

STEERING TERTIARY EDUCATION

Toward Resilient Systems that Deliver for All

Nina Arnhold
Roberta Malee Bassett

© 2021 International Bank for Reconstruction
and Development / The World Bank
1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

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

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

Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

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

Cover design: Wojciech Woloczniak, Cambridge, United Kingdom and Piotr Ruczyński, London, United Kingdom

Interior design and typesetting: Piotr Ruczyński, London, United Kingdom



STEERING TERTIARY EDUCATION

Toward Resilient Systems that Deliver for All

Nina Arnhold
Roberta Malee Bassett



WORLD BANK GROUP

Contents

vii *Acknowledgments*

viii *Abbreviations*

2 FAQs— Answering Key Questions on Tertiary Education

5 Executive Summary

- 5 Tertiary education produces advanced skills and innovation that are essential to growth and social cohesion
- 6 Benefits of investing in tertiary education are high for individuals and societies, although returns are heterogeneous
- 7 The tertiary education sector has experienced dramatic changes
- 8 A framework for strategic investments in tertiary education

13

SECTION 1

Introduction

- 15 Beyond COVID-19: global megatrends and the need for advanced skills
- 17 Tertiary education continues its exponential growth
- 18 But what about Africa?
- 19 Advanced skills and higher productivity are essential in rapidly changing demographic environments
- 20 To ensure the development of advanced (including green) skills and research and innovation, countries need to STEER

23

SECTION 2

Tertiary education: A vital investment for economic development and poverty reduction

- 26 Tertiary education systems need to diversify for relevance, efficiency, and resilience

31

SECTION 3

STEERing Tertiary Education Systems

- 33 Strategically diversified systems
- 37 Technology
- 43 Equity
- 48 Efficiency
- 57 Resilience

63

SECTION 4

Moving forward

- 66 **ANNEX 1** The World Bank's portfolio on tertiary education
- 72 **ANNEX 2** Review of World Bank literature on tertiary education
- 79 **ANNEX 3** Tertiary education and human capital

84 *References*

BOXES

- 18 **BOX 1.1** Sub-Saharan Africa strives to catch up
- 34 **BOX 3.1** India's plan to build the biggest tertiary education system in the world
- 36 **BOX 3.2** Benchmarking university governance in the Middle East and North Africa: A tool for addressing challenges within the tertiary education sector in the region and beyond
- 37 **BOX 3.3** Tracking graduates—A powerful evidence base for the employability discourse in Bangladesh
- 38 **BOX 3.4** Evoke—Using technology to develop 21st century skills at Uniminuto University, Colombia
- 40 **BOX 3.5** Strengthening NRENS to improve technological resilience for tertiary education in Africa
- 44 **BOX 3.6** Afghanistan: Promoting gender equity in tertiary education
- 49 **BOX 3.7** The Quality Improvement Program in Tunisia: An innovative funding mechanism to improve the employability of graduates
- 50 **BOX 3.8** Higher education funding reforms in Latvia – Focus on performance
- 52 **BOX 3.9** The Student Loan Facility at Duoc UC, Chile
- 53 **BOX 3.10** The PASET Regional Benchmarking Initiative—Improving the quality and relevance of programs in Sub-Saharan Africa
- 56 **BOX 3.11** Africa Higher Education Centers of Excellence Projects
- 81 **BOX A3.1** Tertiary education sector reform and societal change in Vietnam
- 82 **BOX A3.2** The Human Capital Project and Tertiary Education

FIGURES

- 17 **FIGURE 1.1** Projections of share of 25–34-year-olds with tertiary education, 2013, 2030, selected countries (percent)
- 18 **FIGURE B1.1.1** Gross tertiary enrollment rates, by region
- 24 **FIGURE 2.1** Routes of economic and social benefits via tertiary education
- 27 **FIGURE 2.2** Gross Enrolment Ratio in tertiary education, 1970–2019
- 32 **FIGURE 3.1** STEERING Tertiary Education
- 33 **FIGURE 3.2** An effective, diversified, and articulated tertiary education system
- 40 **FIGURE B3.5.1** Connectivity in Sub-Saharan Africa using NRENS
- 51 **FIGURE 3.3** Skilled labor force by income, average for 1992–2012

TABLES

- 19 **TABLE B1.1.1** Educational rates of return, by region
- 25 **TABLE 2.1** Benefits of tertiary education
- 57 **TABLE 3.1** Total affected tertiary education students, by region and income level
- 60 **TABLE 3.2** Conventional governance compared to adaptive governance for systems resilience
- 66 **TABLE A1.1** Education sector portfolio summary, fiscal years 2015–2021
- 67 **TABLE A1.2** World Bank higher education projects by region and thematic area
- 68 **TABLE A1.3** Education sector ASAs by number of activities, fiscal years 2015–21
- 68 **TABLE A1.4** Active tertiary education Reimbursable Advisory Services
- 69 **TABLE A1.5** Subsector commitment as percentage of total education sector commitment for lending operations (FY2015–FY2021)
- 70 **TABLE A1.6** List of World Bank tertiary education projects with a commitment of US\$100 million or more, approved between FY2015 and FY2021
- 78 **TABLE A2.1** Key messages from World Bank policy frameworks on tertiary education

Acknowledgments

This World Bank Policy Approach Paper was prepared by Nina Arnhold and Roberta Malee Bassett with input from Harsha Aturupane, Ekua Nuama Bentil, Koen Geven, Hana Addam El Ghali, Tara Béteille, Abdul Hai Sofizada, Bob Hawkins, Keiko Inoue, Francisco Marmolejo, Shiro Nakata, Karine Pezzani, Alina Sava, Namrata Raman Tognatta, Michael Trucano, Alex Twinomugisha and Jason Weaver. Andree Sursock provided input for the section on quality assurance; Maulshree Gangwar contributed and prepared the annexes of the document, and Vitus Püttmann provided editorial support. The authors would like to thank the World Bank Education Management Team, in particular Jaime Saavedra and Omar Arias as well as the COREHEG Advisory Board for their guidance throughout this work. They would further like to thank the peer reviewers Harsha Aturupane, Andreas Blom and Christian Bodewig, all from the World Bank as well as Jamil Salmi, Global Tertiary Education Expert and Michaela Martin from UNESCO IIEP. The report was edited by Diane Stamm.

Abbreviations

ACE	Africa Centers of Excellence	NMUP	New Model University Project
ACEI	Africa Centers of Excellence: West and Central Africa	NEP	National Education Policy
ACEII	Africa Centers of Excellence: Eastern and Southern Africa	NMUP	New Model University Project
AfgREN	Afghanistan Research and Educational Network	NREN	National Research and Education Network
AHELO	Assessment of Higher Education Learning Outcomes	OECD	Organization for Economic Co-operation and Development
AI	artificial intelligence	PARES	Higher Education Reform Support Project; Projet d'Appui à la Réforme de l'Enseignement Supérieur
ASA	Advisory Services and Analytics	PASET	Partnership for Skills in Applied Sciences, Engineering and Technology
ASEAN	Association of Southeast Asian Nations	PERN	Pakistan Education and Research Network
BCI	Banco de Crédito e Inversiones	PIAAC	Programme for the International Assessment of Adult Competencies
BdREN	Bangladesh Research and Education Network	PISA	Programme for International Student Assessment
CSRs	Country Specific Recommendations	QA	quality assurance
ECA	Europe and Central Asia	QIP	Quality Improvement Program
EQA	External Quality Assurance	RAS	Reimbursable Advisory Services
ESSU	Education Sector Strategy Update	SABER	Systems Approach for Better Education Results
ETEP	Enhancing Teacher Effectiveness Project	SABER-TE	Systems Approach for Better Education Results for Tertiary Education
GTS	graduate tracer studies	SAHEP	Support for Autonomous Higher Education Project
HCI	Human Capital Index	STEER	Strategically diversified systems, Technology, Equity, Efficiency, Resilience
HEDP	Higher Education Development Project	STEM	science, technology, engineering, and mathematics
HEI	higher education institution	TEIs	tertiary education institutions
IBRD/IDA	International Bank for Reconstruction and Development/International Development Association	TENET	Tertiary Education and Research Network of South Africa
IFC	International Finance Corporation	TVET	technical and vocational education
IOT	Internet of Things	UGSC	University Governance Screening Card
IQA	Internal Quality Assurance		
LEARN	Lanka Education and Research Network		
LICs	lower-income countries		
MENA	Middle East and North Africa		
MIS	Management Information Systems		
MOHE	Ministry of Higher Education		
MOOCs	Massive Open Online Courses		



STEER

(verb)



1. to direct the course

2. to pursue a course of action



FAQs

Answering Key Questions on Tertiary Education

Should low-income countries invest public resources in tertiary education, including research?

Yes. Economic research unequivocally illustrates high private and social rates of return for investments in tertiary education, including research (see p. 24). The benefits include higher employment and earnings, productivity growth and innovation, greater social stability, more effective public sector bureaucracies, increased civic engagement, and better health outcomes. The consequences of underinvestment in tertiary education include talent loss, limited access to applied research capacity for local problem solving, hindered economic growth due to low levels of skills in the workforce, low-quality teaching and learning at every level of education, and, perhaps most glaringly, expanded wealth inequality both within countries and among nations, with those investing proportionately more experiencing more innovation and attraction of investment.

At the same time, there needs to be a judicious balance of investments across all levels of education within a given envelope of spending in education (which in many countries needs to expand). Policymakers need to balance their investments in tertiary education with the need to ensure all children acquire strong foundational skills which will allow them to pursue and reap the benefits of a tertiary education. That balance will vary across countries but should always involve strong investments in tertiary education.

In terms of research, while low- and middle-income countries will not be able to invest widely

in all realms of advanced research, policymakers are advised to invest selectively in promising areas that are locally relevant. Applied research needs to be contextualized and driven by both current and prospective needs, including those arising from megatrends like global economic integration, climate change, and population dynamics. While countries may have to adapt funding for research and teaching to their financing space, at a very minimum, all nations should be funding research that asks and seeks to answer locally pertinent and relevant questions.

Should countries invest in tertiary education only after they can ensure jobs for graduates?

No, investments in tertiary education are needed in concert with policies to foster job creation. Increasingly and in the expanding global knowledge-based economy, firms' decisions to invest are tied to the availability of a skilled workforce, alongside other aspects of the investment climate, particularly in export-led industries of high value-added and technology-intensive activities. Countries with a minimum workforce lacking the required skills are less likely to attract more technology- and R&D-intensive domestic or foreign investments. Moreover, there is a lag in the response of the supply of tertiary graduates to the labor market demand from firms. Investments and policy reforms to improve other important aspects of the investment climate such as infrastructure, taxes, and regulations typically often take a shorter time than it takes to produce a skilled adequate supply of graduates.

Countries face a real risk of coordination failures: private firms refrain from investments in high-potential sectors due to the lack of workers with the needed skills, and at the same time youth and adults do not invest in tertiary education due to the lack of jobs. That is, inadequate investments in tertiary education can lead to a vicious circle of a low-skilled workforce and insufficient jobs creation, which dampens the returns to investments in tertiary education. To avoid this trap, investments in high-quality tertiary education need to be made in tandem with other policy reforms to foster private investment and job creation, while establishing effective mechanisms for aligning the expansion of supply of tertiary programs to employers and labor market needs such as skills sector councils, tracking of graduates' employability, and to communicate regular information on the returns to different fields of study to help students make better choices. The result can be a virtuous circle where investments in tertiary education go along with labor market needs, and a properly skilled workforce attracts the right investments that can create more and better jobs.

