or reducing school days lost to disease through malaria prevention.

All of the interventions below are considered to be positive investments that are cost-effective and lead to improved results. The figure highlights some of the strongest available evidence to illustrate what we now know, rather than to directly recommend one action over another. Impact and cost-effectiveness will in practice vary according to the context and manner of implementation, including, for example, how they are tailored to the needs of individual students or communities and whether interventions are gender-sensitive. Many of these interventions are reflected in the sections and recommendations that follow. While not comprehensive, this analysis indicates the range and caliber of evidence now available on what works in education. If just some of these interventions were widely implemented, they could catalyze change and greatly improve outcomes in developing countries.

Many highly effective practices would increase costs only marginally, while having an enormous overall impact on access and learning outcomes. The impact of specific interventions depends on the starting point. The largest impacts occur when the starting point is one where achievement has been low. The Commission estimated the impact of a number of effective interventions on learning in a hypothetical

Figure 13. Highly effective practices to increase access and learning outcomes



Source: Education Commission analysis (2016).[V8] Note: The improvements are based on a baseline of 50 percent (of enrollment, completion, or reaching learning targets) and measured as percentage points gained. The costs are estimated relative to average baseline costs – with average class size, materials, support, and salaries. The green bars pertain to those interventions that are related to teaching methods and teacher incentives, while the gray bars pertain to all other types of interventions.

country, where levels of learning are currently around 30 percent, similar to an average lower-middle income country in Sub-Saharan Africa. Figure 14 shows a sample mix of interventions. This set of practices would increase costs by 30 percent while increasing the percentage of children learning by around 150 percent. Similar ratios can be achieved with other mixes of practices. The exact cost-benefit ratios will depend on the context and the practices implemented, and the estimated benefits assume that the system has strengthened its capacity sufficiently to ensure that these practices are implemented effectively and consistently.

One way to increase investment in what delivers results is to explicitly link financing to results. Shifting resources from focusing on inputs to funding outcomes and linking finance to results can encourage performance improvements and incentivize innovation. Results-based financing approaches can focus leaders

Box 8. Some of the best-proven practices for increasing participation and learning

Maximize the utilization of hours in the school year for learning. In some countries, about half of the school year is not utilized because teachers are absent from school or are in school but not teaching. By ensuring that children get the full number of days and hours in school, learning outcomes could be improved by 10-20 percent in many low-learning contexts. Very cost effective.

Use proven, child-focused teaching methods and materials. Teaching methods can often be improved with simple in-service training and the provision of new materials and ongoing support. A combination of improved teaching methods, provision of materials, and remedial help for those who fall behind could improve learning outcomes by 25-53 percent in many low-learning contexts. Cost effective.

Preschool education. Participation in quality pre-primary programs increases the likelihood of primary school attendance and decreases grade repetition and dropping out. In Brazil, low-income girls who participated in community preschool programs were two times more likely to reach fifth grade and three times more likely to reach eighth grade than their peers who did not attend preschool. Good quality preschools also improve school readiness and can lead to better primary school outcomes, particularly for poor and disadvantaged students. Very cost effective.

Incentivize enrollment and learning in school. Reducing cost barriers, through fee reduction, cash transfers, and school meals, can increase enrollment rates by 6-16 percent. Incentivizing learning with scholarships is even more effective. Two separate studies, in Kenya and Benin, studied the effects of monetary incentives to improve student outcomes. The strongest gains were achieved when students were organized in teams whose learning outcomes were measured, potentially due to peer-to-peer tutoring within teams. On average, incentives could increase learning by 12-23 percent in low-learning contexts, but costs are relatively high because individual students are rewarded. Moderately cost effective; cost-effectiveness improves when interventions are well targeted.

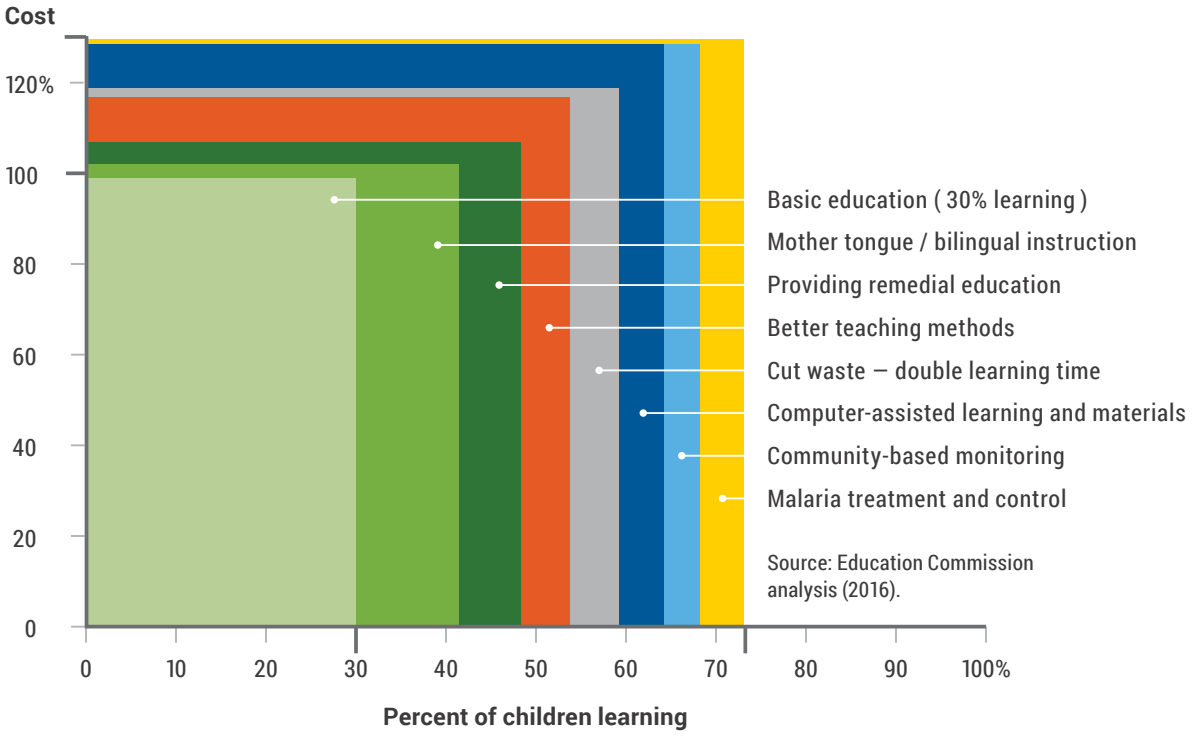
Ensure that school children are healthy. Many children in low- and lower-middle income countries suffer from malnutrition, worms, malaria, and high levels of disability, all of which affect their ability to learn. Rooting out some of these basic barriers can have significant impacts. Malaria prevention in particular is very cost effective.

Community-based accountability. Involving communities by providing information on learning outcomes and creating mechanisms for the community to be involved in monitoring and decision-making improves both school enrollment and learning outcomes. Very cost effective.

Teach in children's native language. Very cost effective. See Box 9.

See Source Materials for sources and more information.

Figure 14. Proven practices can transform learning at low cost



and teachers on achieving specific outcomes, such as programs that provide additional financing for schools to improve literacy for marginalized students or improve completion rates for girls. Incentive programs that reward teacher performance have led to increased teacher effort and better student outcomes. School management reforms adopted in many countries have also relied on performance-based funding, such as awarding grants to schools that demonstrate improvement. In some countries, such as Chile, Egypt, and Indonesia, governments have established competitive funds for higher education institutions to help improve their quality and relevance, promote pedagogical innovation, and foster better management.[126] Conditional cash transfer programs, which give cash incentives to families if they enroll and keep their children in school longer, have significantly boosted enrollment and progression.

But results-based financing is not a panacea. Careful design is needed in all cases to avoid perverse incentives – for example, incentives that discourage enrolling or assessing children at most risk of being left behind, or entrench disadvantage by sending more resources to schools teaching the most advantaged and highest attaining children.[127] Further research and evaluation of results-based financing in education will help to improve its impact. Predictability in financing is also important, and there is a need to strike an appropriate balance between results-based and other forms of financing such as those based on needs. That balance has not yet shifted sufficiently toward results.

Invest in evidence on what works.

Supporting better decision-making requires a stronger, more coherent, and more accessible evidence base. Today, most countries spend very little of their education budgets on research and development, and it accounts for just 3 percent of international aid in education. Education lags behind other sectors in the funding and institutions to support research and data.[128]

The Commission recommends that governments increase investment in evaluation and Research and Development (R&D), and that the international community support this by increasing its investment in research and global public goods (see Recommendation 10). Increasing investment in data and statistics, knowledge and information, global standards and guidelines, and education research can benefit all countries and will be particularly critical as decision-makers innovate and respond to the new challenges and opportu-

nities facing education in the coming decades. This investment should in part be used to foster a culture of innovation and evaluation, helping establish which new technological developments, models of delivery, and workforce structures offer the greatest potential. It should also help to expand research into ensuring investment in education increases inclusion for those at risk of educational disadvantage, such as girls and those caught up in crisis or conflict.[129] Finally, backing research and evaluation will also require investment in developing countries' higher education capacity, given the critical role played by universities and higher education institutions in producing research, new thinking and innovation.[130]

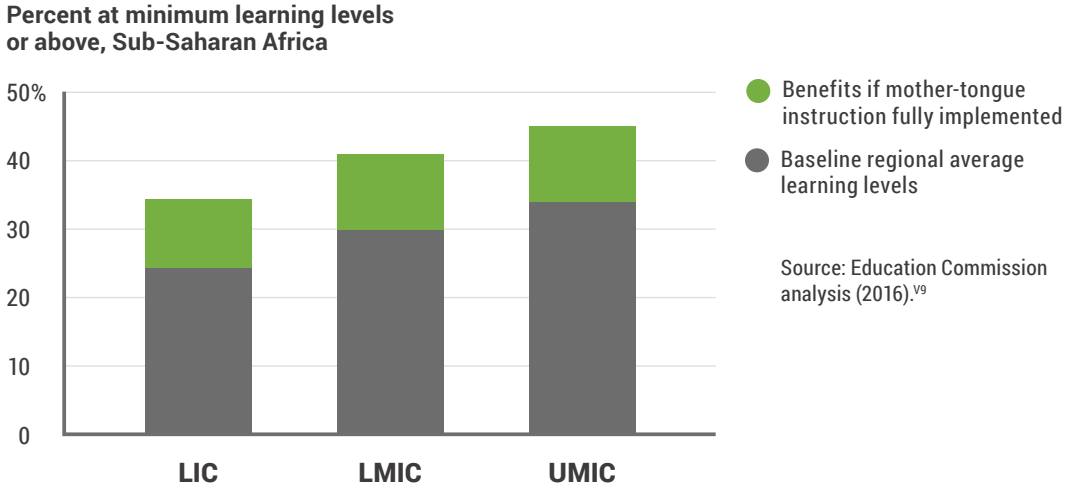
Recommendation 3. Cut waste

Efforts to mobilize additional investment in education, domestically and internationally, will not succeed unless education systems are able to demonstrate improved efficiency.

Currently in low- and middle-income countries, on average an estimated 2 percent[131] of a country's GDP is spent each year on education costs that do not lead to learning. In low-income countries, this amounts to half of the entire education budget.[132] This money is spent on the more than 330 million primary and secondary school students who are in school but do not achieve even the most basic outcomes.[133] The losses from this

Box 9. Teaching children in a language they understand

Figure 15. Impacts of mother tongue (MT) / bilingual instruction

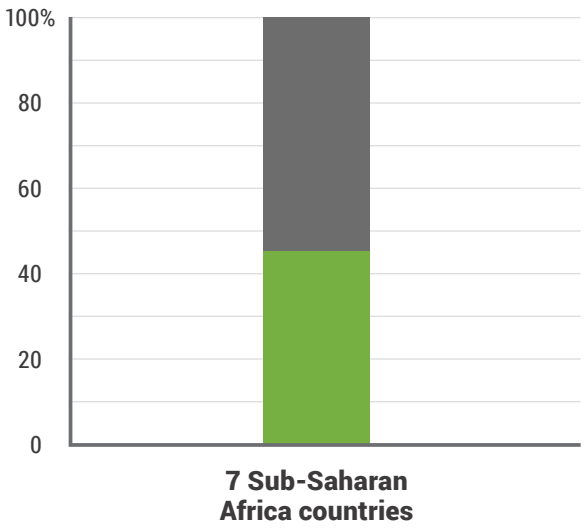


Source: Education Commission analysis (2016).[V9]

More than 500 million primary and secondary school children, or half of all children in low- and middle-income countries, are not taught in their native language. In Sub-Saharan Africa, the level is over 90 percent of students. Learning outcomes in middle-income countries in Sub-Saharan Africa are more than 50 percent lower than comparable middle-income countries in Asia and Latin America. *Language of instruction policies account for one-quarter of this learning gap.* Many Latin American countries have adopted mother-tongue instruction policies for indigenous people, reducing learning gaps. Switching to mother-tongue instruction is very cost effective. Since parents often prefer instruction in colonial languages, the benefits need to be communicated — their children will learn better *and* learn global languages.

See Source Materials for sources and more information.

Figure 16. The gains to be had from efficiency: Resources paid for but used ineffectively or not at all



Percentage of salaries and materials paid for and used in teaching

Percentage of salaries and materials paid for and not used in teaching

Source: Education Commission analysis (2016) of seven countries surveyed in Sub-Saharan Africa; Bold et al. (2016).[V10]

inefficiency increase over time, as those who do not learn enough in school require remedial programs later on, increasing costs and reducing outcomes at higher levels of education.

Poor quality or ineffective provision, leading to poor learning outcomes, grade repetition, and dropout, is the biggest source of waste. Too little financial and human resources are targeted at the levels of education, population groups, or specific interventions where they can make the biggest difference to learning. As a result, these investments end up reducing the efficiency of the system overall. Large proportions of teacher salaries are not used as intended because of factors which result in teachers being absent from school or not teaching in class. Large proportions of expenditures on materials are lost due to ineffective procurement, corruption, and other waste. Weak financial management impedes good planning and efficient resource allocation, and makes it possible for money to leak as it flows through the system. In fragile contexts where governance and transparency is weakened, waste through inefficient management and corruption can be particularly acute. Responses to the Commission's global consultation argued that a lack of efficiency and misuse of resources were among the largest barriers impeding improvements to education systems. Figure 16 illustrates these inefficiencies in countries in Sub-Saharan Africa, where the problems are worse on average.

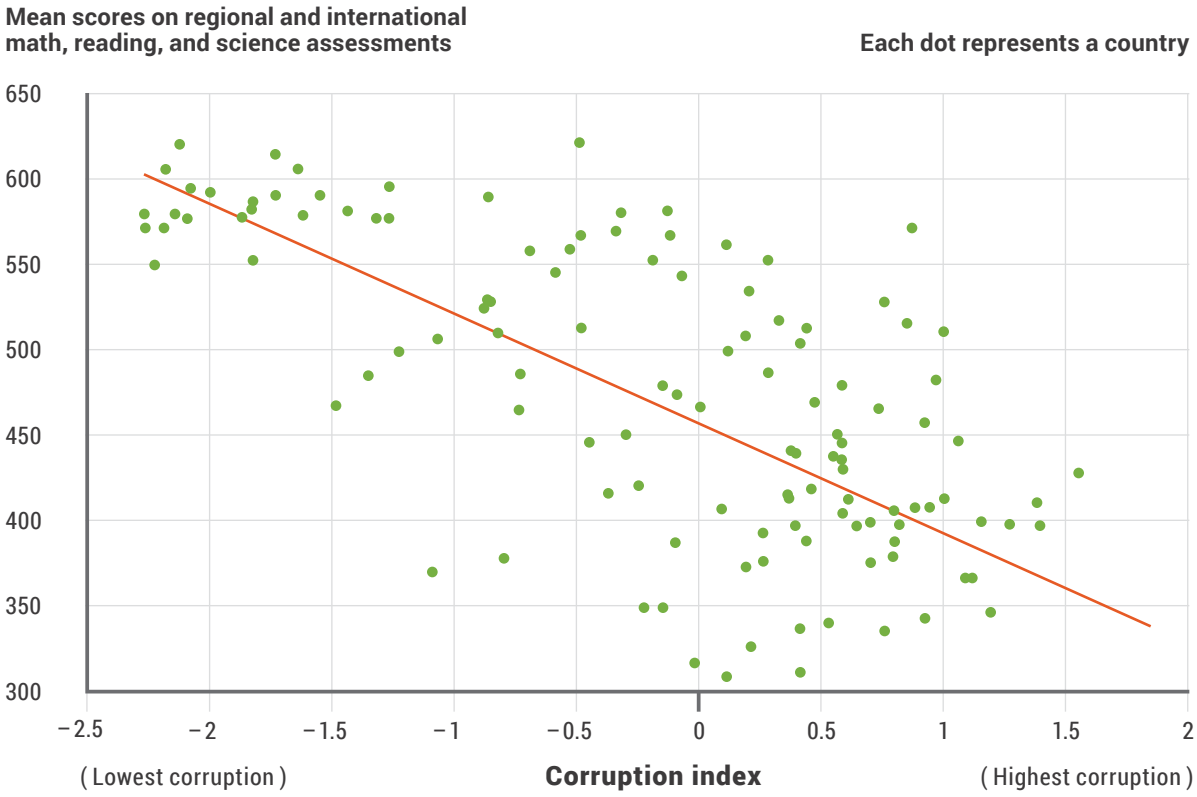
Getting all children learning will require increased investment and improved efficiency. Cutting waste is vital but it cannot substitute for ensuring an adequate level of resource for each child's education. Indeed, increased spending will often be required in order to achieve the reforms which will result in increased efficiency. More resources are urgently needed, but if all resources were better managed, teaching and learning could improve sharply and returns on investment in education would become even stronger. The full set of reforms outlined in this report will contribute to improved efficiency. In this section, the Commission highlights three additional areas where targeted action to improve efficiency can help to drive better results across the system.

Crack down on corruption.

Studies suggest corruption in education is pervasive, not only leaking money from the system but also damaging children's learning and teachers' motivation.[134] Public expenditure tracking surveys have found that up to a quarter – and in extreme cases up to a half – of funds earmarked for public schools do not reach the schools.[135] Paying bribes to gain entry into schools or university is regarded as common practice in many countries, disadvantaging those unable to pay.[136] This kind of corruption damages outcomes. Analyzing data across countries, we find a clear negative relationship between corruption and student math and reading scores (see Figure 17).[137]

Cracking down on corruption requires commitment

Figure 17. Corruption worsens education outcomes



Source: Education Commission analysis (2016) based on primary and secondary students' mean scores on math, reading and science in regional and international assessments, and the World Bank Corruption Index with values from -2.5 the lowest corruption level; to 2.5 the highest corruption level.[VII]

from senior leaders to implement and enforce the standards and procedures that many countries have in place already. These include unannounced inspection visits, tracking resources through financial disclosures and audits, and enforcing rules regarding recruitment and promotion.

Establishing reliable education management information systems is key. Today, many systems lack reliable comprehensive data to track resources and enable sound financial planning and management. As a consequence, data are often incomplete or rely on self-reporting by schools without sufficient verification. Implementing reliable data processes can identify and eradicate deliberate corruption as well as inefficiencies. Bogota was able to raise enrollments by 37 percent without increasing costs through savings realized by cleaning and continuously updating its list of teachers, correcting distortions in the payment of salaries, and establishing better control over medical insurance and pension funds.[138] Grassroots organizations in Honduras used freedom of information laws to obtain lists of teachers and details of their pay, published them online, and encouraged parents and volunteers to check up on whether teachers were in their jobs or not. They found 26 percent of teachers on the lists were not at their posts; as a result of their campaigning, the number of ghost teachers has been reduced to less than one percent. The savings contributed to a near doubling of the instructional time children receive.[139]

Simple technologies can also help. India's VISHWAS program is an Android-based application that facilitates real-time online reporting about schools by school inspectors, tracking and reporting data on school attendance, learning materials, and accounting information.[140] Using information technology, Ghana mapped all secondary schools using basic data to inform decisions on resource and teacher allocations. The real-time monitoring capability enables close supervision of construction progress and high cost

savings from reduced leakage of funds.[141]

Parents, teachers, communities, and civil society also play a key role in tackling corruption and waste. Active parent-teacher associations and local education councils can supplement the work of school inspectors, and have a positive impact on teacher attendance.[142] Publishing data on how resources are being used enables teachers and communities to help ensure resources reach their intended destinations. Governments should consider whether appropriate mechanisms and safeguards are in place for those wishing to report misallocation or misappropriation of resources.[143]

Enable teachers to spend their time teaching and tackle the causes of absenteeism.

Four studies of primary schools in 17 low- and middle-income countries found that on average nearly 20 percent of teaching time is lost every year due to factors resulting in teachers being away from school (see Table 2). Teachers are rightly the largest single expenditure in education budgets, accounting for up to 90 percent of recurrent costs in some countries.[144] Increasing the number of hours of actual instructional time is one of the most effective ways to improve learning. But teachers are too often not in school or not teaching because they are expected to perform non-teaching tasks (such as fundraising or administration), because they need to travel to receive their pay or attend training courses which could have been delivered locally, or because they are subject to poor or non-existent management and supervision. Spot visits to schools in developing countries have revealed high rates of unexcused teacher absences.[145] This is costly. In India, for example, high teacher absences in primary schools cost an estimated $4 billion per year

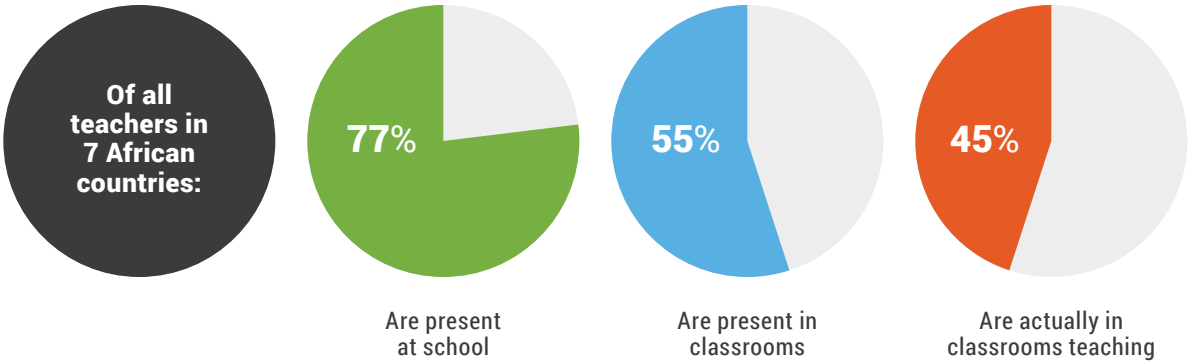
Table 2. Teachers' time away from teaching at primary school level

			Estimated cost of absenteeism			
	Absenteeism from school (%)	Absenteeism from classroom* (%)	From school (US$ mil)	From school (% of GDP)	From classroom (US$ mil)	From classroom (% of GDP)
Bangladesh	16		115	0.1		
Brazil	7		1898	0.1		
Ecuador	14		219	0.2		
Ghana	23		99	0.3		
India	25		3974	0.2		
Indonesia	19		1850	0.2		
Kenya	16	47	278	0.5	964	1.6
Morocco	7.5		120	0.1		
Mozambique	46	61	142	0.9	244	1.5
Nigeria	16	25	546	0.1	1262	0.2
Pakistan	19					
Peru	11		161	0.1		
Senegal	18	31	44	0.3	107	0.7
Tanzania	14	47	86	0.2	336	0.7
Togo	23	38	28	0.6	64	1.4
Tunisia	6.5		50	0.1		
Uganda	30	57	240	0.9	559	2.1

Sources: Abadzi (2009); Bold et al. (2016); Chaudhury et al. (2006); Hai-Ahn et al. (2016). EdStats-UIS for data on GDP and government education expenditures.[V12] Note 1: *Absenteeism from classroom is conditional on being present in school. Note 2: Costs are annual and relate to primary school teachers only.

Figure 18. Teachers' time at primary school level

Source: Data from Bold et al. (2016).[V13]



(Table 2).[146] And even when in school, teachers do not necessarily spend time teaching. **A survey of primary schools in seven African countries found that even when teachers are present in school, on average 45 percent are not in classrooms teaching. In all, the study found that primary school students receive less than 2.5 hours of teaching a day,** or less than half of the intended instructional time.[147] Due to teacher absences from school and classrooms, schools in these countries use only 45 percent of their teachers' time for instruction (see Figure 18).[148]

The set of factors which keep teachers out of the classroom must be systematically addressed. Many examples of scalable good practice have been identified, often led by teachers themselves or deploying technologies, such as basic mobile phones, to help teachers spend more time teaching and improve monitoring and accountability. Diversifying the education workforce – as discussed in the following chapter – will also be key to ensuring that teachers spend their time teaching and that non-teaching functions are largely carried out by others. **Tackling these issues will require fostering positive collaboration between teachers, their unions, and policymakers, to help ensure that root causes are addressed and that solutions stick.** Gambia provided a strong example of this collaboration when the teachers' union worked with the government to enable teachers to be paid through their own accounts in a cooperative credit union so they do not have to travel long distances to urban areas to get their salaries and so have more time for teaching.[149] Similarly, Kenya's mobile money program allows teachers to receive their salaries via text message.[150] Rather than having to travel far for training or miss out altogether, Pakistan's Developments in Literacy (DIL) program provides teachers with smartphones that can be used to download lesson plans and training videos. In India, improving the monitoring of teachers was found to be 10 times more cost effective at reducing student-teacher ratios and improving contact time than hiring more teachers[151] and using mobile phones to monitor attendance has been found to halve absence rates.[152] Engaging parent-teacher associations in monitoring attendance can be particularly effective, often more so than monitoring by other school professionals or self- reporting, as found in the EDUCO project in El Salvador.[153] Tools that reduce the time teachers spend on administrative tasks also help free them up to teach – such as the Stanford Mobile Inquiry-based Learning Environment platform, which allows teachers to track assessment scores, manage homework, and monitor children's progress in real time.[154]

Cut the cost of learning materials and use them effectively.

Books are among the most effective investments to increase learning outcomes.[155] A study of 22 Sub-Saharan African countries found a 5 to 20 percent increase in student achievement in class subjects where each child was provided a textbook.[156] But in many countries, textbooks are underfunded, priced too high, unavailable to many students, or poorly used. In rural schools in Benin and Namibia, one textbook is shared between 10 primary school students; in Uganda, 86 percent of students are not using textbooks at all despite having them in the classroom because of fears over theft and damage.[157]

In many cases, costs are driven up and quality compromised by uncompetitive procurement, bribery by

suppliers, theft, piracy, and copyright infringement.[158] In the Philippines, the cost of textbooks was 40 percent higher due to corruption in the bidding process, 5 percent higher due to the cost of replacing poor quality textbooks, and 61 percent higher due to losses during the delivery to schools.[159] Rwanda and Kenya both use commercial distribution to deliver books to schools. Yet the unit cost in Kenya is 50 percent higher, in part because Kenyan publishers deliver through a middleman whereas publishers in Rwanda deliver directly to schools.[160] Involving communities to help oversee the distribution of textbooks can help to reduce losses.

Opening up the bidding process can lower costs. In Sub-Saharan Africa, a small number of foreign

Box 10. Leading for results: The politics and practice of implementation

Successful reform requires that leaders master the politics and the practice of implementation. Without the ability to successfully navigate the politics of reform to build support for change, or without the systems and mechanisms to ensure policy translates into practice, the best intentions will not lead to results.

When the politics of implementation are managed well, even challenging reforms can be accepted and embraced. The key is making sure that those who are expected to implement reforms are given a voice, mechanisms for feedback, and ultimately an ability to influence outcomes. The introduction of **Activity-Based Learning in Tamil Nadu,** India involved a major overhaul of pedagogy intended to allow teachers to effectively deal with large class sizes and encourage children to take control of their own learning. Its successful rollout included involving a critical mass of teachers in the design and testing of materials in the early stages, and ensuring that teachers had sufficient effective exposure to the new pedagogy to foster a sense of ownership and help them to really 'believe in it'. Where teacher unions did raise concerns, these were handled through negotiation and cooperation. The reforms were widely accepted and upheld by critical stakeholders, especially teachers, and have withstood the test of time.

Shanghai's exceptional learning results are attributable to very tight connections between policy and implementation. This can be attributed in part to the cultural and historical Chinese characteristics of top-down and centralized administration, but also to a close understanding of how autonomy and accountability can incentivize effective implementation. Schools in Shanghai have a high level of autonomy over planning and managing the school budget, over personnel management, and to some degree over curriculum. In turn, teachers and schools are held to account through continuous student assessments, publication of school data, and annual inspections, all of which enable system leaders to closely monitor whether policies are being implemented and their results. Investing heavily in professional leadership and ensuring consistency and coherence across policies have been key to making this autonomy and accountability work in practice.

Successful rapid education reforms in the Punjab reveal much about the mechanics of successful implementation – and the importance of clear goals, structured and detailed monitoring, and regular active accountability. Clear priorities were set on enrollment, learning, teachers, and facilities, and detailed targets and delivery trajectories set for each region. Data were collected on key indicators from all 60,000 government schools in Punjab every month by recruiting around 900 army veterans who were given a list of schools to visit each week on a motorbike. For each district, a monthly "data pack" was rapidly produced showing how that district compared to every other district in Punjab. It enabled government ministers and officials to track progress closely against each of the trajectories and see which districts were on track and which were not, target support and intervention, and hold named school and district leaders personally to account.

See Source Materials for sources and more information.

companies, mainly European, still tend to win a high proportion of textbook bids. However in many low- and middle-income countries, private local and regional publishers have been increasing in number and competitiveness. By enlarging the local market for books, these changes are breaking monopolies that have kept the cost of books high.

Finally, action is needed to ensure that textbooks are well used. The role of teachers in textbook selection and in monitoring the quality of textbooks should be strengthened. Best practice in the use of textbooks and other learning materials should be widely disseminated and incorporated into teacher development. Books and other learning materials must be produced in appropriate languages, have appropriate content, and be accessible to students with vision impairments and other physical disabilities.[161]

To drive further progress in improving the textbook supply chain, the Commission supports the idea of a Global Book Alliance – an international mechanism, hosted by an existing organization, to mobilize funding, raise awareness, and improve the provision and use of both textbooks and reading books. Its key activities will include: spreading best practice on the effective development, procurement, distribution, and usage of books; advocating for the importance of reading materials; helping countries make their book chains more efficient through finance, technical advice and joint learning; and funding reading books in mother-tongue languages where there is demonstrated financial need and country commitment.

As the development of online and digital learning materials expands to complement traditional printed books and materials, it will be increasingly important to integrate strategies for the development and use of books and digital resources for all levels of education (see Recommendation 5). This will be particularly important at higher levels of education where the costs of textbooks can be extremely high and gains from switching to digital resources could be greatest.[162]

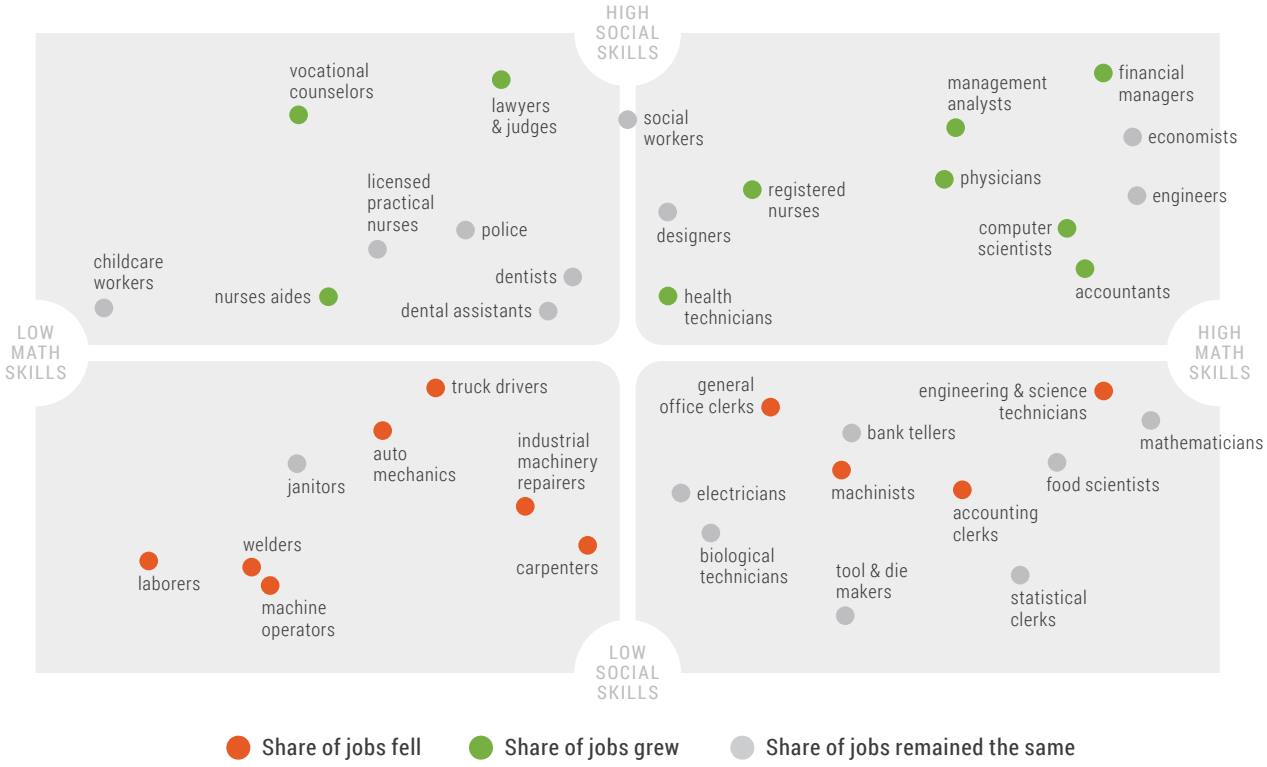
II. Innovation: Invest in new approaches and adapt to future needs

To prepare young people for the world of 2050 and beyond, education systems must innovate and change rather than just replicate past successes. Education systems will need to innovate and adapt because the skills needed by societies and economies are already rapidly changing, and because many governments in developing countries are already hitting the limits of what their education systems can currently achieve. They must innovate if education is to genuinely reach all children and young people, finding new ways to overcome exclusion and inequity. And they must change to leverage the opportunities offered by technology, innovations in design, and new understandings of how children learn. T**he way in which young people learn, communicate, and entertain has evolved more in the last 15 years than in the previous 570 years, making innovation in education an imperative.**[163]

Innovations in education will also be required to manage the immense pressures which developing countries will face in the coming decades. The number of children in low and lower- middle income countries is projected to grow from about 1.2 billion today to approaching 1.4 billion in 2030.[164] **By 2030, the demand for teachers in low- and lower-middle income countries is projected to rise by 25 percent, to 29 million from 23 million today; in low- income countries it will nearly double from 3.6 to 6.6 million.** The largest growth will be in many low-income countries that are already suffering acute shortages.[165] The cost of education and the capacity demands on systems will increase as education expands and as ambitions for outcomes and inclusion rightly grow. And the need to respond to changing skills needs and help young people adapt their skills over time and across geographies will require more sophisticated pedagogy and assessment, and more nimble and dynamic policymaking.

Innovation will need to reflect a new understanding of what education needs to deliver. As the nature of work

Figure 19. How demand for skills has changed in recent decades



Source: World Economic Forum (2016). US Department of Labor data; changes in the share of jobs from 1980 to 2012.[V14] Note: The position of an occupation on the x and y axes reflects the intensity of math and social skills required.

changes, employers are increasingly demanding social or non-cognitive skills,[166] as well as high-level thinking and technical skills (see Figure 19). In the future, individuals are more likely to change careers many times during their working lives and more likely to work in and with multiple different locations, groups, and cultures. This will place greater value on the ability to adapt, to learn throughout life, to communicate, and to manage differences.

The potential for innovations to emerge, scale and transform education is greater today than ever before. Research from the OECD finds that overall levels of innovation in education are fairly high in many countries, in both absolute terms and relative to other sectors, but vary widely among countries. There have been large increases in innovative pedagogic practices across much of the world, though innovation is much more prevalent in post-secondary education than in schools. Critically, the OECD found that countries with greater levels of innovation see improvements in educational outcomes, more equitable learning outcomes across ability, and more satisfied teachers.[167]

The job of education and the tools available to achieve it are changing fast. Transforming education must begin by getting the basics right in order to lay the foundations of effective performance. But simply strengthening the performance of an education system will not be enough to make that system fit for the future. **The second education transformation which leaders should make is to foster innovation across education systems. The Commission calls on decision-makers to prioritize innovation in three key areas identified as critical for future success – the education workforce, technology, and non-state actors.**

Innovations in these three areas will be necessary for meeting the specific challenges ahead, facilitating system strengthening, and supporting the implementation of the key interventions to improve learning and access identified by the Commission. However, the task of ensuring that education keeps evolving to reflect new challenges and opportunities spans education systems as a whole. Whether or not a system encourages or stifles innovation depends upon many factors

– from how motivated leaders and system managers are to improve results, to how much autonomy teachers and school leaders have to try new ideas and how incentivized they are to do so, to whether the system is able to assess and track changes in student learning. Alongside the specific actions set out in this section, the Commission recommends cross-cutting action to create an environment in which innovations can emerge and scale up. Governments, civil society, and the private sector should invest in R&D; provide access to dedicated, flexible and long-term financing, particularly to support the "middle phase" between pilot and large-scale implementation; and create or support dedicated resources for identifying and supporting new innovations, sharing learning, and evaluating.

Several governments are taking a proactive role in fostering innovation. Nearly 20 years ago, Singapore's Ministry of Education launched the *Thinking Schools, Learning Nation* policy, which established an institutional culture of challenging assumptions and seeking to improve educational practices through participation, creativity, and innovation.[168] Brazil's Ministry of Education launched an annual *National Award for Innovation in Education Management*, which incentivizes local education authorities to improve municipal education systems.[169] Peru's Ministry of Education (with support from J-PAL (Abdul Latif Jameel Poverty Action Lab) and IPA (Innovations for Poverty Action) recently launched MinEduLAB to design innovative, evidence-based policies for improving student performance and overcoming implementation challenges.[170] International partners can also play a role through innovation challenge funds or competitions. In these cases, impact is greater when funding is complemented by capacity-building support.[171] Critically, maximizing the impact of these investments requires building a continuous loop between innovation, evaluation, and evidence-building, so that innovations are not simply backed to grow but also supported to increase understanding more broadly about what works to improve learning.

Recommendation 4. Strengthen and diversify the education workforce

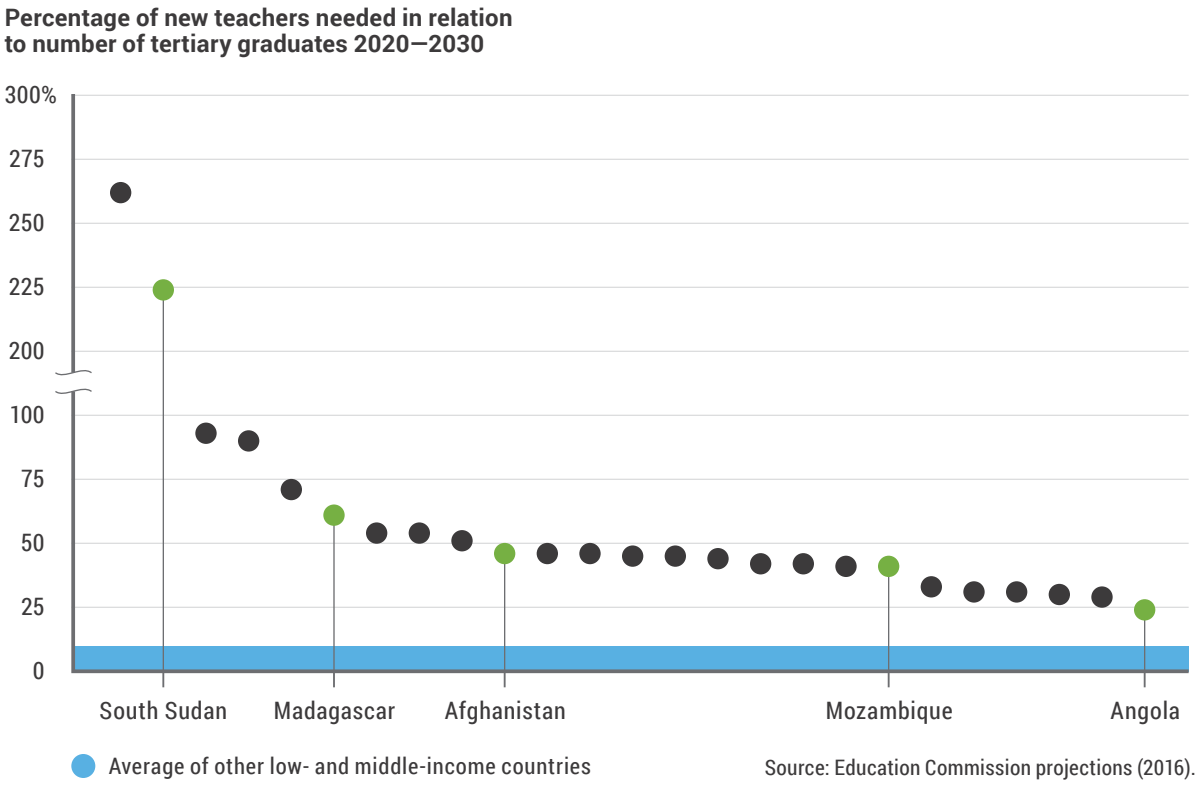
Last year, low- and middle-income countries spent $552 billion on teacher salaries, 73 percent of the total expenditures on preschool, primary, and secondary education.[172] They are rightly the single biggest investment any country makes in its education. Supporting teachers and improving teaching is essential to ensuring that this investment delivers results. Studies of the best school systems consistently identify good and improving teaching as the most critical determinant of success in improving learning.[173] A high-quality, well-trained workforce is critical at every stage of education, from early years to higher and adult education. But changes in our understanding of how young people learn best and of the skills they will need mean that the nature of teaching and the education workforce itself will need to change, too.

As numbers of pupils expand, particularly in preschool and secondary school, it will be difficult for some countries to keep up with the demand for teachers. Between 2015 and 2030, the demand for teachers in low- and lower-middle income countries is projected to rise by 25 percent, and in low-income countries, it will need to nearly double. The demand for preschool teachers across low- and lower-middle income countries is projected to quadruple from 1 million to 4 million; and for secondary teachers demand will rise from 11 million to 13 million.[174] In a number of the poorest countries, these increases are equal to half or more of the projected graduates of tertiary education (see Figure 20) – a proportion that is unprecedented in even the most successful and most industrialized nations.[175] These shortages are exacerbated by widespread inefficiencies in teacher deployment.

Governments must significantly increase their investment in the recruitment, training, and retention of teachers, and in their effective deployment and utilization, to meet this rising demand. The Commission affirms in the strongest terms the importance of the skills, commitment, and morale of teachers and the whole education workforce. Studies show that outside the immediate family circle, teachers have the greatest influence on young women and men as they develop into adulthood.[176] The status of the teaching profession matters for the success of every country.

Increasing the supply of qualified teachers alone will not be enough; the role of the teacher will need to change, too. The purpose of education and the skills that young people will need are changing, as is our understanding of how children's brains develop and

Figure 20. In some countries, half of all graduates needed to meet teacher demand



Source: Education Commission projections (2016).

how they best learn.[177] The context in which education is taking place is often changing rapidly, too – driven by, for example, large-scale urbanization, population movements, and the impacts of climate change – with implications for what education needs to do and how. Innovations in delivery mean that changing the nature of teaching and the role of the teacher are not only necessary, but also far more possible and scalable than ever before. Nevertheless, teaching is too often failing to keep pace with change, stay relevant, and equip young people with the skills employers are looking for. Less than a quarter of experts around the world say their schools are preparing students for the workplace.[178] Respondents to the Commission's global consultation repeatedly raised concerns over teaching and curricula that were not relevant to the labor market and failed to recognize and include students with differing needs. The quality of teaching is far too variable – as evidenced in part by the 330 million children who are in school but still not learning the basics[179] – and, rather than being highly valued and empowered to innovate, teachers are too often perceived as an obstacle to change.[180]

To meet these challenges, it is no longer enough for countries to recruit and train more or better teachers as we have envisaged them in the past. With pupils increasingly able to access information themselves through online materials or learn virtually from teachers based elsewhere, their critical need is for facilitation, coaching, and skill development. Teachers increasingly must be "knowledge facilitators" as much as "knowledge disseminators" – or, as some have put it, the "guide by your side" as well as, or at times even instead of, the "sage on the stage." This shift opens up opportunities for deploying teachers' time differently, better supporting teachers, and drawing on a wider set of roles alongside them to support learning (see Box 11).

Professionalize teaching and non-teaching roles to enhance their skills and status.

Fostering an education workforce that is able to meet the challenges of quality, capacity, and innovation will require investing more in expanding and strengthening the workforce, and it will require reforms to the ways in which teachers are trained, supported, and managed.

Box 11. The changing role of teachers

The **Escuela Nueva** model— which began in Colombia in the 1980s and has been adopted as national Colombian policy — uses a student-centered model with lessons that are better connected to the local setting and recruitment of more advanced students to help low-performing students. Rather than a teacher transmitting knowledge, students work through lessons at their own pace with the teacher as a facilitator, in a multi-grade classroom. It is a distinctive approach for improving teaching practices in the most isolated schools, and providing ample support to teachers is perhaps its most crucial feature. In addition to providing teachers with educational materials, resources, and opportunities for capacity-building, the program trains local supervisors to serve as pedagogical advisors to teachers. The program has been adopted in 16 other countries, such as Guatemala and Vietnam.

Camfed has trained 4,000 young women as learner guides in 1,000 schools across Ghana, Tanzania, and Zimbabwe. Learner guides are not teachers, but members of the local community who return to their local schools to support marginalized girls in their studies and deliver life skills and well-being programs. In return for their commitment, they become eligible for interest-free micro loans, which most of them use to start small businesses.

In the Amazonas state of Brazil, access to a secondary school is a major challenge in thousands of remote villages. The majority of the population resides in remote places where access to schools is possible only through the rivers. The state's **Media Center** operates a schooling model that involves expert teachers lecturing through a two-way video system from a studio in the capital while classrooms are managed by a facilitating teacher in-person, alleviating the need to place content-specific teachers into every school.

A major shift towards a **flexible learning environment** and **blended learning** is underway at post-secondary and tertiary levels. Traditional teaching and classrooms are being "flipped" with the teacher or professor largely guiding and facilitating self-learning and peer learning, and with facilities offering space for team learning. The surge in blended learning, which combines face-to-face instruction and online learning, reduces requirements for space, increases access to high quality content, and allows students to fit gaining a qualification around work and other commitments. Kepler in Rwanda offers U.S. degrees through blended learning by lowering delivery costs and focusing on skills-based education leading to direct employment.

See Source Materials for sources and more information.

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The Commission recommends the systematic professionalization of both teaching and non-teaching roles within the sector. This will require assessing the distinct workforce roles required for each level of education, from pre-primary to post-secondary, and developing appropriate recruitment, training, reward, and deployment strategies.[181] **The Commission recommends that improving teacher training and support for teachers, alongside distinct training and support for non-teaching roles in education, must be at the heart of any strategy for improving learning.** Evidence is clear that, while many education reforms focus on organizational structures, curricula, or inputs, the most effective interventions change what happens inside the classroom and how teachers teach. Respondents to the Commission's global consultation argued that

investment in teaching and fostering respect for the profession were among the most critical factors in improving education, and that inadequate teaching or teacher training were amongst the biggest obstacles systems faced today.

Teachers themselves should be at the heart of designing and leading these changes, as empowered and valued partners in reform.[182] The Quality Educators for All initiative in Mali used a collaborative and results-based approach to bring about reform in teacher development. The Ministry of Education, a coalition of civil society organizations, and Mali's teachers' union came together to develop a Teacher Competency Profile (TCP) for primary school teachers, together with a comprehensive communications strategy. While the TCP was non-mandatory, the inclusive nature of its development led to high levels of adoption. Results so far in terms of teachers and students impacted have far exceeded targets.[183] Many successful systems have shown that as skill levels in the education workforce increase, so too should their autonomy and freedom to innovate and improve.[184] High performing systems such as Singapore and Ontario, Canada, use the strong skill base of their teachers to give them a high degree of freedom to develop their own solutions and approaches, encouraging teachers to learn from and innovate with their peers. Models such as Teach For All offer compelling insights into how nurturing talented teachers and giving them the opportunities to lead can help to boost teacher-led innovation and improvement.[185]

Studies of improving systems, including analysis brought together by the 2014 UNESCO Global Monitoring Report,[186] highlight priorities for action:

- **Recruiting the best and most motivated candidates** by setting entry requirements which reflect both the capacity to learn and develop and subject knowledge (supplemented by additional training if these are hard to meet), and recruiting from a range of backgrounds. While setting high standards for entry can help to raise standards and improve the status of teaching and other educational roles, limiting entry solely on the basis of academic qualifications may overly restrict entry to potential teachers from a variety of backgrounds, especially where general education remains relatively weak. Where there is a shortage of candidates with adequate academic qualifications, teacher education policies need to widen recruitment strategies and provide intensive, high-quality training to raise subject knowledge.

- **Strengthening initial and ongoing training.** Initial training for teachers should focus on improving subject knowledge as well as teaching methods, include sufficient opportunity for practical classroom experience, and be tailored to the specific needs of the student population. Ongoing training, mentoring, and support during teachers' careers is also vital to ensuring teaching keeps pace with change and to raising standards, particularly in areas where initial training may have been weak. In the best systems, all teachers, especially those in the early stages of their careers, are given sufficient time throughout the school year for professional development (see Box 12). Training the trainers and leveraging the best teacher trainers through distance learning and new technologies are also key to raising standards. For non-teaching roles, distinct training and development pathways are required.

- **Deploying teachers and other personnel where they are needed most** in order to tackle inequities in provision, including by incentivizing teachers and other members of the workforce, particularly the best, to teach in disadvantaged or underserved areas.

- **Retaining good teachers** and other professionals by addressing morale, reward, and career progression. Today, teachers are often not paid on time or paid at all, levels of remuneration are often unacceptably low, and salaries often stay relatively flat over their careers with little or no correlation with performance.[187] Teachers and others must be paid enough to make education a viable and attractive career option for able candidates and they must have good working conditions. If well-designed, additional incentives for performance and retention can also improve outcomes. Providing the workforce with sufficient support and with well-structured career paths and opportunities for promotion are also critical to motivating and improving performance.

Box 12. Teacher training and development – the case of Singapore

Singapore is widely seen as a leader in teacher development. Interest in teaching is seeded early through teaching internships, and a system for mid-career entry also exists. Entry into initial teacher training is highly competitive: only one in eight applicants is admitted and they are drawn from the top 30 percent of their cohort.

New teachers are supported through structured mentoring programs that bring them together with experienced teachers and school leaders. A tailored development program is generated for each teacher and they are required to participate in at least 100 hours of professional development each year. After three years of teaching, teachers are assessed annually to see whether they have the potential for three different career paths: a teaching track (for classroom and master teachers), a leadership track (for subject/level heads, school principals, and superintendents), and a senior specialist track (for government officials). Teachers who have the potential to be school leaders are moved to middle management teams and receive training to prepare them for their new roles. Middle managers' performance is assessed for their potential to become assistant principals or principals. Specialized training for school principals includes supervised practice and internships to shadow experienced principals. This in turn ensures that teachers are supported by strong school leaders in future.

To promote continuous learning, Singapore's Teachers Network initiative encourages teachers to share effective practice from their own experiences in the classroom with other teachers, rather than rely only on a central body of experts to prescribe how best to improve teaching and learning. Through informal learning circles, teachers with similar interests come together to tap the knowledge and experience of other classroom teachers. The overall goal is to create thinking teachers who can inspire and equip thinking students, able to compete in a changing economy.

See Source Materials for sources and more information.

- **Strengthening governance, accountability, and management** is important for creating the underlying conditions necessary for supporting teachers to teach well and keep improving. This includes fair and transparent mechanisms for managing performance, deployment, and promotion, effective accountability relationships, and strategies to tackle absenteeism, poor performance, and misconduct.

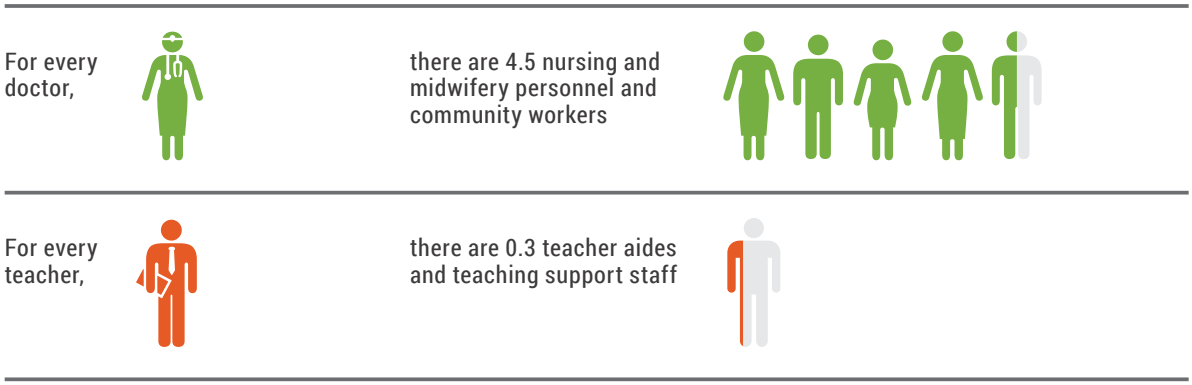
Diversify the workforce to leverage teachers and improve learning.

The Commission recommends that decision-makers take a new look at what kind of workforce they will need in the future. In doing this, education has much to learn from the health sector, where a far more diversified workforce is deployed to meet increasing demands and to provide new services while managing costs and workforce supply. The workforce is made up of distinct and recognized professionals, each with their own skills and training. Health systems have successfully used nursing assistants and medical scribes to replace doctors' time for filling out and updating the medical records of patients after every visit. Nurse practitioners and physician assistants perform the tasks of taking basic diagnostic measurements of patients and updating their medical histories. WHO data on developing countries show that the leverage ratio of non-doctors to doctors range from five to more than 10,[188] enabling these health systems to expand provision without the much higher cost that would be associated with a corresponding increase in the number of doctors. Available data on the education workforce suggests this ratio is much smaller in education. In Chile, for example, there are 5 medical support staff for one doctor, while there is less than half of a teaching support staff for every teacher (see Figure 21).

Teachers are typically expected to fulfill a wide range of functions, including those not requiring teaching skills or those better suited to individuals with different

Figure 21. The education workforce is much less diversified than the health workforce

In Chile:



Source: OECD-TALIS data (2013); WHO data (2015).[V15] Note: estimate for health support staff is conservative. It does not include pharmaceutical assistants, lab assistants, or environmental workers. Teaching support staff includes teaching aides and all support professionals who provide instruction or support teachers in providing instruction, including education media specialists, psychologists, and nurses. Both estimates exclude management, administrative, and building maintenance personnel.

training or experience. Some countries have successfully introduced a wider set of non-teaching staff in order to reduce the time teachers spend on non-teaching activities and to better support learning.[189] This can include a range of professionals such as teacher aides who support teachers in providing instruction, pedagogical support staff (such as guidance counselors) who provide services to support instruction, and health and social workers who provide specialized psychological and social support to students.[190] In schools catering to children who may have experienced conflict, extreme poverty, or disadvantage, the need for specialized professionals such as these will be even greater.

Teaching or pedagogic assistants can also play an important role in leveraging teachers' time and personalizing learning. In Finland, for example, only 56 percent of the primary education workforce is made up of teachers; almost a quarter is made up of pedagogical support staff.[191] Teaching assistants are expected to have a vocational qualification in an appropriate area of study[192] and their role is typically to help students with special needs or learning disabilities. In the U.S., teaching assistants currently account for 12 percent of school employees, and more post-secondary institutions are offering specialized training programs to meet growing demand for them.[193]

Most teaching requires the expertise and skills of a qualified teacher. However, there are tasks currently undertaken by teachers that can be effectively done by other trained staff who do not need qualified teacher status provided they work under the close supervision of a qualified teacher who retains overall responsibility. Teaching assistants can be assigned to support small groups of students who need extra support in reading or math, conduct remedial classes or reading corners, or work with children with special educational needs.[194] They can help teachers prepare for lessons, make materials, set up equipment, check student attendance, assess homework assignments, and supervise student projects. Classroom observation data in Latin American countries indicate that these non-instructional tasks can occupy as much as half of a teacher's classroom time.[195] In computer-assisted classes where students use technology to access content or connect to teachers teaching remotely, para-teachers with appropriate training can facilitate, supervise, and assess student work. Teaching assistants are also helping staff schools in small, remote areas where multi-grade teaching is often used, allowing teachers to teach some students while others work independently or are supported by assistants.[196] Alongside assistants and under the supervision of trained teachers, community and parent volunteers can also help to take on non-teaching tasks often done by teachers, such as accompanying trips, fundraising, or providing additional one-to-one support for learners with additional needs.[197]

Successful diversification requires an understanding of the clear and distinct roles played by teachers and other members of the workforce, and their distinct training needs. In many low- and middle-income countries today, however, the rapid expansion of student numbers has been accommodated by plugging teacher gaps with untrained or volunteer teachers at the risk of diluting quality. Consideration should be given to whether regulation is needed around the training requirements for different workforce roles.

Recruiting and training more and better teachers will continue to be a high priority in all developing countries, alongside any expansion of support and non-teaching roles. Diversification *within* the teacher workforce should also be supported as part of an effort to improve professional development. Teachers should be trained to specialize in particular subjects or aspects of education and to progress into leadership roles such as preparing curriculum content, leading para-teachers in different classrooms, or training other teachers as part of ongoing in-service training.

Establish an international expert group on the expansion and redesign of the workforce.

Following the example of the health sector, the Commission recommends the establishment of a year-long taskforce which would bring together teachers, policymakers, and researchers **to develop specific proposals for the redesign of professional roles within education, and for addressing their recruitment, training, deployment, and development needs.** The expert group should include leaders from pre-primary, basic, and post-secondary education: high level representation from teacher unions and the International Task Force on Teachers (under the auspices of UNESCO); and representatives from other sectors such as health. Its tasks could include the updating of the 1966 UNESCO-ILO Recommendation concerning the Status of Teachers, which articulates the rights and responsibilities of teachers and is still used today.[198] A further task of this group should be to address the significant data gaps relating to the education workforce, given the vital importance of better data on current and future workforce needs for effective planning.

Recommendation 5. Harness technology for teaching and learning

While innovations in education do not depend on it, technology offers huge opportunities to improve learning, expand participation, and increase efficiency. It is estimated that by 2020, virtually everyone will have a mobile phone, 2.6 billion people will have smartphones,[199] and 56 percent of people will have Internet access.[200] New and existing technologies are opening up access to information and learning, enabling new models of organizing, managing, and delivering education and helping to spread what works best. This is particularly significant for developing countries, which are often well-placed to take advantage of innovation, enabling them to leapfrog rather than progress along the same development pathways previously taken by other countries.[201]

As discussed elsewhere in this report, technology has immense potential to improve educational management and administration – from improving the collection and management of learning data and financial information to reducing the time teachers spend on administrative tasks. But its potential to transform education may be greatest in educational delivery itself. Digital learning makes it possible to reach and engage new learners – particularly those most at risk of missing out (see also Recommendation 8). It can enhance teaching, lower costs, help keep learning relevant and dynamic, and offer new ways for all learners to gain skills (see Box 13).

The need and potential for innovation through technology is arguably greatest at the post-secondary level, where increasing access, affordability, and relevance of learning will become ever more critical. Only 11 percent of youth in low-income counties and 29 percent in lower-middle income countries participate in post-secondary learning, and post-secondary education is often prohibitively expensive. Based on current trends and high cost structures, 22 percent will participate in some form of post-secondary learning in low-income countries by 2030, and 44 percent in lower-middle income countries – rapid growth but still far below the roughly 80 percent participating in high-income countries today.[202] But post-secondary learning is already changing rapidly, with the diversification of providers including the growth of private providers; the

Box 13. How technology is improving teaching and learning

In South Africa, **MUbuntu** uses recycled smartphones to connect teachers with literacy coaches around the world and to provide students and teachers with access to teaching and learning content and with opportunities to communicate and collaborate.

In rural Papua New Guinea, the **SMS Story project** has adapted mobile SMS by sending a daily text and teaching tips to teachers as an aid to help improve student reading. Teachers were more motivated to teach reading every day and the number of children who could not read was halved.

Coursera allows people to access courses without accreditation for free and to enroll at very low cost on courses from famed faculty from over 150 highly reputable universities. Courses can be accessed from a web browser or mobile phone. Coursera has an estimated 100,000 concurrent verified enrolled learners, over 1 million active learners registered for courses, and 25 million monthly unique visiting learners. Roughly 5 percent of users choose to pay for premium services such as authentication, assessment, and grading.

The **Aga Khan Development Network** uses digital content to free up teachers to spend more time facilitating learning and discussion. Instruction materials are provided from experts in different fields, allowing teachers to engage students in group discussions. The materials can be used by teachers in lessons or by students in self-study, enabling students to personalize learning to their level.

In countries such as Colombia, Nigeria, and India, **BridgeIT** gives teachers mobile devices loaded with Nokia's Educational Delivery software that enables them to access a catalogue of educational materials organized by subject and grade level. Teachers can download and share these resources with students through the mobile device, TV, or projector. In Tanzania, students in BridgeIT schools scored 10-20 percentage points higher on tests than their control group counterparts.

See Source Materials for sources and more information.

Asian Development Bank

spread of alternative technology-enabled models of delivery, including in the form of Massive Open Online Courses (MOOCs); and the impact of open educational resources. These trends have the potential to reduce costs by lessening or eliminating the need for physical space; supplementing or replacing professional faculty with expert practitioners and crowd-sourced open content; and reaching larger scale with fewer faculty. And they can increase participation by enabling learners to study flexibly, on-demand, alongside employment or from remote locations; increasing access to free courses; and catering to previously marginalized learners. A recent survey of students in Colombia, the Philippines, and South Africa found that low- and middle-income students made up 80 percent of MOOC users, and that women were more likely than men to complete a MOOC or get certification.[203]

Demand for digital learning is strong and growing fast. EdX has more than 8 million users across the globe[204] with almost half living in developing countries;[205] 30 million courses have been taken on the platform. Khan Academy is available in 190 countries, has 1.5 million registered educators and 37 million students.[206] While challenges regarding completion, quality, and outcomes remain as new models evolve and mature, the potential for digital learning and innovation is immense and being rapidly realized. It will, however, be constrained unless policymakers, innovators,

educators, employers, and investors foster innovation, tackle infrastructure gaps, transform credentialing and recognition of skill development, and bridge gaps in provision. Critically, any investments must be underpinned by efforts to develop the skills and mind-sets to maximize the impact of digital technologies and learning on all aspects of education – among leaders and providers of education, and more widely among employers and communities. Finally, ensuring sound decision-making and investment choices in technology will require national and global efforts to build evidence on "what works" and develop new thinking on how to "future proof" investments and policies. Informed by the work of the Commission's Expert Panel on Technology, the Commission has developed a number of recommendations for harnessing technology for learning.

Get every school online and establish digital learning infrastructure.

Connecting everyone to the Internet would have tremendous benefits for education as well as other sectors. Universal connectivity could add an additional $6.7 trillion to the world economy.[207] Uneven access to the Internet and digital technologies risks exacerbating existing inequalities in learning. Today, in the poorest countries only 1 out of every 10 people is online. Across many developing countries in every region, less than 10 percent of schools are connected to the Internet, and even those that are often have very limited connections which do not allow for effective learning.[208] But Internet access, particularly through mobile broadband, is spreading rapidly, making it both possible and vital to get every school online. Many countries are showing what is possible — Korea has rolled out fast connectivity to all schools, Uruguay is on track to connect all schools, and China is expanding full broadband coverage by 2020 with a particular priority on connecting poor schools.[209]

The Commission recommends that governments promote new public-private partnerships with telecommunication leaders to get all schools connected by 2030. In a rising number of countries, from South Africa to Tunisia, Senegal, and Portugal, "universal service funds" have helped to ensure expansion of connectivity to rural or isolated areas, as part of licensing deals with telecoms operators, sometimes in combination with other incentives.[210] In designing such partnerships or arrangements, care must be taken to ensure citizens' rights are not compromised. New technologies are under development for reaching the hardest to reach, including satellites and Internet-providing drones which operate by solar energy and can be deployed to remote areas for three months at a time.

Alongside getting schools online, opening up digital learning requires a broader digital learning infrastructure. This includes national clouds for data storage, broadband access points within communities, and low cost Internet-enabled devices. Access points should be developed to increase equity, placing strong emphasis on reaching into rural and marginalized communities, helping to ensure that young people can access learning outside of the school day and that young and adult learners can participate in digital learning when not enrolled in school. While there are ongoing costs of training, upgrades, and content review and adaptation, investing in digital infrastructure makes it possible for online learning to scale at near-zero marginal costs.

Build skills and capacity to embrace digital innovation.

For investments in digital learning to be cost-effective, they must be supported by measures to spread skills and best practice to teachers, policymakers, employers, and other leaders on how to maximize the impact of digital technologies on teaching and learning.[211] Today, young people all over the world are embracing technology as a way to learn and connect, wherever they have the chance to do so. The ways in which they use technology are changing constantly – as evident, for example, in new developments in game-based learning and gamification.[212] But too few leaders and educators have the skills to fully tap this enthusiasm and harness this engagement to foster positive skills, values, and behaviors.

The lesson from a systematic review of the impact of mobile learning technologies is clear: to be effective, technology must be sufficiently interlinked with curriculum development, teacher training and peer learning, and pedagogical methods.[213] Colombia's *Computadores para Educar* program distributed more than 100,000 computers to schools, but had no discernible effect on students' academic performance. Despite receiving

computers and technical assistance, the teachers in the program did not incorporate the new technology into their classroom teaching.[214] Digital learning must become fully integrated into teacher training and development strategies if it is to enhance teachers and teaching. It is notable that "blended learning" approaches that integrate in-person teaching with technology as an enabler have been shown to have the greatest potential.[215] In 2013, Education International, representing teachers globally, partnered with the Global Business Coalition for Education and Intel to endorse principles for deploying modern tools for teaching and learning to underserved and disadvantaged areas.[216] Principles and approaches such as these can be used to ensure that teaching and teachers are enhanced through the expansion of digital learning.

A mind-set shift is needed throughout the education system to see technology not as an "add-on" but as central to learning. Such a shift is also needed among corporate leaders. All too often, employers are unable to recognize and value skills gained through digital learning or alternate credentials, even while at the same claiming that talent pools lack the necessary skills for employment. Innovations in accreditation will be critical to the success of digital learning.

Promote open digital learning through national platforms and pro-innovation regulation.

While some of the most exciting digital learning opportunities and resources are being developed and provided by civil society entrepreneurs, private-sector organizations, and universities, governments have a key role in helping teachers and learners to get the most out of the resources available, open up access, and fill gaps in provision.

With the volume of content being produced increasing exponentially, it can be very challenging for teachers and learners to navigate and identify resources which are high quality, relevant to their curriculum or skill requirements, and recognized by employers or in further learning. **Governments and employers should put in place common learning platforms to bring together online and offline content and should map, certify, and sequence content in ways that are relevant and consistent with national curricula and local labor market needs.** While much content, curricula, and assessment is nationally specific or must be nationally tailored, global sharing of materials or tools should be encouraged where appropriate.

Governments and employers should act to address gaps in provision by incentivizing and investing in the development of high-quality, demand-driven content, tailored to local curricula, standards, and needs. This will be particularly important in ensuring that digital learning can help reach and engage those at greatest risk of educational exclusion who often stand to gain the most – such as adolescent girls, refugees and street children, children with disabilities, adults who lack basic skills, and young people with less resources to reinforce learning outside the classroom. Ensuring these learners, and those who teach and support them, can benefit from appropriate and accessible digital learning opportunities should be a key component of educational inclusion strategies.[217]

Finally, to promote innovation and advance the development and deployment of digital learning, **governments should create a "pro-innovation" regulatory environment.** To help support innovative providers and models to emerge and scale, governments should reduce barriers to entry and create an enabling regulatory environment, focused on defining and monitoring standards and intervening to address poor quality. Governments should introduce copyright and licensing regulations that support the development of open education resources that are free to use and available to repurpose.[218] Where appropriate, this should be complemented by efforts to encourage local markets to develop high-quality, low-cost proprietary content with appropriate equity measures put in place to ensure widespread accessibility. When domestic or international public financing is used for the development of online content, this should routinely be open access and non-proprietary, allowing for the adaptation of content at lower marginal cost.