Will the sustained expansion of access ensure the closing of equity gaps in tertiary education?

No, not without further measures including merit- and need-based approaches and a diversity of options. To date, tertiary education expansion has generally not meant equitable access—that is, more students accessing tertiary education globally has not resulted in proportionally more students enrolling from low socioeconomic status or underrepresented groups. While students from all economic quintiles have been accessing tertiary education in greater numbers, the equity gap has expanded since the immediate beneficiaries tend to come from the upper socioeconomic groups (and globally, expansion has occurred in the wealthiest countries). These first waves of

students have largely enabled access for those who could not pursue high-quality tertiary education due to a lack of space, lack of preparation, or affordability; or in many cases access has expanded through loosely regulated short-cycle programs whose quality varies considerably. To avoid these issues, countries need to have deliberate and sound policies to concomitantly enable access to disadvantaged groups such as merit-based scholarships, grants and student loan programs, and remedial interventions to ensure readiness for postsecondary studies. (For a more complete analysis of effective equity interventions, please go to p. 46). Moreover, countries should foster the development of a high-quality ecosystem of tertiary education with a variety of options and flexible pathways, including high-quality, short-cycle tertiary education programs.

Can private, for-profit provision be part of the solution to ensure broad access to tertiary education?

Yes, provided governments strive to regulate effectively. With the projected growth in the population of students completing secondary education, there will be enormous pressure to expand tertiary education. It is unrealistic to envision that most national or state governments in low- and middle-income countries will be able to satisfy this demand through increased public funding alone, while balancing the need to invest in universal quality basic education and other sectors. Private (nonprofit and for-profit) providers can fill the gap between what can be provided through public financing and the growing demand for postsecondary education (see from p. 33). As noted below, if governments choose to embrace private providers, particularly to increase achievement in strategically important fields of study, they must simultaneously establish and effectively implement quality assurance procedures and oversight to ensure private providers are held to high quality standards.

Can governments effectively regulate the quality of expanding and diverse tertiary education institutions?

Yes, provided they invest adequately in implementation capacity. The importance of quality assurance (QA) of tertiary education has been rising around the world in response to several key developments. Chief among them is the expansion of higher education, with a variety of providers, which has put pressure on governments' capacity to play this role effectively. Rapid expansion, particularly among private and online providers, has exposed the need for more robust QA instruments to address the multitude of low-quality providers, many of which need to be evaluated, accredited, and either improved or closed (see quality assurance section, beginning p. 52). In many countries, tertiary institutions have been granted more autonomy in exchange for greater accountability, resulting in the implementation of quality assurance processes, both internal to the institutions and external, often executed by a QA agency. An important lesson is that countries not only need consistent and coherent regulatory frameworks, and to ensure the quality of provision of all providers (public and private), but also need to invest in the development of institutional capacity to implement these frameworks effectively.

Should digital skills and digital technologies be part of investments in tertiary education in low-income countries?

Yes, digital technology and capabilities are essential to more resilient tertiary education systems. The COVID-19 pandemic has exposed most clearly that digital technologies will be the primary resilience instrument for the tertiary education

sector, and tertiary education institutions (TEIs) will need to operate more strategically as teaching, learning, and research embrace and adapt to remote delivery and online settings (see from p. 37). Building individual- and organizational-level digital skills supports efficiencies and promotes innovation and agility across core delivery areas: providing high-quality, adaptive teaching for students using advanced technologies; exploring the opportunities being developed in digital research tools and methods; and establishing digital competences that staff and students require in a digital world (see from p. 40). Digital capabilities enable institutions to take advantage of opportunities from online courses offered by tertiary education institutions worldwide. Without investments in digitalization and digital skills, individuals and systems will fall further behind, as has been exposed by the shifts in education delivery forced by the COVID-19 pandemic.

To achieve this potential, tertiary education systems should invest in the development of their local digital infrastructure toward building more agile and flexible systems. This could take place through the strategic allocation of institutional funding to expand and update technological infrastructure for digital pedagogy, investing in learning science, and training of faculty members. Institutions, staff, and students who are equipped with sound infrastructure, resources, and skills, and who were already engaged in a culture of using technology for teaching and learning, had a much easier transition to remote learning.

Executive Summary

As the world seeks to build back better into a new era of green and equitable economic growth, tertiary education systems are at the heart of the big transformations required throughout economies and societies. Tertiary education is vital for the development of human capital and innovation. Strategic and effective investments in tertiary education can serve every country — from the poorest to the richest — by developing its talent and leadership pool, generating, and applying knowledge to local and global challenges, and participating in the global knowledge economy. Effective tertiary education sectors ensure that countries have well-trained doctors, nurses, teachers, managers, engineers, and technicians who are the main actors of effective education and health service delivery and public and private sector development. Decades of insufficient and ineffective investment in postsecondary education and the advanced skills developed through higher learning opportunities have only exacerbated global equity gaps. This paper describes the approach of the World Bank to support the development of effective, equitable, efficient, and resilient tertiary education systems and institutions. It discusses and illustrates five principles that guide the Bank’s financial and policy advisory support to **STEER** tertiary education systems toward optimizing their contribution to equitable and green growth: (i) building diversified **Systems**, (ii) investing smartly in new **Technologies**, (iii) ensuring **Equity** in access and financing, (iv) achieving **Efficiency** in resource utilization, and (v) acquiring **Resilience** in service delivery so that learning continues.

TERTIARY EDUCATION PRODUCES ADVANCED SKILLS AND INNOVATION THAT ARE ESSENTIAL TO GROWTH AND SOCIAL COHESION

Tertiary education¹ is both an aspiration for growing numbers of young people around the globe and a fundamental requirement for employment in the industries that drive the global knowledge economy. As such, tertiary education is the central hinge for human capital development and equality of opportunity as well as promoting shared prosperity. A well-managed, strategically oriented, diversified, and well-articulated tertiary education system is vital for producing the caliber and diversity of graduates needed both for the economy of today and for the economy of the future. From providing skills for immediate professional application to building stages of complexity of learning toward postgraduate studies and research, tertiary education offers multiple avenues for social mobility and the foundation to economic development.

1. Tertiary education encompasses all formal postsecondary/compulsory education, from technical and vocational education to advanced doctoral studies; however, this paper focuses primarily on International Standard Classification of Education (ISCED) levels 5–8 (<http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>).

BENEFITS OF INVESTING IN TERTIARY EDUCATION ARE HIGH FOR INDIVIDUALS AND SOCIETIES, ALTHOUGH RETURNS ARE HETEROGENEOUS

The imperative for investing in tertiary education derives from two major questions—what if we do (benefits) and what if we do not (consequences)? The benefits include higher employment levels (that is, lower levels of unemployment), higher wages, greater social stability, increased civic engagement, and better health outcomes. The experiences of many low- but also middle-income countries have exposed the consequences of underinvestment in tertiary education systems, including brain drain and talent loss, limited access to applied research capacity for local problem solving, limitations on economic growth due to low levels of skills in the workforce, low-quality teaching and learning at every level of education, and, perhaps most glaringly, expanded wealth inequality among nations, with those investing proportionately more experiencing resultant growth rates far outpacing those with lower levels of investment and strategic development.

Human capital and employment are key determinants of economic growth, together with total factor productivity and capital investments. Tertiary education not only increases individuals' and societies' human capital, but also leads to increased labor productivity and correlates with longer working lives. Moreover, tertiary education provides an important link to innovation, thereby impacting total factor productivity across a nation's economy. Technological innovation as well as adaption requires highly skilled individuals. Training graduates for the labor market—and that includes the local and global ones, the existing and future ones, and the ones that are emerging for industries yet to be created by these and future graduates—and employability more broadly—are human capital investments effectively delivered via tertiary education.

Returns to tertiary education vary significantly across fields of study, institutions, and individuals, however. This variance often results from a combination of weak foundational skills of students when they enter tertiary education, insufficient quality and quality assurance in the context of a sustained supply expansion, and lack of mechanisms to establish links with employers and provide regular information on labor market demands and returns to different programs of study. As a result, while average returns are high, due to the issues mentioned, tertiary education may not yield high returns for everyone. When tertiary institutions and training institutions devise their program offerings, and students choose study programs and institutions without clear information on program quality and labor market prospects, the outcomes can vary dramatically and even be negative. Investments in tertiary education need, therefore, to focus on ensuring quality, and account for current outcome objectives, but also be attuned to the changing needs of a dynamic environment in terms of skills demands, occupational profiles and types of tertiary education institutions, as well as modes of delivery (see section on Strategic Diversification of Systems, p. 33).

THE TERTIARY EDUCATION SECTOR HAS EXPERIENCED DRAMATIC CHANGES

Globally, many long-standing challenges facing tertiary education have been steadily addressed over the past 30 years—including expanded access, and measured relevance. New challenges continue to emerge, however, for which tertiary education institutions and their stakeholders are uniquely positioned to overcome, including:

- **Global expansion of access:** While tertiary education is becoming the standard school leaving point in many (higher income) parts of the world, many countries and regions are unable to keep up with such pace of such expanded access. Economic development challenges continue to stymie expanded enrollments in the world's poorest countries (for example, average enrollment in Sub-Saharan Africa remains stagnant at below ~9 percent). Such expanding inequality among nations in terms of access to and progression through tertiary education will further exacerbate the global inequalities between countries benefiting from the knowledge economy and those still largely excluded.
- **Digitalization:** Technology is widely perceived as a potential great equalizer in tertiary education, but today it is also the great divider. With inconsistent connectivity, skeletal infrastructure, and limited access to devices, those students who need it most cannot profit from continuous learning provided via digital platforms at the tertiary level.
- **Quality and Relevance:** Most middle-income countries continue to struggle with ensuring quality and relevance despite the significant resources invested in tertiary education. Returns to tertiary education, while high on average, are very heterogenous. Although there are challenges in measuring learning outcomes, employer surveys indicate persistent skills mismatches and individual and their families continue to invest in fields of study with dimmed labor market prospects. Tertiary systems are increasingly expected to develop the skills and innovation needed to sustain green and inclusive economic growth.
- **Internationalization and regional cooperation:** Global interconnectivity, education, and experience are fundamental for countries, institutions, and individuals to harvest the benefits of cross-country cooperation on an equal footing; currently, even with the known benefits of international cooperation and collaboration, impactful internationalization remains largely the privilege of the global elite. Regional cooperation has emerged as a powerful tool for tertiary education impact at scale and by investing in a strategic pooling of talent and resources.
- **Learning across a lifetime:** Tertiary education institutions must continually revamp their operations to ensure their relevance as key lifelong learning players in a fast-changing environment where individuals need skilling and reskilling over a lifetime. In middle-income countries, however, such adaptations are often

extremely challenging, due to regulatory frameworks built around old-fashioned teaching/learning/research models for traditional student cohorts.

This has resulted in:

- A new emphasis on steering: While most countries recognize the crucial role, the sector can play in their advancement, the tertiary education sector often operates as a ship without a map and compass,² and subsequently without proper steering. Governance, financing, and quality assurance are central steering elements vital to ensuring the tertiary education sector is as high impact and effective as possible.
- A holistic view of the tertiary ecosystem: Adequate steering also ensures that the sector is considered in its entirety and not as isolated siloes of universities, technical institutions, colleges, and tertiary technical and vocational education institutions. Non-university tertiary education—which often provides the gateway to tertiary education for students from lower income groups³—is as important a part of this ecosystem as universities, as countries strive to support multiple and well-articulated pathways through the whole tertiary education section while promoting efficient spending, expanded access, equity, applied and relevant research, and support to local companies and communities. It is essential that all institutions in the tertiary ecosystem are appropriately supported and quality assured and that systems are permeable, pathway options clear and accessible, and that learners on all levels are supported.