Innovate in the recognition and accreditation of skills.

To encourage innovations in delivery, it will also become increasingly important to allow students learning in different ways to gain equally valuable qualifications. Countries in most regions of the world still fail to recognize each other's qualifications.

Box 14. Alternative recognition and accreditation systems for skill development

Developing new ways to accredit skills and ensuring that this accreditation is widely recognized by employers and educational institutions will be key to supporting innovations in delivery, allowing people to learn in different ways and different places and to have their learning recognized equally.

In **India,** the National Skills Qualifications Framework (NSQF) aims to develop training programs that lead to qualifications for people in the informal sector. The aims of NSQF are to make qualifications uniform and comparable — such as the certificate course in plumbing, which is offered in different places with a variety of durations and entry requirements.

The portability of qualifications is one particular challenge needing attention. Some provision for international coordination does exist, including international and regional curricula such as the International Baccalaureate, various regional examination and accreditation modalities, and cross-border higher education quality assurance mechanisms. Online recognition systems are beginning to show how it might be possible in the future to extend the international recognition of skills.

Transferability of qualifications, particularly at the post-secondary level, is also important to facilitate students' progression through higher levels of education. In **Colombia,** progress through levels of tertiary learning is limited by a "lack of a National Qualifications Framework, credit transfer, and collaborative arrangements between different tertiary institutions" (OECD and World Bank, 2012). In **Canada and the U.S.,** on the other hand, the flexibility to transfer credits and have prior learning recognized makes it easier for students, especially those from underprivileged backgrounds, to progress from non-university institutions into universities.

In **Korea,** when students had obtained academic credits from more than one institution but did not possess enough credits from any single institution to obtain a degree, the government created the flexible Academic Credit Bank System. It allows people to pool the credits they have earned from various sources and package those into a degree awarded by Korea's Ministry of Education.

Platforms utilizing **badging** or other recognition systems allow employers, educational institutions, or organizations to co-design and endorse learning pathways that unlock real-world opportunities such as internships. Learners can then select a digital learning pathway and complete tasks and projects to prove mastery of these skills, earning badges. Employers or education institutions then recognize these badges as indications of skill development through digital resumes (such as LinkedIn), allowing them to make decisions about interviews, apprenticeships, formal learning equivalencies, or qualifications for jobs. These can be critical to bridging local skills gaps. Recently, the U.S. Conference of Mayors passed a resolution encouraging cities nationwide to embrace digital badges for workforce development, employment, financial aid, and higher education. The resolution also encourages city leaders in the U.S. to leverage the LRNG learning platform as a shared digital badging framework.

See Source Materials for sources and more information.

Mechanisms that give people alternative ways to have their learning recognized or to learn flexibly and build up credits over time and from different institutions will be key in helping to expand digital and other innovative delivery models. They will also help to engage the large numbers of young people who are trained in the informal sector and support the increasing mobility of people and skills across borders, including supporting education for refugees.[219] **Efforts to encourage and coordinate innovation in the portability of accreditation will become ever more important for expanding educational opportunity, and will require international leadership** (see Box 14).

This will be vital if online learning platforms are to operate as a viable alternative to on-campus studies at regular tertiary education institutions. MOOCs and oth-

er digital platforms must offer professional qualifications that are recognized by employers and give access to the labor market, and students enrolled in regular on-campus programs who want to take some of their courses online need the assurance that their institution recognizes their MOOC credits.[220]

Common digital learning platforms should be used to improve the accreditation and recognition of all learning, including online learning. Employers – individually or by sector – should be encouraged to endorse and certify pathways of online learning, including through recognition mechanisms such as badges, which signal the acquisition of skills to education institutions and employers through metadata and proof-of-work. This makes it easier for a young person to demonstrate "soft" or "hard" skills, and for employers to identify workers with appropriate skills. Endorsing pathways of online learning supports flexible, low cost skill development linked to available economic opportunities, allowing learning to be recognized if taking place outside the classroom and to continue even if education is physically disrupted for an extended period of time.

Recommendation 6. Improve partnerships with non-state actors

As a fundamental human right, it is the ultimate responsibility of the state to ensure quality education for all children irrespective of their background, income, or capacity, and to ensure the financing necessary for this to be achieved. Governments alone are responsible for the education system overall, ensuring oversight of standards and equity and stewardship of children's rights. But in the education systems of 2030 and beyond, the state will not have a monopoly on the design, management, or delivery of education. There is great potential for a diverse set of organizations to help expand and improve education if partnered and regulated effectively by governments.[221] The role of non-state partners will become more critical because they can provide capacity where the state system hits constraints and because they are well placed to innovate to raise standards, increase access, and reduce costs. This is already happening. A background study for the Commission on innovation in low- and middle-income countries found around 70 percent of innovations were being delivered by non-state actors (mainly NGOs and some private actors), with fewer delivered by government (16 percent).[222] States that fail to harness the talents of a diverse set of partners will struggle to meet the demands ahead. Governments should think broadly about the best ways to fulfill their responsibilities to ensure all children are learning, and recognize the value that new partners can bring in testing and modelling change. In turn, non-state partners must recognize and respect governments' role and duties and be part of, not outside of, a shared and collaborative education system – teaching shared or agreed curricula, participating in common assessments, and meeting agreed standards.

Strengthen government capacity to harness the potential of all partners.

Civil society partners, NGOs, community, and faith-based organizations have long been central to educational delivery and advocacy across the world, and have been responsible for many of the breakthroughs which have opened up education to poor and disadvantaged children. They play a vital accountability and campaigning role, helping to inform and engage parents and mobilize for change. As both direct providers of education and shapers of policy, their key strengths include their ability to closely engage with and reflect the different needs of particular communities (including disadvantaged groups) and their capacity to innovate, adapt, and respond quickly to need, as in emergency or fragile contexts.

The private sector also has a broad and vital role to play. As an employer, it is essential that the sector has a strong voice in advocating for education and ensuring it stays relevant to future skills needs. As an investor, the private sector plays an important role in the expansion of private and innovative financing for education (see Finance section) and increasing the focus on results in educational investment. As a direct provider of schooling, post-secondary and other education, the private sector is playing an expanding role in many countries, bringing considerable opportunities and challenges. As corporate citizens, socially responsible private-sector organizations contribute financially to education, impact the education and skills agenda through their operating models, and help to influence public and political debate and build momentum for change. Governments should ensure that private-sec-

tor organizations are encouraged to consider how their core business can help to advance educational goals and strengthen leadership in education.[223]

The success of the private sector depends not just on the future skills of the workforce but on the health and success of the future economy as a whole. For this reason, governments must recognize that the sector is much more than a provider or investor in education. Private-sector organizations, like civil society organizations, have a powerful leadership and advocacy role to play as well.[224]

The Commission recommends that governments support mechanisms for giving both civil society and private-sector organizations of all sizes and sectors a voice in education. Wherever possible, this should include reaching out to businesses in the informal economy. In some countries, communities or civil society partners are represented alongside parents on school governing bodies or management councils. Some systems establish formal mechanisms for dialogue between governments and civil society, including around key education decisions or processes.[225] Employers are often involved in skills policy and training, through models such as sectoral councils which address or advise on skills needs in specific industries, or mechanisms for encouraging employer involvement in vocational training. Many countries that receive funding from the Global Partnership for Education have effective multi-sectoral partnerships through Local Education Groups. Ad hoc partnerships between NGOs, governments, and the private sector have also proved successful.

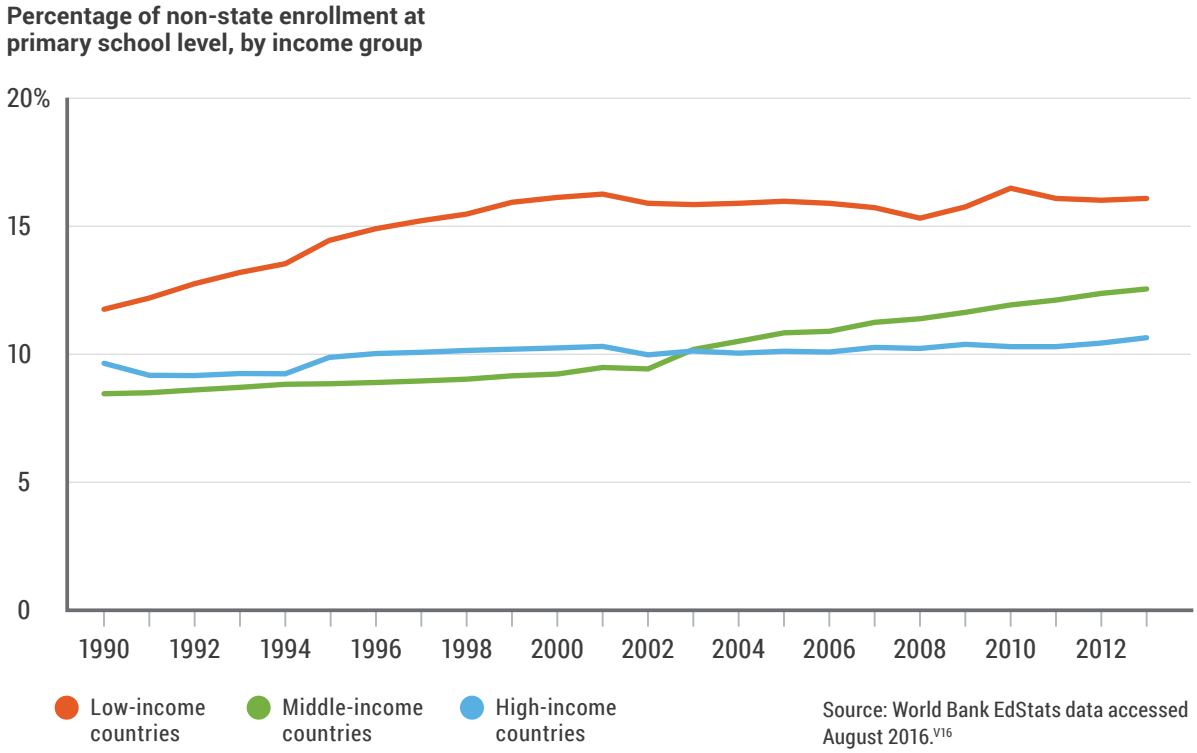
Finally, non-state actors are also a major supplier of goods and services to education, such as infrastructure (school buildings, internet connections), teaching and learning materials (books, science equipment), and back-office functions (paying teachers, management information systems). With the right incentives, they can help modernize education systems and reduce costs. For example, public-private partnerships can construct and maintain schools, as in Korea[226] or Egypt, leasing them back to the government and saving the need for initial public investment capital. Results-based financing could be used to provide Internet connections to schools, building on the experience of the Global Partnership for Output-Based Aid with electricity, water supply, and telecommunications infrastructure for the poor.[227] And innovations in the production and supply of learning materials can reduce costs and open up access.

To harness the capacity of non-state actors to innovate in these areas, the Commission recommends that governments strengthen their procurement and partnering capacity to ensure they secure best value and safeguard quality. Capacity to procure goods and services is not generally very strong, whether it is for book purchasing, school maintenance, or public-private partnerships to deliver education. The scope for inefficiencies, corruption, or failure to secure the intended outcomes can be high. Effective procurement and partnerships require clarity on objectives, transparent processes, the resources, information, and skills to develop and manage contracts well, and effective performance management and evaluation.[228] In managing and regulating the range of functions which non-state partners play in education, governments should strive to ensure that their involvement always enhances learning and equity and upholds children's rights.[229] With effective regulatory and procurement frameworks in place, government confidence to see non-state actors as valued and genuine partners in education will increase.

Improve the regulation of non-state providers of education in order to protect rights.

The involvement of non-state actors in education can help to support the right to quality education and the right to choice in education,[230] as long as appropriate regulation is in place and adequate attention is paid to ensuring that choice and diversification does not lead to stratification, inequity, or poor quality. While in some countries, school choice and diversification of provision has reinforced segregation or inequalities, Commission research found that non-state actors' involvement in education can be aligned with human rights when it does not lead to any form of discrimination or segregation, or create or increase inequality; when fee-charging schools are optional and exist in addition to quality free publicly-supported schools; and when non-state providers are adequately regulated and monitored.[231] The UN Human Rights Council's recent resolution on the right to education also affirms the importance of appropriate regulation and accountability for all providers of education.[232]

Figure 22. Increasing diversity of school provision: non-state enrollments 1990-2013



Education provided by non-state partners is expanding in many low- and middle-income countries (see Figure 22). This includes traditional and low-fee private providers, faith, community and NGO organizations, and for-profit and non-profit enterprises. While the large majority of children in developing countries attend public schools, rates of enrollment in non-state schools have increased in recent years, in particular through the rapid expansion of low fee private schools.[233] In low- and middle-income countries, rates of enrollment in non-state primary schools increased from around 9% to around 13% between 1990 and 2013, while at secondary level non-state education now accounts for around 24 percent of enrollments.[234] **Latest estimates suggest as many as one out of every five children and young people studying in Sub-Saharan Africa is doing so in a non-state institution; by 2021 that will be nearer to one in four.[235]** Already in 2012, 59 percent of urban and 23 percent of rural Pakistani children were enrolled in non-state institutions.[236] Explanations vary by country, but include: lack of state capacity to meet rising demand; the perceived low quality of many public schools; and, in some cases, policies that have incentivized the non-state sector or conversely contributed to its growth through non-regulation.[237]

Countries vary enormously in their non-state enrollments and in the ways in which the government engages with the non-state sector. To engage non-state partners while ensuring that rights are not compromised, the Commission recommends that governments strengthen and improve the regulation of non-state actors in order to harness their contribution and protect the rights of all children, especially the poor.

While the role of non-state actors in education in many countries is growing and changing fast, there remains a relative lack of strong evidence or consensus over how best to regulate them. A recent overview of the literature found that few rigorous tools exist to assess the quality of the enabling environment for non-state actors, which affects the quality of policymaking in this area.[238] Despite non-state actors playing a large and necessary role in many countries, they are often treated with some ambiguity by governments, which can, due to discomfort or hostility, fail to properly define and communicate their role or set clear policy direction for how they will be regulated.

The Commission recommends that governments work with partners across the education sector, civil society and the private sector to develop and implement clear policy frameworks for the role of non-state actors in education. These should define the role non-state provision will play, how it will be governed and financed, and the ways in which it will be regulated to ensure quality and protect rights, while harnessing the capacity and talents of the sector. Mechanisms for inclusive dialogue across the sector, resulting in clear and stable policy positions, will help to ensure confidence in the system and foster cooperation and collaboration across sectors.

Regulatory approaches vary widely today. Non-state schools in Lagos, for example, are required to own the land they operate on and have a 12-room, purpose-built structure.[239] Conversely, there are countries such as Malawi in which government regulations are largely absent; most regulation occurs through the market or through voluntary organizations, which lack both the ability to sanction underperforming or exploitative institutions or to assist schools that are struggling.[240]

Regulation of non-state actors should include processes for entry and exit, for quality assurance, and for the management of financing. Regulations should focus primarily on ensuring that all educational provision – state and non-state – provides the best quality education. The wider measures discussed in this report to monitor performance, strengthen accountability, and track resources should all apply equally to non-state and state-run provision. Commission research finds that regulation of non-state providers is effective when it focuses on performance and ensuring that all providers are supporting learning and enabling children to reach expected benchmarks.[241] Support or intervention should be provided where this is not the case, and mechanisms for sanction, and, if necessary closure should be put in place.

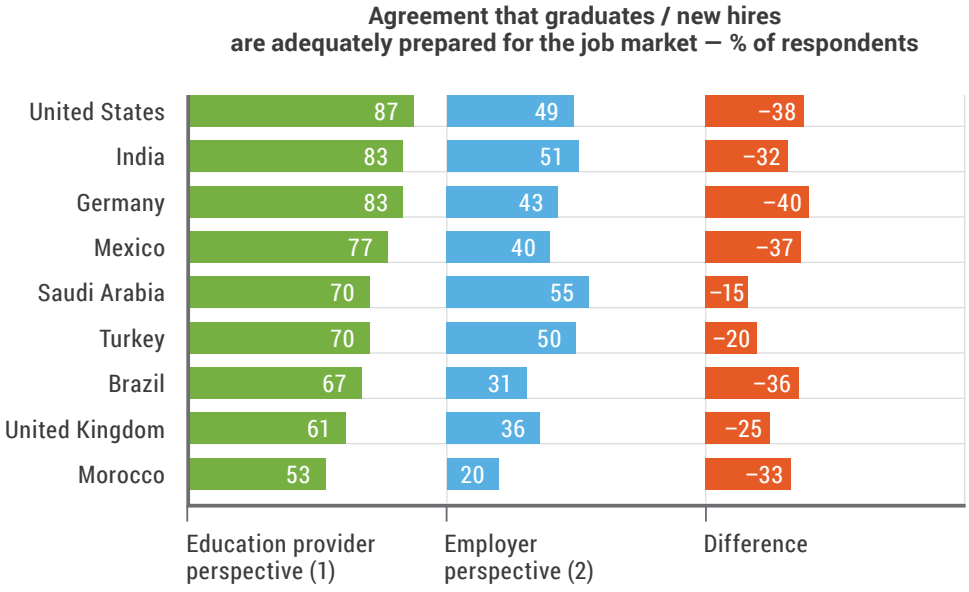
Within the context of a transparent and trusted regulatory framework, providers should be given maximum freedom to innovate on how learning is delivered. Regulations should ensure that where education is provided by non-state actors, it broadly aligns to national curricula so children's learning will be recognized and they will be able to progress into further learning. To help ensure that diversity of provision promotes rather than harms equity, many governments centralize school admissions procedures where school providers are receiving public funds.[242]

Regulation of entry and operation should be transparent and based on objective, measurable criteria and it should send a clear signal that providers of any sector that meet agreed criteria are welcome and encouraged. It should focus where possible on how outputs will be achieved, rather than focusing predominantly on fixed input rules and ratios. Poor quality or excessive regulation can foster corruption, and can encourage providers to operate without registering, leaving the state with little ability to monitor provision and protect children.[243] Overall, if regulation is overly rigid or poorly implemented, it can stifle the very benefits systems should be seeking from non-state partners – their ability to innovate and to expand the capacity of the system.

The most contentious issue is state support of for-profit private schools, increasingly salient with the rapid growth of low-fee private schools in developing countries. Most countries with high levels of non-state involvement at school level, such as Australia, Belgium, and the Netherlands, do not permit this. While for-profit tertiary level institutions are not allowed in many parts in the world, in those countries where they can operate legally they have witnessed rapid growth. In Brazil, Peru, the Philippines, and Korea, for instance, enrollment in for-profit colleges and universities accounts for 40-50 percent of the total student population.[244] It is critical that in determining whether to provide public funding to for-profit schools and institutions, governments evaluate whether doing so will promote access, equity, choice, and quality for all citizens.[245]

Regulation is also required for supplementary private tutoring, especially prevalent in Asia and spreading rapidly in Latin America and Sub-Saharan Africa. This can be very significant in terms of household costs. In India, 73 percent of children aged six to 14 in rural West Bengal receive tutoring.[246] It is estimated that Korean households spend as much as 1.5 percent of GDP on tutoring for primary and secondary students, compared to government education spending of 4.6 percent of GDP.[247] Regulation is needed of specialist companies and of teachers who provide tutoring to ensure that teachers are not incentivized to teach students less well or fully in schools in order to create more demand for out-of-school instruction.[248]

Figure 23. Young people are not ready for work



Source: McKinsey Center for Government (2012).[V17]

Note: (1) Overall, graduates from my institution are adequately prepared for entry-level positions in their chosen field of study. (2) Overall, employees we hired in the past year have been adequately prepared by their pre-hire education and/or training.

Expand the role of employers in the design and delivery of education.

Today, education systems are failing to meet the needs of employers (see Figure 23). One in three young Indian college graduates is unemployed, with employers blaming a lack of employability skills.[249] Forty percent of employers say a skills shortage is leaving them with entry-level vacancies.[250] To ensure that education provides the future workforce necessary for growth and supports young people to enter and progress in work, employers have a key role to play, particularly in the transformation of post-secondary learning and in improving the skills of the existing workforce.

There is great potential for employer-led innovation (see Box 15). Effective training models are proving very successful in supporting transitions into work and further learning.[251] The best models – whether traditional apprenticeships or shorter employability programs – involve employers from the outset of program design and involve meaningful exposure to real jobs. Learning is hands-on, often combining practical work-focused skills with theoretical knowledge and the development of "soft" employability skills. Young people should be given the chance to intensively practice and embed skills over time and gain qualifications or accreditations to signal their skills to future employers. Critically, young people should be supported to gain general transferable and academic skills alongside any job-specific training, to enable them to work flexibly in the future or pursue further learning. Employer-led training can also be key in providing "second chances" to existing workers who may have missed out on learning at an earlier age, helping them to adapt to changes in the workplace and new skill requirements.

To expand the role of employers in education, governments should give employer organizations a seat at the table in the development of education and skills policy – and include the informal sector wherever possible. Governments should invite and encourage employers to innovate in the design and delivery of training, and ensure that skills systems are sufficiently flexible and nimble to make this possible. Partnering with high-profile employers and industry bodies can enable governments to promote the value to employers of investing in skills and raise the status of vocational training. Governments can also find ways to incentivize or require employers to invest in skills – investment which is proven to deliver high returns – through models such as skills levies or reductions in taxes for new trainees they take on.[252]

Strengthening the links between education and employment also requires giving parents, teachers, and young people better information on labor market needs and the employment outcomes of different learning pathways. Better information will help young people choose training which is most likely to suit their needs

and lead to good job outcomes, and force education providers to focus more on their outcomes and on the relevance of training to employers' needs. In a number of countries, such as Colombia, Chile, and Italy, technology is helping to make this link. The Colombia Labor Observatory, set up in 2005, provides young people with job profiles with information on salaries, qualifications required, training programs, and so on, and also includes details on the graduation and employment rates of every education provider in the country.

Of course, education and skills are just one – albeit crucial – element of what enables young people, particularly the more vulnerable, to access employment. Equal attention will need to be paid to those factors outside the education system that impede employment. Here too employers can play an important role, working alongside government and civil society to promote new job creation and support entry to and success at work.

Box 15. Employer-led training in Korea

In two generations, Korea has gone from being a country with mass illiteracy to becoming an economic powerhouse. Skills development has played a central role in driving Korea's rapid economic development, with strong central leadership from the government to ensure the supply of a skilled workforce. Korea's education system is now one of the highest performing in the world.

Since the 1960s, the Korean government has invested in improving the quality and status of vocational training at secondary and post-secondary levels, informed by detailed sectoral planning of future skills needs. In response to growing demand from employers for graduates who were better prepared for the changing labor market and weaknesses in parts of the higher education system, the government established high-status Meister high schools in the 1990s. High-level industry experts were recruited to serve as school principals and teachers and schools were encouraged to collaborate with industries to enrich curricula and establish internships for students and teachers. Raising the status, quality, and impact of vocational training required strong leadership, including directly from the President as well as across government, business, and civil society. Wide-ranging measures were introduced to incentivize students to participate and to persuade parents and employers to support the system. Key to success was learning from international best practice, being prepared to pilot, test, and scale new and "disruptive" approaches, building a wide base of support, and assuring quality control and accountability.

The Meister Schools triggered a cascade of positive changes across the whole education system. Universities are offering job-first, degree-later programs to students. Standard vocational high schools have shifted their focus to preparing students to find employment rather than advancing to universities. Career counseling in secondary schools is also being strengthened.

Meister Schools are just one leading example of a skills and training system which fosters strong employer links and supports good job outcomes for young people. Employers are expected to play a strong role in supporting skills development for new and existing workers, including by contributing financially. Vocational training is now part of the employment insurance system, which is designed to support lifelong learning for the workforce.

See Source Materials for sources and more information.

Mr. Kim, Hyun Soo / Mirim Meister High School

III. Inclusion: Target efforts and resources at those at risk of not learning

Getting all children learning will require improving education and expanding opportunity for all, while targeting particular efforts and resources at those who face the greatest barriers to learning. Today, fewer than 1 in 20 poor, rural girls in Sub-Saharan Africa are on track to complete secondary school. They are seven times less likely to finish school than non-poor, urban boys. In many countries, the outcomes of the wealthiest are more than 30 percentage points above those of the poorest.[253] In 10 out of 25 low- and middle-income countries with data, the poorest pupils are *falling further behind* the wealthiest pupils.[254] The reforms set out in this report so far will fail to get all children learning unless leaders tackle the inequalities that exist within their own countries.

Poverty is a major cause of educational exclusion and disadvantage. In low- and middle-income countries, the average gap between the chances of the richest and the poorest children completing primary school is 32 percentage points.[255] Even where governments have abolished school fees, the "hidden" cost of education and the opportunity costs to poor families of sending children to school can prevent or disrupt education for the poorest children.[256] These effects are exacerbated for girls. New research for the Commission underlines the importance of poverty as a determinant both of non-completion and non-learning among primary school children. Figure 24 shows the percentage of children achieving basic grade-level math competency for the poorest and the wealthiest quintiles.[257] For those children who are in school, the average gap between the chances of the richest and the poorest children achieving primary-level skills is 20 percentage points: 55 percent of the richest children learn the basics, while only 34 percent of the poorest do so.

Other disadvantages compound the effects of poverty. In rural India, there is a 20 percentage point gap in rates of learning between poorer and wealthier children. Add the impact of gender, mother's education, and regional disparities, and the gap rises to 80 percentage points.[258] In many countries, these gaps have been increasing over time. A child's gender, family, ethnic, cultural, and economic background, their geography, their start in life, their health or disability, their exposure to poverty or disorder, conflict, or disaster all play a major role in whether a child will learn and succeed.

The third education transformation which leaders of all sectors should make is to prioritize the needs of the disadvantaged, and mobilize every sector to address the multitude of factors that determine whether a child starts school, stays in school, and learns in school. The Commission calls on decision-makers to pursue progressive universalism and to invest beyond education to tackle the factors preventing learning.

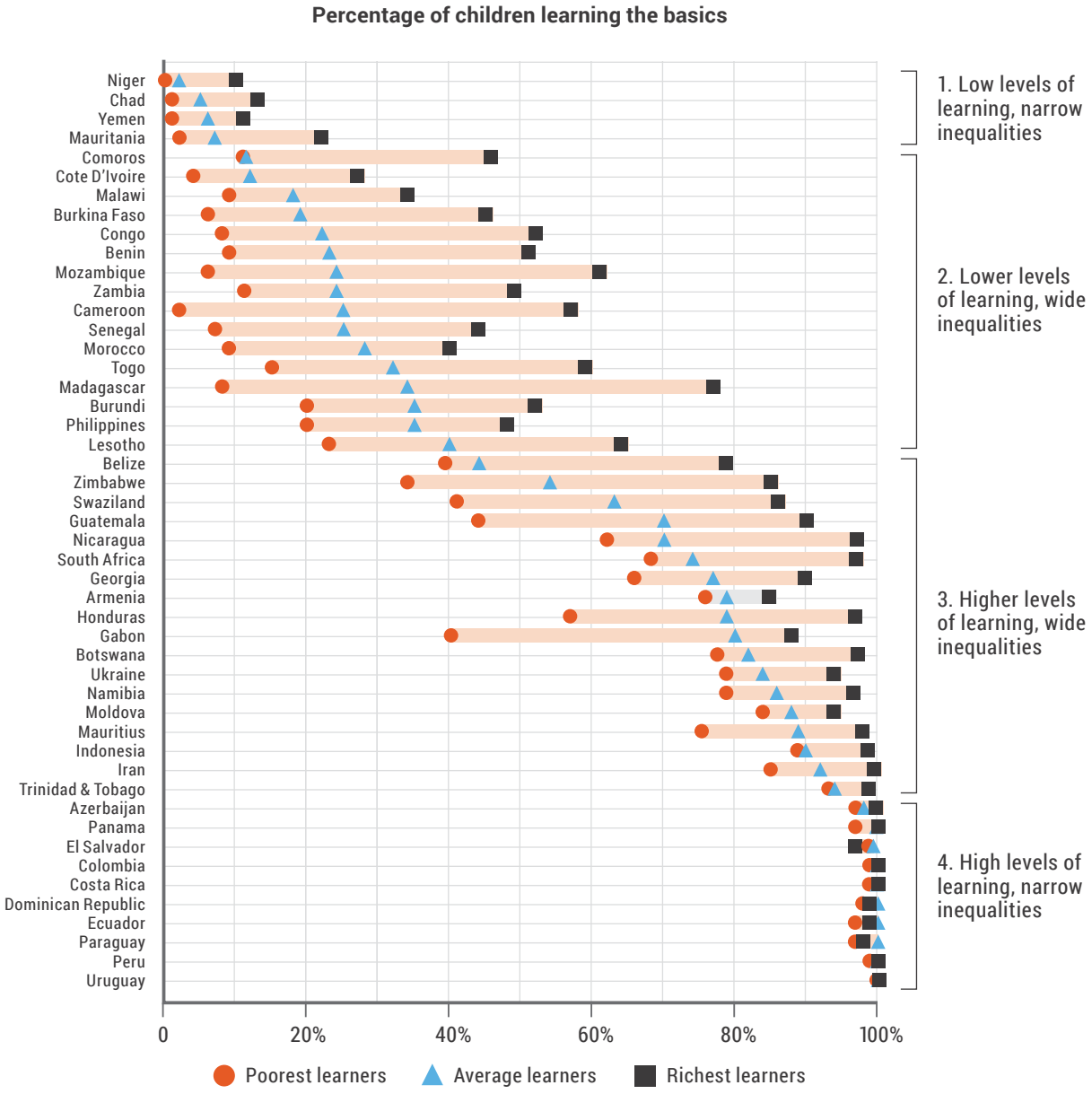
Recommendation 7. Pursue Progressive Universalism

Progressive universalism means expanding provision of quality education for everyone while prioritizing the needs of the poor and disadvantaged.

Today, government spending in most countries strongly favors the richest and most educated, and is usually skewed toward higher levels of education. **On average in low-income countries, 46 percent of public education resources are allocated to educate the 10 percent most educated students.**[259] Commission research in 31 countries also shows that the ratio of public education spending on the richest versus the poorest gets larger the higher the level of education.[260] For example, the ratio of spending on the richest versus the poorest decile in Liberia is 8 at the primary level, but more than 40 at secondary level and 1,000 at the higher education level. Primary education spending is skewed to the rich in about two-thirds of the countries, but secondary and higher education spending is skewed to the rich in all countries (Figure 25).

The distribution of financing across education levels is a serious equity problem, but it is also bad for economic development. Research shows that public returns are highest for investments in pre-primary and primary education. Yet, public spending on tertiary education, often benefitting the rich, is usually much higher than public spending on preschool or primary

Figure 24. Poverty-driven inequalities in learning



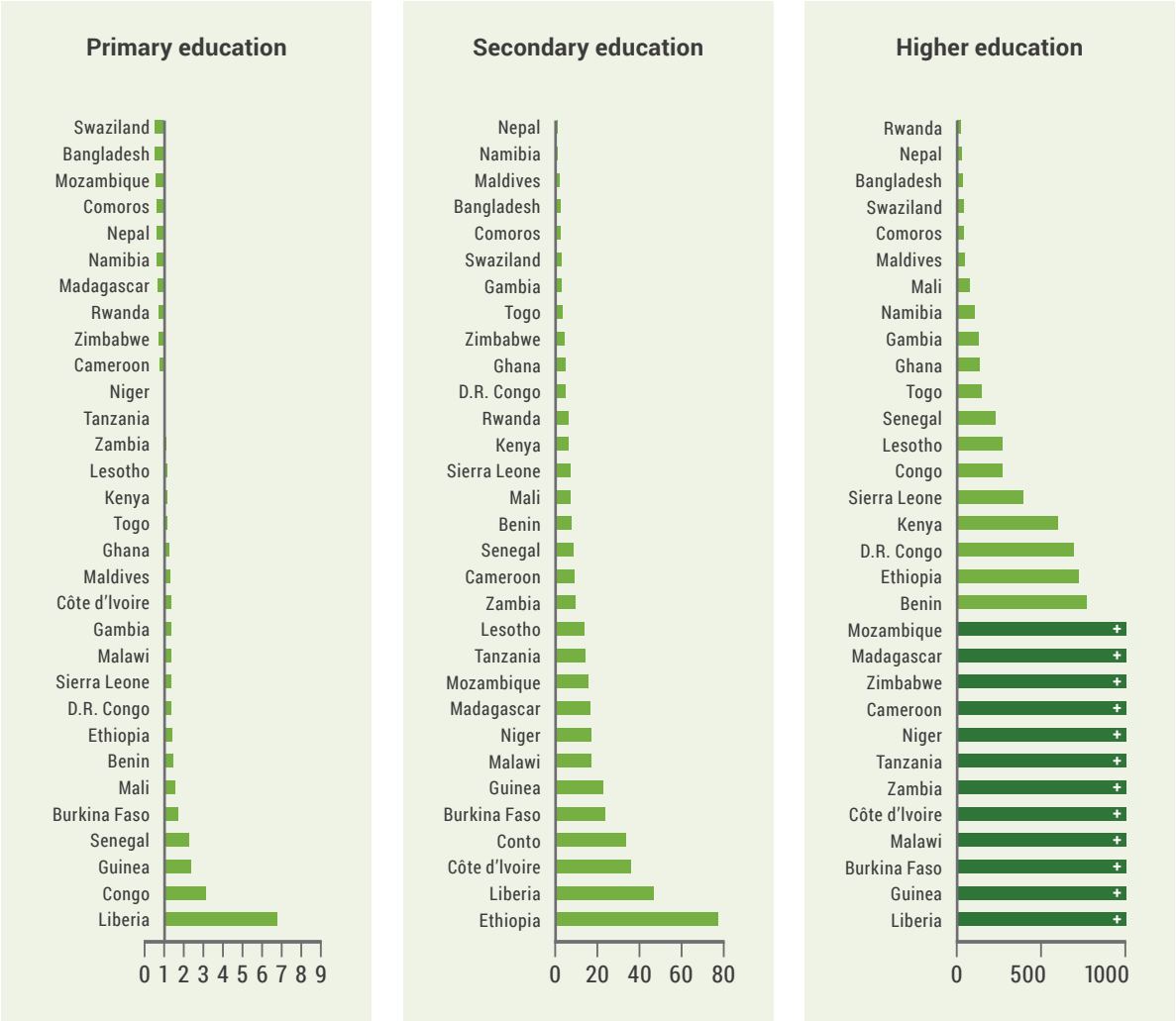
Source: REAL Centre, University of Cambridge (2016).[V18] Note: The figure shows the proportion of children reaching grade-level basic competency in math in grades 3-5.

education. In Malawi and Eritrea, for example, government spending on a tertiary student is over 100 times higher than what is spent on a primary school student; across Sub-Saharan Africa just 0.3 percent of the education budget is spent on pre-primary education.[261] While government spending favors the rich, spending that is pro-poor and focused on those most at risk of educational exclusion often delivers greatest returns.[262] In a study of Ghana, UNICEF found that building kindergartens specifically for poor children in poor districts had a four-fold greater impact on primary completion than providing kindergartens to the population generally.[263]

Pursue progressive universalism, prioritizing spending on the poor and early years.

The Commission recommends that, when balancing spending across levels of education and population groups, decision-makers should prioritize spending for

Figure 25. Government spending favors the rich: Ratio of public expenditure to the richest decile versus the poorest decile

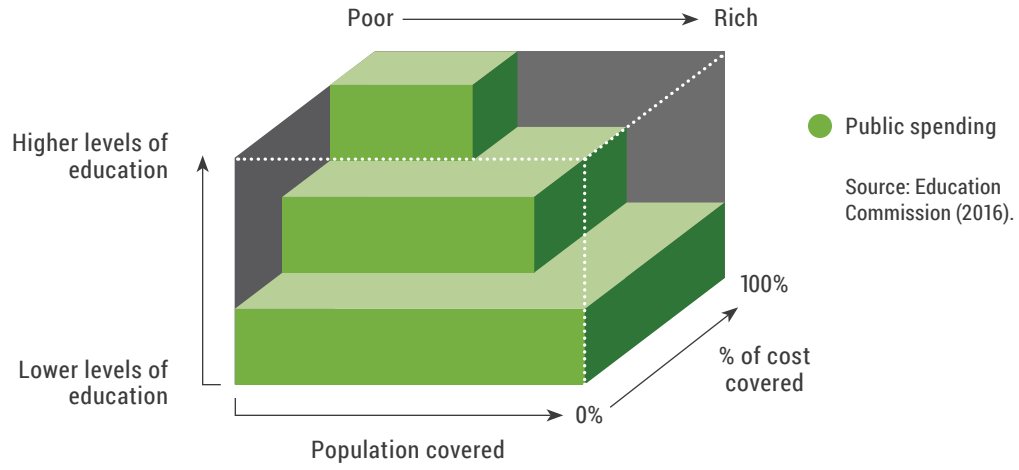


Source: Rose et al. (2016).[V19] Note: Values smaller than "1" indicate that the richest household decile receives less benefit from public education spending than the poorest decile.

equity and public returns. This includes prioritizing the poor or disadvantaged, prioritizing lower levels of education first where social returns are highest, and supporting the complementary role for private financing and cost recovery for higher levels of education where appropriate. Most governments allocate funds across levels of education and income levels based on inertia and political pressures. The concept of "progressive universalism" was adopted in the health sector as a way of clarifying and adding rationality to spending decisions in constrained financial contexts.[264]

In advocating progressive universalism, the Commission recognizes the scarcity of public funding and proposes that funds be allocated for the highest return activities and to those least able to pay for services. In the case of education, it implies strongly favoring of the allocation of public funding to the lower levels of the education ladder, and, within that, to those left behind because of poverty, disability, and social disadvantage. Allocations to higher levels would gradually increase as coverage comes close to universal at lower levels. Figure 26 shows a stylized example of a country on the way to achieving free basic and secondary education. In this country, pre-primary and primary education is free and coverage has already reached all the school-age population. The government would be allocating

Figure 26. Progressive universalism in education – a stylized example



incremental funds to strengthen learning in pre-primary and primary education and to strengthen access and learning in secondary education. Public funding would be more limited for post-secondary education. At all levels, the government would allocate public funds in a way that favors the poor and disadvantaged.

Progressive universalism is a question of emphasis. There will always be a need to invest public finances in the higher rungs of the education ladder. Societies need to invest in post-secondary education – not least in order to produce teachers and leaders for the public and private sectors. Here too, government funding should be prioritized on the poorest or otherwise disadvantaged students.

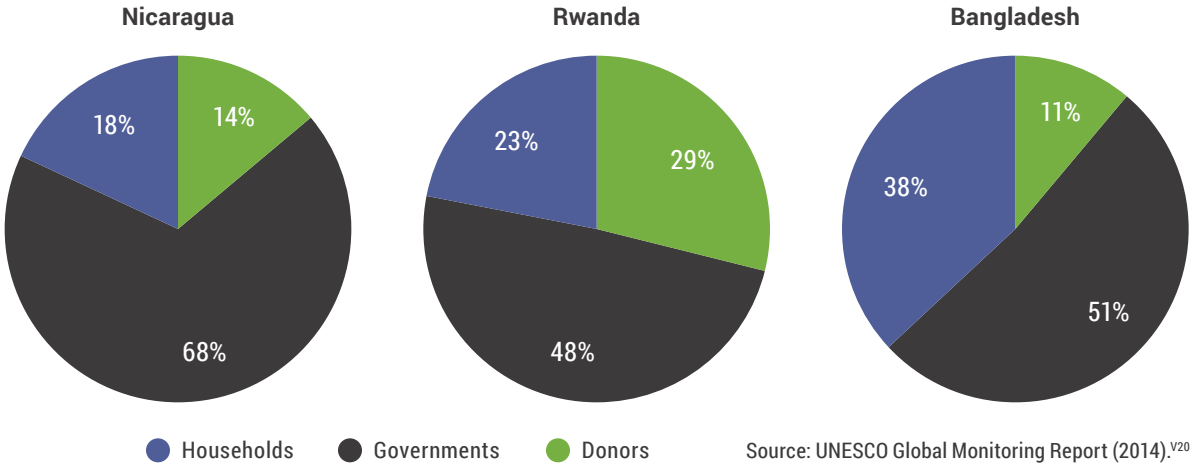
This approach includes a strong emphasis on expanding provision to early childhood education in recognition of its critical impact on cognitive development, learning, and outcomes in later life. The returns on investing in early childhood in terms of education outcomes as well as adult earnings are very high; early investments also reduce costs of remedial education, as well as health and criminal justice system expenditures. Studies find total returns on early education are very high – in some cases up to $7 for every $1 spent[265] — and returns on early nutrition can be many times higher.[266] But despite this, few large-scale programs in the developing world are supporting the early development of children, and the poor are less likely to have access to these services. In Zambia, living in one of the country's poorest households lowers the probability of accessing early childhood care by a factor of 12 compared with a child in the wealthiest households, a number which rises to a factor of 26 in Uganda and 28 in Egypt.[267]

In this approach, "free" education should include public finances covering all in-school incidental fees, such as those for textbooks and other learning materials as well as, for example, eyeglasses necessary for learning. It is likely that parents will still have to pay some associated costs, such as for uniforms or transport, but countries should attempt to limit these costs wherever possible and help fund them as coverage and incomes rise, especially for the poorest.

In addition, when allocating financing across education systems, it is crucial that governments in countries with high dropout rates from primary and lower-secondary education ensure that young men and women and adults get "second chances" to acquire basic skills. Thirty percent of African youth aged 15-24 are illiterate[268] as a result of having received little or no schooling. Community and civil society organizations are often most effective at providing adult literacy and basic skills programs and employers also have a key role to play in improving the skill levels of the existing workforce.

By universalizing education progressively, governments can minimize household spending on basic education by the poor, which is often a significant barrier to access. Households are now estimated to contribute an average of 1.5 percent of GDP to education, ranging from 2.5 percent in low-income countries to 1 percent in upper-middle income countries. The shift in government expenditures toward lower education levels will enable households to shift their financing toward higher

Figure 27. Household spending varies greatly between poor countries: Spending on education by source



Source: UNESCO Global Monitoring Report (2014).[V20]

levels, reflecting the high private returns on such investments. Spending data for seven countries[269] illustrates that, on average, households' share of total spending is 22 percent at primary level, 39 percent at secondary level and 32 percent at tertiary level. Much variation exists between countries, however (see Figure 27).

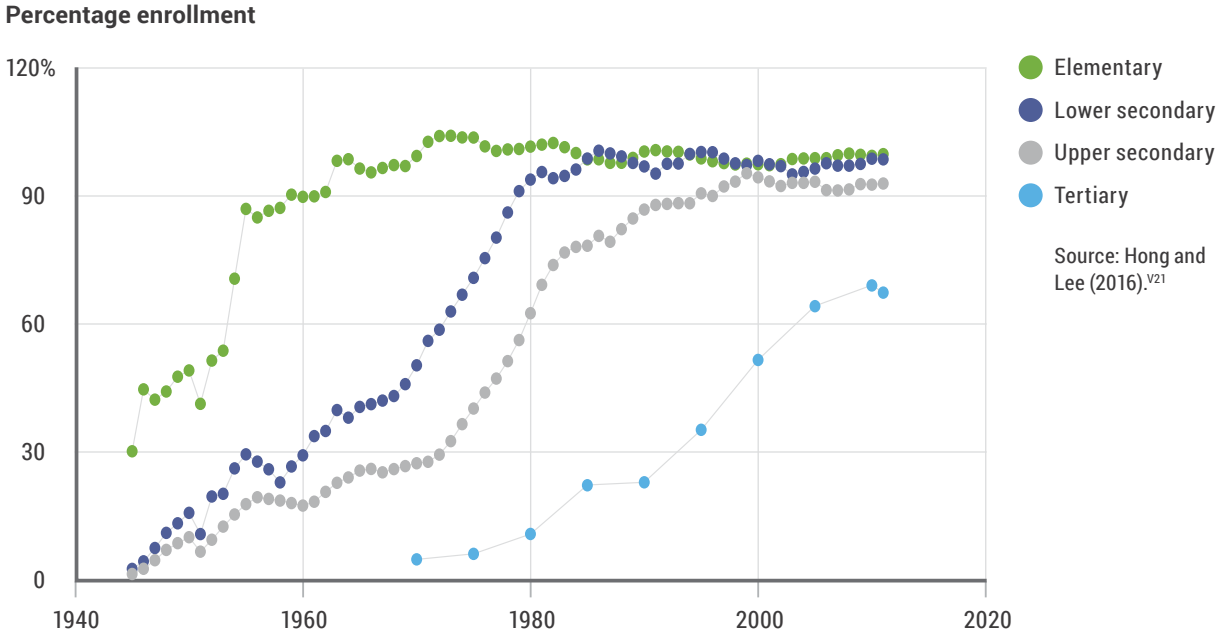
As Figure 28 shows, Korea provides an outstanding example of where, with strong government commitment, progressive universalism can lead. Korea started with an emphasis on primary education. In the 1950s, the government enforced compulsory education and allocated about 80 percent of the educational budget for compulsory education, including significant investments in infrastructure. Enrollment reached 90 percent within a few years. The government then shifted emphasis and budgets to secondary school with similar rapid success, and only then turned major emphasis to higher education. **Since 1990, it has increased public expenditure on education from 3 to 4.5 percent of GDP.** The Korean public still spends 1.5 percent of GDP for fee-paying schools, tied with Chile for the highest among OECD countries, and another 1.5 percent of GDP for private tutoring. The country has become a world leader in international comparative tests of learning, and education is widely credited for playing a key role in Korea's explosive growth path.[270]

Similar examples of progressive universalism can be found in low- and middle-income countries, although the expansion path is understandably less developed. Ghana provides an example with a particularly strong emphasis on pre-primary education. In 1970, just 3 percent of children had access to pre-primary education. This gradually increased to 51 percent by 2000. In 2007, the government made pre-primary education free and compulsory for at least 2 years. As a result, adjusted net enrollment had reached 99 percent in 2014. Adjusted net enrollment for primary education grew from 66 percent to 89 percent between 2000 and 2014, and that of lower-secondary education from 30 percent to 52 percent. Consistent with progressive universalism, Ghana gave relatively low priority to tertiary education up to 2000. Since then, tertiary enrollment rates have grown rapidly and are now at 16 percent, exceeding the Sub-Saharan African regional average of 9 percent.[271] Ghana was able to make this rapid recent progress at all levels because it prioritizes education in public expenditures, averaging 25.2 percent of government expenditures and 6.4 percent of GDP from 2004 to 2013.[272]

Develop financing formulas that reflect need.

One way to rationalize allocations to various populations groups in a transparent way is through financing formulas based on need, rather than on either numbers of students or on current budgets. Education budgets are often formulated in ways that fail to factor in the higher investment needed to reach those children who are disadvantaged due to poverty, disability, or other factors. A number of countries have developed funding formulas or allocation rules to determine resource

Figure 28. Progressive Universalism in action: Enrollments at different levels of education in Korea



Note: Enrollment for primary, lower-secondary, and upper-secondary are gross rates. Enrollment for tertiary is net rate. Net enrollment rate for tertiary is the ratio of the number of tertiary students age 18 to 21 divided by the total population age 18 to 21.

allocation for education. Funding formulas are typically based on one or more of the following principles: horizontal equity (equal amounts of money per child), vertical equity (different amounts of money per child), and equal opportunity (funding based on the principle that there should be no relation between certain socio-economic student characteristics and schooling outcomes).[273] Variations on these principles exist and some countries also include performance elements in financing formulas as noted earlier.

Countries such as Brazil, India, and South Africa have introduced funding formulas that target more resources to disadvantaged areas to help narrow gaps in access and learning. South Africa's financing model is one of the most developed systems of intergovernmental transfers aimed at reducing inequities. The "Provincial Equitable Share" formula attaches varying weights to population and to disadvantaged pupil characteristics, to encourage the achievement of equity goals.[274] In Brazil, where in the poorer Northern States spending per pupil was traditionally lower than other regions, a minimum investment per child was introduced in the mid-1990s. Sixty percent of additional funding was earmarked for teacher salaries to provide funding for more qualified teachers. Funding formulas have largely been administered in middle- and high income countries and continue to be updated and refined today. However, governments in low-income countries are also beginning to target resources for disadvantage. Several countries – including Rwanda, Tanzania, and Zambia – have adopted needs-based financing models. In 2006, Rwanda introduced an allocation formula for block grants to local governments including weights for population, poverty, area, and an estimated financing gap between revenue collection and the costs of administration. In order to ensure that funding formulas are effective in helping narrow the gaps in access and learning, governments must ensure that funding formulas take into account teacher salaries (which are often excluded), that schools have greater autonomy over how resources are spent, and that there is greater timeliness and information on funding to schools.

These principles also apply in countries with partially decentralized taxing powers and responsibility for financing education, as in India, Nigeria, and Pakistan. Reliance on local taxation can reinforce inequities, so federal grants for education should favor states or other local governments with weaker tax collections.[275]

As in the case of international financing, allocations within countries should take account of effective use of funding by relevant decentralized authorities and be accompanied by steps to increase tax-raising capacity and accountability.

Substantially increase the availability of student finance and loans for higher education.

For the vast majority of low- and lower-middle income countries, funding free higher education while expanding access is not feasible, even with highly optimistic revenue assumptions. In some cases, upper-secondary education will only be made free gradually. So to expand participation, especially among poorer students, governments will need to implement strategies for financing post-secondary and, in some cases, secondary education, and for reducing costs. These may include introducing or increasing fees at public universities; targeting government funding to subsidize fees and related costs for poor and disadvantaged students; diversifying post-secondary education pathways and providers; and student loan programs. Given the high private returns to tertiary education, it is right to expect a greater private contribution. In low-income countries, returns on investment reach 22.8 percent per additional year.[276]

The Commission recommends that governments and partners in other sectors substantially increase the availability of student finance and loans for higher education. Properly regulated student financing has the potential to improve equity by providing funds to students from lower-income families, attracting private-sector investment, and freeing up public-sector funding that would have otherwise been spent on higher education.[277] In many countries, however, defaults on traditional (mortgage-like) student finance schemes have been high, and many of these schemes have mainly benefitted the rich.[278] There is an urgent need to identify and scale new and effective approaches. Proposals are discussed in the Finance section.

Recommendation 8. Invest across sectors to tackle the factors preventing learning

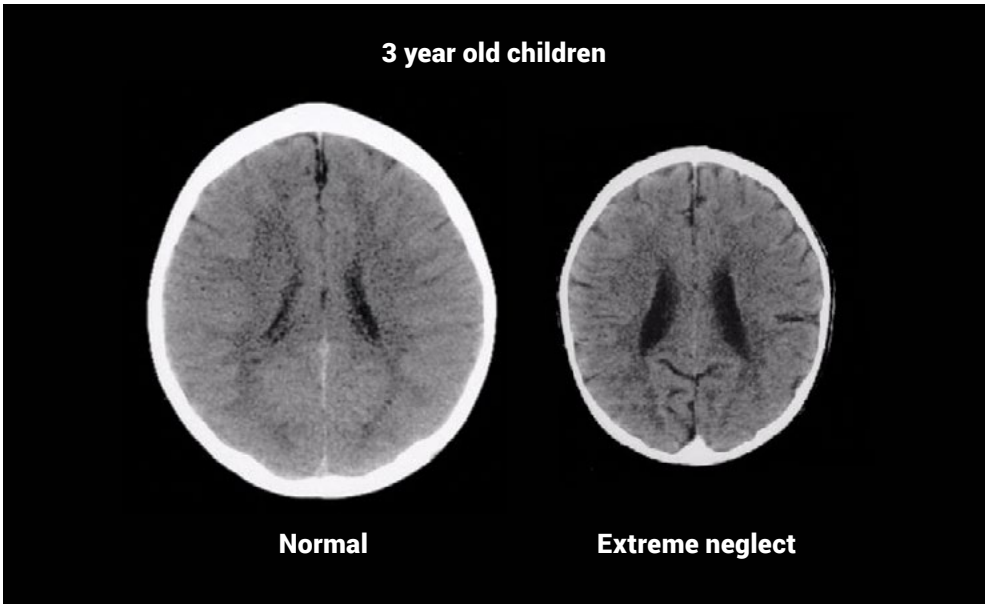
Improving and investing in education systems will not in itself be enough to get all children into school and learning. For many of the children and young people who are not in school or not learning today, the causes of their educational exclusion or disadvantage lie far beyond the education system. Too many children are missing out on learning because of factors such as their gender, geography, health or family background. Getting all children into school and learning will require collaboration across sectors, recognizing the impact that all sectors can have in enabling the most disadvantaged children to learn – from health to infrastructure to security, and from communities and parents to religious leaders and private-sector innovators. It will require a strategic and holistic approach that tackles the multiple factors keeping children out of school or inhibiting their learning. **The Commission recommends that governments develop and implement a cross-sectoral strategy to reach marginalized populations and narrow equity gaps.**

While many forms of disadvantage and discrimination can affect a child's ability to learn, the most critical and prevalent issues include:

- **Health, hunger, and disease:** Disease is preventing the learning of millions of children, despite the fact that many are highly preventable or treatable. **Malaria is thought to account for as much as 50 percent of the medical absences from school in parts of Africa.**[279] In Kenya alone, around 7 million days of school were lost due to malaria in 2000.[280] HIV/AIDS is shown to affect school enrollment and attendance, school behavior and performance, school completion, and educational attainment.[281] Around 300 million school children have iron-deficiency anemia, causing them to lose some 6 IQ points per child.[282] Sixty-six million school children in low-income countries go to school hungry.[283] All of these conditions translate into the equivalent of between 200 million and 500 million schooldays lost due to ill health each year.

- **Disabilities and sensory impairments:** More than 30 million primary and lower-secondary school age children with disabilities in developing countries are estimated to be out of school. **About 10 percent of primary school students in developing countries have poor vision,** but very few of them wear glasses. Many disabilities and impairments are preventable

Figure 29. Early care and stimulation shapes brain development



Source: Perry (2002).[V22]

Note: The CT scan on the left is from a healthy three-year-old child with an average head size (50th percentile). The image on the right is from a series of three three-year-old children following severe sensory-deprivation neglect in early childhood. The child's brain is significantly smaller than average and has abnormal development of cortex (cortical atrophy) and other abnormalities suggesting abnormal development of the brain.

with access to adequate nutrition and simple medical care.[284] Children with disabilities face a range of barriers to education from school facilities and materials that are inaccessible to them, teachers who lack the training to support them, and cultural factors keeping them "hidden" at home.

- **Poor early childhood development:** Early nutrition, care, and stimulation are key determinants of adult outcomes and contributors to educational disadvantage. Globally, about one in four children under the age of five have stunted growth and development due to undernutrition. **Stunting is associated with reduced school participation and achievement, and can reduce income in adulthood by as much as 22 percent.[285]** By age three, the brain has grown to 80 percent of its adult size. Positive adult-child relationships are critical for the formation of brain architecture, while toxic stress, which can be caused by the experiences of extreme poverty, can be detrimental[286], as can nutritional deficiencies[287] (see Figure 29).
- **School safety and resilience: Approximately 75 million children of school age are directly affected by some kind of crisis every year.[288]** Of these, approximately half are living in conflict situations; others are affected by natural disasters, emergencies, or public health crises. Many crises can have long-term consequences, including disrupting or halting the education of entire generations. Schools and educational institutions are increasingly being targeted and attacked during conflicts. Between 2000 and 2014, the numbers of education institutions targeted rose 17-fold,[289] causing enrollment rates in affected regions to plummet.[290] Children often face long and dangerous journeys to school, where the fear of violence is high or roads unsafe. Sometimes schools themselves may be unsafe if children are put at risk of exploitation or violence. And across countries, there is a lack of planning for emergencies. Few countries incorporate disaster preparedness into their formal education planning or prepare for any disruption due to conflict or natural disaster.

- **Child labor and street children: Around 150 million children under the age of 14 are engaged in child labor,** depriving them of their right to go to school, and exposing them to violence and trafficking.[291] According to UN sources, there are up to **150 million street children in the world today.**[292] These children may have had to leave home because of violence, drug and alcohol abuse, family breakdown, war, natural disaster, or poverty, and are often forced to try to make a living on the streets. Street children are at high risk of exploitation and abuse, and without opportunities for education and employment, their life expectancy is very short.

Box 16. Joining up health and education planning and investment: A proposal for five pioneer countries

Given the strong impact of education on health and health interventions on education, the **Commission's Health and Education Expert Panel** recommended that decision-makers invest in joint education-health initiatives. The panel recommends pioneering this approach in five countries with an accountability framework and specific outcomes to be monitored across government and international partners. To succeed, there must be strong political commitment and ownership by the head of state and full engagement by the ministers of finance, education, and health (and, where they exist, social development, women, and sport). At the international level, there is also scope for more involvement in education by health-oriented agencies, such as the Global Fund for AIDS, Tuberculosis and Malaria and GAVI (the Global Alliance for Vaccines and Immunization).

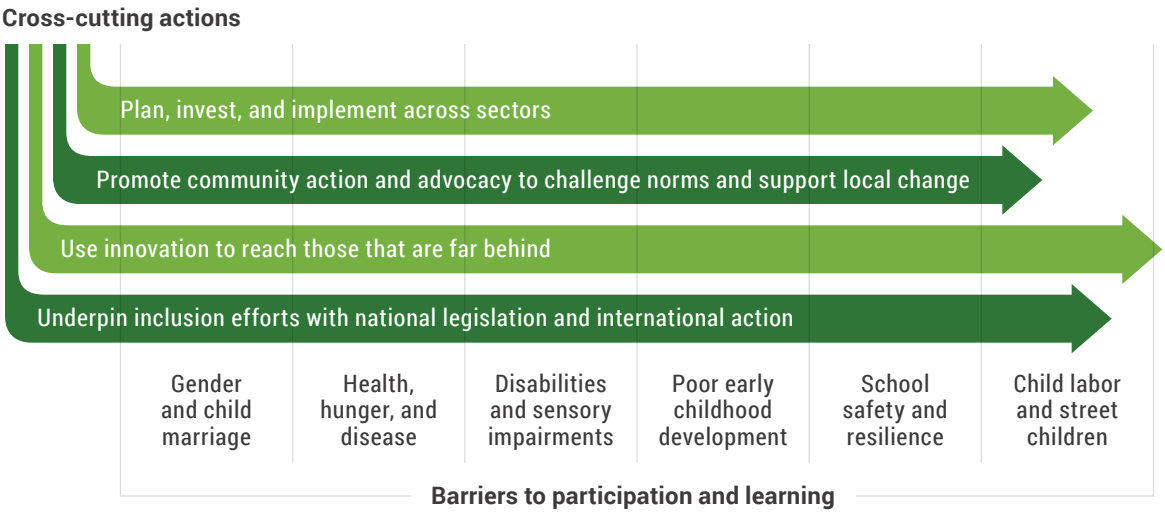
More broadly, schools and school systems should be used as a platform for health interventions. School-based delivery of health interventions for school-age children can be significantly more cost effective than alternative delivery approaches. However, clear and distinct roles for education and health workers are important, and any investment of teachers' time needs to be proportionate to the returns to education. In the case of nutrition, infectious diseases, and water and sanitation, school-based programs can also be effective in fostering lifelong health behaviors. Children may also be able to connect what they learn in school to the broader community, bringing messages that promote healthy habits back home to their families.

Using schools for health promotion is particularly important in addressing issues related to adolescent health — a phase that is often overlooked but extremely critical. Brain development, affected by disease, nutrition, and stimulation, continues throughout childhood, with critical phases in the middle-school and adolescent years. It is this period that determines the ultimate development of cognition and behavior. For adolescents, schools provide a platform for comprehensive sexual health education and for measures to prevent mental illness, injury-related disabilities, and undernutrition, which are essential for supporting this phase of development.

Finally, **the Commission recommends increasing investments in the key health interventions that are most cost effective in increasing attendance and learning for girls and boys.** Malaria prevention can increase learning scores to a degree comparable to doubling the hours spent learning. At the primary level, school feeding has a strong impact on enrollment and learning. School-based water and sanitation interventions improve school enrollment by a similar measure. Deworming in high load areas also reduces absenteeism significantly. Scaling investments in ECD, especially mental stimulation as well as nutrition, health, water, and sanitation facilities are critical for later learning. Investments in reproductive health, sexuality education, and sanitary facilities are crucial to getting and keeping girls in school, which will in turn deliver significant long-term health benefits.

See Source Materials for sources and more information.

Figure 30. Driving inclusion



- **Child marriage: One in three girls in the developing world is married before the age of 18, and one in nine girls is married before the age of 15.**[293] Girls who marry early are highly likely to leave education at that point and risk early and unsafe pregnancy – they are five times more likely to die during childbirth than more mature women.[294] Most who marry young will not rejoin school.[295] Girls in fragile and conflict situations are most at risk[296] — over half of the 30 countries with the highest rates of child marriage are fragile or conflict- affected.[297] The costs of inaction are high. In Niger, which has one of the highest rates of child marriage, the cost savings from lower population growth with the elimination of child marriage and the benefits of increased education would likely be more than $25 billion between 2014 and 2030.[298]

While each of these issues requires distinct strategies tailored to the local context, a number of common factors emerge as contributing to these problems or barriers to progress – such as lack of coordinated planning and action to support children whose needs span sectoral boundaries, or the cultural norms which can cause some children to leave school early. Given that many children face multiple disadvantages, there is an even greater need for coordinated, holistic solutions. Governments must develop and implement cross-cutting strategies for educational inclusion that tackle the key barriers children face, stimulate action across sectors, and target investment at young people most at risk.

Plan, invest, and implement across sectors.

Many key challenges which impact learning require action that spans government ministries and multiple sectors. The levers to achieve education goals may often sit within health, security, or infrastructure ministries. As a result, children often fall through the gaps because few of these actors have the incentives or capacity to deliver comprehensive strategies. **The Commission recommends that governments undertake and encourage joint planning, investment and implementation across sectors to tackle the most prevalent learning barriers.**

Joint health and education planning, for example, can help to ensure coordinated action on the health issues that most impact learning. It can also ensure that schools and education systems are used as platforms for health interventions and health promotion (see Box 16). Quality early childhood development (ECD) programs similarly require a coordinated approach across the education, health, nutrition, and social protection sectors.[299] An integrated approach to early stimulation, nutrition, and health during the critical first 1,000 days can improve child development outcomes, ensure more children and families receive services, and facilitate the better use of resources.[300] Indeed, research finds that the effects of nutrition and stimulation interventions are cumulative, and combined interventions are significantly more effective.[301] Countries such as Jamaica have addressed this by setting up a single governing body for ECD comprising representatives from across

relevant government ministries with responsibility and oversight for defining ECD strategies, resource allocation, and coordinating activities.[302]

Successfully working together in a coordinated approach requires breaking down silos. It requires leadership from the center, meaning that heads of government and central departments must set out clear expectations and incentives for decision-makers across government to work together to achieve shared inclusion objectives. Cross-sector delivery is often helped by decentralization of budgets and authority. Local leaders are often well-placed to identify and implement opportunities for integrating investments and services around shared goals, provided they are given the flexibility to do so. This will be particularly important as leaders of the developing world's fast-growing cities manage the challenges of urbanization.

Inclusion will also require targeted cross-sector investment. For example, cross-sector planning and investment is critical to ensure that education systems are resilient and able to provide continuity of learning when faced with unexpected shocks or emergencies.[303] This includes education emergency and contingency planning to help ensure that education is available in alternative locations and that there is a quick response to repair and rebuild infrastructure.[304] It also involves disaster risk education to train students on security measures such as identifying threats[305] and what to do in case of emergency. Since the 2004 tsunami, the Indonesian government has invested very effectively in the resilience of its education system. Central to its success has been strong cooperation between government ministries[306] and the development of a legal framework on disaster risk management that identifies education as a priority sector.[307] Ethiopia's Education Sector Development Program includes strategies for emergency preparation, such as teacher training, awareness raising, and the collection of detailed data. The program also includes response strategies, such as the creation of emergency preparedness response plans, task forces to implement and monitor these plans, and capacity-building at the local level in high-risk areas.[308] Targeted infrastructure investments can also significantly improve school safety. The construction of boundary walls in high-risk areas such as Pakistan and Afghanistan has helped to prevent attacks and abductions, alongside other security measures such as the installation of razor wire and cameras. Earthquake preparedness through structural improvements is also vital, since nearly 900 million students worldwide live in high seismic risk zones.

Promote community action and advocacy to challenge norms and support local change.

Tackling the root causes of educational exclusion cannot be achieved by governments alone. Social, cultural, and religious norms play a role in many forms of disadvantage – such as expectations around girls' education, work, and marriage, around participation for those with disabilities, and around discrimination against particular social, ethnic, or religious groups. Top down efforts to change behaviors are unlikely to deliver lasting results if they lack community awareness and buy-in, and if they are not reinforced by action from communities and families themselves to challenge and change expectations and norms. **The Commission recommends that leaders at all levels promote community action and advocacy to challenge norms and support local change.**

Communities and civil society organizations also have a critical role in designing and delivering services and support for disadvantaged young people since they can closely tailor services in a way that centrally designed interventions often struggle to do. Community or civil society partners are also often best placed to work flexibly and across traditional sector boundaries in order to deliver holistic solutions for children with multiple needs, such as street children or displaced children, and to be highly responsive to new and changing needs, such as supporting children in emergencies. To harness these strengths, governments should invest in community-driven solutions and ensure that community leaders are central to the design and implementation of inclusion strategies.

Community action and advocacy are playing a key role in efforts to prevent early marriage. In northern Ethiopia, civil society organizations supported workshops that brought religious leaders together with district-level judicial and law enforcement agencies to build understanding about the legal rights of girls and to strengthen the capacity of judges and police to enforce the legal age of marriage. This advocacy across traditional boundaries helped change attitudes and

led to an incremental decline in the number of early marriages. In Kenya, Malawi, and Zambia, community groups, with the help of the Forum for African Women Educationalists, are supporting a combination of mentoring initiatives, school clubs, training in adolescent sexual and reproductive health, and outreach to encourage young mothers to resume schooling. Together, these initiatives are contributing to girls' empowerment, enhancing their economic status and increasing their retention in school[309] (see Box 17).

Innovate to include.

The complex challenges facing excluded groups are often catalysts for innovations in the delivery of education. With traditional education provision often failing to meet the needs of excluded groups, **the Commission recommends that inclusion should be an innovation priority.** As with efforts to back innovation more widely, innovation for inclusion will require flexible financing, capacity-building support, investments in finding, sharing and evaluating the best new approaches, and an enabling regulatory environment which makes possible nontraditional modes of delivery.

Innovations in delivery can be particularly effective in helping to include and integrate children with disabilities into mainstream education through adaptations in the classroom, to materials and in teaching.[310] Technology can help to increase access to simple, low-cost measures such as glasses,[311] large print books, hearing aids, and mobility enhancements. Initiatives such as Labs for the Blind empower blind and visually impaired students in Africa through assistive computer technology and training. The initiative uses text-to-speech technology to scan texts and read them aloud for individuals with visual impairments. Innovating to scale such technologies at low cost could make it possible for millions of partially sighted and blind children to learn in the same classroom and with the same content as their peers.

Technology can also play a transformative role in generating innovative, low cost, and flexible learning options for children in emergencies. For example, e-Learning Sudan reaches children affected by conflict through applied math games on interactive tablets, alongside access to solar power and community facilitators trained in child-friendly educational approaches. Offline versions of mobile platforms such as KA Lite, the offline version of the Khan Academy, are enabling learning in centers where Internet access is limited. Refugee children in Lebanon are using Raspberry Pi, a low-cost computer that contains education software. Raspberry Pi provides children in community centers with access to learning materials, games and programs designed for coding, and numeracy and science education. With many such initiatives operating as pilots, more investment, evaluation, and coordination is needed as this field develops further.[312]

Underpin inclusion efforts with national legislation and international action.