A FRAMEWORK FOR STRATEGIC INVESTMENTS IN TERTIARY EDUCATION

This World Bank policy approach paper on tertiary education seeks to (i) reinforce the imperative that every country—regardless of level of development—invest thoughtfully and strategically in diversified and well-articulated tertiary education systems; (ii) provide a framework for policymakers and other tertiary education stakeholders to examine critical traits responding to the needs for advanced skills and lifelong learning in support of growth and development and key interventions for tertiary education systems in the decades ahead; (iii) examine the impact of the COVID-19 pandemic on the global tertiary education sector and share ideas that

2. <http://documents1.worldbank.org/curated/en/224051491595233995/pdf/114142-WP-P155911-PUBLIC-TCc-Strategic-Directions-for-Higher-Education-14Dec16-FINAL.pdf>.

3. Eurostudent.eu. 2018.

promote a resilient recovery from the crisis; and (iv) offer information about the **content, context, and scale of the World Bank's operational and analytical work** in tertiary education.⁴

The guiding principle of this policy approach paper is that **policymakers and academic leaders must be purposeful in steering their tertiary sectors toward the national and institutional strategic goals.** To achieve these goals, the World Bank has identified five key dimensions that are instrumental for creating agile, effective, and sustainable tertiary education, particularly in the post-COVID environment.

Within this steering framework and with a view to **turning the challenges wrought by the COVID-19 crisis into opportunities for impactful reforms,** this paper encourages tertiary education policymakers and stakeholders to **STEER** their tertiary systems and institutions, utilizing:

- **Strategically diversified systems**—supporting all postsecondary institutions, ensuring agile, articulated pathways and diversity of forms, functions, and missions
 - Developing **future-oriented strategies** that center on a strong contribution of tertiary education not only to growth and competitiveness but also to social cohesion and human development more broadly for the tertiary education sector, subsectors, and institutions. This is an agenda for high- and middle-income countries but is particularly important for fragile and low-income countries that need to kick-start the technological innovation and adaption engine and provide the young generation a productive and peaceful future.
 - Positioning tertiary education in a **lifelong learning** context with flexible pathways, second-chance options, and greater adaptability to the needs and opportunities afforded by employers, civil society, and governments. This means permeability across pathways and providers, modularization of learning offers, and student-centered credit systems to allow for flexible pathways as well as bridging and mentoring programs to boost tertiary remedial education to give everyone a good start and adequate support in tertiary education.
- **Technology**—designed and applied in a purposeful and equitable manner
 - **Harnessing the power of technology** to improve teaching and research capacity while simultaneously acknowledging and countering the impact of expanding digital divides. With tertiary education sectors massively

4. This information is primarily provided in Annex 1 of the document, while examples of World Bank operational and analytical work can be found throughout the document.

expanding across the globe and low-income groups and countries trailing behind, technology might be the only way to effectively ensure equity and resilience.

- Building a digital ecosystem with the help of **National Research and Education Networks (NRENs)** and effective collaboration across government portfolios. Harnessing the power of technology means that tertiary education institutions not only profit from digitalization but also advance digitalization through the development of digital skills, and application of digitalization across its functions and related research and development.

— **Equity**—a universal approach to the benefits and opportunities of postsecondary learning

- Acknowledging that **inequity is a form of injustice**
- Acting to ensure that **equity and inclusion in access and success** are a driving ethos for an effective and relevant tertiary education system

— **Efficiency**—a goal-oriented, effective use of resources

- Improving **information systems** so that sectors, subsectors, and institutions can be managed and enhanced utilizing evidence and sound information
- Devising and deploying **governance, financing, and quality assurance instruments** that are designed to weather the current and potential future crises.
 - For financing, this means, for example, that systems and institutions diversify their funding base and reduce dependency on a single income source (which will require revisiting questions of cost-recovery and a rethinking of student grant and loan schemes in many countries) and use innovative funding mechanisms.
 - For quality assurance, this means that remote options for accreditation and evolution are established and applied when the environment requires such agility in ensuring quality under all conditions.
 - For governance, this means ensuring the external governance—legislative and ministerial oversight—and institutional governance—boards and oversight bodies—are developed and operated in such a manner that promotes effective connections with external actors and the world of work and allows for rapid innovations to be tested and embraced in such a way that institutions are able to continue their operations within the scope of their charters and missions.

— **Resilience**—the ability to persist, flourish, and deliver agreed goals despite adversity

- Acknowledging the need for **resilience planning**, by taking stock of the successes and failures of the COVID-19 response at the systems and institutional levels and analyzing options that would have mitigated the failures.
- Utilizing **adaptive governance frameworks** to embed immediate, strategic resilience interventions to address significant short- and long-term challenges facing tertiary education systems and institutions as a result of the shocks brought on by the pandemic, including diminished resources for institutions, personal and academic challenges for institutions and students, demand for improved infrastructure to support continued distance and blended learning models, reduced mobility placing pressures to improve regional and local tertiary institutions, questions of sustainability of funding models, and much more.

These five aspects present critical building blocks with which tertiary education leaders and institutions can reframe and strengthen their systems for greater impact on learning, growth, innovation, and social development.

SECTION 1

Introduction

Tertiary education⁵ is both the aspiration of young people around the globe and a fundamental requirement for employment in the industries that drive the global knowledge economy. As such, tertiary education provides unique opportunities for individual development and equality of opportunity as well as promoting shared prosperity. A well-managed, strategically oriented, diversified, and articulated tertiary education system is vital for producing the caliber and diversity of graduates needed both for the economy that exists today and for the economy to which a nation aspires. From providing skills for immediate professional application to building stages of complexity of learning toward postgraduate studies and research, tertiary education offers limitless avenues for social mobility and economic development.

The imperative for investing in tertiary education derives from two major questions: **What are the benefits of investing, and what are the consequences of not investing?** The benefits include higher employment levels (that is, lower levels of unemployment), higher wages, greater social stability, increased civic engagement, and better health outcomes. Even more significant and, perhaps, revealing, is examining what happens when countries underinvest in their tertiary education systems. The consequences of underinvestment include brain drain and talent loss, limited access to applied research capacity for local problem solving, limitations to economic growth due to low levels of skills in the workforce, low-quality teaching and learning at every level of education, and, perhaps most glaringly, expanded wealth inequality within and among nations, with those investing proportionately more experiencing resultant growth rates far outpacing those with lower levels of investment and strategic development.

The COVID-19 crisis exacerbated existing higher education challenges across all regions (see section on Resilience, p. 57). Many countries had achieved significant progress toward expanding higher education enrollment. Many of these same countries now face the dilemma of needing to address pervasive equity issues rapidly and creatively, however, beyond the digital divide, while managing dwindling resources. In recent months, countries and individuals, as well as tertiary education institutions, paused, reconsidered, and revamped their activities in the light of COVID-19. Much of the initial discussion focused on infrastructure for online teaching and learning and connectivity. Additional mitigation measures will need to be selective and focused, given the fiscal constraints most governments are facing, and the varying capabilities of systems to respond quickly and effectively.

The collective motivation to respond in a time of crisis can be capitalized to address and fix persistent systemic weaknesses. Countries and institutions should consider not only making short-term adjustments in terms of accessibility, infrastructure, and equipment, but also drawing the right conclusions for the medium to long

5. Tertiary education encompasses all formal postsecondary/compulsory education, from technical and vocational education to advanced doctoral studies.

term. This applies not only to modalities for teaching and learning, where a stronger emphasis on blended learning and more and better opportunities for online learning will be a desirable result, but also to a stronger emphasis on continuity of operations, student support, and welfare, including preparing for any possible *future* crises.

BEYOND COVID-19: GLOBAL MEGATRENDS AND THE NEED FOR ADVANCED SKILLS⁶

Building and transforming tertiary education systems today and tomorrow happens in an extraordinarily and increasingly dynamic context. This includes accelerating technological change, demographic shifts, challenges resulting from climate change, and rising household and spatial inequalities. The move toward a green economy will change the demand for advanced skills and tertiary education and training more broadly.

Tertiary education plays a key role in the move toward a green economy. This happens primarily in two ways: through the development of advanced “green skills,” and through research and innovation, with an emphasis on global warming and how its effects can be mitigated. Neither is constraining to particular fields, like environmental science and engineering, but each needs to be considered as a cross-cutting theme for all areas of teaching and learning, as well as for research.

In addition to this move toward a green economy, countries around the world face three megatrends that are reshaping the global economy: population shifts, global integration, and technological change (particularly, information and communication technology [ICT] and related new digital technologies). Together, these factors pose both opportunities and challenges as they shape the types of jobs available and the demand and opportunities for education and skills acquisition—and tertiary education, in particular.

Demographic changes and urbanization, the first trend, have an important bearing on tertiary education and skills formation. Many countries around the world, particularly in Sub-Saharan Africa, are experiencing youth bulges and are urbanizing quickly. The potential “demographic dividend” stemming from lower “dependency ratios”—by which the workforce grows faster than the dependent population—presents a window of opportunity as potentially raising per capita income enables families to invest in the skills of their offspring, and countries can translate the human capital accumulation of young cohorts into a more productive labor

6. The following section is based on Arias, Evans, and Santos (2019).

force. The larger cohorts of children entering and progressing through the education system pose the challenge of financing the educational expansion, however, while ensuring quality of provision. In other parts of the world, populations are declining, and the rise of the “silver economy” puts a strong emphasis on lifelong learning and innovation.

The second trend impacting the demand for advanced skills is the increasingly interconnected nature of the global economy. Increased economic competition and the ensuing job creation and destruction impact the demand for skills. As firms and countries strive to find a niche in higher-value-added activities, they need workers with the advanced skills sets required to perform the related tasks.

The third, and crucial, trend is the impact of digital technologies and robots and the ensuing rapidly changing world of work. Digital technologies are enabling automation of routine (repetitive) tasks and destroying jobs intensive in routine and manual tasks. With the cost of digital technologies falling exponentially, jobs will increasingly involve more non-routine tasks requiring a mix of advanced cognitive, technical, and interpersonal skills. The *Digital Dividends: World Development Report 2016* estimates that—from a technological standpoint—over 40 percent of today’s jobs in many developing countries may be at risk of being significantly transformed or altogether replaced by digital technologies over the next decades.