Delivering lasting change will require coordinated action at many levels, from policy and investment to local action. **The Commission recommends that leaders underpin inclusion efforts with national legislation and international action.** National and global leaders have a critical role to play in catalyzing these efforts with strong and visible leadership. Legislation can play an important role in tackling exclusion, both because of its direct effects and because of the clear message it sends about what the state and society expect.

International legislation on child labor shows the power of collective action to change laws, attitudes, and practice. The Global March Against Child Labor, a grassroots movement led by Kailash Satyarthi, has mobilized individuals, trade unions, civil society organizations, and others across 103 countries since 1998. Work by the organization has led to the formulation and adoption of the Conventions on the Worst Forms of Child Labor and a minimum age for child employment by the International Labor Organization. While there is still a long way to go, introducing international standards has had a dramatic impact. Many countries now have national legislation setting a minimum age for work and legal sanctions to deter violation. Today, more international companies adopt socially responsible practices and systematically address child labor in their supply chains, often facing public boycotts if use of child labor is found. This is leading to new cross-sector partnerships to promote alternative pathways for working children and changes to labor market policy.

Internationally, coordinated visible leadership can similarly help to support national efforts by raising the profile of key issues and groups, advocating for

Box 17. Educating girls

Today, more girls are in school globally than ever before, but an estimated 31 million girls of primary-school age and 32 million girls of lower-secondary school age are still out of school. In Sub-Saharan Africa, only two out of 35 countries have gender parity in education. In South and West Asia, 80 percent of out-of-school girls are unlikely to ever start school, compared to 16 percent of out-of-school boys. While enrollment gaps between girls and boys are narrowing, when gender interacts with poverty and other disadvantages, girls are less likely to stay in school and less likely to learn. Girls face a particularly difficult challenge at adolescence and in the transition to secondary. The major barriers facing girls include poverty, crisis and conflict, restrictive social norms, a lack of appropriate provision or facilities, child labor, sexual and gender-based violence, early marriage, and early pregnancy.

Educating girls delivers strong returns across a range of measures and can have a catalytic impact on many aspects of development. Each additional year of schooling for girls leads to an average increase of around 10 percent of earnings. When women earn, they invest 90 percent of their income into their families, compared to 30-40 percent for men. A one-year increase in schooling for girls is associated with reductions in mortality of 4.2 percent for children under the age of five and 3.7 percent for women and men in low-income countries. Educated girls tend to marry later and have fewer and healthier children, with wide-ranging development and growth benefits arising from reduced fertility levels. They are more able to protect their families from shocks and are more empowered to participate and lead in their communities and beyond. A child whose mother can read is 50 percent more likely to live past the age of five, 50 percent more likely to be immunized, and twice as likely to attend school.

Enabling girls to go to school, stay in school, and learn requires a combination of actions, including:

- Investing in education quality and in curricula, budgets, and strategies that are gender-sensitive and reflect girls' needs.
- Targeting financing to marginalized girls and making schools affordable by eliminating fees, reducing indirect costs, and providing targeted cash transfers where appropriate.
- Making schools safe and responsive to girls' needs by making sure that the journey to school is safe and that appropriate school facilities are provided, among other measures.
- Supporting the re-admission of girls whose education is disrupted, such as young mothers.
- Supporting advocacy and community efforts, including efforts to address restrictive social norms and tackle early marriage.
- Developing community programs to support and empower marginalized girls.
- Making targeted cross-sector investments and interventions to tackle the range of wider factors that disadvantage girls' learning – such as partnerships between the education and health sectors to improve health promotion and sexuality education.

Some of the most successful approaches combine these measures. Camfed's programs in Sub-Saharan Africa combine cash transfers, a range of measures to improve the quality of teaching, and programs to boost girls' aspirations and self-esteem. Marginalized girls who receive Camfed support almost triple their scores on learning assessments compared to those who do not.

See Source Materials for sources and more information.

Nick Cunard / DFID

improved action and investment, supporting shared learning and R&D, and pursuing international regulation and accountability. High-profile international campaigns to end early marriage in recent years have helped accelerate action. The first Global Girl Summit in 2014 to end Female Genital Mutilation and Early and Forced Marriage, co-hosted by the U.K. Department for International Development and UNICEF, secured over 180 commitments from governments and civil society to end both practices. The commitments are backed by accelerated action to tackle child marriage in 12 high-prevalence countries. This was reinforced by the First African Girls' Summit on Ending Child Marriage in 2015, bringing together governments, the international community, youth, and civil society groups. African leaders made a joint commitment to eliminate child marriage by 2030. Burkina Faso, Ghana, Mozambique, Uganda, and Zambia all agreed to create national strategies, while Ethiopia committed to advance implementation of its national plan.

The power of collective international action is also behind efforts by the World Bank and UNICEF to build a new Global ECD Action Network – a global movement to scale up ECD initiatives, good practices, and finance across developing countries. Priorities include: expanding access to quality parenting support, childcare programs, and pre-school; developing the ECD workforce; gathering better data and evidence; and promoting advocacy on the power of ECD to give children, especially marginalized children, a better start in life.[313] Similar collective action is helping to promote efforts to protect schools and educational institutions. The Safe Schools Declaration has been signed by over 50 countries. Signatories make a commitment to promote the continuation of education during armed conflict, and to do what they can to prevent attacks on schools, teachers, and students, avoiding actions that would provoke attacks and providing concrete and realistic steps to protect schools and universities from military use during war.

IV. Finance: Increase and improve financing for education

Getting all children learning will require more money and ensuring that all money is spent better. This report has laid out three areas of education transformation: performance, innovation, and inclusion. Implementing reforms in these three areas will not only improve the impact of investment in education, but will also be critical for mobilizing more resources for education. This section sets out a fourth education transformation — how governments, the international community, and investors can increase financing for education and ensure it is used effectively.

The Commission's financing recommendations, projections, and targets are informed by detailed analysis of different financing options and extensive consultation, including with those individuals – in developing countries, donor countries, and institutions – tasked with making difficult financing choices. This work highlighted several key issues. First, simply advocating for increased resources based on a financing gap analysis has not been and will not be effective, especially in today's environment of economic and geopolitical uncertainties, fiscal constraints, and, in some cases, cynicism about what such financing can achieve. Second, demonstrating that resources can be spent more efficiently and more effectively to achieve specific outcomes will be necessary to mobilizing more resources, domestically or internationally. Third, international financing will continue to play a key role, especially in low-income countries, and must be scaled. However, a significant increase in domestic financing will be essential for all countries – and is genuinely achievable. And finally, while filling the financing gap will require action by all partners, the Multilateral Development Banks (MDBs) offer the best current opportunity to fundamentally change the game for global education financing in terms of both achieving scale and improving effectiveness.

The Commission calls for a Financing Compact between developing countries and the international community. Under the terms of this Compact, developing countries will commit to increase domestic fi-

nancing and to reform education to ensure that finance is used effectively to improve access and learning. The international community will, in turn, ensure that any country that makes and implements such commitments can access the international financing and support they need. No country committed to invest and reform should be prevented from achieving its objectives for lack of resources. This is a commitment the international community has already made through the DAKAR EFA resolution,[314] UN Millennium Development Goals, and Sustainable Development Goals, and one which is a proven sound investment. However, this commitment is not yet being fulfilled.

To achieve the Financing Compact, the Commission makes three recommendations for increasing and improving domestic and international financing of education from all sources, supported by measures to hold countries to account for meeting their responsibilities and obligations (see Recommendation 12):

1. **Mobilize more domestic resources for education.** This will require governments to substantially increase public investment in education by devoting more of the proceeds of growth to education, reallocating spending to education, and improving overall revenue mobilization. Governments should consider reallocating resources from, for example, expensive energy subsidies, improving their tax collection (including through addressing tax avoidance), and earmarking resources for education, alongside wider tax reforms.

2. **Increase the international financing of education and improve its effectiveness.** This will require innovative thinking, using evidence such as presented in this report, about how to encourage key decision-makers to attach greater priority to education; as well as stronger leadership and advocacy to promote increased financing from donors, investors, and philanthropists. It will also require more multilateral cooperation, improvements in the way international financing is deployed and monitored, and innovation in financing to mobilize new sources of financing and new partnerships.

3. **Establish a Multilateral Development Bank (MDB) investment mechanism for education to deliver improved MDB financing.** Education could capitalize on the unique opportunities MDBs currently have to significantly leverage their capital bases. The investment mechanism would allow the MDBs to work more as a system, incentivize greater prioritization of education, and leverage MDB financing to have a greater impact.

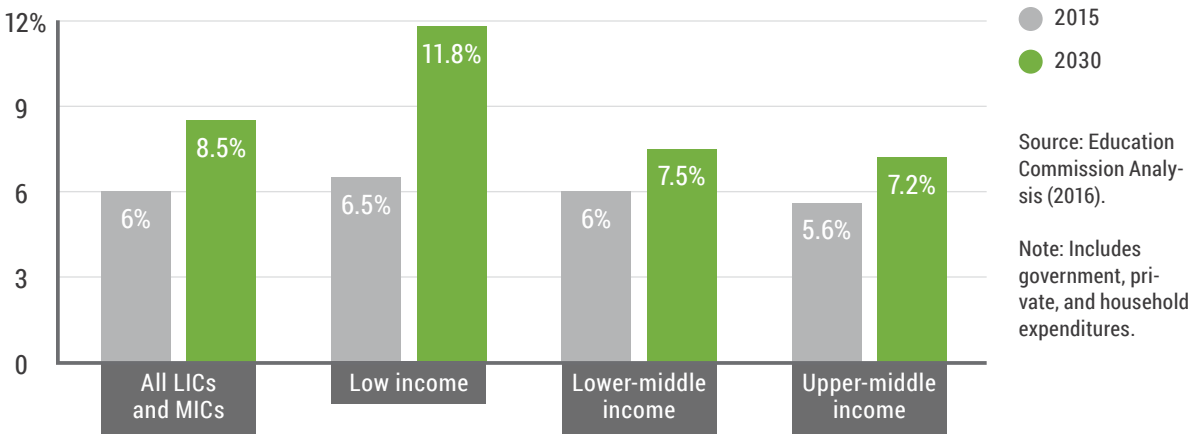
The success of these three financing recommendations will depend upon the implementation of the wider education transformations proposed throughout this report. These reforms are designed to overcome key barriers which have so far constrained the growth of effective financing. Mobilizing new domestic and international financing will require confidence that investment is being targeted at achieving results and that all possible steps are being taken to cut waste and inefficiency. Innovation in the ways in which education is organized and delivered will be critical to enabling educational expansion while maximizing impact. Ensuring that increased financing can result in the realization of commitments to universal education will require education authorities to carefully target investment at the inclusion of disadvantaged children. Mobilizing more effective financing – as well as more financing – will be essential for ensuring that education systems can be adequately resourced, with sound financial planning an essential underpinning of system performance. Together, these four education transformations – performance, innovation, inclusion, and finance — will help to create the Learning Generation.

An investment plan for the Learning Generation

The Commission's vision for the Learning Generation will require total spending on education – from domestic and international expenditures combined – to rise steadily from $1.2 trillion per year today to $3 trillion by 2030 across all low- and middle-income countries. This represents a rise in the total spending (public and private) on education from an average of 6 percent of a country's GDP to 8.5 percent across low- and middle-income countries (see Figure 31). Further details of the cost assumptions behind these figures and the proposed financing pathway for achieving them are set out in Annex 1. The Commission's costing and spending projections were developed on the basis

Figure 31. Spending on education will need to increase to deliver the Commission's vision by 2030

Percent of GDP to education, annual average



Source: Education Commission Analysis (2016).

Note: Includes government, private, and household expenditures.

of detailed analysis regarding maximum achievable expansion and improvement rates and the most cost-effective ways these could be achieved. In delivering this expansion, countries will require financing that is long-term, predictable, and sustainable. This is particularly vital in education, where the vast majority of spending is recurrent and required for teachers' salaries.

The Commission's proposals call for more spending *and* smarter spending. Increased investment and improved efficiency cannot substitute for one another. Both will be essential, not least because increased investment will in many cases be required in order to implement proposed measures for realizing greater efficiency. The Commission's costing and spending estimates assume increased efficiency in the use of resources, in line with the recommendations throughout this report. Costing estimates also assume that innovation will reduce current unit costs, in particular at the post-secondary level.[315] Box 18 summarizes how efficiency and effectiveness affect costs and learning outcomes in low-income countries.

The Commission's proposed investment plan is based on the fundamental principle that the primary responsibility for financing primary and secondary education lies with domestic governments, in line with Sustainable Development Goal 4. The plan assumes that governments will fund the progressive expansion toward free quality primary and secondary education for all girls and boys by 2030.[316] In addition, as evidence on the critical importance of the early years of life to a child's future educational success is shaping investment choices across developed economies, similar investment must be made in developing economies. Therefore, the Commission goes further than the Sustainable Development Goal by including full public financing for two years of pre-primary education in all countries.[317] The plan also includes substantial increases in post-secondary education, made more affordable by reforms and innovation in how it is provided.[318]

Financing the Commission's vision will require a major effort from all domestic and international partners.

The Commission projects that a large share of the financing effort will be borne by domestic governments, whose commitment to reform and investment will be the most important driver in achieving the Learning Generation. Through the dividends from growth and improved resource mobilization, **public investment in education is projected to rise about 7 percent annually to reach an average of 5.8 percent of GDP by 2030 across all low- and middle-income countries.**[319]

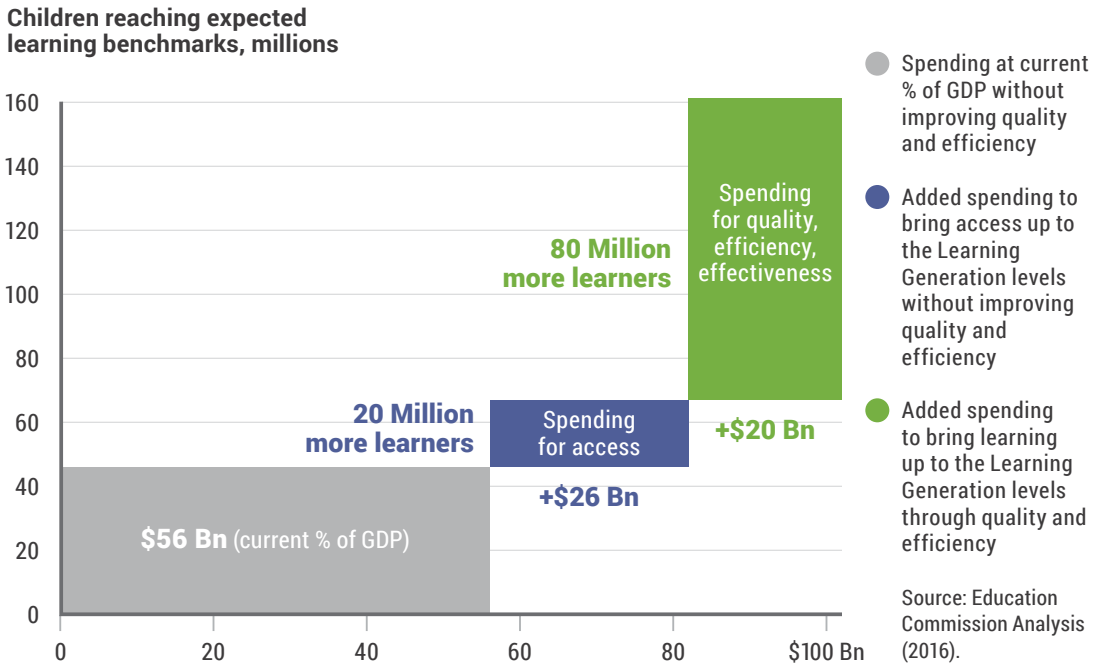
To inform projections for domestic government financing, the Commission undertook an analysis of government revenues, expenditures, taxes, and the allocation to education within government budgets to identify historically achieved ranges and some of the determinants of those ranges. The analysis shows that historically, on average, governments have been able

Box 18. The value of more efficient spending: An illustration for low-income countries

A range of reforms are proposed in this report to improve efficiency and deliver better outcomes. Some measures, such as cutting waste through addressing corruption and basic monitoring, will have a net effect of *reducing* costs. Others will *cost very little*, such as improving community involvement and accountability. A third category will *increase costs*. These include in-service training and materials for better teaching, developing large scale student assessments, Internet access and better use of digital technology, and financial support for poor students. **In low-income countries, the net effect of this total package of reforms is to add 25 percent compared to a baseline cost** in which no such reforms were implemented to improve learning and efficiency and spending increases to achieve enrollment targets only.

Figure 32 illustrates this by showing the projections of relative costs and impacts of *more* spending and *better* spending in low-income countries in 2030. The gray bar shows what would happen if current levels of expenditure are maintained. The blue bar shows what would happen if funding is increased in order to meet Commission enrollment targets in 2030. If more spending is added without any reform to how it is spent, the costs would be $82 billion; 67 million children and youth from pre-school through post-secondary would be attending education and learning, while an additional 201 million would be missing the learning benchmarks despite being enrolled in school. The average costs per student achieving learning benchmarks would be $1,215 in both these cases. Implementing the recommended reforms and innovations would, by increasing efficiency and quality, raise costs by only an additional $20 billion by 2030, but it would *more than double* the number of students achieving learning benchmarks from 67 million to 161 million. **On average, this would reduce the unit cost per learning student from $1,215 to $631, an efficiency savings of more than 50 percent.**

Figure 32. Impact on students learning: More and more effective spending in low-income countries in 2030



Source: Education Commission Analysis (2016).

to mobilize an increasing share of GDP for government revenue and expenditures as income rises. Government expenditures were on average 20 percent of GDP in 2015 in low-income countries, 27 percent in lower-middle income countries, and 32 percent in upper-middle income countries. This dynamic will provide some of the financing needed. Additionally, Commission projections require countries with revenue mobilization below average for their income level to rise to reach that average level, and countries that are at or above that level to maintain it. **The Commission's estimates suggest that developing countries could increase their overall public expenditures from an average of 27 to 32 percent of GDP over the next 15 years.** The decisions about how to achieve domestic spending targets and how to reform tax systems are for governments to make. If they are to achieve the Learning Generation, however, **the share of education in developing countries' public expenditure will need to rise over the next decade and a half from 15 to 19 percent.** This is well within the bounds of possibility and reflects the kind of shifts in budget priorities seen in a number of countries which have committed to increasing investment in education — such as Benin, Niger, Senegal, and Ghana.

In addition to domestic spending by governments, the Commission has also taken into account the likely expenditure by private households. It projects that household expenditure on preschool to secondary education will reduce very substantially, especially in low-income countries, and will shift up the education ladder to post-secondary education. In total, it is assumed to account for 1 percent of GDP by 2030.

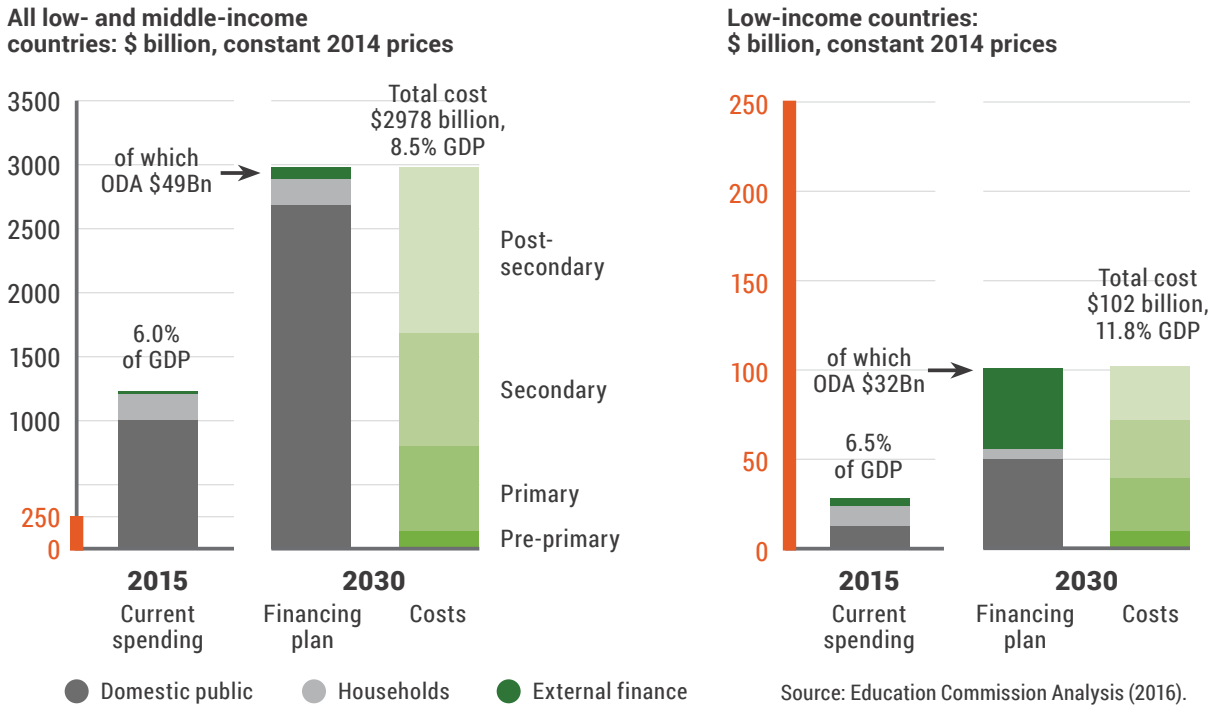
With the projected growth and reallocation of domestic resources to education, as well as assumed household spending, only 3 percent of the total financing will be needed from international sources. However, these resources will be critical, in particular for low-income countries, and will still require **total international finance for education to rise by an average of 11 percent per year, from today's estimated $16 billion per year to $89 billion per year by 2030, or an annual average of $44 billion between 2015 and 2030.** Overall concessional aid from OECD DAC donors for education will need to rise from today's $13 billion per year to $49 billion per year by 2030, or an average of $25 billion per year between 2015 and 2030. This will require total concessional aid to rise from 0.3 to 0.5 percent of GDP of OECD DAC countries. This is ambitious and is in line with the Sustainable Development Goal promise, yet still far below the agreed longer-term target for aid levels of 0.7 percent. The Commission joins others in calling on rich countries to implement the 0.7 percent target as soon as possible. Reaching $89 billion will also require that the share of all concessional aid which goes to education rises from 10 to 15 percent, about the same level which goes to health today. It would mean in practice that overall ODA devoted to global education would be just 0.07 percent of the total GDP of OECD countries in 2030. In the Commission's financing pathway, today's low-income countries receive two-thirds of external financing by 2030; one-quarter goes to lower-middle income countries; and one-tenth goes to upper-middle income countries.

Clearly, **the greatest financing challenge in education is faced by low-income countries** (see Figure 33). These countries will be home to almost 20 percent of the world's school-age children (three to 18 years) by 2030, and without this support, they will fall irretrievably behind. While the figures above are averages for all low- and middle-income countries, in low-income countries alone the Commission projects total public and private spending will need to nearly double from 6.5 percent of GDP today to 11.8 percent in 2030. This will not be achievable without significant international support (which will cover about half of total education costs) as well as some continued spending at post-secondary level by households. In contrast, given projected GDP growth for upper-middle income countries, their total education costs, while increasing, will stay within an achievable range of domestic finance with small and declining external resources. Figure 33 and Table 3 summarize costs by level and an illustrative financing pathway.

In per-student terms, all countries will need to approximately double their total spending per student by 2030 (table 4). In low-income countries, per-pupil costs will be $212 for primary and $368 for secondary students by 2030. The higher secondary per-student costs are due to the relatively lower pupil:teacher ratios, higher teacher salaries, and a greater need for classroom construction at the secondary level. Further explanation of how total and per-pupil costs are calculated can be found in Annex 1.

In the face of competing demands, fiscal constraints, and uncertainty, these increases will not be

Figure 33. Costing and illustrative financing pathway for the Learning Generation



Source: Education Commission Analysis (2016).

Table 3. A Costing and illustrative financing plan for the Learning Generation

$ Billion, constant 2014 prices	Low-income countries			Lower-middle income countries			Upper-middle income countries			All low- and middle-income countries		
Costs	**2015**	**2030**	**Avg. 2015-2030**	**2015**	**2030**	**Avg. 2015-2030**	**2015**	**2030**	**Avg. 2015-2030**	**2015**	**2030**	**Avg. 2015-2030**
Pre-primary	1	10	4	13	68	40	29	66	53	43	144	98
Primary	9	30	19	75	180	119	240	447	346	324	657	484
Secondary	9	32	18	99	260	164	278	592	420	386	884	602
Post-secondary	8	30	19	133	395	276	320	869	617	461	1293	912
Total cost	**27**	**102**	**60**	**320**	**902**	**598**	**867**	**1974**	**1436**	**1214**	**2978**	**2095**
(% GDP)**	6.5%	11.8%	9.3%	6.0%	7.5%	6.8%	5.6%	7.2%	6.8%	6.0%	8.5%	7.4%
Financing plan												
Domestic public*	13	50	28	214	712	430	779	1930	1311	1006	2691	1769
(%GDP)**	3.2%	4.9%	4.0%	4.1%	6.0%	5.2%	4.5%	6.3%	5.5%	4.0%	5.8%	5.0%
Households	11	6	7	101	164	140	86	28	73	197	198	226
(% GDP)	2.4%	0.8%	1.3%	1.4%	1.3%	1.4%	0.9%	0.6%	0.9%	1.5%	0.9%	1.2%
Int'l. finance	4	45	21	7	27	14	5	16	9	16	89	44
(% GDP)	1.3%	6.0%	3.5%	0.7%	0.2%	0.2%	0.4%	0.3%	0.2%	0.7%	1.7%	1.0%
of which DAC ODA	3	32	15	6	12	7	4	5	3	13	49	25

Source: Education Commission costing model (2016). Note: *Domestic public = government expenditure net of grants; **GDP percent are all unweighted averages, country as unit.

Table 4. Per-student costs of the Learning Generation, unweighted averages

Cost per student	Low-income countries		Lower-middle income countries		Upper-middle income countries	
	2015	**2030**	**2015**	**2030**	**2015**	**2030**
Pre-primary	63	232	272	571	734	1369
Primary	96	212	359	605	1159	2194
Secondary	292	368	600	886	1694	3147
Post-secondary	1538	1656	2213	3631	3884	9820
Average*	**190**	**359**	**641**	**1090**	**1766**	**3646**

Source: Education Commission costing model (2016).

Note: *Averages are unweighted across countries but weighted for students in level within countries. All costs are in 2014 dollars.

easy. However, Commission research and analysis shows that the overall pace and scale of change required is certainly feasible. These figures all assume that progress begins now. The longer governments and donors wait before starting to increase financing, the greater the scale of the challenge they will face.

Recommendation 9. Mobilize more domestic resources for education

Domestic public spending is by far the most important source of finance for education and will continue to be the driving force in the spread of education, even with rapid growth in ODA.

Since 2000, public spending on education has grown, driven primarily by robust GDP growth and growth in taxes and total expenditures, but not typically by greater prioritization of education (see Figure 34). On average, countries' GDP grew at a rate of just under 5 percent. While total public expenditure grew by nearly 6 percent per year — about 20 percent faster than GDP growth — the share of education in public expenditures declined slightly across all income groups.[320] The net effect is that total education expenditures grew by just under 6 percent per year, which is below what is needed to meet SDG4 and the Commission's vision.

However, there is significant variation across countries. While in more than half of the low-income countries with available data, education's share of public expenditures declined, in a third it increased between the early 2000s and 2013. In Ethiopia, the share increased from 16 to 25 percent between 2000 and 2013, while in Chad, despite petroleum and mineral windfalls, the share fell from 15 to 12 percent (see Figure 34).

To achieve the Learning Generation, low- and middle-income countries will need to increase domestic public expenditures on education from an estimated $1 trillion in 2015 to $2.7 trillion by 2030, or from 4 to 5.8 percent of GDP. According to Commission estimates, low-income countries could increase their domestic public expenditures from 3.2 to 4.9 percent of GDP — a significant increase, but still much below the 11.8 percent required for total education spending.

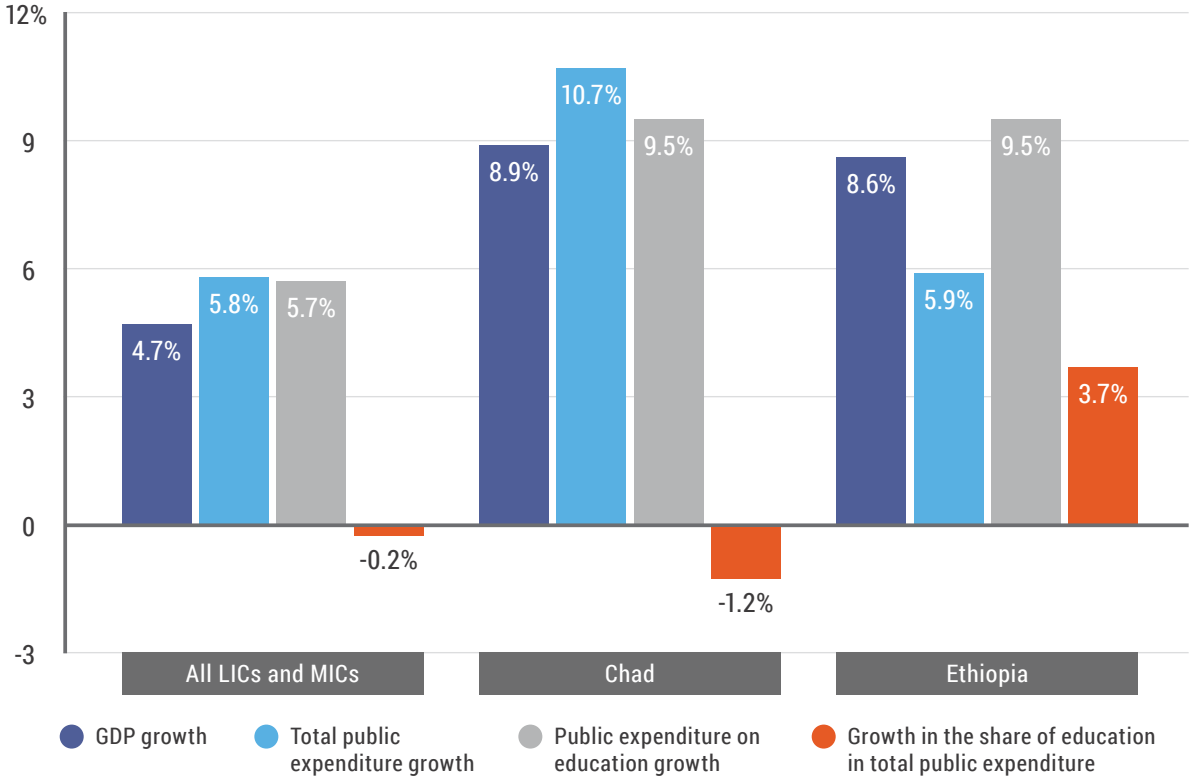
Increase domestic revenue mobilization efforts and education's share of public expenditure.

To increase revenue mobilization for education, governments will need to maintain growth, raise more taxes, and increase education's share in overall spending.

Growth must be maintained. This key driver of education finance will depend on the quality of country policies and institutions as well as on global and regional economic prospects. It will be aided by the progress that has already been made in education and the education effect will grow over time with further progress, generating additional domestic revenue potential.

Countries need to leverage the dividend from growth by increasing spending on education, through reallocating spending, raising more revenues, or both. The past trend of a flat or very slightly declining share of education in public expenditures needs to be reversed. Increasing the share of public expenditure for education requires strong political leadership, which both fuels and is fostered by supportive public opinion. Reforming education through improving performance,

Figure 34. Annual growth in public expenditure to education between 2000 and 2014



Source: Education Commission Analysis (2016) including data from World Bank World Development Indicators.

innovation, and inclusion will be critical to building public demand for increased education investment and securing the confidence of leaders and taxpayers that investment will lead to results. Increasing the share of education in total domestic spending should not come at the expense of other important development sectors such as health and social protection. Instead, they should focus to the extent possible on reducing spending on public "bads" or investments that mainly benefit the rich, as well as on reducing inefficiency.

International Monetary Fund research shows that most developing countries are at far less than their "optimal" taxation capacity. The average tax share as a percent of GDP for low-income countries is 14.1 percent, for lower-middle income countries it is 17.8 percent, and for upper–middle income countries it is 19.3 percent. Some countries with low levels of investment in education have very low tax rates. For example, Pakistan and Bangladesh raise just 10 percent.[321] IMF research suggests that the revenue base could be expanded by as much as an average of 9 percentage points in low-income countries.[322] Some countries, especially in Sub-Saharan Africa, have increased their tax base significantly over the past decade. However, other countries are raising only about half of their "optimal" revenue capacity.[323]

Commission research shows that there are significant amounts of potential tax revenues that could be collected from reducing current tax "avoidance" (legal) and "evasion" (illegal). For example, it estimates a potential increase in tax revenues in developing countries of 6 to 13 percent just from multinational corporations. Developing countries are estimated to lose up to $800 billion every year in corporate tax avoidance. In 37 low-income and lower-middle income countries, estimated illicit flows as a share of GDP were in fact larger than what governments spent on education.[324] While it appears unlikely at this time that there would be international agreement on global taxation of corporations, as research for the Commission has pointed out, it is important to fully implement the 2013 call from the G8 and G20 for improved reporting on a national level of relevant tax information.[325] More generally, it is import-

ant to enhance disclosure practices and transparency in both source and destination countries, as called for by the Conference on Financing of Development in Addis Ababa in 2015.[326]

Where taxes are raised, this should be done in an equitable and sustainable manner. While it is not for the Commission to recommend how revenues are raised in individual countries, research suggests that direct taxes on incomes, profits, and property are generally the most progressive.[327] However, countries with relatively weak institutional capacity for tax collection often rely heavily on more regressive indirect taxes on goods and services because they are easier to collect. In more than half of low- and lower-middle income countries, at least 40 percent of tax revenue is collected from such indirect taxes.[328] The progressivity of indirect taxes can be increased by focusing them on goods and services consumed by the better-off rather than the poor. The net effect of indirect taxes in Chile, Mexico, and Peru has been to reduce overall inequality slightly, while in Brazil and Colombia indirect taxes have increased inequality.[329]

In some countries, part or most of the revenue mobilization for basic education falls at the local level. This is particularly the case in large federal systems such as India, Nigeria, and Pakistan. National governments should prioritize funding for poorer areas that are less able to mobilize taxes. They should also encourage local governments to increase their revenue mobilization. This should include steps to strengthen the capacity and the political commitment necessary to increase tax revenues and allocate them to education.[330]

Reduce energy subsidies and re-allocate spending to education.