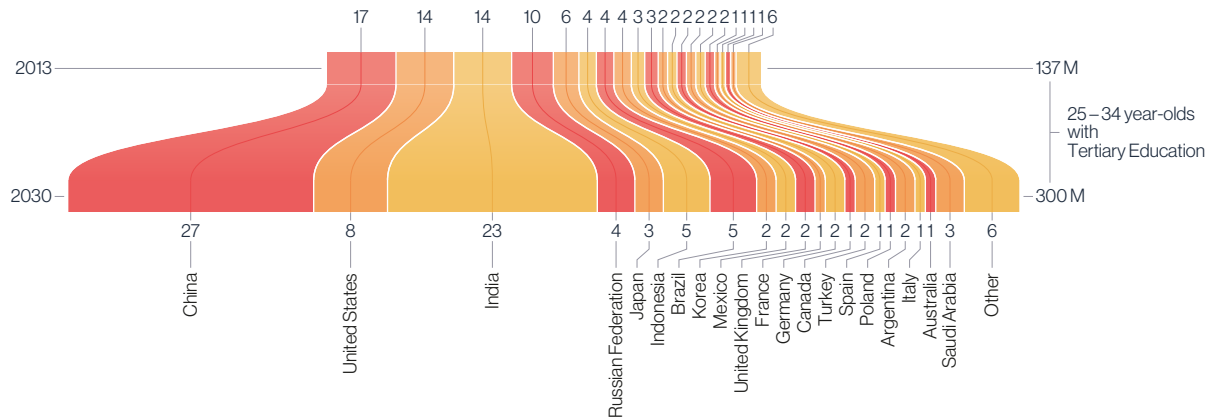
The last two trends combined—shifting global integration and technological change—particularly in combination with a move toward green growth and climate-change-induced challenges—are placing a premium on the adaptability of individuals and economies. While changes in the future world of work are hard to predict, the nature of new technologies demands adaptability and resilience of individuals and the workforce to navigate economic and job changes throughout their working lives in fast-changing labor markets.

Policymakers need to factor in these megatrends in their strategies for tertiary education investments. There are four main takeaways. First, transformation toward green growth will place a premium on innovation and lead to an increased demand for advanced skills in support of this shift. Second, the trends will further raise the educational and social mobility aspirations of families and individuals, especially youth. Third, demand for non-routine tasks requiring cognitive and socio-emotional skills will continue to grow, while that of routine tasks preponderant in low- and medium-skill jobs will likely fall. And fourth, fast change will be the only constant, putting a premium on the adaptability of individuals and systems. One of the main results of these trends will be a continued increase in demand for quality- and innovation-based tertiary education.

TERTIARY EDUCATION CONTINUES ITS EXPONENTIAL GROWTH

It is estimated that there will be 377.4 million students by 2030, 471.4 million by 2035, and 594.1 million by 2040, an increase of 281 percent over the 30 years from 2000 to 2030, higher than that experienced between 1970 and 2000.⁷ Most students will still be from Organization for Economic Co-operation and Development (OECD) and G20 countries (figure 1.1), but massive expansion will nonetheless strain systems around the world and, most notably, in developing countries, where more and more young people are expected to seek tertiary education. Student mobility across the globe, predominantly from the global south to the north, will likewise grow. In OECD countries, humanities, social sciences, and education dominate enrollments; however, data from other G20 countries show a somewhat more balanced distribution that slightly skews toward science, technology, engineering, and mathematics (STEM) graduates.⁸

FIGURE 1.1 Projections of share of 25–34-year-olds with tertiary education, 2013, 2030, selected countries (percent)



Sources: OECD 2015; OECD database; UNESCO; and national statistics websites for Argentina, China, India, Indonesia, Saudi Arabia, and South Africa.

Note: Percents in these figures are estimates based on available data. The population estimations are based on the OECD annual population projections (<http://stats.oecd.org/>). The figure reflects education policy targets for individual countries.

Tertiary education institutions (TEIs) will need to adapt and evolve their academic programs and organizational structures to accommodate the emerging diversity across the population of students, and, given the need for periodic upskilling and reskilling, transform themselves into lifelong learning providers. With increases in student numbers and in many countries the retirement of academic staff, which could provide an opportunity for a modernization of teaching and learning, TEIs

7. Calderon 2018.

8. OECD 2015.

must also ensure that they are training a cohort of young academics to continually build the pool of knowledge producers. And in addition to meeting these challenges, TEIs must be more responsive to labor market demands by ensuring that graduates are adequately prepared for entry into the labor market.

BUT WHAT ABOUT AFRICA?

Seventy-four percent of the expected global growth for the population aged 18–23 from 2015 to 2035 will be concentrated in 10 countries: Angola, the Democratic Republic of the Congo, Egypt, Ethiopia, Kenya, Niger, Nigeria, Pakistan, Uganda, and Tanzania.⁹ With so much of this growth set to occur in Sub-Saharan Africa, there is an even greater imperative to expand investments and opportunities in the tertiary sectors across the region, to maximize the relevant outcomes advanced skills and research bring to individuals and societies (box 1.1). Rapid and continuing youth population growth presents a stark challenge for all the aforementioned countries and, genuinely, all governments and TEIs around the world, particularly in their ability to anticipate and respond to social, political, and economic needs

BOX 1.1 Sub-Saharan Africa strives to catch up

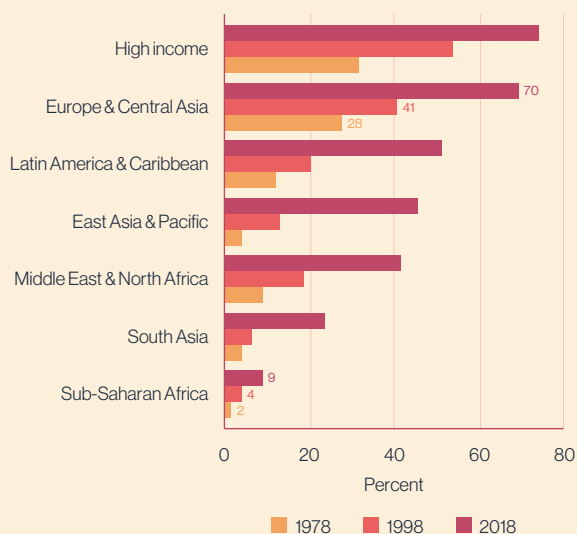
The university must become a primary tool for Africa's development in the new century. Universities can help develop African expertise; they can enhance the analysis of African problems; strengthen domestic institutions; serve as a model environment for the practice of good governance, conflict resolution, and respect for human rights, and enable African academics to play an active part in the global community of scholars.

— Kofi Annan

Though global enrollment in higher education is expanding faster than at any point in history, Sub-Saharan Africa is falling further behind, despite the region's enrollment rates doubling every 20 years since 1978. Today, Sub-Saharan Africa has the lowest participation rates in tertiary education in the world (figure B1.1).

At the same time, however, tertiary education graduates in Sub-Saharan Africa realize the highest rates of return to investment in their education (table B1.1). This reflects the lack of supply for highly demanded advanced skills in the region and should spur both national investment in tertiary education and individual interest in attaining postsecondary credentials.

FIGURE B1.1.1 Gross tertiary enrollment rates, by region



Sources: World Bank, World Development Indicators (2018); UNESCO Institute for Statistics (UIS).

9. Calderon 2018.

TABLE B1.1.1 Educational rates of return, by region

Region	Primary	Secondary	Tertiary	Countries
Sub-Saharan Africa	14.4	10.6	21.0	33
South Asia	6.0	5.0	17.3	7
Latin America & Caribbean	7.8	5.4	15.9	23
East Asia	13.6	5.3	14.8	13
Middle East and North Africa	15.0	4.5	10.5	10
Europe and Central Asia	13.9	4.7	10.3	20
All economies	11.5	6.8	14.6	130

Source: Montenegro and Patrinos 2014.

in the decades to come. Promoting tertiary education as a means of addressing key strategic and policy imperatives requires ensuring that tertiary education is suitable for and adaptable to local and global terms.

ADVANCED SKILLS AND HIGHER PRODUCTIVITY ARE ESSENTIAL IN RAPIDLY CHANGING DEMOGRAPHIC ENVIRONMENTS

Whether experiencing population growth or decline, tertiary education systems must adapt to a changing demographic environment and ensure that the abilities of graduates match the needs of their societies. Population decline in most middle-income and high-income countries will put pressure on productivity and demand an acceleration of innovation—including in the context of the green economy—serving an aging society. Institutions will be required to redefine themselves outside of traditional delivery and learn to serve as centers for lifelong learning, reskilling, innovation, inclusion, and, potentially, as partners with employers, for example, on targeted micro-credentials. In countries experiencing demographic growth, more and more diversified institutions are required for a bulging student pipeline. TEIs must be agile, able to identify their niche, and open to expansion in their sectors. Regardless of the demographic setting, all TEIs must be committed to quality and remain flexible in the face of rapid change in their student populations. The decades ahead will be defined by these populations shocks, and tertiary education systems must be prepared to adapt to them.

This World Bank policy approach paper on tertiary education has four main goals:

- i. Reinforce the imperative that every country, regardless of level of development, invests thoughtfully and strategically in well-managed, appropriately resourced,

accessible, diversified, and well-articulated tertiary education systems. This explicitly includes low-income countries, which need to catch up in terms of generic and subject-specific skills development, as well a technological innovation and adoption.

- ii. Provide a **framework** for policymakers and other tertiary education stakeholders to assess the viability of their existing systems for the future outcomes they seek and determine the key intervention issues for their tertiary education systems in the decades ahead.
- iii. **Consider the impact of the COVID-19 pandemic** on the global tertiary education sector and offer ideas that would underpin a resilient recovery from the crisis.
- iv. Offer information about the **content, context, and scale of the World Bank's operational and analytical work** in tertiary education.

TO ENSURE THE DEVELOPMENT OF ADVANCED (INCLUDING GREEN) SKILLS AND RESEARCH AND INNOVATION, COUNTRIES NEED TO STEER

The guiding principle of this policy approach paper is that policymakers and academic leaders must be purposeful in steering their tertiary sectors toward national and institutional strategic goals. To achieve these goals, the World Bank has identified five key dimensions that are instrumental for creating agile, effective, and sustainable tertiary education, particularly in the post-COVID-19 environment. To reach these goals, tertiary education requires purposeful **STEERING**, using:

- **Strategically diversified systems**—supporting all postsecondary institutions, ensuring agile, articulated pathways and diversity of forms, functions, and missions
- **Technology**—designed and applied in a purposeful and equitable manner
- **Equity**—a universal approach to the benefits and opportunities of postsecondary learning
- **Efficiency**—a goal-oriented, effective use of resources
- **Resilience**—the ability to persist, flourish, and deliver agreed goals despite adversity.

These five aspects present critical building blocks with which tertiary education leaders and institutions can reframe and strengthen their systems for greater impact on learning, growth, innovation, and social development.

The rest of this policy approach paper is structured as follows:

- i. Section 2 discusses the role of tertiary education for economic and social development
- ii. Section 3 provides a *STEERING* framework for policymakers and stakeholders embarking on strengthening the sector (this section will include key learnings from the COVID-19 crisis)
- iii. Section 4 provides policy recommendations for moving forward
- iv. Annex 1 and Annex 2 present an overview on the World Bank's global work and portfolio in tertiary education.
- v. Annex 3 provides detailed information on the World Bank's Human Capital initiatives

SECTION 2

**Tertiary education:
A vital investment
for economic development
and poverty reduction**

Tertiary education is instrumental in fostering long-term growth and boosting shared prosperity in all countries, whether high, middle, or low income. The benefits of quality tertiary education are felt at the individual and societal levels, leading to improvements in a wide array of positive externalities including improved social development, productivity, and governance (figure 2.1). Twenty-first century skills require advanced and enhanced learning opportunities, which implies a key

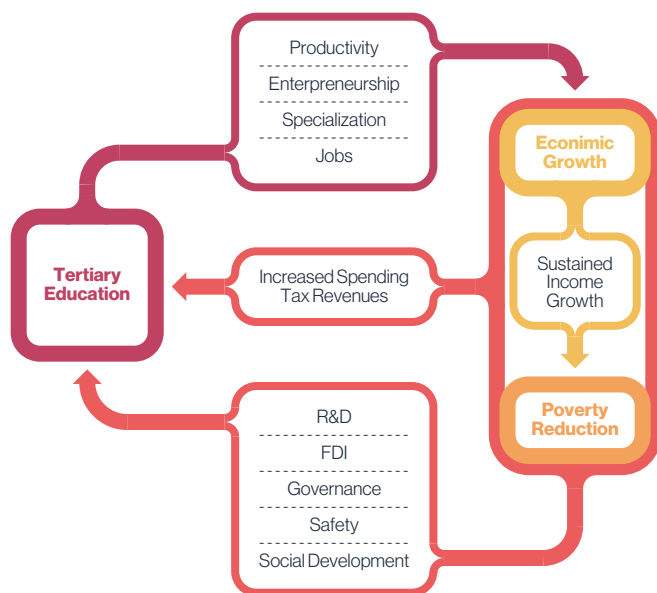
role for the tertiary education sector. Institutions need to be reinvigorated toward maximizing their potential and that of their students, especially at a time of continued strong expansion of tertiary education in many regions of the world and rapid changes in the global and national environments.