In a number of developing as well as developed countries, a large part of government spending is utilized for subsidies on fossil fuels. Reducing such subsidies has important advantages in reducing greenhouse gasses as well as saving scarce budget resources. Countries are unlikely to reduce fossil fuel subsidies just to provide financing for education. However, where governments want to reduce these subsidies and redirect the funds saved to better purposes, directing the savings to education can help secure support for the reductions, target benefits to the poor, and support improved educational outcomes.

High energy subsidies are linked to low education outcomes. On average, an extra 1 percent of GDP allocated to subsidies results in a reduction of public spending on education and health by 0.6 percent of GDP. This effect is even stronger in countries with weaker institutions and narrow fiscal space. In 40 developing countries, support for fossil fuels accounts for up to 5 percent of GDP and between 25 and 30 percent of government revenues – often much higher than education spending. Table 5 highlights the 10 countries with the weakest education outcomes, as measured by the percentage of children entering the first year of primary school who reach the final year (primary survival rate), and highest spending on energy subsidies relative to education spending.

Shifting spending from energy subsidies to education could have strong positive impacts on reducing poverty and income inequality, and improving economic efficiency and the environment. Fuel subsidies generally benefit the rich much more than the poor. On average, the richest 20 percent capture more than six times the benefit of the poorest 20 percent.[331] In sharp contrast, spending on education has a profoundly positive impact on equality.[332] Commission analysis finds that 53 low- and middle-income countries could benefit from such a shift. If fuel subsidies in those countries were reduced by half and half of these savings were allocated to basic education, the net benefit to the poorest 20 percent would be $3 billion.[333] In Nigeria, for example, reallocating 25 percent of fossil fuel subsidies to education could increase available recurrent spending by 70 percent.[334] There is a strong argument for acting now when oil prices and hence subsidies are low, suggesting there may be less political resistance as losses to households from removing the subsidies will be lower.

Redirecting resources from reductions in fuel subsidies to social sectors is already a growing practice.[335] Reducing subsidies is difficult politically, however, and care must be taken to ensure that reductions do not harm the poor and to build coalitions for change.[336] Lessons from countries that have tried to reduce subsidies suggest that direct transfers to compensate the poorest or reducing overall spend on subsidies by targeting them better on the poor can be effective in making reforms stick.[337] Studies by the IMF and others show how, in countries like Ghana and Indonesia, the explicit reallocation of funds to popular sectors such as educa-

Table 5. Countries with weak education and high energy subsidies relative to education spending

	Fossil fuel subsidies as a share of GDP (%) 2013	Public education spending as a share of GDP (%), latest year	Primary survival rate (%), latest year
Zambia	8	1.1	56
Mozambique	6.5	6.5	31
Yemen	5.4	4.6	70
Rep. of Congo	5.1	6.2	70
Pakistan	5.1	2.5	80
Angola	4.2	3.4	32
Bangladesh	3.9	2	66
Nicaragua	3.4	4.5	48
Tanzania	2.9	3.5	67
D.R. Congo	2.2	2.2	55

Source: Education Commission analysis (2016) based on data from UNESCO Institute for Statistics (2015) and Coady et al (2015).[v23]

tion and health both helped the poor and built support for reducing fossil-fuel subsidies.[338] The international community can support the linkage of fossil-fuel subsidy reduction with social sector investment.[339] In countries such as Indonesia, Ghana, Egypt, Morocco, and the Philippines, technical and financial assistance to the governments has supported this linkage. Actions by developed countries to reduce their own energy subsidies would also help to increase momentum for reform.

Earmark taxes for education.

Earmarking can similarly help gain acceptance of inevitably unpopular tax increases. While widespread earmarking reduces much-needed flexibility in budgeting, "soft" earmarking (through policy links) has been successfully used by governments in several cases to help win support for tax increases. In some cases, "hard" earmarking (through legislation) can be also justified where it makes a major contribution to education financing. India's Sarva Shikska Abhiyan program, which has contributed substantially to India's recent growth in public expenditure on education, applies a 3 percent education surtax on income, corporate, and other taxes.[340] Similarly, the Ghana Education Trust receives earmarked funds from Ghana's value added tax and was introduced in part to justify increases in that tax. It has played a major role in Ghana's sharply increased expenditures on education since 1999.[341]

Public acceptance of such taxes will depend on their confidence that governments will ensure that spending will be efficient and deliver results, and of the long-term private and public gains to education. Commission research into earmarking has stressed the importance of accountability arrangements to monitor both additionality and use of earmarked funds.[342]

Earmarked revenue from newly discovered natural resources also has the potential to be a vital source of finance for education in some developing countries. In 2010, $1 trillion of government revenues were derived from oil and gas resources.[343] In six African countries,[344] newly discovered natural resources will raise annual government revenue in the coming years by between 9 and 31 percent[345] (see Table 6). In Liberia, the minimum estimate of increased resources is higher than total education spending. Natural resource funds,[346] which can earmark natural resource revenues for specific expenditure items, currently exist in 40 countries but none exist so far for education.

Recommendation 10. Increase the international financing of education and improve its effectiveness

While domestic resources will need to cover the large majority of the costs of education, international financing will continue to play a critical role. It will need to support low-income and fragile countries with the

Table 6. Projected additional revenues over the next 10 years from newly discovered natural resources in countries with weak education

	New natural revenues (NNR) as a share of GDP (%)	Education spending as a share of GDP	Primary survival rate (%), latest year
Ghana	1.5 — 3.7	6.0	84
Mozambique	1.9 — 7.7	6.5	31
Uganda	2.9 — 6.9	2.2	25
Liberia	3.6 — 10.9	2.8	68
Sierra Leone	0.0 — 7.2	2.8	48
Tanzania	1.4 — 2.9	3.5	67

Source: Education Commission analysis (2016) based on data from UNESCO Institute for Statistics (2015) and Bill & Melinda Gates Foundation (2015).

Note: A range is presented to show effects of high and low price scenarios (commodity prices 25 percent lower and higher than baseline prices).

largest financing gaps, boost access to official loans in countries transitioning to middle-income status, and catalyze domestic investment and reforms in middle-income countries. International assistance is also urgently needed to fund development-critical global public goods for education which benefit all country groups, such as better data, assessment tools, and evidence.

Increasing and improving international financing for education will require overcoming key challenges in the international financing of education:[347]

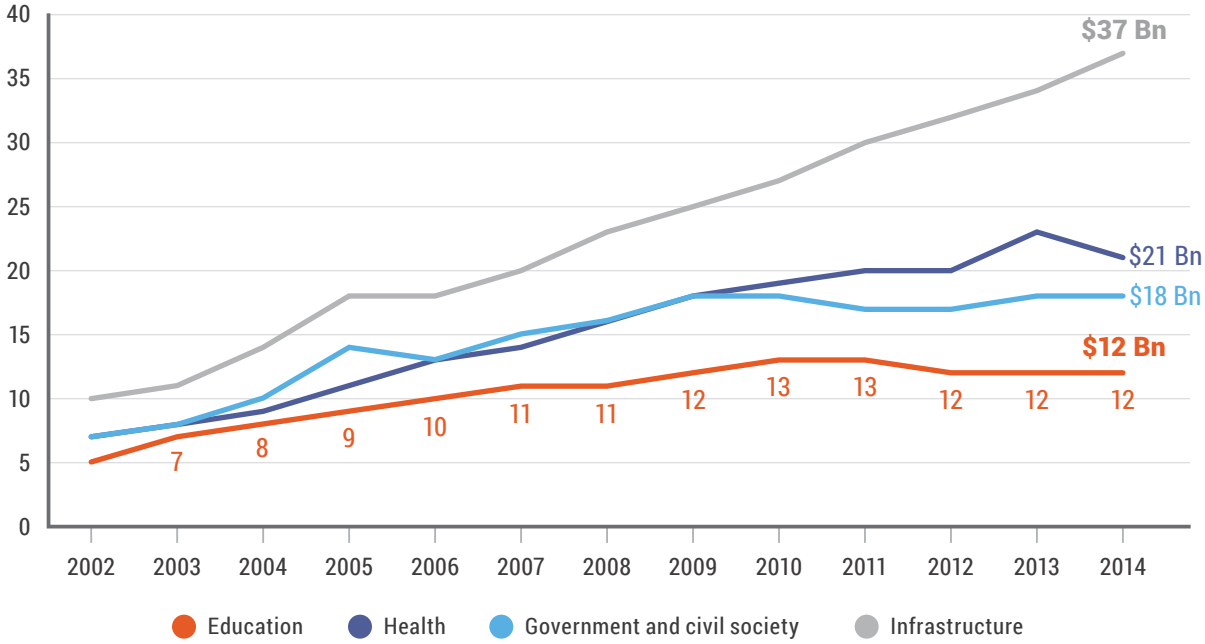
- **Declining trends in donor support for education:** Education has not been a top priority for international actors, whether official donors, emerging donors, or charitable organizations. Without this strong leadership making the case for investment and reform, resources have been slow to rise. Education's share of sector-allocable ODA has fallen from 13 percent to 10 percent since 2002, while the share for health has risen from 15 percent to 18 percent and infrastructure from 24 percent to 31 percent (see Figure 35). Similarly, non-concessional loans for education decreased from a peak of $2.7 billion in 2010 to $1.6 billion in 2014. Education's share in non-concessional lending has also declined from more than 7 percent in 2002 to less than 4 percent in 2014. Data from emerging donors is limited, but of the non-DAC donors reporting their sectoral aid levels, education represented less than 5 percent of total financing in 2014.[348] Similarly, U.S. foundations decreased their share of funding for education from 7 percent in 2005 to 4 percent in 2015, but at the same time increased their financing for health from 39 to 44 percent.[349]

- **Education is declining in priority among multilateral donors:** There is a lack of a multilateral support for the education sector as a whole. Disbursements from multilateral agencies were only 34 percent of total ODA for education in 2012-2014, compared to 60 percent for health. Among multilateral donors, education has seen a decline from 10 to 7 percent of total aid over the past decade, while support for infrastructure has increased from 30 to 38 percent (see Figure 36). Among the multilateral development banks (MDBs) in particular there has been a marked shift toward infrastructure as the priority investment, with declines in funding for education.[350] Lack of coordination across the MDBs may have made this decline more dramatic than expected. The Global Partnership for Education (GPE) has also struggled to reach its funding goals.[351] The 2015-2018 replenishment of $2.1 billion was 40 percent up on the first replenishment in 2011, but 40 percent short of its $3.5 billion goal.[352]

- **Allocation of finance does not reflect critical needs or priority issues:** The allocation of grant financing to education is not consistent with need or with countries' ability to use funds effectively. Only 24 percent of all education ODA was disbursed to low-income countries in 2014, compared with 48

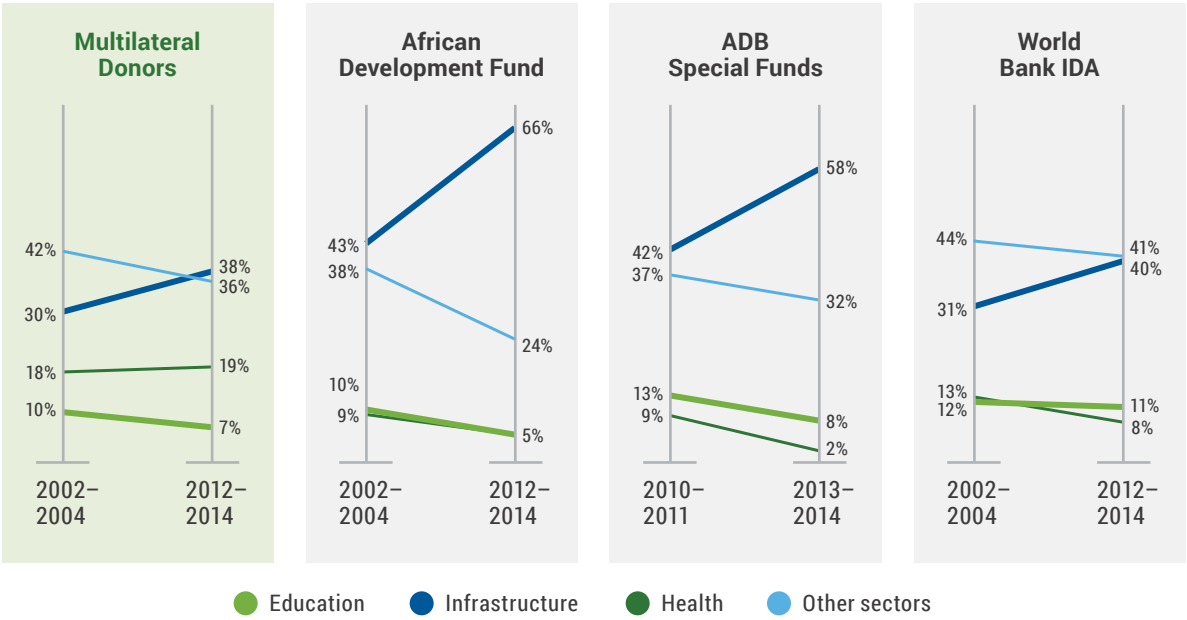
Figure 35. Trends in sectoral ODA

US$ Billions (2014 constant prices)



Source: Education Commission analysis based on OECD-DAC (2016).[V24] Note: Includes only sector-allocable direct aid, with no sectoral attribution of budget support.

Figure 36. Multilateral support for education over the past decade: share of education and other sectors in total sector allocable aid



Source: Education Commission analysis (2016) based on data from OECD-DAC (2016).[V25] Note: ADB Special Funds is Asia Development Bank Special Funds and lacks earlier data. World Bank internal data differs slightly from OECD-DAC data and suggests an increase in the education share over time, but the current share is estimated at roughly the same level: at 10 percent of total lending.

percent for health and 35 percent for agriculture. Too large a share of external finance, particularly in the case of ODA, goes to upper-middle income countries at the expense of low-income and fragile countries.[353] Strikingly, just 68 percent of education aid actually reached recipient countries in 2014; in part because close to 70 percent of aid to higher education is spent on scholarships for students studying in donor countries.[354] Similarly, there is a lack of attention to and financing of specific priority issues in education. Only 1 percent of ODA for education in 2014 was allocated to early childhood development, despite overwhelming evidence demonstrating its importance.

- **Support for education in emergencies is inadequate and insufficiently coordinated:** While the need for additional funding for education in emergencies has increased by 21 percent since 2010, international financing for it has declined by 41 percent over the same period.[355] Education peaked at approximately 4.5 percent of humanitarian assistance in 2005, and has since fallen and remained at less than 2 percent. In 2015, less than 12 percent of children in need of education assistance in emergencies were reached.[356] Coordination and linkages between emergency and development financing are weak, preventing effective disbursements during and in the aftermath of crises. Education emergency appeals are often underestimated and lack long-term multi-year strategic outlooks for financing and delivery[357] (see Box 19).

- **Efforts to strategically use education aid to incentivize additional domestic spending have remained limited in education:** Some countries marginally increased domestic budgets after receiving grants from GPE, but the potential for leveraging education ODA to increase domestic spending remains largely unrealized.[358] Overall, only a very small 0.07 percent of total ODA has been allocated as support for tax policy and administration, despite evidence that such support can help to deliver far greater tax revenues.[359] This needs to be given priority and could be enhanced further with larger aid volumes.

- **There is a lack of focus on results and financial innovation:** Innovative and results-based financing, which offers opportunities to raise more catalytic and more effective financing, has been largely absent from education compared to other sectors, although some bilateral donors and multilateral institutions are expanding its use.[360] Estimates suggest that at most $500 million of innovative financing has been raised for education, compared to $14 billion for energy and environment and $7 billion for global health since 2000.[361]

- **There is insufficient funding for global public goods:** Only 3 percent of education ODA, or $242 million, was spent on global public goods (GPGs) such as data and research in 2013 – much less than in the health sector, where about a fifth of ODA ($4.7 billion) was spent on global public goods and other global functions.[362] Key global institutions are under-resourced and their budgets have been declining. (See also Recommendations 1 and 2.)

Declining prioritization of education by international donors and funders has been the result of factors discussed earlier – failure to communicate a compelling investment case, short-term political perspectives when payoffs from education are long term, inefficiencies in delivery, lack of coordination, and perceived weaknesses in the link between investment and results. The reforms to performance, innovation, and inclusion proposed throughout this report will, if implemented, comprehensively address these weaknesses, strengthening the case for investment and improving donor and investor confidence.

Scale financing from all sources.

Even under an optimistic scenario of domestic investment, improved efficiency, and increased cost-sharing by households for higher levels of education, the international community (including bilateral and multilateral donors, philanthropists and charitable organizations) will need to increase its total contribution **from $16 billion in 2015 to $89 billion by 2030.**

The international community should increase its efforts and scale financing from all sources:

- **Concessional financing from donors should increase from $13 billion today to $49 billion in 2030, or to an annual average of $25 billion between 2015 and 2030.** This will require ODA levels to rise from the current level of 0.3 percent to at least 0.5 percent of GDP. This is below the long-standing target of 0.7 percent of GDP that was reaffirmed in the Addis Ababa Conference on Financing of Development in 2015[364] and accepted by most DAC donors.[365] The Commission calls for continued commitment to this target over the long-term. It will also require bilateral and multilateral donor agencies to increase the share of aid which goes to education from 10 to 15 percent of total ODA, approximately the share donors now allocate to health. Significant increases in donor budgets for education are achievable. For example, recognizing the linkages between education and health, Norway has committed itself to maintain its health aid and raise education aid to this same level of investment.

Box 19. An unfulfilled need for support for education in emergencies

Conflict and instability remain a major cause of girls and boys being out of school or not learning. Sixty-three million out-of-school children and youth live in conflict-affected areas. Children in these countries are 30 percent less likely to complete primary school and half as likely to complete lower-secondary school. Just one in two refugee children attend primary school, while just one in four attend secondary school. The reduced capacity and finances of the state to deliver education, coupled with inadequate international financing for education in emergencies, compound the problem and result in lasting effects for post-conflict states and their neighbors.

Today, **about 1 million Syrian refugee children are out of school.** Most of those who are in school will drop out before starting their secondary education. In the space of a single primary-school generation, Syria has suffered what may be the greatest education reversal in history. At the time of this report's publication, just 39 percent of the $662 million in urgent education aid sought by UN humanitarian agencies in 2016 for Syrian refugees has been funded, and only a fraction of the $1.4 billion pledged in London in February 2016 has been delivered.

Emergencies could add approximately $9 billion to projected education costs overall by 2030. Based on projections for countries at-risk of violent or natural disasters, it is likely that most of the future emergencies will continue to occur in low- and lower-middle income countries, and that the proportion of pupils affected will not decline.[363] Emergencies are becoming extremely protracted in nature: 90 percent of countries with a Humanitarian Response Plan in 2014 have had an appeal for three or more years, underlining the importance of improving coordination between development and humanitarian aid.

The recently established Education Cannot Wait fund presents a significant opportunity to leverage new public and private financing for the specific purpose of education in emergencies, bridging humanitarian and development responses and delivering more predictable, multi-year financing. It aims to support education for the 75 million children and young people affected by emergencies each year, aiming to raise $3.85 billion by 2020. The Commission recommends the fund prioritize establishing multi-year responses with transitions to longer-term financing arrangements for an estimated 30 million children in most urgent need who have lost access to schooling, as well as developing rapid responses for new emergencies. The Commission strongly endorses the need to develop reliable and consistent ways of financing education in emergencies. A system of support for refugees and displaced persons that relies on a voluntary "begging bowl" cannot be defended.

See Source Materials for sources and more information.

Previous rapid increases for other sectors, such as infrastructure, also demonstrate what is possible.

- **Non-DAC donors should also allocate 15 percent of their aid to education by 2030.** This would mean $11 billion for education out of a total ODA of $75 billion if they can increase the share of national income that they give to aid from its current 0.1 percent to 0.2 percent.[366]

- **Non-concessional finance for education by the World Bank and other multilateral development banks should increase from $1.5 billion today to reach an annual average of $5 billion by 2020, and at least $13 billion by 2030** (see Recommendation 11).

- **Funding from philanthropists, corporations, and charitable organizations for the education sector should be increased to at least $7 billion by 2020 and reach $20 billion in 2030.**[367] High net worth individuals who have made health a priority have been able to leverage reforms of the entire sector's bilateral and multilateral aid structure. Philanthropy could bring new momentum, innovation, and results for the most marginalized if leveraged properly, but this will require strong leadership and bold action by individuals willing to drive change. To inspire and mobilize new giving, **the Commission calls for the development of an "Education Giving Pledge,"** encouraging high net worth individuals — millionaires and not just billionaires — to make a substantial and public commitment to education, and in doing so motivate their peers to do likewise. Increasing philanthropic giving will also require the development of new financing platforms and innovative financial instruments which will encourage new investors by strengthening links between spending and results, as well as opportunities for financing specific priority issues in education. More widely, private giving in the form of remittances will also continue to make an important contribution to education. Countries can increase overall flows and the share flowing to education by increasing competition to reduce the high cost of remittances, providing language and other training for prospective migrants, matching funding, and through diaspora bonds (discussed below).[368]

- **Funding for education in humanitarian crises should be increased to a level of 4-6 percent of humanitarian assistance and assessed contributions explored.** Reaching 6 percent could nearly fully finance the amount called for in current education appeals. This financing could be channeled through the Education Cannot Wait fund.[369] The UN Security Council should also explore moving towards an assessed contribution system to cover the needs of UNRWA (United Nations Relief and Works Agency) and the major emergency appeal requests, given the important role of education for peace and security.[370] Opportunities to leverage additional financing from multilateral development banks and the private sector should also be explored. Efforts should be made to encourage the World Bank, together with other multilateral development banks, to consider expanding the availability of concessional financing to support education in countries faced with emergencies or refugee flows, or establishing a dedicated financing window for this.

- **The Global Financing Facility (GFF) in support of Every Woman Every Child should include Early Childhood Development (ECD) and adolescent girls in its mandate.** The Global Financing Facility aims to catalyze international and domestic funding to address a set of under-prioritized health outcomes related to reproductive, maternal and child health. The Facility, housed at the World Bank, should expand its mandate to scale financing for ECD and for adolescent girls, based on the strong beneficial impact of such investments on both health and education.

Improve the effectiveness and impact of international finance.

Increasing the volume of external funding will not be enough to deliver lasting change. It is essential that steps are also taken to improve the deployment and impact of funding. Doing so will require donors and financing institutions to apply some of the key reform principles set out so far: a stronger focus on results, prioritizing system strengthening over discrete initiatives, and supporting collective action to facilitate innovation and to improve data, research, and evaluation. Wherever possible, financing should be predictable, sustainable, and coordinated to allow for effective

planning and efficient spending.

Donors should re-examine the priorities they have established and the frameworks within which they make allocations. They should agree on desirable criteria for aid to education in order to maximize its impact. There should be a focus on identifying and providing additional support to "aid orphans" among low-income countries – those receiving little aid overall despite high need. **The Commission recommends an education equivalent of the "Equitable Access Initiative" in health, which brought partners together to develop a shared and coordinated approach to allocation.** The most generous donor support should go on a consistent basis to countries with high educational need, limited financing capacity, and a demonstrated willingness to invest and reform.

The Commission recommends extra support to fragile states, again prioritizing those territories and programs that demonstrate commitment to education. Donor support in fragile states will need to involve a more active role for donors and for non-government partners. Given the importance of strong systems to achieving results, emphasis should be given to the development of the durable institutions and systems required for sustainable progress. Recent evidence suggests that by setting the right criteria for providing aid, donors have been able to improve the impact of aid programs considerably in fragile states.[371]

Only one-third of education aid goes through multilateral institutions compared with nearly two-thirds of global aid to health. **To increase efficiency and effectiveness, a much higher share of ODA should go through multilateral institutions,** including global partnerships. This would include the multilateral banks, as discussed below, UNICEF, Education Cannot Wait, the Global Partnership for Education (GPE), and UNESCO's Institute of Statistics (UIS) and International Institute for Education Planning. The GPE is carrying out a major set of reforms and, if they are successful, their financing should increase to $2 billion per year by 2020 and $4 billion per year by 2030. This would make the work of the GPE equivalent in scale of financing to the levels the Global Fund for AIDS, Tuberculosis and Malaria receives today.

Multilateral approaches offer the possibility of greater coordination and coherence, more effective use of resources, and the avoidance of duplication and fragmentation of efforts. Rather than funding a large number of small projects as is common in international assistance, multilateral support is key to financing system strengthening, identified by the Commission as a critical priority. It also facilitates increases in the volume and effectiveness of global public goods and programs where collective action at global or regional level increases impact – such as the need for global learning data, research, and evaluation proposed by the Commission (see Box 20).

Finally, to help to increase a focus on results by all actors, there should be more emphasis on results-based or outcomes financing in external financing. Outcomes financing refers to the broad category of financing mechanisms where the principal (e.g., donor, philanthropist, or investor) transfers funds to an agent (e.g., government, NGO, or private organization) in exchange for the delivery of specified outcomes. Attention to this form of financing is growing due to the greater donor focus on "managing for results" and the aid effectiveness agenda. Successful approaches should be scaled, and lessons should be drawn from the variety of mechanisms used in health and other sectors. Results-based financing is not a panacea, and must be balanced with the need for predictability in financing, but it should play an increasingly important role in the overall financing portfolios of multilateral, bilateral, foundation, and private financiers. Careful design is required to avoid perverse incentives and negative outcomes, and further research and evaluation will help to improve its impact. The Commission received two proposals for increased results-based financing in education, each aiming to mobilize $1 billion over time (see Box 21).

Support innovative financial mechanisms.

Expanding the use of innovative financing instruments across institutions and donors can help to mobilize new sources of finance for education, including from private investors and philanthropists, and improve its effectiveness. Innovative financing helps to increase a focus on results, as many innovative mechanisms link investment or payment to outcomes. It helps to encourage collaboration between the public and private sectors and catalyze political momentum to coordinate resources more effectively and deliver outcomes at scale. It also helps to address specific market failures, such as access to finance, and facilitate more effective

Box 20. Prioritizing global public goods in education

The Commission recommends that the international community increases its investment in educational global public goods. There is now growing consensus that spending aid on global public goods is a good investment. This could include:

- **Investing in globally comparable data on learning outcomes** that will allow countries both to benchmark their progress against that of other countries and would contribute to good quality measurement tools which can be used to inform policy and improve learning. As discussed previously, countries need political, technical, and financial support to measure learning and use the resulting data to improve school systems and address the root causes of poor learning outcomes.

- **Investing in R&D,** including experimentation with and evaluation of innovative policies and programs and how they can succeed in different contexts. Not every innovation can succeed and go to scale, so supporting innovation must include creating space for more open and uncertain experimentation. Such experimentation may be too costly for any one country to undertake, or outcomes too uncertain to attract the investment. Global public investment could create global education "laboratories" that focus on the challenges and solutions most relevant to low- and middle-income countries. The need for, and returns to, public investments in global research and development initiatives in developing countries have been evident in the agricultural and health sectors. Partnerships between private and public sectors (including international organizations, development and aid agencies, governments, and academia) have enabled applied R&D in farming innovations and medicines, where returns are too low or too uncertain for private investment alone to be sufficient.

- **Investing in a global "ecosystem" for education** that will promote cross-border learning and sharing of innovations and grow the capacity of leaders and practitioners across sectors. Creating and supporting platforms for cross-border learning and leadership development can enrich global, national, and local debates around education. This might include ensuring that some international investment goes towards strengthening civil society and the capacity of non-state organizations to collaborate and scale innovations in education.

See Source Materials for sources and more information.

distribution of delivery and financial risk.[372] While most innovative mechanisms currently under development would involve international financing, some could also be used to mobilize new domestic resources.

The Commission evaluated 18 innovative financing mechanisms for education against a number of criteria: impact; potential volume of additional finances; replicability and scalability; cost-effectiveness; sustainability and predictability; and speed and transaction cost of implementation.[373] The five most promising proposals are outlined below. The Commission's focus has been on feasibility of implementation and the readiness of these proposals to be taken forward in the near-term. Over the longer-term, wider financial innovations which are not yet ripe for application now could be considered further – such as the recent proposal for a global wealth tax proposed by economist Thomas Piketty.[374]

A number of these instruments will require partnerships and co-financing arrangements with existing actors, such as the GPE and UNICEF, which have already been exploring some of these mechanisms. The Multilateral Development Bank investment mechanism described below could play a key role in developing these further and could harness MDB financing through some of these mechanisms.

Potential innovative financing mechanisms for further exploration include:

Education bonds

An estimated $80 trillion of savings resides in institutional assets (such as pension funds, insurance companies, and mutual funds), with more than $3 trillion in developing countries. Specialized bonds have the potential to tap into these assets as well as those from high net worth individuals interested in low-risk and long-term investment opportunities. Green bonds, for example, have grown from zero to $42 billion in the past ten years, and are expected to reach $100 billion by 2017. Vaccine bonds issued by the International Finance Facility for Immunization (IFFim), and the IADB's Education, Youth, Employment (EYE) Bond have also sought to tap into these sources of savings. Education bonds could be used for education projects that demonstrate measurable results and require significant initial capital, such as school infrastructure development, infrastructure for teacher education institutions, or ICT equipment and connectivity. They could also raise the profile of education and could attract institutional or high net worth individuals committed to education and the social sectors.

Bonds for education could be issued by multilateral financial institutions or by countries, with or without external guarantees from a donor institution or private guarantor. Repayment risk could potentially be reduced by linking the amortization schedule to economic conditions in the country: a country would repay more during a high GDP growth period and pay less when the economy is underperforming.[375] Diaspora bonds could also be used to tap into the interest that diaspora populations have in promoting education in their home countries.[376] One further proposal to explore is the creation of education bonds directed towards teacher or public employee pension funds, which look for ethical investment opportunities. The pension funds would receive a market rate of return and the capital invested would be directed to finance education.[377]

Post-Secondary Student Financing

Student financing mechanisms provide funding directly to students or their families, typically to pay for higher or vocational education. A recent study shows that student loans can be obtained in 14 Sub-Saharan African countries from public student loan boards, but the loans are usually not large enough to cover all of the student's needs, and only a fraction of students

Box 21. Putting results-based financing into practice

The Commission received two proposals for results-based financing:

The Education Outcomes Fund (EOF)

The proposed Education Outcomes Fund would pay for particular specified education results delivered in collaboration with the government, through self-finance or finance from investors. By engaging non-state providers, the fund could help to diversify educational delivery and encourage innovation and competition to develop new approaches. By financing outcomes, the fund aims to shift attention away from inputs and toward results. The ambition is that the fund would grow over time and could deploy financing from private donors such as philanthropic foundations, corporate philanthropy, and official donors.

The Global Offer for Learning (GOL)

The Global Offer for Learning proposes to pay eligible countries an Assessment Award and an Achievement Award. The Assessment Award would pay $1.5 million each year that an eligible country applies a qualified test to assess learning by school-age children (over a period of up to seven years) and publishes its results. The Achievement Award would pay $4 for each child of a particular age who has mastered basic skills over the same time period.

See Source Materials for sources and more information.

have access to them.[378] Innovations in student financing will be critical to expanding access, especially for students from poorer families (see Recommendation 7), and to addressing some of the problems found in some traditional large-scale programs which have suffered from poor design, heavy debt burdens for some students and high delinquency rates.[379]

Innovations which the Commission recommends for further exploration include Income Share Agreements, which modify traditional loans by linking repayment terms to the borrower's expected future income rather than existing collateral, and student financing by specialized non-banking financial institutions (NBFIs) for whom student financing is a core product. NBFIs use technology and innovative financial structures to maximize efficiency and effectiveness. Models for engaging employers should also be explored, whereby they agree to pay a portion of the costs of higher or vocational education upon hiring new employees recently graduating from such programs. Such approaches could also help to spur quality improvement by encouraging providers to deliver programs that result in employment.

Disaster insurance

Disaster insurance has been growing rapidly, but to date, education has been largely neglected. Education disaster insurance would get funds very quickly to developing countries to enable them to maintain and rebuild their education systems after natural disasters. Education tends to suffer both from the initial impact of a disaster on educational infrastructure and from the fact that it is not typically a priority sector for rebuilding using emergency funds. Insurance, based on risk assessment and countries' disaster resilience plans, has the potential to quickly provide emergency funds to countries after disasters so that education provision can be reinstated rapidly. GPE is exploring how such insurance could be used for education. A new working group on disaster insurance convened by the Center for Global Development is also considering the cost-effectiveness of combining annual contributions to self-insurance funds with external insurance to protect against major disasters. An example of this is the FONDEN natural disaster fund in Mexico.[380]

Impact investing

Impact investments are intended to achieve positive social outcomes beyond financial return. There is a growing interest in impact investment as a new asset class. Only an estimated 2 percent of impact investments currently under management are in education, but in a recent survey of investors, 22 percent indicated they plan to increase their investments in the sector.[381] Education-specific impact investment funds could bring more attention to the sector and increase overall funding for education.

One form of impact investing that has attracted significant attention are Social and Development Impact Bonds (SIBs and DIBs). Impact Bonds are a form of impact investment where the investors provide upfront capital to service providers and are repaid, contingent on whether pre-agreed outcomes are achieved, by either governments (SIBs) or donors (DIBs). A particularly promising area for the use of impact bonds is early childhood development, because there is greater flexibility in provision and financing, and governments are often unwilling to fund ECD services unless outcomes can be guaranteed.[382]

Solidarity levies

A global solidarity levy aims to "levy global economic activity to pay for global public goods."[383] It is based on the principle that those sectors of the global economy that are doing well or which are contributing to a "global public bad" should help pay for the funding of global public goods. The air ticket levy used to fund over 50 percent of UNITAID over the past five years is the most widely quoted example of a successful global solidarity levy. Another levy on financial transactions, the Financial Transaction Tax, was agreed on by 10 countries in 2013, but has not yet been implemented. No agreement has been reached on what proportion would be allocated to development, but one proposal suggests allocating 30 percent,[384] in which case education would need to ensure it gets its fair share.[385]

Solidarity levies provide stable and predictable funding and are therefore well-suited to recurring needs such as education. They could raise the profile of education, and funds could be directed toward any country or issue. However, they require considerable lobbying and often a multi-country agreement, making them less suitable as a short-term solution.