Workers with a quality postsecondary education are more employable, earn higher wages, and cope better with economic shocks. Economic returns for a tertiary graduate are the highest in the entire educational system—an average 17 percent more in earnings per year of tertiary schooling compared with 10 percent for primary and 7 percent for secondary education.¹⁰

No teachers, doctors, engineers, and managers without tertiary education

In addition to private (individual) benefits, the social benefits are also substantial. A highly skilled workforce with a quality-assured postsecondary education is a prerequisite for a country's innovation and long-term growth.¹¹ Likewise, research on the societal and private benefits of tertiary education¹² finds that, “Tertiary schooling can also have less direct benefits for economies. By producing well-trained teachers, it enhances the quality of primary and secondary education systems and gives secondary graduates greater opportunities for economic

FIGURE 2.1 Routes of economic and social benefits via tertiary education



Source: Based on Bloom et al. (2014).

Note: FDI = foreign direct investment; R&D = research and development.

10. Psacharopoulos and Patrinos 2018.

11. There is ample evidence of the role education, including tertiary education, has played in boosting economic growth. One such example is the Republic of Korea which, when it was established in 1948, was one of the poorest countries in the world. It grew to be the world's 15th richest economy, however, by investing in and strengthening education at all levels, including providing universal access to tertiary education. Interestingly, already in the early 1980s, Korea started placing higher education in a lifelong learning context: “The Korea National Open University that became independent from Seoul National University in 1982, provided opportunities for lifelong education at low tuition for those who did not receive higher education. In addition, open universities (industrial universities) that started from 1982, expanded opportunities for higher education for industrial laborers and working youth” (http://www.koreaneducentreinuk.org/wp-content/uploads/downloads/Education_the-driving-force-for-the-development-of-Korea.pdf).

12. Bloom et al. 2014.

advancement. By training physicians and other health workers, it improves a society's health, raising productivity at work. And by nurturing governance and leadership skills, it provides countries with the talented individuals needed to establish a policy environment favorable to growth.” Benefits of tertiary education are summarized in table 2.1.

TABLE 2.1 Benefits of tertiary education

	Private	Public
Market	Higher lifetime earnings (through employment and productivity effects) and savings/investments/consumer spending Accumulation of broader and deeper (advanced) skills	Net government receipts (tax revenues/fees), innovation and entrepreneurial activity, labor productivity spillovers Increase in the generation of new knowledge for innovation Rapid application and adoption of existing global knowledge to local challenges/concerns Regional development
Non-Market	Improved health and well-being, pure consumption effects, etc. Increased civic engagement and charitable giving; lower criminal activity and incarceration	Broader benefits like increased confidence in democracy and democratic institutions, political stability, lower rates of poverty or reduced inequality Improved child welfare and (next generation) educational outcomes Decrease in government spending for social programs

Source: Based on Deloitte Access Economics (2016) (expanded by authors).

While it is helpful to take the economic benefits of investments in education into account, policymakers are advised to consider the sector holistically. Investing in pre-tertiary or in tertiary education are not viable alternatives; investments need to take place over a student's and cohort's lifecycle and in a lifelong learning context. Tertiary education cannot exist without primary and secondary education laying the foundation for advanced learning; however, without investments in tertiary education, investments in basic education cannot realize their full returns. And without investments in tertiary education, there will be no effective teachers ensuring quality education for children or for doctors or nurses or engineers, to give just a few examples.¹³

In countries facing demographic decline and in countries with a youth surge, the demand for expanded access to tertiary education increases. It is impossible to predict what jobs will be available in the future, but there is consensus that they will require a new type of graduate—one with adaptive and advanced levels of skills. Given that two significant challenges facing education policymakers, regardless of

13. Moreover, path dependencies need to be considered. With schooling choices being made sequentially, the return to one stage may be low (for example, graduating from primary or secondary school), but the return to the next stage may be high, hence creating an option value at the stage with low terminal payoff. The earlier stage must be completed to obtain the higher return arising at the later stage. Thus, a full estimation of the return to secondary education needs to account for the opportunity to invest and appropriate the returns at a higher level.

national demographic momentum, are providing learning opportunities for all and ensuring that students get in-demand skills, modernizing tertiary education institutions and systems to embrace dynamic change is imperative.

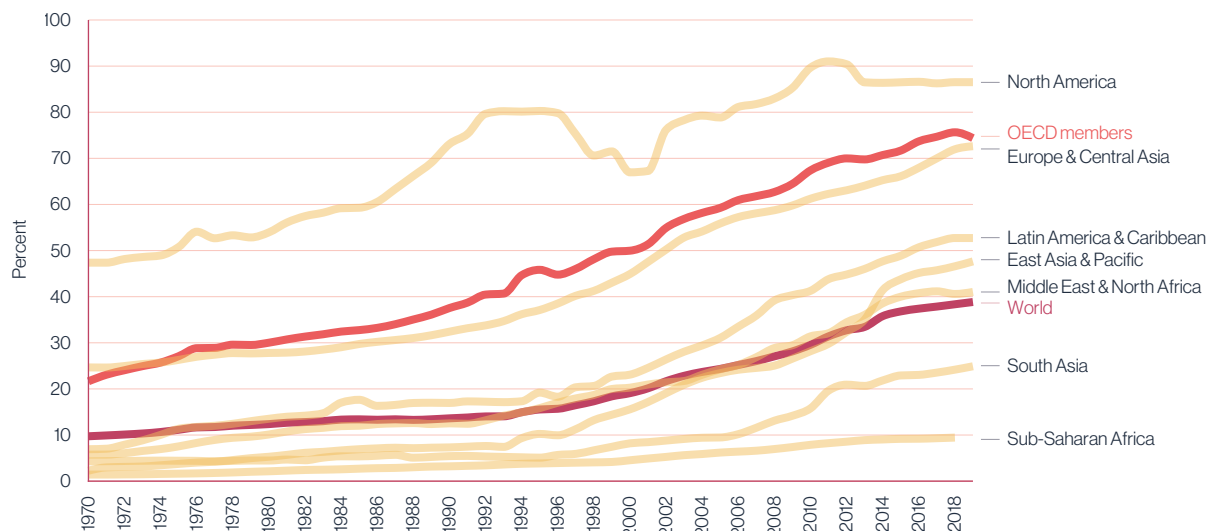
TERTIARY EDUCATION SYSTEMS NEED TO DIVERSIFY FOR RELEVANCE, EFFICIENCY, AND RESILIENCE

A diversified, flexible, and fully articulated tertiary education system is a complex but vital element in a relevant and resilient education sector. Tertiary educational systems (and the societies they serve) must strengthen postsecondary technical and vocationally oriented streams and promote them as of equal importance to traditional university education. Strengthening the range of postsecondary institutions—such as community colleges, polytechnic institutions, and technical training institutions—into one single ecosystem together with universities provides diversified pathways to skills development for students of all abilities, interests, and outcome goals. Establishing clear articulation mechanisms to allow students to move across academic and technical tracks along their lives, promotes learning as a lifelong opportunity as individuals navigate their place in a rapidly changing labor market.

Tertiary education systems and institutions must also become more resilient to external shocks. The unprecedented COVID-19 pandemic epitomizes this dramatic shock requiring rapid and transformational adaptations on the part of every element of tertiary education. Embedding resilience into tertiary education involves not only a diversification and modernization of modes of delivery, (such as online learning, connecting institutions, and providing technical capacity via National Research and Education Networks [NRENS]), but also via more adaptive and flexible financing approaches and quality assurance mechanisms.

Tertiary education needs an innovation and a lifelong learning approach

As tertiary education has expanded from being the privilege of the elite toward being accessible to increasing numbers of students around the world (see figure 2.2), pressures on the sector require innovative thinking on access and quality. Tertiary education in the 21st century thus features a combination of old problems and promises and new challenges and opportunities. To address the former and amplify the latter, purposeful policies and interventions require imagination and vigor. This includes better provision of data as the basis for evidence-based policy making, and fit-for-purpose quality assurance at the institutional and system level.

FIGURE 2.2 Gross Enrolment Ratio in tertiary education, 1970–2019

Sources: World Bank; UIS (data as of September 2020).

Note: Total enrollment in tertiary education, regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving.

Rapid technological innovations require upskilling and reskilling and are driving changes to economies and societies, challenging human capabilities in unprecedented ways. As countries experience sustained growth in enrollment numbers and continue to move up the economic ladder, low-skilled and repetitive jobs will continue to disappear, while the demand for advanced skills will continue to rise.¹⁴ Climate change is already impacting skills demand and is increasingly reflected in tertiary learning as well as research and development. Technical skills—that is, skills for a specific field, like engineering or computer programming—remain in high demand, while generic or transferable skills related to communication, leadership, teamwork, and critical and adaptive thinking grow in value in the global labor market. Critical thinking and the ability to thrive in evolving contexts will prove invaluable for the further accumulation of knowledge, skills, and competences over a lifetime. Indeed, in this evolving environment, adaptability throughout a lifetime of work will be essential, and Tertiary Education Institutions will need to put a stronger emphasis on lifelong learning opportunities.

Expanded demand for advanced skills, including in the context of the green economy will drive the continued strong expansion of tertiary education, which has been ongoing globally for nearly a century. Expansion does not require universal university/higher education; technical and vocational education (TVET) at the secondary and tertiary levels can play an important role in expansion and skills

14. See, for example, Levy and Murnane (2004).

development, but these different educational subsectors will need to become better integrated and develop clear and accessible pathways between university-led tertiary education and postsecondary TVET.

Learning over a lifetime will become the norm for workers, as the economy and labor market of the 21st Century evolves rapidly in the face of technological advances and continued globalization. Tertiary education systems, when diversified effectively across institution missions and types, certifications and degrees awarded, and costs and when articulated well, to allow for re-entry and continued learning within and across institutions, provide the most robust mechanism for a lifetime of learning and skills development. Flexible pathways benefit from modularization, clear articulation, and bridging options. More attention must be paid to how the non-university tertiary education sector, which plays a vital role in efficient and fully articulated systems, relates to the university sector, to promote a single ecosystem of tertiary education opportunities.

SECTION 3

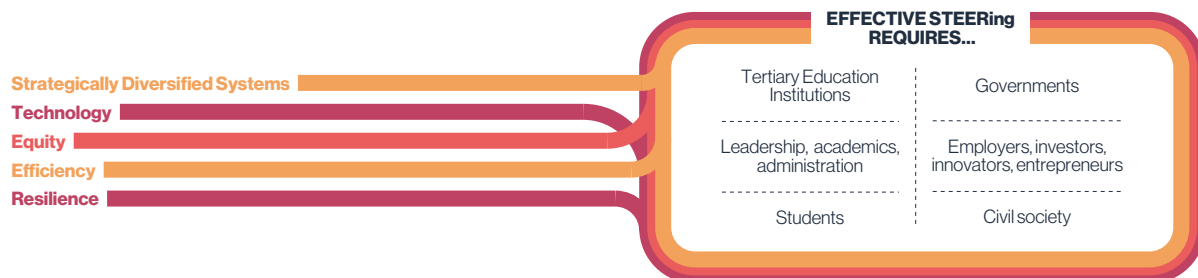
STEERing Tertiary Education Systems

Tertiary education systems are characterized and distinguished in multiple ways, including:

- By the issues these systems try to address, such as access and equity, employability, innovation, and the role universities play in regional development
- By the diversity of mission and forms of institutional delivery, serving the complex needs of complex societies
- By the roles of different actors such as learners, academics, higher education institutions, ministries, and families
- By key instruments like governance and management, financing, and quality assurance
- Through the way these systems integrate with international developments and act as international (or primarily national or local) actors
- Through the application of distinct tools and the extent to which they endorse (and drive) new technologies.

Other distinctive features are how tertiary education is organized, for example, via the integration with other subsectors like adult learning, its links to outside actors, and multiple ways systems and institutions serve their mission (figure 3.1). In an environment with a multitude of public and private providers, learning pathways and credentials, transparency can be supported through, among other ways, clearly stated learning outcomes (descriptors) systematized in national and sectoral qualifications frameworks. As the World Bank works with governments on tertiary education, these different aspects need to be considered.

FIGURE 3.1 STEERing Tertiary Education



Within this context of purposeful stewardship of tertiary education, the World Bank has identified five key dimensions that are instrumental for creating agile, effective, and sustainable tertiary education, particularly in the post-COVID-19 environment. To reach these goals, tertiary education requires purposeful **STEER**ing, using:

- **Strategically diversified systems**—supporting all postsecondary institutions, ensuring agile, articulated pathways and diversity of forms, functions, and missions
- **Technology**—designed and applied in a purposeful and equitable manner
- **Equity**—a universal approach to the benefits and opportunities of postsecondary learning
- **Efficiency**—a goal-oriented, effective use of resources
- **Resilience**—the ability to persist, flourish, and deliver agreed goals despite adversity.

These five aspects present critical building blocks with which tertiary education leaders and institutions can reframe and strengthen their systems for greater impact on learning, growth, innovation, and social development. These driving issues will be discussed in the following sections.

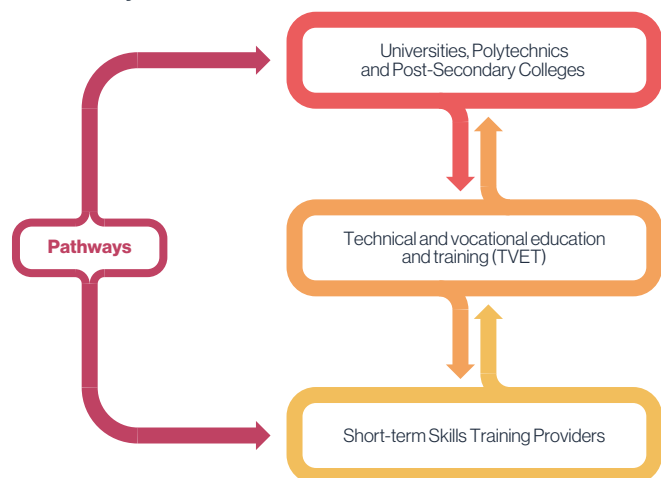
STRATEGICALLY DIVERSIFIED SYSTEMS

Every country should be exploring the opportunities afforded by diversifying the scope and missions of various tertiary education institution forms and providers, to meet the equally diverse needs and challenges of modern society and maximize the value of public and private investments in the sector.

A diversified and flexible tertiary education system is vital to create the variety of interwoven pathways crucial to meeting the needs of students and society alike. Educational systems (and societies) must strengthen technical streams and move away from historic ideas of narrowly defined prestige or valuable learning and skills coming only via elite universities. An indispensable tool for expanded access and effective learning is the creation and strengthening of a range of postsecondary institutions such as community colleges, polytechnic institutions, and technical training institutions, all of which are part of one single ecosystem, together with universities (figure 3.2).

Well-functioning tertiary education systems require strategic diversification and purposeful,

FIGURE 3.2 An effective, diversified, and articulated tertiary education system



agile articulation mechanisms that form the foundations for success in teaching, learning, and research. Moreover, strategically steered systems depend on purposeful governance, management, and leadership, which support setting and achieving goals. Both public and private tertiary education providers need to be able to fulfil the broad functions demanded of the tertiary education sector, as outlined in the section above. There also needs to be a division of roles in terms of sector steering.

For example, a ministry ensures that suitable legislation and funding mechanisms are in place; however, its role will be complemented by institutional stakeholders—public and private, possibly buffer bodies, a regulatory and/or quality assurance agency, think tanks, and data warehouses and essential players like rectors’ councils, student organizations, chambers, and industry bodies. An example of such an ambitious and far-reaching sector strategy is provided in box 3.1.¹⁵

BOX 3.1 India’s plan to build the biggest tertiary education system in the world

Fueled by its drive toward further growth and competitiveness, India has embraced the transformational power of tertiary education and is planning to put the sector to work in the coming decades. A technological, pharmaceutical, and service-sector powerhouse for South Asia and the world, India plans to diversify its tertiary education sector, make institutions more autonomous, and double its Gross Enrolment Ratio in the next 15 years through, among other things, the use of digitalization and an emphasis on equity and research and development. These goals were laid down in a new sector strategy, the National Education Policy (NEP), which was endorsed by the Government of India in August 2020. Further aspects of the NEP include:

- A strong emphasis on equity and inclusion
- A diversification of the sector through the establishment of multidisciplinary institutions
- Enhancement of learning environments and support for students
- Strengthening of research capacity
- Empowerment of institutional leadership and strengthening of institutional autonomy
- Development of career progression pathways for academic staff
- Greater focus on online and distance learning
- Disclosure of information to strengthen public oversight.

The World Bank has been engaged in the Indian tertiary education sector for decades through investment projects at the central and state level as well as analytical work. Through its newest engagement, the Bank sets out to support the implementation of the NEP, bringing global experience to the table while the envisaged biggest tertiary education system in the world takes shape.

Establishing clear articulation mechanisms, to allow students to move across academic and technical and vocational tracks along their lives is vital in a rapidly changing labor market and in a context where learning will truly be a lifelong experience. Moreover, well-articulated and diversified systems of tertiary education are less expensive, enrolling the majority of students in lower-cost teaching institutions while allowing for progressive degree attainment for those students seeking opportunities for more expensive, advance studies.

The California (USA) “Master Plan” provides a helpful framework for understanding a diversified and fully articulated system of tertiary education, with pathways for every secondary school graduate in the state of California to access some form of tertiary education from community college, to teaching-oriented universities, to research-intensive universities. Signed into law in 1960, the Master Plan codified strategic priorities still relevant to global tertiary education systems today, including: transforming a collection of uncoordinated and, often, competing colleges and universities into a coherent system that allowed for prioritizing both quality and access; establishing a broad framework for postsecondary education that encourages each of the various public

relevant to global tertiary education systems today, including: transforming a collection of uncoordinated and, often, competing colleges and universities into a coherent system that allowed for prioritizing both quality and access; establishing a broad framework for postsecondary education that encourages each of the various public

15. For details, see: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_o.pdf.

higher education segments to concentrate on creating its own kind of excellence within its own particular set of missions and responsibilities; and acknowledging the vital role of autonomous colleges and universities, while envisioning higher education in California as a single continuum of educational opportunity, from small private colleges to large, world-class public universities.^{16, 17}

Legislation governing tertiary education systems and institutions should be lean and adaptable, focused on basic principles while delegating more detailed provisions to by-laws. Overly complex legislation hampers adaptations and change and, contrary to the intention of legislators, leads to more confusion and quickly outdated provisions instead of providing the basis for clarity in sector steering.

Governance arrangements need to be effective and transparent

Strategic, effective steering at the system and institutional levels not only requires the right type of actors to be involved, but also clear strategic direction and processes at every step. The implementation of strategies needs to be monitored, actions need to be consequential, and the capacity of key actors needs to be strengthened. Key characteristics of effective steering lead to strategic development and governance, autonomy and accountability, cooperation, and participation, as well as differentiation of functions and distribution of powers.¹⁸

Effective governance at the institutional level is critical and involves a kind of balance of power among outside actors, the central management, and individual units. As with state actors vis-à-vis individual universities, the central management of institutions steers individual units toward achievement of jointly derived goals. Where constituent units like faculties are legally autonomous, as still is the case in some former-Yugoslav countries, for example, it is difficult to have fully competitive and goal-driven institutions.

Among institutional actors, external boards have become a prominent way of involving outside stakeholders in the governance of institutions. Their key functions often include guidance on the institution's overall strategic direction, performance monitoring, approval of annual and/or financing reports, and serving as a bridge between the institution and its outside environment. Individual board members often serve as ambassadors for the institution, which is particularly important for

16. University of California Office of the President (2009). California Master Plan for Higher Education | Major Features; https://web.archive.org/web/20131228061941/http://ucfuture.universityofcalifornia.edu/documents/ca_masterplan_summary.pdf.

17. Other examples for strong articulation mechanisms can be found in countries like Germany and Austria as well as Scandinavian countries which feature strong technical and vocational education systems. In these cases, TVET is not seen as a one-way road but as part of a lifelong learning journey which opens door for many more options, including for tertiary education.

18. Arnhold et al. 2018.

institutions that want to develop a stronger external national and/or international standing. Within institutions, there needs to be a suitable balance between legitimization of decisions and academic tasks (often represented by larger bodies like the senate) and executive functions at the central and unit level. While there is a need for efficient decision making, it is important that key stakeholders including academics, students, employers, and unions, have a voice. Measuring effective governance remains a significant challenge, however, so new initiatives like the governance benchmarking exercise in the Middle East and North Africa (box 3.2) may offer scalable options for ensure governance is implemented and assessed as fit for purpose.¹⁹

BOX 3.2 Benchmarking university governance in the Middle East and North Africa: A tool for addressing challenges within the tertiary education sector in the region and beyond

The Middle East and North Africa (MENA) University Governance and Quality Assurance Program stems from a partnership between the Education Global Practice of the World Bank and the Marseille Center for Mediterranean Integration. Its purpose is to foster openness, information sharing, and collective learning among tertiary education institutions in the MENA region, and between them and policymakers, quality assurance agencies, and employers.

The program efforts, activities, publications, and partnerships have evolved through the Regional MENA Tertiary Education Network, which has served as a platform to promote the exchange of information and lessons learned from the implementation of reforms. At the multi-country level, it aims at creating a solid knowledge base from which to foster collaboration and cooperation through a network of experts, programs, and institutions. At the country level, its objective is to support capacity building at individual

higher education institutions (HEIs) with the overall aim of improving tertiary education provision.