One promising idea for further exploration is to place a small voluntary tax on hotel stays to help support the education of those involuntarily displaced. Funds could be channeled through the Education Cannot Wait fund, raising the profile of its work.

Recommendation 11. Establish a Multilateral Development Bank (MDB) investment mechanism for education to deliver improved MDB financing

The Commission recommends the establishment of a Multilateral Development Bank (MDB) investment mechanism for education. The mechanism would increase the banks' leadership and financing of education, leverage their capital bases to raise billions more for education, improve coordination between the banks, and innovate to encourage in new sources of financing. The Commission estimates that establishing such a mechanism could mobilize upwards of $20 billion annually for education by 2030 (up from $3.5 billion today).

The proposed mechanism would help to avoid duplication and fragmentation, and allow for greater coordination and focus by making it possible for MDBs to work together as a coherent system. The MDB mechanism would not need to create a new institution – it could simply be a financing mechanism built from within existing MDBs to encourage collaboration and harness the collective impact of MDBs for education. In the longer term, consideration could also be given to including major national development banks.

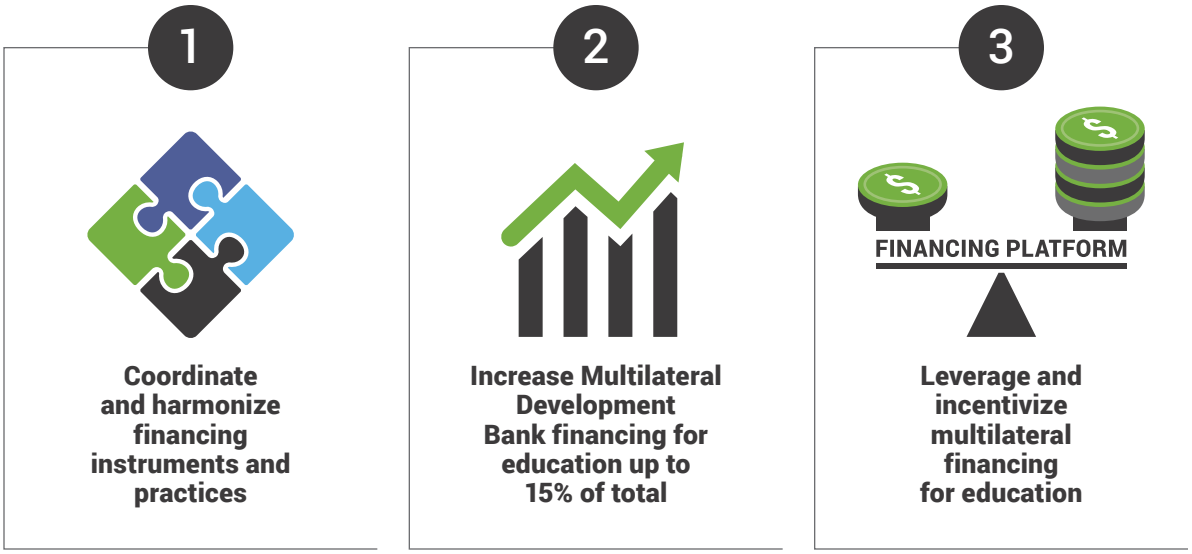
The approach would pioneer a new form of collaboration between MDBs in line with proposals laid out in "Billions to Trillions," a vision for and prepared by the MDBs in the lead up to the Addis Ababa Financing for Development conference.[386] The absence of a coordinated global approach to the international financing of education has proven a critical barrier to progress. The investment mechanism (and associated financing platform) would combine the unique opportunity to leverage substantial additional MDB financing for education with key strengths of earlier proposals for a global fund for education. Such proposals called for: financing from multiple sources including non-traditional donors and the private sector, greater financial innovation and coordination, rigorous focus on results, extended reach including middle-income countries and countries in emergencies, flexible financing and delivery options adapted to country circumstances, and leveraging of greater domestic financing.[387] The investment mechanism will signal that the international community is serious about meeting the education SDG.

MDBs have deep technical skills, access to policymakers at the highest level, and the ability to link programs to system-wide policy reform. Demand for educational support from MDBs remains high: in the World Bank as well as IADB's most recent client surveys, education was the top ranked priority sector overall and a top area in which clients would like MDB support. Critically, there is currently an unprecedented opportunity to increase their overall financing for education through much greater leveraging of their capital bases. The rating agency S&P estimates that across 19 MDBs, lending could be increased by 72 percent without any capital increases and without jeopardizing their credit ratings.[388] Some of the banks, such as the ADB and IADB, are already taking advantage of this opportunity,[389] and the World Bank has plans to do so. Its concessional arm, IDA, has a huge unleveraged asset in the form of $135 billion in outstanding loans. This could be used to raise an additional $20 billion per year, and could potentially double IDA's available total finance (on IDA and IBRD terms) to its client countries.[390]

To meet the Commission's financing targets, it is vital that a substantial share of any such increases is channeled toward education. To help ensure that this happens, an MDB investment mechanism for education would have three functions (see Figure 37):

- **It would bring together all major multilateral development banks in a concerted effort to coordinate and harmonize financing practices for education, reduce transaction costs, and leverage in additional resources.** A central task would be to ensure that countries with strong financing need and commitment receive the support that is warranted. The MDB Mechanism would work in collaboration with other multilateral institutions – such as UNESCO, GPE, and UNICEF – and with bilateral donors, charities, and private financiers to identify priorities for financing and agree on actions and accountabilities. The mechanism would allow for a coordinated approach to attracting the additional MDB lending to support national education plans including in GPE partner countries, countries

Figure 37. Investment mechanism for education — MDBs and donor partners working as a global system for improved education financing



responding to emergencies through Education Cannot Wait, or other country-led initiatives in partnership with institutions such as UNICEF, UNESCO, or UNHCR. Given the strong presence of the GPE in the lowest-income countries, the mechanism would pay particular attention to transition and "blend" countries – those that receive both concessional and non-concessional financing.

- **It would encourage MDBs to increase their funding for education, with a target for an overall MDB allocation for education of 15 percent of their total financing.** Delivering this will require strong leadership among the MDBs, and greater communication of the importance of education — as the World Bank will be doing, for example, through focusing its 2017 World Development Report on education. Evidence shows that financing agencies that prioritize certain sectors receive more demand for funding for those sectors.[391] For example, the current African Development Bank Strategy, which gives a very strong emphasis to infrastructure and clean energy, represents a clear attempt to direct multilateral lending toward strategic priorities. While MDBs often oppose earmarking of resources, in practice they often do so for important programs. Most recently, in the lead-up to the 2015 Paris Climate Change Summit, MDBs committed to explicit ambitious increases in climate-related finance, and in August 2016, the World Bank announced it would spend $15 billion on universal health coverage in Africa in the next 3-5 years.[392] The World Bank has a particularly important role to play in education as the world's single largest source of official international financing for education (IDA and IBRD each committed $2 billion for education in 2015). If the World Bank were to prioritize education more comprehensively, aiming to commit 15 percent of its lending to the sector, the direct and spillover benefits would be considerable.

- **It would establish a financing platform with the purpose of incentivizing MDB funding for education as well as crowding in financing from other sources.** The platform would aim to be transformative in several ways. First, it would raise funding from bilateral donors, philanthropists, and charitable organizations (in addition to the estimated $20 billion from MDBs directly) to incentivize MDB and other financing for education and better tailor financing instruments to the needs of different client countries (e.g., by softening loan terms). Second, it would link financing packages to increased domestic financing and promote greater efficiency of public spending. Third, it would focus strongly on results-based approaches, helping to

attract new investment and improving impact. Fourth, it would facilitate innovative financing including new opportunities to blend or coordinate public and private finance, as discussed above. The platform would engage with the private-sector arms of MDBs and commercial and impact investors to further enhance impacts, as well as drawing on grant financing from donors, foundations, and philanthropists. Finally, it would enhance sharing of timely, accessible, and reliable data and knowledge among the MDBs and with others. The proposed platform has similar objectives to the Climate Investment Funds at the World Bank, which aim to leverage MDB financing for climate purposes through coordinated financing packages engaging all MDBs.

The MDB mechanism could have a dramatic impact on overall education financing. Assuming that, by 2030, MDBs will have expanded their lending capacity by 72 percent over today's levels by optimizing their balance sheets as projected by S&P, and assuming they will allocate 15 percent to education, **total MDB finance for education could expand from $3.5 billion to $20 billion annually by 2030.**[393] Calculations for the Commission indicate that concessional funding from the MDBs could rise from $2 billion in 2014 to $14 billion in 2030 (at constant 2014 prices). Half of this would be from buying-down non-concessional lending increases to help address investment shortfalls in the poorest countries as well as in those transitioning from highly concessional to harder terms.[394] Non-concessional funding could rise from $1.5 billion to $13 billion, of which $7 billion would be converted to become concessional through buy-downs. The increase could be even greater if capital increases for the key MDBs were agreed, if capital leverage were greater, or if capacity of new development banks were harnessed.[395]

Making this happen will require leadership from the MDBs as well as from the other multilateral institutions, bilateral donors, foundations, and charitable organizations that would provide the resources for the financing platform. The financing platform would be designed and implemented in close consultation with GPE as its full replenishment and the availability of grant financing will be necessary to drive results in many countries, especially low-income countries.

Agenda for Action

The International Commission on Financing Global Education Opportunity was set up to chart a pathway for increased investment in global education in order to develop the potential of all of the world's young people. Its recommendations are made against the challenging backdrop of this unfolding century – when technology, demographics, and the pace of globalization are increasing the value of skills and worsening the costs of failing to address today's learning crisis.

The Commission has set out a vision and a feasible plan to get all children and young people learning within a generation. If delivered, the Learning Generation would be the most rapid expansion of educational opportunity in history.

At the heart of the Commission's proposals is a call for developing countries and the international community to enter into a Financing Compact for a Learning Generation based upon the four education transformations set out by the Commission – strengthened performance, innovation, inclusion, and finance.

This is an agenda for action. To ensure its implementation, the Commission makes a final recommendation: Leaders and citizens must provide the leadership and accountability to secure the Learning Generation.

Recommendation 12. Ensure leadership and accountability for the Learning Generation

The Financing Compact must be more than words. Action must begin now, and it must be sustained. Ensuring this will require accountability, leadership, and advocacy.

Hold leaders accountable for the promise of education and opportunity.

Despite the irrefutable case for investment in education, and despite the promises made and remade by generations of leaders – from the Universal Declaration of Human Rights and the Convention on the Rights of the Child, to Education for All, the Millennium Development Goals, and now the Sustainable Development Goals – education has not been sufficiently prioritized by governments or external sources of finance to even come close to ensuring this universal right. Education can wait no longer – evidence is clear that it is now, more than ever, an imperative for social and economic progress.

The Commission recommends development of a transparent accountability framework outlining the responsibilities of developing countries and the international community for education, and recommends that independent reporting against this framework be encouraged. This framework would build on the SDG indicators and monitoring framework but also include consideration of the key policies and actions undertaken by governments to get all children and young people learning.

With the backing of global leaders and institutions, annual reporting on whether developing and developed countries are meeting their responsibilities would gain traction as a way to celebrate or challenge countries as required. Such reporting could be used by others in various ways – to inform negotiations between donors and recipient countries; to signal to potential investors and employers whether governments are investing in a skilled workforce; to enable international bodies to apply pressure where required; and to stimulate advocacy and mobilize change.

To ensure this accountability is accorded the highest importance, reflecting the status of education as a cornerstone of global development, security, and stability, **the Commission recommends that the United Nations General Assembly pass a resolution requesting the Secretary-General to appoint a Special Representative for Education,** tasked with upholding children's rights by holding countries to account for meeting their responsibilities.

Following an initial one-year mandate for developing and agreeing an appropriate monitoring and reporting process, the Special Representative should draw upon the proposed accountability framework to report annually at the highest levels of the international community to the General Assembly, Human Rights Council, and the Security Council, which should review the implications of their findings as they relate to individual countries and to global issues of peace, security and stability.

Examples of global accountability mechanisms exist in other development areas. The 2015 climate agreement is a strong example of how such global accountability can be achieved.[396] While the targets of the agreement are voluntary, the provisions on how to measure, report, and verify commitments on emissions of greenhouse gases and financial flows are globally agreed and legally binding. Countries report to the United Nations Framework Convention on Climate Change according to common transparent protocols. Independent institutions will be able to verify claims and track progress. In the case of children in conflict, the Special Representative of the Secretary-General for Children and Armed Conflict reports to the General Assembly, the Human Rights Council and the Security Council describing the countries with the most serious violations, and calls on the Security Council and UN member states to take action.[397]

Reporting should include producing a "dashboard" reflecting the key measures countries must take to get all children learning, as outlined in this report. This would include the SDG indicators, which rightly focus strongly on outcomes, but would also include wider measures reflecting countries' policies and actions in key areas such as system performance, innovation, inclusion, and financing. It should include information on countries' learning outcomes, including the lead global learning indicator recommended as well as other indicators. Measures on inclusion could include whether governments have taken the necessary efforts to ban child marriage, child labor, and trafficking and have implemented measures for children with disabilities or to achieve gender equity. To inform this reporting, the Commission recommends that the full monitoring capacity of the UN (such as UNESCO, UNESCO Institute of Statistics, UNICEF, the Global Education Monitoring Report, and the Office of the High Commissioner for Human Rights and UN High Commissioner for Refugees) be engaged, as well as other key organizations working on education at the country and global level,

to document the commitments and actions taken to reform and finance education. Collecting and disseminating this information will enable citizens, leaders, and institutions around the world to hold governments to account for their action or inaction, and help to ensure that countries making progress are given appropriate support and financing by the international community.

Recruit pioneers to establish momentum.

All revolutions need pioneers. To set the direction for all countries to follow and to establish the momentum which must characterize the Financing Compact over the coming years, **the Commission calls on an initial set of pioneer countries among developing and development partner countries to commit to adopting the recommendations set out.**

By leading the way, sharing learning as they do, and championing change among their neighbors and peers, these countries will demonstrate to the world what is possible and why the possible is now the essential. The international community should make bold commitments to support developing-country pioneers to make rapid progress towards realizing the Learning Generation within their countries. Such progress will inspire others, unlock new resources and innovation, and help to secure the widespread adoption of the Financing Compact.

Strengthen advocacy at all levels.

Ultimately, the achievement of the Commission's vision will depend upon strong leadership and advocacy at every level. Despite much strong rhetoric and the overwhelming case for investment, education has been slipping down global and regional agendas. As just one example, education has not been mentioned substantively at either G7 or G20 meetings in recent years, in contrast to in the early 2000s. Recent efforts to coordinate advocacy have had only limited success.

Education is a basic right. It is time that right was fought for. **The Commission calls for a global movement to advocate for the rights of everyone to an education and to make the case for educational investment and reform – a movement which can hold leaders and institutions accountable for delivering the promise of a Learning Generation.** The Commission's vision for the fastest expansion of educational opportunity in history will simply not be possible without the active participation and advocacy of young people and families, teachers and faith leaders, communities, civil society and business leaders, and political leaders at all levels. The global movement for education must be united by commonalities instead of divided by the vested interests of organizations, institutions, and agencies.

Mobilizing this movement and ensuring its impact will require investment, organization, and coordination. It will require leadership with the courage to build unexpected coalitions, to call out difficult truths, and to take risks in the pursuit of progress. To keep education high on the global agenda, **the Commission recommends the Secretary-General establish an independent high-level body, with the Special Representative as an independent chair, to provide global leadership and advocacy and to take forward these recommendations.** It should include the heads of the major multilaterals involved in education and representation from developing countries, donors, business and civil society, and membership from other sectors. The high level body would aim to sustain momentum created by the Commission in years to come.

The Commission hopes its report provides the evidence necessary for leaders and decision-makers, those involved in providing education and those who advocate for it, to make the case for education. It hopes that it demonstrates the tangible actions governments can take to realize the Learning Generation. And it hopes others are inspired by the actions it recommends to build new coalitions and campaigns for progress.

The principles of the Compact are clear. Developing-country governments, and their partners across sectors, are called on to invest and to reform in order to ensure every child has access to quality education. The

international community is called upon to increase its financing, leadership, and support, to ensure that countries who are committed to getting all their children learning are able to do so. The actions of both parties to the Compact should be informed by the four education transformations set out by the Commission — strengthened performance, innovation, inclusion, and finance.

The imperative to get all children and young people learning is shared by all countries. All countries will gain from action and all will face the dangerous consequences of inaction. This is a time of opportunity, but that time is running out.

ANNEX

Further detail on the investment plan[398]

Investment Plan summary

The investment pathway proposed includes ambitious but achievable targets for domestic and international, public and private financing:

- **The Commission's investment plan calls for low- and middle-income countries to increase domestic public expenditures on education** from an estimated $1 trillion in 2015 to $2.7 trillion by 2030, or from 4 to 5.8 percent of GDP.[399] It projects that public expenditures expand to increase quality as well as coverage and are allocated according to the principle of progressive universalism. Governments allocate the bulk of public financing to pre-primary, primary, and secondary education, with a focus on what works to increase access and learning for the poor or disadvantaged. By gradually expanding coverage, they achieve quality, free education from pre-primary through to secondary school. That financing should also include progressively eliminating in-school incidental costs for households such as textbooks and learning materials. Based on country-by-country projections in the costing model, financing will be overwhelmingly – about 90 percent— for recurrent costs with the remaining 10 percent for constructing classrooms and other capital costs.[400]

- **Households continue to bear a share of the cost, declining in volume from 1.5 to 1 percent of GDP as governments increase their share of financing.** The pathway reduces household expenditure on preschool to secondary education very substantially, especially in low-income countries. Household financing will need to shift up the education ladder to post-secondary education, where even after taking account of reforms to reduce costs and of available government financing, there will still be a need for substantial household participation in cost-sharing mechanisms, particularly student loans and fees. However, in the case of upper-middle income countries, growth in public revenues would enable governments to assume more of the costs of post-secondary education, permitting household expenditures to decline.

- **International sources including official development assistance (ODA), emerging donors, official non-concessional loans, and private development assistance — such as philanthropies, civil-society organizations, and corporate giving** – would be available for all countries that need it, but would need to be prioritized according to where needs are greatest and where commitment to reform is demonstrated. The pathway allocates each of these flows to the three country income groups, with emphasis in allocations of concessional finance to the low-income group, which is made up primarily of fragile states. With increased domestic financing and efficiency, only 3 percent of the total financing package will be needed from international financing, primarily in low-income countries. This small share of financing still requires total international finance for education to rise by an average of 11 percent per year, from today's estimated $16 billion per year to $89 billion per year by 2030. ODA would need to rise by 9 percent per year, from today's $13 billion per year to $49 billion per year. This is feasible if ODA increases to at least 0.5 percent of donor GDP, a wider range of actors engage

in financing education, and education and health are prioritized equally by international funders, each at 15 percent of global finance. These funds will remain critical for low- income countries, covering nearly half of their education costs. These countries will be home to almost 20 percent of the world's school-age children (three to 18 years) by 2030, and without this support they will fall irretrievably behind.

The pattern of financing is very different for the three income groups:

- Low-income countries would need to increase domestic public expenditures for education from $13 billion to $50 billion between 2015 and 2030, or from 3.2 to 4.9 percent of GDP. Overall domestic public expenditures would grow from 20 to 25 percent of GDP and the share of education in total expenditure would grow from 16 to 20 percent. International finance will remain critical for low-income countries, covering nearly half of their education costs. The combination of higher public and international financing allows household financing for education in these poorest countries to decline from 2.5 percent of GDP — double that of middle-income countries — to just under 1 percent by 2030.

- Lower middle-income countries would increase domestic public expenditures for education from $214 billion to $712 billion, or from 4.1 to 6 percent of GDP. Domestic public expenditures would increase from 27 to 32 percent of GDP, still lower than all but one OECD country, and the share of education would increase from 15 to 19 percent.

- Upper-middle income countries would increase domestic public expenditures for education from $779 billion to $1.93 trillion, or from 4.5 to 6.3 percent of GDP. Public expenditures would go from 32 to 37 percent, and the share of education from 15 to 18 percent.[401]

- In lower- and upper-middle income countries, government budgets are able to finance an increasing share of the growing costs of education. International finance plays a very minor role (under 1 percent of GDP in 2015) and will be declining over time. In these countries, international finance is important, however, for its catalytic effect in encouraging greater domestic resource mobilization and reform.

The Commission costing model

The Education Commission financing model is built on the UNESCO 2015 costing model[402] which was the model developed to estimate the costs of reaching the SDGs and the associated finance gaps. The Commission substantially added to this model. In addition to the inclusion of more countries (adding the upper-middle income group), the Commission model includes projections of learning, post-secondary, and the top 25 percent or country-specific trends for future pathways rather than the fixed targets of the SDGs. It also includes an option to project the impacts of specific interventions on education costs and outcomes. The model uses a detailed bottom-up approach[403] and projects education progress of students by grade over time from pre-school to secondary. Costs are the sum of teacher salaries, other recurrent costs, capital investments, and support for marginalized students or specific interventions (depending on the scenario).

Assumptions Used

Table 7 presents a summary of the assumptions that were used for the Learning Generation "vision scenario" discussed in the Report. The assumptions regarding access to education – from preschool to post-secondary – and the assumptions regarding improvements in learning are taken from the Learning Generation aims. Assumptions regarding resources – teachers, salaries, other recurrent costs, construction, and support for marginalized students – are the same as those used in the UNESCO model. These include, by 2030, a convergence of teacher salaries towards the average levels of the top-paying half of countries (controlling for average incomes); and added spending for poor children ranging from 20 to 40 percent of base costs. The assumed costs cover the envisioned access and quality improvements (if programs are effectively implemented) based on calculations using evidence on the costs and impacts of various practices.

The Commission's projections were developed on the basis of detailed analysis regarding maximum achievable expansion and improvement rates and the

Table 7. Summary of assumptions for the scenarios

Indicators	Vision scenario	
Access trends, preschool — secondary: Preschool enrollment, primary entry and completion, secondary transition and completion.	Top 25 percent growth path	
Youth literacy training:	100 percent of youth 20–24 literate by 2030 (through schooling or literacy training)	
Post-secondary GER:	Top 50 percent growth path	
Post-secondary delivery modes:	Campus tertiary: 30 percent Campus PSNT: 20 percent Online/disruptive modes: 50 percent	
Learning levels:	Top 25 percent growth path	
Pupil-teacher ratios:	**All levels**	Converges to international trend (negatively correlated to GDP per capita following historical trend) with maxima below:
	Preschool	20 (half-day shift)
	Primary	40
	Lower secondary	35
	Upper secondary	35
Costs, preschool — secondary:	**Teacher salaries**	Function of income, rising to the top 50 percent of salaries (relative to income) by 2030
	Non-salary recurrent costs	25 percent of salary costs
	Classroom construction	Constant multiple of GDP as per 2012 level; varies by education level; includes additional costs for furniture, utilities and maintenance
	Subsidies for marginalized students (poor), percent of recurrent costs	20 percent for primary 30 percent for lower-secondary 40 percent for upper-secondary
Unit costs, literacy training:	Same as primary unit cost per year.	
Unit costs, post-secondary (% of GDP per capita), per student, per year	Campus: Converges to int'l. trend (declines as GDP per capita increases). Disruptive: 25 percent of GDP per capita.	

most cost-effective ways these could be achieved. Specific growth and spending paths included are illustrative and not prescriptive – some countries will be able to go further or will choose to prioritize spending differently. For the costing estimates, the Commission made some ambitious but feasible general assumptions, but recognizes that each country's strategy for achieving higher quality will be unique.

The key assumptions include:

Expansion rates:

The expansion rates envisioned by the Commission, particularly in low-income countries, are rapid but achievable for almost all countries. They are based upon the rates achieved by the 25 percent of countries whose rates of growth most outperformed that of countries with a similar starting point on a given measure.

These rates mean that, for example, the number of secondary students in low-income countries is projected to increase from 36 million in 2015 to 94 million in 2030. The average annual growth rate in secondary pupils would be 6.9 percent – this is more than one and a half time faster than the average rates achieved since 2000 by countries who had at that time levels of secondary enrollment comparable to those in low-income countries today.[404] Even faster growth is projected for preschool and post-secondary in low-income countries: preschool pupils are projected to rise from 5 million to 21 million by 2030, and post-secondary students from 5 million to 17 million by 2030.

To support this expansion rate, the number of teachers needed in low-income countries will double in 15 years, from 3.6 million to 6.6 million. This would require *an average of more than 60 percent of tertiary graduates from 2015-30 to go into teaching*.[405] The number of classrooms would need to grow at roughly the same rate. Overall, the expansion as proposed requires huge effort by all; achieving it within a realistic funding envelope constrains some options for how quality can be improved, for example reducing class size more rapidly.

Teacher salaries:

The Commission's costings assume that teacher salaries will, on average, be improved. Assumptions are based upon the historical trend relationship between teacher salaries and GDP per capita, and the assumption that countries will gradually converge at a global average. Relative to GDP per capita, teacher salaries tend to be higher in poorer countries because relevant skills are scarce. In the Commission's projections, average salaries rise to meet those of the top 50 percent of teacher salaries globally (controlling for GDP per capita). This is to ensure that that salaries are sufficient to attract qualified candidates into the profession. In the very poorest countries, teacher salaries would be seven to eight times the average GDP per capita. There is evidence that raising overall teacher salaries has an impact on learning, more so in the long-run as better candidates choose to become teachers and in some cases when those increases are linked to student learning improvements.[406] However, the impact of salary increases needs to be weighed against the impact of other investments in teachers. The Commission's salary assumptions reflect evidence on the impact of improved pay alongside further evidence that teacher quality and engagement can also be improved by other, complementary, and often lower-cost measures, as discussed in this report. In the costing assumptions, the salaries for teachers in lower-secondary are assumed to be 50 percent higher than those of primary teachers, and upper-secondary teachers another 20 percent higher. This is in line with observed salary scales in Africa and Asia today.

Non-salary spending:

Recurrent spending on items such as high quality learning materials, in-service training, teaching support programs, special education programs, management improvement, and other programs is projected to rise substantially, reflecting evidence that schools need to be much better resourced, and that teachers and students need far greater support. As discussed throughout this report, leveraging existing resources (teachers and classrooms) better through more effective practices and reforms can improve outcomes for relatively low cost. In low-income countries, this category of spending is projected to grow from 10 percent of total education costs in primary in 2015 to 30 percent by 2030 (in lower-middle income countries, from 15 to 35 percent). At secondary level, this category is projected to grow to more than one quarter of total education costs. In addition, resources to help marginalized students start and stay in school are added to the cost assumptions.[407] This adds an average of 6 percent of primary costs in

low-income countries; 9 percent at lower-secondary; and 10 percent at upper-secondary by 2030.

Class sizes:

Evidence on the negative impact of very large class sizes is strong, so costings assume that average class size in low- and middle-income countries will be reduced – in preschool to an average of 20 children per teacher; in primary to an average of 40; and in secondary to an average of 35. While many countries opt to invest in smaller class sizes than this, evidence on the effectiveness of this policy is mixed and the marginal benefits drop once a class size of around 40 is reached.[408] A teacher:pupil ratio of 40 is widely used as a benchmark[409] and, given the great demands on teacher supply and overall resource constraints, reducing much further than this, on average, is unlikely to be achievable or cost-effective relative to other, lower-cost measures for improving teaching and learning. Cost implications of further reductions would be considerable - for example, reducing the primary school pupil:teacher ratio to 20 would result in the total education costs in low-income countries rising to $130 billion in 2030 (rather than $102 billion) and the external finance needs would be $71 billion by 2030 (instead of $45 billion).

Construction costs:

The cost of classroom construction can vary widely, depending on the procurement method and who builds the classrooms. The model assumes that there is one classroom for every teacher and that these need to be furnished adequately, maintained annually, and incur recurrent utility costs.[410] The benchmark cost of classroom construction was taken from the UNESCO model, which obtained it from various country studies (no international database of classroom construction costs exists).[411] The total costs for construction are higher when education is expanding, because of the need to add new classrooms. In low-income countries in 2030, construction costs are assumed as 18 percent of the total for preschools; 14-15 percent in secondary; but only 9 percent in primary.

Figures and tables: Source materials

V1 Figure 1. A global learning crisis: The expected learning outcomes of the cohort of children and youth who are of school age in 2030

The learning benchmark for primary students is reaching at least level 1 on a PIRLS Grade 4 reading assessment or equivalent. This is used as an available metric, recognizing that actual learning is a much broader and more complex process. The learning benchmark for secondary students is reaching least "low" level on a PISA assessment or equivalent. Again, this is used as a proxy for learning in the absence of more comprehensive assessments.

The calculations are based on the assumption that all children and youth in primary and secondary school in 2030 will have the same learning outcomes (i.e., the primary school pupils, when they reach adolescence, will have the same secondary school outcomes as their older peers did in 2030). The idea is similar to how the total fertility rate is computed for population projections. One takes the learning outcomes of different ages in year X, and calculates what the learning outcomes would be if everyone of school-age completed their schooling with those learning outcomes. For further information, see the Education Commission Analytical Background Paper available at **http://report.educationcommission.org/resources**.

V2 Figure 3. Educating girls saved over 130 million lives — Decline in mortality rates (per 1,000) in low- and middle- income countries (1970-2010)

Jamison, Dean and Marco Schäferhoff. 2016. "Estimating the Economic Returns of Education from a Health Perspective." *Background Paper for the Education Commission*. SEEK Development (SEEK).

V3 Figure 4. Education is the smartest investment — benefit-cost ratios are high

Jamison, Dean and Marco Schäferhoff. 2016. "Estimating the Economic Returns of Education from a Health Perspective." *Background Paper for the Education Commission*. SEEK Development (SEEK).

V4 Table 1. Five aims of the Learning Generation

Detail on the Commission's vision scenario projections can be found in the Education Commission Analytical Background Paper available at **http://report.educationcommission.org/resources**.

V5 Figure 9. Stronger systems deliver better learning outcomes

Analysis by the Education Commission Secretariat (2016) on data from the World Bank Systems Approach for Better Education Results (SABER) initiative and other systems data.

For achievement test scores: Altinok, Nadir, Claude Diebolt, and Jean-Luc De Meulemeester. 2013. "A New International Database on Education Quality: 1965-2010." *AFC Working Papers, No. 3*. Association Française de Cliométrie (AFC): Restinclières.

V6 Figure 11. More spending does not necessarily lead to more learning

Left graph: The PISA test has five levels for reading; "Low" level 1 is the most basic level. Average expenditure per pupil-year for primary through secondary as a percent of GDP per capita, weighted for the duration of each school- level. Spending data from UNESCO Institute for Statistics (UIS) via Edstats (2012) and PISA (2012). Right graph: Bari, Faisal, Rabea Malik, and Fizza Raza. 2016. "Raising Domestic Resources for Equitable Education in Pakistan." *Background Paper for the Education Commission*. IDEAS Pakistan.

V7 Figure 12. Characteristics of education systems at different stages of the improvement journey

Analysis by the Education Commission Secretariat (2016) drawing on Mourshed et al. (2010) and the World Bank Systems Approach for Better Education Results (SABER) initiative.

Mourshed, Mona, Chinezi Chijioke, and Michael Barber. 2010. "How the world's most improved school systems keep getting better." *McKinsey & Company Report*. McKinsey & Company: Washington, DC.

V8 Figure 13. Highly effective practices to increase access and learning outcomes

Data on percentage improvements from Education Commission Secretariat analysis (2016) using data provided as background material to the report.

Conn, Katherine. 2016. "The Effectiveness of Education Programs Worldwide: Evidence from a Meta-Analytic Dataset." *Background Paper for the Education Commission*. For further information, see the Education Commission Analytical Background Paper available at **http://report.educationcommission.org/resources**.

V9 Figure 15. Impacts of mother-tongue (MT) / bilingual instruction

Estimated impact of language of instruction: Calculations by the Education Commission Secretariat (2016) based on estimated prevalence of children not learning in their own language (based on Pinnock, Helen. 2009. "Language and education: the missing link. How the language used in schools threatens the achievement of Education for All." CfBT and Save the Children Alliance); the impacts of mother-tongue instruction from the database provided to accompany Conn, Katherine. 2016. "The Effectiveness of Education Programs Worldwide: Evidence from a Meta- Analytic Dataset." *Background Paper for the Education Commission*, and learning outcomes in the Education Commission costing model.

V10 Figure 16. The gains to be had from efficiency: Resources paid for but used ineffectively or not at all

Bold, Tessa, Deon Filmer, Gayle Martin, Ezequiel Molina, Brian Stacy, Christophe Rockmore, Jakob Svensson, and Waly Wane. 2016. "What Do Teachers Know and Do in Primary Schools in Sub-Saharan Africa?" *Unpublished draft submitted to the Education Commission*. Paper for the William and Flora Hewlett Foundation, World Bank, and African Economic Research Consortium.
The losses in materials are assumed to be proportional to the losses of teacher time – this is a low estimate that does not account for materials not used when teachers are in class teaching.

V11 Figure 17. Corruption worsens education outcomes
Adapted from Figure 1 in Ferraz et al. (2012) with updated achievement data from Altinok (2013) and updated World Bank Corruption Index data from Kaufmann and Kraay (2015).
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Kaufmann, Daniel and Aart Kraay. 2015. "Worldwide Governance Indicators: 1996-2014." World Bank: Washington, DC.

V12 Table 2. Teachers' time away from teaching at primary school level
Cost of absenteeism calculated assuming 75 percent of government expenditure on primary education spent on teacher salaries.
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V13 Figure 18. Teachers' time at primary school level
Bold, Tessa, Deon Filmer, Gayle Martin, Ezequiel Molina, Brian Stacy, Christophe Rockmore, Jakob Svensson, and Waly Wane. 2016. "What Do Teachers Know and Do in Primary Schools in Sub-Saharan Africa?" *Unpublished draft submitted to the Education Commission*. Paper for the William and Flora Hewlett Foundation, World Bank, and African Economic Research Consortium.