One of the pillars of the program is the improvement of university governance based on the implementation of the University Governance Screening Card (UGSC). The UGSC is a mechanism that was developed in 2010 as a benchmarking tool to assess the extent to which HEIs in the MENA region are following governance practices aligned with their institutional goals, national policies, and international trends, and which has been implemented in 120 universities from eight MENA countries since 2015. What is unique about the governance benchmarking approach is the development of self-reflection capacity within institutions. Unlike other tools, the UGSC does not rank institutions, but allows for the possibility of identifying areas of strength among local partners, and areas that states may choose to further develop.

Sector steering needs to focus on outcomes and results. Relevant outcomes for students, families, institutions, society, and the economy include research and innovation from academic staff, employability and employment rates of graduates, and satisfaction of workers and employers with the skills developed through tertiary education. Unlike compulsory education, where standardized curriculums make standardized testing of learning outcomes possible, tertiary education is much more diverse and individualized, making common outcome assessments nearly impossible to conduct. One tool that has worked well across countries in providing a focus on the outcomes of tertiary education studies is graduate tracer studies, which provide survey data on the experiences of graduates (in terms of employment, further study, and satisfaction with their education experiences) at set intervals after

19. Further, the World Bank supports countries in benchmarking their tertiary education policies and instruments with the help of the Systems Approach for Better Education Results—SABER (Annex 2, p. 60f).

completion of programs or degrees. Whether conducted at the national level, such as the experience in Bangladesh (box 3.3), or at the institutional level, which is the norm in the United States, for instance, graduate tracer studies allow system leaders to evaluate granular data on the outcomes of graduates following their studies.

BOX 3.3 Tracking graduates — A powerful evidence base for the employability discourse in Bangladesh

When graduating from universities, colleges, or polytechnics, many students in Bangladesh face a potentially long job search. While the economy is booming, and tertiary education generates ever more graduates, employers continue to complain about difficulties finding the right candidates. At the same time, higher education institutions are often in the dark about what happens to their graduates. Thus, a much stronger evidence base about employment outcomes of graduates and employers' perceptions was needed to feed into the discourse on quality and relevance of tertiary education.

Between 2016 and 2018, the World Bank supported the Government of Bangladesh in undertaking graduate tracer studies in all three tertiary education subsectors (that is, universities, affiliated colleges, and polytechnics). The overarching objective was to allow policymakers and educational practitioners to obtain a comprehensive understanding of the quality and relevance of programs as well as of access and equity issues, also in a comparative perspective among subsectors. This was the first time that systematic evidence on graduates was generated in Bangladesh, and the results of the tracer studies were disseminated through

workshops, meetings, and printed publications. The results, which often confirmed anecdotal evidence with hard data, became an important point of reference for setting policy priorities and fostered discussions on improving the employability of graduates within the sector.

The implementation of graduate tracer studies (GTS) in Bangladesh yielded three key learnings of relevance also for other countries. First, GTS provide crucial information for policymakers, but may face resistance due to a variety of political and practical reasons. Here, institutions like the World Bank can play an important role by initiating the required change. Second, GTS should include feedback from employers on graduates' skills levels, as this provides particularly useful information for institutions and adds credibility to the findings of GTS. Third, as the results of GTS tend to prove that the situation is worse than expected by academics and institutions, ensuring stakeholder participation in the preparation of GTS and providing frequent feedback and consultation opportunities on the results are critical to ensure strong buy-in and commitment to the survey findings.

Sources: World Bank 2017, 2018a, 2019a.

TECHNOLOGY

Technology is bringing transformative innovations and change to tertiary education, but faith in technology to expand access must be coupled with attention to equity and quality considerations and the implications of an expanded digital divide within and across countries.

Technology in general, and digitalization of delivery, in particular, are no longer the future for tertiary education; they are the present. No system can afford to ignore or diminish its commitment to effective technology. Instead of being a force for expanded access and equity, as it could and should be, unequal access to digitalization—including devices and connectivity—can make technology a factor widening equity gaps. Tertiary education systems around the world have had widely varying experiences with adapting new realms of technology for local delivery of teaching

and research, and this variance became glaringly evident with shocks COVID-19 forced onto the sector. Within weeks of the virus' spread from East Asia in January 2020, countries the world over were forced to suddenly adapt at an unprecedented pace, however, with a common goal of continuing their work in teaching and research in whatever ways possible. Technology, once seen as a disrupter, became the anchor, and distance delivery became the norm. How successful this transition and reliance on technology for sustaining core tertiary education functions is remains to be assessed, but there is no doubt that without it, most of the world's tertiary education would have come to a standstill and remained there for a while.

Tertiary education, through its students, academic staff, and graduates, has been the driver in the development and use of these and other disruptive technologies that are now changing how they work and who they serve. In a context that is often accused of conservative thinking and slow adaptation to change, universities and research centers are often the hubs of dramatic, creative thinking and ambitious explorations. Technology is both the tool and the outcome of these endeavors, which are changing not just tertiary education, but the world (box 3.4).

BOX 3.4 Evoke — Using technology to develop 21st century skills at Uniminuto University, Colombia

The World Bank developed the Evoke^a project in response to tertiary education's demand for innovative methodologies to define, operationalize, and assess 21st century skills. Evoke is a project-based learning model that uses storytelling, game mechanics, and global social networks to imbue young people with the skills they need to develop social innovations and acquire 21st century skills (for example, creativity, collaboration, and critical reflection) to experiment, collaborate, and create social innovations in their communities.

Evoke was implemented and evaluated over one semester with 297 students at the Soacha campus of Uniminuto University^b on the outskirts of Bogotá, Colombia. The theme of this Evoke module was peace and displaced persons. Soacha is a community of thousands of people violently displaced by conflict in Colombia. A randomized control trial with a pre-test–post-test control group design was implemented to evaluate the project. The theory is that these future skills can be taught in isolation, but that they are more powerful when combined with each other and

placed in a project-based learning framework. Empathy is an important skill to learn by itself to better understand the perspectives of others. When empathy is taught in terms of understanding the plight of a displaced person in Colombia and focusing on creating a solution to their challenges, the skill is given a stronger purpose.

The primary research question of the evaluation was: *To what extent does Evoke improve participants' social innovator 21st century and socio-emotional skills as compared to the control groups?* During the semester, Evoke students demonstrated statistically significant greater learning outcomes in 21st century and socio-emotional skills, which enabled them to be more innovative, empathetic, collaborative, and better problem solvers. The effect on skills acquisition was medium, which is strong for a brand-new program when compared with the well-established programs, and especially strong when considering that this was not a small supplemental intervention but a whole program that replaced five existing university classes for an entire semester.

Sources: Freeman and Hawkins 2016, 2017.

a. <http://www.worldbank.org/en/topic/edutech/brief/evoke-an-online-alternate-reality-game-supporting-social-innovation-among-young-people-around-the-world>.

b. <http://www.uniminuto.edu/>.

The COVID-19 pandemic exposed most clearly that technology will be the primary resilience instrument for the tertiary education sector, and tertiary education institutions (TEIs) will need to operate more strategically as teaching, learning, and

research embrace and adapt to remote delivery and online settings. To achieve this, tertiary education systems should invest in the development of their local digital infrastructure toward building more agile and flexible systems. This could take place through the strategic allocation of institutional funding to expand and update technological infrastructure for digital pedagogy, investing in learning science, and training of faculty members. Institutions, staff, and students who are equipped with sound infrastructure, resources, and skills, and who were already engaged in a culture of using technology for teaching and learning, had a much easier transition to remote learning.

In this context, tertiary education systems can leverage NRENs—which are specialized internet service providers dedicated to supporting the needs of the research and education communities within their own country²⁰—to mitigate the medium-term disruptions that emerge from the pandemic. As Foley (2016) notes:

At its most basic an NREN can offer more reliable bandwidth at less cost but it offers much more than that. Through its user identity management systems an NREN is critical for (a) participation in international collaborative research and to connect faculty and students to the global academic community; (b) access to digital resources and databases, costly instrumentation (super computers, telescopes, electron microscopes, and so on), high definition video; and (c) exchange of big data files, and so on. A more advanced NREN can also provide a springboard for innovation in a country, supporting experiments in networking and new discoveries and services in IT that their members are exploring.²¹

Investing in NRENs can provide widespread benefits, but these investments must also look at hard- and software investments, to ensure accessibility of these networked resources.

- In Africa, strengthening NRENs is a long-term measure to address the issue of connectivity,²² but this would require that students also have access to devices such as a laptop or smartphone to access these networks' content (box 3.5). African NRENs are relatively weak, particularly in West and Central Africa. Improved connectivity could be achieved through liaising with regional telecommunications companies.
- In the South Asia region, Afghanistan, Bangladesh, Pakistan, and Sri Lanka are leveraging their national research networks—the Afghanistan Research and Educational Network (AfgREN), Bangladesh Research and Education

20. GEANT; <https://www.geant.org/About/NRENs>.

21. Foley 2016, 5.

22. Africa 3 Connect; <https://africaconnect3.net/west-and-central-african-nrens/>.

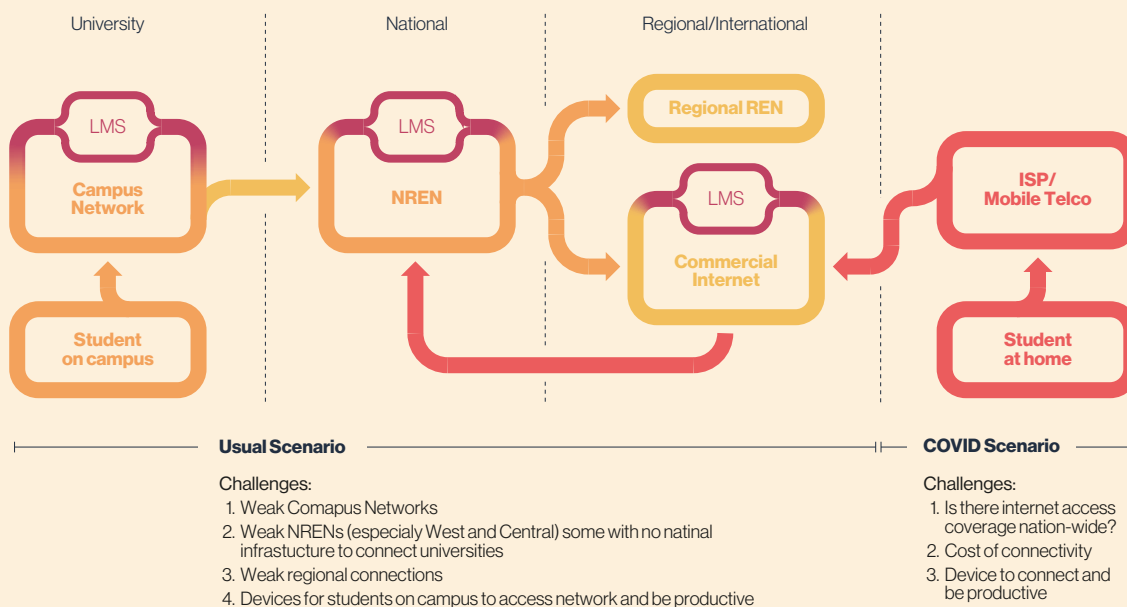
Network (bdREN), Pakistan Education and Research Network (PERN), and Lanka Education and Research Network (LEARN), respectively—to share digital resources and to deliver online tertiary education and critical health-related information, and provide a platform for videoconferencing.