V14 Figure 19. How demand for skills has changed in recent decades
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The position of an occupation on the x and y axes reflects the intensity of math and social skills required, based on calculations by David Deming, using data from the Occupational Information Network (O*NET), a survey administered by the U.S. Department of Labor. The bubble color reflects changes in the share of jobs from 1980 to 2012. Jobs with shares that changed in a range from -24 to 24 percentage points are grouped under "Share of jobs remained the same," jobs with shares that changed by more than 24 percentage points are grouped under "Share of jobs grew," and jobs with shares that changed by less than 24 percentage points are grouped under "Share of jobs fell." Adapted from Miller, Claire Cain. "Why What You Learned in Preschool Is Crucial at Work." The New York Times. October 16, 2015. **http://www.nytimes.com/2015/10/18/upshot/how-the-modern-workplace-has-become-more-like-preschool.html**, based on data from Deming, David J. 2015. "The Growing Importance of Social Skills in the Labor Market." Harvard University and NBER: Boston and Cambridge.

V15 Figure 21. The education workforce is much less diversified than the health workforce
The OECD Teaching and Learning International Survey (TALIS) Results, 2013; and WHO data, 2015.

V16 Figure 22. Increasing diversity of school provision: non-state enrollments 1990-2013
Education Commission analysis (2016) based on World Bank EdStats Core Indicator data for "Percentage of enrollment in primary education in private institutions 1990-2013" by country income level. Accessed August 2016.
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V17 Figure 23: Young people are not ready for work
McKinsey Center for Government. 2012. "Education to Employment: Designing a System That Works." McKinsey & Company: Washington, DC.

V18 Figure 24. Poverty-driven inequalities in learning
Research for Equitable Access and Learning Centre (REAL), University of Cambridge. 2016. "Overcoming Inequalities within Countries to Achieve Global Convergence in Learning." *Background Paper for the Education Commission*.

Figures and tables: Source materials

V19 Figure 25. Government spending favors the rich: Ratio of public expenditure to the richest decile versus the poorest decile
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V20 Figure 27. Household spending varies greatly between poor countries: Spending on education by source
UNESCO. 2014. *Education for All Global Monitoring Report 2013-2014*. Teaching and Learning: Achieving quality for all. UNESCO Publishing: Paris.

V21 Figure 28. Progressive Universalism in action: Enrollments for different levels of education in Korea
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Net enrollment rate: Enrollment of the official age group for a given level of education, expressed as a percentage of the population in that age group.

V22 Figure 29. Early care and stimulation shapes brain development
Perry, Bruce. 2002. "Childhood Experience and the Expression of Genetic Potential: What Childhood Neglect Tells Us about Nature and Nurture." *Brain and Mind*, Vol. 3, Issue 1: 79-100.

V23 Table 5. Countries with weak education and high energy subsidies relative to education spending
Coady, David, Valentina Flamini, and Louis Sears. 2015. "The Unequal Benefits of Fuel Subsidies Revisited: Evidence for Developing Countries." *IMF Working Paper*. International Monetary Fund (IMF): Washington, DC.

V24 Figure 35. Trends in sectoral ODA
Data from the OECD-DAC Credit Reporting System (CRS). Accessed July 2016.

V25 Figure 36. Share of sector allocable aid over the last decade — 2002-04, and 2012-14
The share of sector allocable aid disbursed by multilateral agencies as a group to various sectors considers all multilateral agencies reporting in a particular year. An alternative methodology which only considers those multilateral agencies reporting in both time periods (2002-04 and 2012-14) results in similar findings for all sectors apart from for the health sector. The difference is accounted for by GAVI and Global Fund for Aids, TB and Malaria (GFTAM), neither of which were reporting agencies to the DAC Creditor Reporting System in the earlier period (2002-2004).

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Box 2. It can be done — Vietnam's path to success

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Box 5. Using assessment to drive results in Chile

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Box 6. Teacher-led accountability in Uganda

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Box 7. Big Results in Tanzania

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Box 8. Some of the best-proven practices for increasing participation and learning

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Endnotes

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36 Analysis by the Education Commission Secretariat (2016) of Demographic and Health Surveys (DHS) data using a meta-dataset with 39 countries, of which 28 are Sub-Saharan Africa countries. The analysis compared the percent of young adults aged 20-24 who had completed secondary among two groups – poor, rural females vs. non-poor, urban, males. The country-fixed average secondary completion for each group was 5 percent and 37 percent, respectively.

37 Estimates on the number of disabled children and their enrollment are difficult because there is little consistent data, and recent high-level reports have not provided a firm estimate. The numbers in this report are the Commission's calculations based on multiple sources. First, the estimated number of children with disabilities between 0 and 18 years ranges between 93 million and 150 million (World Health Organization. 2011. *World Report on Disability*. WHO and World Bank: Geneva; UNICEF. 2006. *State of the World's Children 2006: Excluded and Invisible*. UNICEF: New York), equal to 5-7 percent. If this range is correct, 46 million-65 million primary and lower-secondary age children in LIC and MIC countries have a disability. The estimates for enrollment rates of children with disabilities also varies. The Commission estimated that one-fourth to one-half of children with a disability are not in school (based on Sæbønes et al. 2015. "Towards a Disability Inclusive Education." Background Paper for the Oslo Summit on Education for Development; Kuper et al. 2014. "The Impact of Disability on the Lives of Children; Cross- Sectional Data Including 8,900 Children with Disabilities and 898,834 Children without Disabilities across 30 Countries." PLoS ONE 9(9): e107300; Filmer, Deon. 2008. "Disability, Poverty, and Schooling in Developing Countries: Results from 14 Household Surveys." *World Bank Economic Review*, Vol. 22, No. 1. World Bank: Washington, DC; Global Partnership for Education. 2012. "Results for Learning Report 2012: Fostering Evidence-Based Dialogue to Monitor Access and Quality Education." GPE: Washington, DC; UNICEF. 2015. "Fixing the Broken Promise of Education for All." UNICEF and UIS: New York). Taking the higher range of these estimates would mean 65 million primary and lower-secondary age children in LIC and MIC countries have a disability; as many as one-half, or 33 million, are not in school. This is equal to 28 percent of the 117 million OOSC of primary and lower secondary age in LIC and MIC countries. More details on the estimation can be found in the Education Commission Analytical Background Paper available at **http://report.educationcommission.org/resources**.

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75 These skills are narrowly defined as sufficient learning to attain at least the "Low" level in a PISA or TIMSS or equivalent assessment, but more broadly include also social, analytical, and problem-solving skills and knowledge.

76 The Global Education Monitoring Report 2016 (UNESCO: Paris) comes to similar conclusions: "It is useful to look at whether a country would achieve universal secondary completion by 2030 if they expanded at the fastest rate ever observed on their region. For the vast majority of countries, even this would not be sufficient to meet the target."

77 Analysis by the Education Commission Secretariat. 2016. The rate of change is based on countries with actual data which determines that is possible. But, for each country, a baseline level for the projection is estimated if data is not available. For primary reading, average levels in income groups for the countries with data were used. For secondary skills, a regression analysis was used to identify a model to estimate missing values because there were no low-income country observations to get an average from.

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80 Estimates by the Education Commission Secretariat (2016) based on trend projections from UNESCO Institute of Statistics and World Bank Edstats data, accessed June 17, 2016. Country-as-unit average by country-income group.

81 For example, the Measuring Early Learning Quality and Outcomes (MELQO) project, a consortium including UNICEF, UNESCO, and The Brookings Institution, aims to generate locally-relevant data on children's learning and development at the start of school and pre-primary learning environments with specific relevance to national ECD policy.

82 While the Commission's aims encompass both literacy and numeracy, our specific measure for basic primary school learning is literacy, and our learning dataset is made up of reading levels from PIRLS, LLECE, and SACMEQ. Countries with both math and reading scores show the two are closely correlated, indicating that school quality is relatively consistent across subjects.

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86 This would be achieved with growth rates of the top 50 percent of countries (the growth rates of the top 25 percent are not feasible because the path of post-secondary would exceed that of upper secondary completion in many countries).

87 Data from Research for Equitable Access and Learning Centre (REAL), University of Cambridge, for the Education Commission. Based on a sample of 25 low- and lower-middle income countries.

88 Communication from Research for Equitable Access and Learning Centre (REAL), University of Cambridge: "The average learning gap between the poor and the wealthy, whether or not they are in school, is 27 percentage points. Gender compounds this inequality: the average difference between the poorest girls and the wealthiest boys is 37 percentage points." The study included learning inequality in 68 low- and middle-income countries.

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91 Education Commission Secretariat calculations (2016) with investment case model provided by SEEK Development. The model settings used are: increase expected primary education outcomes from today's expected 4.2 years to 6 years; and secondary school outcomes from 1.9 years to 3.9 years (65 percent of 6 years), and quality improvements including a full set of interventions included in the SEEK model. The income impacts is the discounted difference between lifetime incomes with the present education outcomes and lifetime income with the improved outcomes (the exact discounted difference is a factor of 4.5). The education costs are set using the full set of interventions provided to SEEK by the Education Commission.

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completing; 65 percent secondary completing; 43 percent post-secondary access) is 2.4 children.

95 Calculations by the Education Commission Secretariat (2016) with investment case model provided by SEEK Development. The model settings used are: increase expected primary education outcomes from today's expected 4.2 years to 6 years; and secondary school outcomes from 1.9 years to 3.9 years (65 percent of 6 years), and quality improvements including a full set of interventions included in the SEEK model.

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317 So, for example, the share of pre-primary education in education spending in low-income countries would go from 4 percent in 2015 to 10 percent in 2030.

318 The costing model also includes the costs of second-chance literacy programs including all new 15+ youth who did not have a chance to complete primary by 2030 (costs do not include addressing the backlog of 15+ who are illiterate).

319 Growth assumptions for 2016-2020 are based on IMF World Economic Outlook, and then the earlier average, subject to a maximum of 5 percent, was used up to 2030. The 5 percent was also used in the UNESCO 2015 model (See Annex), and is generally consistent with the mid-range OECD projection for the IPCC (2013). Some alternative growth assumptions for post 2025 were also tested but produced little difference in overall results.

320 Very slightly in the low income group (from 18.1 to 17.7 percent) and lower middle income group (from 15.8 to 15.6 percent) and somewhat more in the upper middle income group (from 17.2 to 15.9 percent).

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335 Whitley, Shelagh and Laurie Van der Burg. 2016. "Unexpected Allies? Fossil Fuel Subsidies and Education." *Background Paper for the Education Commission*. Overseas Development Institute (ODI).

336 Whitley, Shelagh and Laurie Van der Burg. 2016. "Unexpected Allies? Fossil Fuel Subsidies and Education." *Background Paper for the Education Commission*. Overseas Development Institute (ODI).

337 Birdsall, Nancy and Anna Diofasi. 2015. "Reducing Energy Subsidies without Hurting the Poor?" July 6, 2015. Center for Global Development (CGD). **http://www.cgdev.org/blog/reducing-energy-subsidies-without-hurting-poor**.

338 Whitley, Shelagh and Laurie Van der Burg. 2016. "Unexpected Allies? Fossil Fuel Subsidies and Education." *Background Paper for the Education Commission*. Overseas Development Institute (ODI).

339 Key programs operating in this area include: the Energy Subsidy Reform and Delivery and Technical Assistance Facility, created in 2013 as a part of the long-standing Energy Sector Mapping and Assistance Program (ESMAP). In addition, several organizations already produce important analysis and research on subsidy reforms, particularly the IMF, OECD, the Global Subsidies Initiative (GSI), and the International Energy Agency (IEA).

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342 Archer, David. 2016. "Domestic Tax and Education." *Background Paper for the Education Commission*. ActionAid.

343 Bauer, Andrew, Malan Rietveld, and Perrine Toledano. 2014. "Managing the public trust: How to make natural resource funds work for citizens." Revenue Watch Institute and Vale Columbia Center on Sustainable International Investment.

344 Ghana, Liberia, Mozambique, Sierra Leone, Tanzania, and Uganda.

345 These are based on estimates from a study conducted at a time when natural revenue prices were high. Projecting forward, it is likely that the revenue raised from natural resources as a share of total government revenue will be lower.
African Development Bank Group (AfDB) and Bill and Melinda Gates Foundation (BMGF). 2015. "Delivering on the promise: Leveraging natural resources to accelerate human development in Africa." AfDB and Bill and Melinda Gates Foundation (BMGF): Abidjan and Washington, DC.

346 These are used, among other things, to help save money for future generations and to earmark for national development projects.

347 Schäferhoff, Marco, Nicholas Burnett, Jessica Kraus, Yannick Kirchhof, Andrew Rogerson, Arushi Terway, Sebastian Martinez, Birger Fredriksen, and Lindsay Adams. 2016. "Rethinking the Financing and Architecture of Global Education." *Background Paper for the Education Commission*. SEEK Development (SEEK) and Results for Development (R4D): Berlin and Washington, DC.

348 These non-DAC donors are Estonia, Hungary, Kazakhstan, Kuwait, Lithuania, Romania, and the United Arab Emirates.

349 Analysis by the Education Commission Secretariat (2016) based on U.S. Foundation Center data. These same foundations allocate 26 percent for education in their programs in the U.S.

350 The shift to infrastructure in all major traditional multilateral institutions is further augmented by the emergence of the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank, with a strong focus on financing infrastructure.

351 61 countries are eligible for GPE support, 41 countries received financing in 2014, all but one are LICs/LMICs.

352 Universalia and Results for Development (R4D). 2015. "Independent Interim Evaluation of the Global Partnership for Education." Universalia and R4D: Montreal and Washington, DC.
Global Partnership for Education (GPE). 2014. "Press Release: Record 28.5 Billion US Dollars Pledged for Global Education 2010-2014." June 28, 2014. **http://www.**

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This resource mobilization effort stands in contrast to the successes of funds in health, such as the Global Fund to Fight Aids, Tuberculosis and Malaria ($12 billion for 2014-2016), Gavi, the Vaccine Alliance ($7.5 billion for 2016- 2020), and the Global Polio Eradication Initiative ($4 billion for 2013-2018).

353 Schäferhoff, Marco, Nicholas Burnett, Jessica Kraus, Yannick Kirchhof, Andrew Rogerson, Arushi Terway, Sebastian Martinez, Birger Fredriksen, and Lindsay Adams. 2016. "Rethinking the Financing and Architecture of Global Education." *Background Paper for the Education Commission*. SEEK Development (SEEK) and Results for Development (R4D): Berlin and Washington, DC.

354 Compared to 92 percent for water and sanitation and 86 percent for health.
Rose, Pauline and Asma Zubairi. 2016. "One SDG indicator must be missed for education aid to reach those most in need". Deliver 2030 Blog. May 25, 2016. **http://deliver2030.org/?p=6935**.

355 A World at School. 2015. "Donor Score Card: Donor governments and institutions are failing the world's out-of-school children." Theirworld: London.

356 Overseas Development Institute (ODI). 2016. "Education Cannot Wait: Proposing a fund for education in emergencies." ODI: London.

357 UNESCO. 2015. "Education for All Global Monitoring Report. Humanitarian Aid for Education: Why It Matters and Why More is Needed." *Policy Paper 21*. UNESCO: Paris.

358 Universalia and Results for Development (R4D). 2015. "Independent Interim Evaluation of the Global Partnership for Education." Universalia and R4D: Montreal and Washington, DC.

359 Drawn from preliminary findings from forthcoming commissioned research from REAL, University of Cambridge, on equity in mobilization of domestic resources.

360 President Jim Kim of the World Bank has announced a doubling of its results-based financing in education over the next five years, and GPE now allocates 30 percent of its funding for country programs to results-based approaches.

361 Innovative Financing Initiative. 2014. "Innovative financing for development: scalable business models that produce economic, social and environmental outcomes." Innovative Financing Initiative, Global Development Incubator, The Citi Foundation, AFD and Dalberg.

362 Schäferhoff, Marco, Nicholas Burnett, Jessica Kraus, Yannick Kirchhof, Andrew Rogerson, Arushi Terway, Sebastian Martinez, Birger Fredriksen, and Lindsay Adams. 2016. "Rethinking the Financing and Architecture of Global Education." *Background Paper for the Education Commission*. SEEK Development (SEEK) and Results for Development (R4D).

363 Migration due to conflict is at the highest level ever recorded, and today more than 250 million children live in countries affected by conflict and fragility. Natural disasters are projected to affect 50 percent more people by 2030 than on average from 2000-2015. Violent conflicts were on a long-term decline since World War II, but have increased sharply since 2011.

364 United Nations. 2015. "Addis Ababa Action Agenda of the Third International Conference on Financing for Development." United Nations: New York.

365 OECD. 2016. "The 0.7% ODA/GNI target – a history." July 22, 2016. **http://www.oecd.org/dac/stats/the07odagnitarget-ahistory.htm**.

366 Assuming non-DAC donors maintain the same ODA/GNI levels as today, a total of $54 billion in ODA could be available by 2030. If ODA/GNI doubled, non-DAC donors could allocate up to $75 billion in ODA. This is based on GDP projections from the World Economic Outlook and the OECD and 2014 ODA/GNI levels. Under these scenarios, and assuming 15 percent for education, total non-DAC ODA for education would amount to $8 billion-$11 billion by 2030. Analysis by Education Commission Secretariat. 2016.

367 Assumption that private development assistance will grow at the same rates of growth for projected years as was the case for the period 2007-2014: 7 percent per annum. Past growth rates have been calculated using data on net private grants from the OECD-DAC. It has been assumed that 15 percent of private development assistance will be disbursed for education by 2030.

368 Shaw, William and Dilip Ratha. 2016. "Migration, Education, and Development." *Background Paper for the Education Commission*.

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373 Results for Development (R4D). 2016. "Innovative Financing – Recommendations." Background Paper for the Education Commission. R4D.

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375 There is strong evidence that higher educational attainment and quality is linked to an increase in GDP. Therefore, bond repayment structures linked to GDP lend themselves to monetizing the economic growth resulting from investing in education.
Hollingsworth, Cormac. 2015. "Education's economic effects on growth and the changing global economy and consequences for financing educational investment." *Background Paper for the Education Commission*.

376 Shaw, William and Dilip Ratha. 2016. "Migration, Education, and Development." *Background Paper for the Education Commission*.
Ketkar, Suhas and Dilip Ratha. 2010. "Diaspora Bonds: Tapping the Diaspora During Difficult Times." *Journal of International Commerce, Economics and Policy*, Vol.1, No. 2: 251-263.

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379 Traditional student loans have seen high default rates of 11.8 percent in the U.S. (U.S. Department of Education, 2015), 36 percent in Chile, and 17 percent in Colombia.
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380 Clarke, Daniel and Stefan Dercon. 2016. "Dull Disasters? How Planning Ahead Will Make a Difference." Oxford University Press: Oxford.

381 Results for Development (R4D). 2016. "Innovative Financing – Recommendations." *Background Paper for the Education Commission*. R4D.

382 Gustafsson-Wright, Emily, Sophie Gardiner and Katie Smith. 2016. "Ensuring effective outcome-based financing in early childhood development. Recommendations to the International Commission on Financing Global Education Opportunity." Center for Universal Education (CUE) at The Brookings Institution.

383 Innovative Financing to Fund Development Leading Group. 2010. "Globalizing Solidarity: The Case for Financial Levies." Report of the Committee of Experts to the Taskforce on International Financial Transactions and Development.

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385 O'Hagan, Sarah and Rebecca Winthrop. 2013. "Why Global Education Financing Must Be Part of Europe's Financial Transaction Tax Revenues for Development." The Brookings Institution. **https://www.brookings.edu/blog/education-plus-development/2013/05/01/why-global-education-financing-must-be-part-of-europes-financial-transaction-tax-revenues-for-development/**.

386 African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the Inter- American Development Bank, the International Monetary Fund, and the World Bank Group.
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www.adb.org/news/features/frequently-asked-questions-enhancing-adbs-financial-capacity-50-reducing-poverty-asia.
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392 World Bank. "Partners Launch Framework to Accelerate Universal Health Coverage in Africa; World Bank and Global Fund Commit $24 Billion." Press Release. August 26, 2016. http://www.worldbank.org/en/news/press-release/2016/08/26/partners-launch-framework-to-accelerate-universal-health-coverage-in-africa-world-bank-and-global-fund-commit-24-billion.

393 This is a conservative estimate. The estimates do not assume any increased capacity due to capital increase or due to an increase in the share of ODA going through the MDBs. Overall ODA levels are estimated based on a 0.5 percent of GDP rather than the 0.7-percent target agreed to by the international community.

394 The other half, $7 billion, would be generated through increased contributions to MDBs through regular concessional finance. This would be assuming ODA levels rise to 0.5 percent of GDP of OECD-DAC donors and MDBs share in ODA remains constant, but education is given a higher priority at 15 percent of total MDB concessional finance.

395 The lending capacity of the new development banks is projected to be $20 billion per annum. While most of this will be allocated to infrastructure, perhaps 10-15 percent could be allocated to education infrastructure. All together these measures could raise another $3 billion-$5 billion. This would bring the total finance for education within the MDB system to $25 billion.

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398 For further detail on the costing model and financing model, see Education Commission Analytical Background Paper available at http://report.educationcommission.org/resources.

399 The Education Commission Secretariat (2016) analyzed government expenditures on education as a function of GDP per capita, region, fragility and population, and projected an ambitious path of government education expenditure based on the historical experience of countries with relatively higher spending relative to the average prediction. More details can be found in the Education Commission Analytical Background Paper at http://report.educationcommission.org/resources.

400 The Education Commission Secretariat's costing model (2016) projects investment costs as the construction of classrooms (a simplifying assumption). Data or estimates of school construction costs from the literature and assumptions on the lifetime of schools and related maintenance costs are taken from the UNESCO costing model. According to the costing model, construction costs accounted for 9 percent of public expenditures in primary and secondary in LIC and MIC countries in 2015. Another estimate, from Development Finance International (2015), is 15 percent. Our investigation of the difference found that DFI includes six countries with very high capital spending. Of these countries, DFI says: "Many of the countries which spend higher proportions of their education budgets on 'capital' spending are countries receiving large amounts of project aid, so it may well be that a major explanation for the variations is that project aid (whether spent on recurrent or capital items) is generally classified in recipient country budgets as 'capital' spending. This skews the amount reflected in capital versus recurrent, especially in high- ly donor dependent countries, and thus does not reflect the normal ratios of capital versus current spend in education." If these countries are excluded, then the average capital spending in LIC and MIC countries in the DFI report is 11 percent. Given the uncertainty of capital investment data in general, this can be said to be consistent with the Education Commission estimate.

401 Although some UMIC countries could raise more domestic funding for education, in those countries domestic finance is capped when all of the education costs are met. Thus, those countries could in fact invest and achieve more in access and learning than called for in the Education Commission projections.

402 UNESCO. 2015. "Pricing the right to education." *Education for All Global Monitoring Report. Policy Paper 18*. UNESCO: Paris.

403 With a few exceptions, the data were obtained from international UN databases, such as the World Bank

Development Indicators, the UNESCO Institute for Statistics, the IMF, and the UN Population Division. Data on learning were obtained from international assessments (PIRLS, TIMSS, PISA, SACMEQ, LLECE), and data on intervention impacts from a background study (Conn, Katherine. 2016. "The Effectiveness of Education Programs Worldwide: Evidence from a Meta-Analytic Dataset." *Background Paper for the Education Commission*). Where data were not available, estimates were made based either on regional averages, or on predictions using coefficients from multi-variable OLS regression models.

404 Because growth rates decline steeply as enrollment rates increase (slowing to near zero as 100 percent is approached) one needs to compare the projected growth rate of LIC countries 2015-30 to a group of countries that is similar to where the LICs are in 2015. In 2000, the LMICs that were not former Soviet states had an average lower secondary GER of 58 and upper secondary was 38 (UIS data via Edstats). This is similar to the LIC average enrollment rates of 2015, estimated at 50 for lower secondary and 31 for upper secondary, making these two broadly comparable groups. The average historical growth rate of the LMIC group from 2000-2015 was 4.3 percent (computed from UIS data via EdStats); while the average projected growth rate of LIC group is 6.9 percent annually.

405 Even if non-tertiary post-secondary graduates are included, 30 percent of all post-secondary graduates would need to go into teaching.

406 See for example Dolton, Peter, and Oscar D. Marcenaro-Gutierrez. 2011. "If you pay peanuts do you get monkeys? A cross-country analysis of teacher pay and pupil performance." *Economic Policy 26*, No. 65 (2011): 5- 55; Bruns, Barbara, and Javier Luque. 2014. *Great teachers: How to raise student learning in Latin America and the Caribbean*. World Bank: Washington, DC.

407 These supportive measures are assumed to cost 20 percent of base unit costs for marginalized primary students; 30 percent for lower secondary; and 40 percent for upper secondary. The marginalized students are those who are categorized as living in extreme poverty. The subsidies are assumed for additional poor students (because poor students who are already completing primary or secondary already have, through existing programs, support to get them through school). Because the measures are provided only to a portion of students, typically this cost item adds less than 10 percent to overall costs.

408 These estimates are based on a variety of studies which include: Lockheed, Marlaine E., Adriaan M. Verspoor, and associates. 1991. "Improving Primary Education in Developing Countries." Oxford University Press for the World Bank: Oxford; Bruns, Barbara, Alain Mingat, and Ramahatra Rakotomalala. 2003. "Achieving Universal Primary Education by 2015: A Chance for Every Child." World Bank: Washington, DC; EQUIP 1. 2007. "Large class sizes in the developing world: What do we know and what can we do?" USAID: Washington, DC; and UNESCO. 2006. *Global Monitoring Report: Education for All – Strong Foundations. Early childhood care and education*. UNESCO: Paris.

409 Organizations such as UNESCO or UIS use 40 as a benchmark – for example: UIS. 2015. "Sustainable Development Goal for Education Cannot Advance Without More Teachers."

410 Leathes, Bill, Roger Bonner, P.K. Das, Ripin Kalra, and Nigel Wakeham. 2004. "Delivering Cost Effective and Sustainable School Infrastructure." The TI-UP Resource Centre and DFID: London. This brief provides a discussion of different costs of constructing classrooms depending on procurement, and estimates of the costs for furniture and maintenance.

411 A brief and clear discussion of classroom construction and estimates of costs in developing countries can be found in Theyndyck, Serge. 2003. "Education for All: Building Schools." *Policy Notes*. World Bank: Washington, DC. All of the dollar values found in this report as well as other sources were converted to multiples of GDP per capita to be used in the projections, so construction costs rise with general incomes as one would expect.

Terms

Concessional loans	These are loans that are extended on softer terms than market loans, either through interest rates below those available on the market or by grace periods, or a combination of these. Concessional loans typically have long grace periods.
Ghost teachers	Educators who are on the payroll but do not teach. For instance, they may fail to attend work or may no longer live in the area, but still receive paychecks.
Global public good	Public goods are goods that can be consumed without affecting the utility for others. No one can be prevented from enjoying the good. Global public goods are public goods with benefits and/or costs that potentially extend to all countries — such as improved knowledge and research on education.
Gross domestic product (GDP)	The value of all final goods and services produced in a country in one year.
Gross enrollment ratio (GER)	Total enrollment in a specific level of education, regardless of age, expressed as a percentage of the population in the official age group corresponding to this level of education. The GER can exceed 100 percent because of early or late entry and/or grade repetition.
International Bank for Reconstruction and Development (IBRD)	The original organization of the World Bank. IBRD is now the non-concessional lending arm of the World Bank, providing loans, guarantees, risk management products, and advisory services to middle-income and creditworthy lower-income client countries.
International Development Association (IDA)	IDA, the concessional lending arm of the World Bank, generally provides loans with zero or low interest and grants to the poorest developing countries. Repayments are stretched over 25 to 40 years, including a 5- to 10- year grace period.
Massive Online Open Course (MOOC)	Course of study made available over the Internet for large numbers of participants, typically without charge and accessible by anyone.
Millennium Development Goals (MDGs)	Eight goals endorsed by governments at the United Nations in September 2000 for achievement by 2015. These include reducing poverty, hunger, child, and maternal mortality, ensuring education for all, controlling and managing diseases, tackling gender disparity, ensuring sustainable development, and pursuing global partnerships.
Multilateral Development Banks (MDBs)	Institutions that provide financial support and professional advice for economic and social development activities in developing countries. The term MDBs has typically referred to the World Bank Group and four regional development banks: the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the Inter-American Development Bank Group. However, a number of new development banks have been emerging, expanding the group.

Net enrollment ratio (NER)	Enrollment of the official age group for a given level of education, expressed as a percentage of the population in that age group.
Non-concessional loans	These are loans, typically used in relation to MDBs, with a market-based interest rate and substantially less generous terms than concessional loans. In OECD-DAC Creditor Reporting System database, they are classified as Other Official Flows (OOF).
Official Development Assistance (ODA)	Grants and concessional loans which flow to countries on the DAC list of ODA Recipients and to multilateral institutions with the promotion of the economic development and welfare of developing countries as their main objective. The definition of ODA is currently being revised.
Organisation for Economic Co-operation and Development (OECD)	An intergovernmental economic organization comprising 35 largely high-income countries, founded in 1961 to stimulate economic progress and world trade.
Sustainable Development Goals (SDGs)	A set of 17 goals endorsed by governments at the United Nations in September 2015 for achievement by 2030. These cover a broad range of sustainable development issues, including ending poverty and hunger, improving education and health, making cities more sustainable, combating climate change, and protecting oceans and forests. The fourth SDG is focused on education.
The Development Assistance Committee (DAC)	A forum of the OECD comprised of OECD bilateral donors which aims to promote aid effectiveness and increased aid for sustainable development.
The Programme for International Student Assessment (PISA)	A triennial international survey by the OECD which aims to evaluate education systems by testing the skills and knowledge of 15-year-old students in mathematics, science, and reading. To date, students from more than 70 OECD member and non-member economies have participated.
Trends in International Mathematics and Science Study (TIMSS)	A series of international assessments by the International Association for the Evaluation of Educational Achievement (IEA), which test the math and science knowledge of fourth- and eighth-grade students in a diverse set of education systems around the world.

Classifications

Country Income Group Classification

Low-income countries (LICs)	Economies with a Gross National Income (GNI) per capita of $1,045 or less in 2014, calculated using the World Bank Atlas method.
Middle-income countries (MICs)	Economies with a GNI per capita of more than $1,045 but less than $12,736 in 2014, calculated using the World Bank Atlas method.
Lower-middle income countries (LMICs)	Economies with a GNI per capita between $1,045 and $4,125 in 2014, calculated using the World Bank Atlas method.
Upper-middle income countries (UMICs)	Economies with a GNI per capita between $4,125 and $12,736 in 2014, calculated using the World Bank Atlas method.
High-income countries (HICs)	Economies with a GNI per capita of $12,736 or more in 2014, calculated using the World Bank Atlas method.
Fragile and conflict-affected states	For statistical purposes, the Commission has used the 2016 World Bank list of fragile situations. This defines a fragile situation as one with a) an average Country Policy and Institutional Assessment (CPIA) rating of 3.2 or less, or b) presence of a UN or regional peacekeeping or peacebuilding mission during the past three years. The list includes only IDA-eligible countries and non-member or inactive territories/countries without CPIA data. IBRD countries that are included in the list qualify only by the presence of a peacekeeping, political, or peacebuilding mission due to nondisclosure of CPIA ratings.

Education Levels

Pre-primary	Programs may be referred to in many ways; for example, early childhood education and development (ECE/ECD), play school, reception, pre-primary, preschool, or educación inicial.
Early Childhood Development (ECD)	Refers to the physical, cognitive, linguistic, and socio-emotional development of a child from prenatal stage up to age eight. This development involves a wide range of activities from childcare to nutrition to early education.
Early Childhood Education (ECE)	The education portion of the broader term ECD.
Primary	Provides learning and educational activities typically designed to provide students with fundamental skills in reading, writing, and mathematics and establish a solid foundation for learning and understanding.
Secondary	This is often made up of two stages: lower- and upper-secondary. Lower-secondary education is generally designed to continue the basic program of the primary level, but teaching is typically more subject-focused, requiring more specialized teachers for each subject area. The end of this level often coincides with the end of compulsory education. In upper-secondary education, instruction is often organized even more along subject lines and teachers typically need a higher or more subject-specific qualification.
Post-secondary	Includes tertiary, higher education, vocational, technical, and employability training. Higher education programs build on secondary education, providing more complex learning activities in specialized fields of education. Tertiary education includes what is commonly understood as academic education, but also includes advanced vocational, technical, and employability training.
Technical and vocational education and training (TVET)	Programs designed mainly to prepare students for direct entry into a particular occupation or trade (or class of occupations or trades). Vocational education may have work-based components (e.g., apprenticeships, dual-system education programs). TVET can include programs for students of secondary or post-secondary age.

Abbreviations

ADB	Asian Development Bank
AfDB	African Development Bank
DAC	Development Assistance Committee (OECD)
DFID	Department for International Development (United Kingdom)
ECD	Early childhood development
EFA	Education for All (UNESCO)
GAVI	Global Alliance for Vaccines and Immunization
GEMR	Global Education Monitoring Report (UNESCO)
GDP	Gross domestic product
GER	Gross enrollment rate
GPE	Global Partnership for Education
GPGs	Global public goods
HICs	High-income countries
IBRD	International Bank for Reconstruction and Development (World Bank)
IADB	Inter-American Development Bank
IDA	International Development Association (World Bank)
IMF	International Monetary Fund
LICs	Low-income countries
LMICs	Lower-middle income countries
MDB	Multilateral development bank
MDGs	Millennium Development Goals (UN)
MICs	Middle-income countries
MOOC	Massive online open course
NER	Net enrollment rate
NGO	Non-governmental organization
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
PISA	Program for International Student Assessment (OECD)
R&D	Research and development
SABER	Systems Approach for Better Education Results (World Bank)
SDGs	Sustainable Development Goals (UN)
TALIS	Teaching and Learning International Survey (OECD)
TIMSS	Trends in International Mathematics and Science Study
UIS	UNESCO Institute for Statistics
UMICs	Upper-middle income countries
UN	United Nations
UNCHR	United Nations High Commissioner for Human Rights
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization (United Nations)

Notes

Notes

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Organizations

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Learn Capital
Malawi Institute of Management (MIM)
Overseas Development Institute (ODI)
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	Girindre Beeharry	Anthony Lake
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	Julia Gillard	Jeffrey Sachs
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	Baela Raza Jamil	Lawrence Summers
	Dean Jamison	Charlotte Watts
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	Anant Agarwal	Daphne Koller
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	Julia Gillard	Jeffrey Sachs
	Milena Harito	Kartik Sawhney
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