BOX 3.5 Strengthening NRENs to improve technological resilience for tertiary education in Africa

Universities across the continent have already begun collaborating with telecommunications companies to provide free online content and internet access for academic staff and students, to address the mobile access challenges exacerbated by the COVID-19 pandemic closures of campuses. Strengthening the National Research and Education Networks (NRENs) in Africa is a long-term measure to address this issue of connectivity (figure B3.5.1) locally and in order

to engage more effectively with global colleagues and research centers. For connectivity to be truly effective, however, the students and academic staff must have access to a laptop or a tablet or smartphone to be able to access online content on these networks. Improved connectivity could be achieved through liaising NRENs with regional telecommunications companies (MTN, Orange, Airtel, Vodafone), WACREN, UbuntuNet Alliance, and GEANT-Africonnect.

FIGURE B3.5.1 Connectivity in Sub-Saharan Africa using NRENs



Source: Alex Twinomugisha, World Bank.

Note: ISP = Internet Service Provider; LMS = Learning Management System

TEIs face significant challenges in their reliance on technology, including issues of stability, equity, and even cybersecurity vulnerabilities. Infrastructure to support intense data usage for remote learning is often inadequate even in wealthy countries. Network penetration in the poorest countries in the world leave upward of 70 percent of their populations without internet connectivity. Adding to this are regular challenges such as unstable electricity grids and the very high cost for mobile connectivity. Taken together, a reliance on technology has already begun to expose

a series of digital divides across population income groups and nations of differing wealth levels. Students without the means to pay, technology to engage, or facilities that optimize their learning potential will continue to fall further behind their more resourced classmates and peers.

Digital skills are required to access the benefits (and minimize the negative impacts) of expanded digitalization of tertiary education. According to the OECD's Survey of Adult Skills (Programme for the International Assessment of Adult Competencies, PIAAC),²³ 15 percent of adults lack basic digital skills, and 13 percent lack basic digital, numeracy, and problem-solving skills. Innovations in the application of technology in education and industry, like those cited above, necessitate workers' improving their digital competences, to better do the jobs of today and prepare for the jobs of tomorrow. OECD estimates suggest that 14 percent of jobs (on average) across the OECD are likely to be automated in the near future, while 32 percent are expected to undergo substantial changes in terms of the quantity and quality of their tasks. It is imperative that workers retrain and upskill to face these enormous challenges.

Tertiary education institutions have an expanding obligation to equip students and staff with these vitally important digital skills, to ensure applied skills development alongside their academic skills. Building individual- and organizational-level digital skills supports efficiencies and promotes innovation and agility across core delivery areas: providing high-quality, adaptive teaching for students using advanced technologies; exploring the opportunities being developed in digital research tools and methods; and establishing digital competences that staff and students require in a digital world. A digitally skilled institution and sector creates competitive advantage for their constituents and can thrive in the face of increasing competition from tertiary education sectors worldwide. By investing in the development of digital skills of academic and administrative staff and students to enable this, tertiary education institutions and systems can reap the benefits of the increasingly digitized knowledge economy. Without investments in digitalization and digital skills, individuals and systems will fall further behind, as has been exposed by the shifts in education delivery forced by the COVID-19 pandemic.

The learning and research outcome implications of the pandemic closures of classrooms and laboratories have yet to be measured, but there is no question vulnerable students have been disproportionately and abjectly excluded from remote learning activities due to lack of access to the technology through which their education is being delivered. Without complementary analog delivery modalities—printed materials, for instance—many students just could not access their education. Students must come first, and their realities must be built into any technology planning, to ensure equity and inclusion in how technology is used. Nevertheless, tertiary education institutions serve as both the incubators and innovation hubs as well as the clients of disruptive technologies.

23. <https://www.oecd.org/skills/launch-of-2019-skills-outlook-thriving-in-a-digital-world-paris-may-2019.htm>.

Four notable innovations²⁴ illustrate the impact disruptive technology is having on teaching/learning and research in tertiary education: artificial intelligence, the Internet of Things, remote delivery, and virtual/augmented reality.

- **Artificial intelligence (AI) is likely to emerge as a driver of adaptive learning and academic intervention.** From supporting online learning platforms that adapt to individual student needs²⁵ to serving as research assistants to individual faculty, artificial intelligence that learns and improves as it supports students and academic staff can profoundly improve efficient and effective teaching, learning, and research.
- **The idea of the Internet of Things (IoT)²⁶ is that increased connectivity between devices and “everyday things” will continue to lead to better data tracking and analytics,** allowing for improved communication among student, professor, and institution to happen passively and constantly. IoT is making it easier for students to create the learning experience that is best for them, for professors to develop more effective learning modules, and for institutions to use predictive analytics that provide additional insights into how students are doing both in the classroom and on campus, including the ability to respond to early indicators of “at-risk” students. This data-rich environment can help students, faculty, and administrators anticipate and understand what is working and not working in real time, again promoting equity (in terms of progression and success rates) and efficiency (in terms of improved practices).
- **Remote delivery and online learning technologies have irreversibly changed how tertiary education institutions operate, educate, and innovate more than any other disruptive technology of the past decade.** While Massive Open Online Courses (MOOCs) are not likely to be the change driver they were anticipated to be, online learning has become a major tool for access and efficiency across tertiary education—as tertiary education institutions across the world look to expand their student populations and create accessible and expedient learning tools for an expanded cohort of students—from traditional students to lifelong learners. Those who are unable to access traditional university education rely on these online courses to acquire skills that are relevant to the job market.²⁷
- **Virtual and augmented reality technologies challenge and expand notions of what can be done in and outside the classroom and laboratories on campuses worldwide.** With access to virtual and augmented reality, students can immerse themselves in real-life learning situations that are either too dangerous or not

24. Adapted from Goldrick and Goldrick (2017).

25. <https://www.timeshighereducation.com/news/artificial-intelligence-revolutionise-higher-education#survey-answer>.

26. <http://er.educause.edu/articles/2016/6/the-internet-of-things-riding-the-wave-in-higher-education>.

27. <https://www.bbc.com/worklife/article/20190814-the-man-who-wants-to-make-university-degrees-obsolete>.

possible to experience otherwise. For example, medical students are now able to practice and learn from performing complex procedures in virtual reality without putting themselves or their virtual patient at risk. History students can now take virtual tours of the ancient cities that they are studying.²⁸ The virtual and augmented reality technologies are yet to expand to global audiences outside of gaming and some specific fields (such as medicine), but the possibilities for situational learning from any location seem endless.

An example of technology providing a modern adaptation platform for more effective teaching and learning is the expansion of competency-based education. Competency-based education recognizes that “all students enter a program with different skills and proficiencies and that each moves at a different rate.”²⁹ Like online learning, competency-based education serves as a tool for efficient progression through tertiary education and increasing the relevance of tertiary education to the broadest student population possible. Technology allows institutions to better measure these differences and design adaptive learning programs accordingly.

Finally, cybersecurity—including data hacking and spying via videoconferencing, among other covert digital criminal activities—is a challenge every system must address, to locate and resolve vulnerabilities in their systems before cyberattacks can occur. Technology has been perhaps the most important tool for maintaining tertiary education operations during the pandemic crisis, but overreliance on these tools without proper investment in cybersecurity may, in fact, make the systems weaker instead of stronger.

EQUITY

All qualified students should have access to tertiary education irrespective of financial means, geographic location, or personal characteristics such as gender or race. To offset challenges such as tuition fees/study-related expenses and support student resilience, financial aid and services programs should be robust enough to enable student access and persistence.

The World Bank supports the development of equitable, efficient, and inclusive tertiary education systems and dynamic, agile tertiary education institutions. Equity is enabled by establishing a solid foundation in the efficiency basics as described below: goal-oriented steering, effective financing that is increasingly geared toward performance, and purposeful quality assurance. It aims at a strong contribution of tertiary education to equitable growth, inclusive policies and programs, social

28. <http://er.educause.edu/articles/2016/3/the-promise-of-virtual-reality-in-higher-education>.

29. <http://ieg.worldbankgroup.org/sites/default/files/Data/Evaluation/files/highereducation.pdf#page=36>.

coherence, and societies with strong democratic foundations as well as the success and advancement of individual students.

Equity as equality of opportunity in tertiary education promotes sustainable and impactful economic and social development. Inclusion promotes policies and cultures that enable all members to benefit from and contribute to their learning environment and institutions.

As knowledge drives economic development and the rewards of advanced education become ever greater, attention to equity and access must be a central consideration for all stakeholders in tertiary education. Access to and persistence through tertiary education is a global concern and one that requires sustained commitment to resolve.

BOX 3.6 Afghanistan: Promoting gender equity in tertiary education

Decades of conflict severely affected Afghanistan's tertiary education system. The impact was particularly stark in terms of women's participation in the tertiary education system. In 2013, only 3 percent of women were enrolled, and the proportion of female academic staff was less than 1 percent. The government recognized the critical need to promote gender equity, both within the tertiary education system and in society at large. Accordingly, the World Bank's Higher Education Development Project (HEDP) was designed with a special focus on this issue.

With support from the HEDP, the Afghan Ministry of Higher Education (MoHE) has undertaken several innovative measures to promote female enrollment. To address transportation constraints, it provided buses to transport female students and faculty at all 25 major public universities. The MoHE is also piloting the establishment of childcare and counselling centers at a few select universities. It is furthermore building new dormitories to accommodate female students as a shortage of residential facilities has been a major barrier for girls to join universities outside of their hometowns. A new female student orientation program has been rolled out in 10 universities, as has a scholarship program for female students from economically disadvantaged backgrounds and for those with physical disabilities. Finally, one of the MoHE's most effective initiatives has been the reservation of seats for female students in priority disciplines at the national university entrance examination (*Kankor*).

The impact of the measures has been strongly positive. Between 2015 and 2017, female enrollment in priority degree programs increased from 11,400 to 15,000, and first-year female enrollment from 3,000 to approximately 4,500. In addition, the number of women with access to adequate residential facilities on university campuses has risen from 2,500 in 2014 to 3,400 at present.

There are some key lessons from the case of Afghanistan for other countries experiencing similar challenges to the promotion of gender equity. First, the Afghan program was designed based on a study of the tertiary education sector⁹ that identified the main constraints faced by Afghan women in pursuing tertiary education. Second, it is important to take a multipronged approach when seeking to combat the problems. In this respect, the HEDP contained a set of interventions that addressed all the major barriers to women's participation in tertiary education.

Source: a. Aturupane, Sofizada, and Shojo 2013.

Exclusion is a multifaceted phenomenon that needs to be addressed in multiple ways. Key aspects of inclusion include the socioeconomic dimension, gender, disability, and ethnicity; however, there are many more factors, including religion, culture, language, sexual orientation, immigration status, and age. Exclusion affects the individual, resulting in less social participation, lower incomes, and personal constraints when it comes to the development of individual-level possibilities. For societies, the consequences include lower levels of collected taxes and higher social costs, lower productivity and subsequently lower growth, loss of talent, reduced social justice, and less social cohesion. Specific to tertiary education are differences in access, including likelihood of enrollment, type of institution and field, as well as differences in retention and graduation rates and finally differences in labor market success. Inequalities in tertiary education are the focus of many World Bank projects in regions across the globe and in even the most fragile of contexts (box 3.6).

Tertiary education inequality must be addressed across three key dimensions: access and enrollment, retention/persistence, and completion and successful transition to postgraduate engagement (for example, further studies, employment, and entrepreneurial activities). In terms of access, the following measures can be considered: outreach programs to disadvantaged groups; tailored

financial support; better and more easily accessible information on study possibilities and career prospects; advice and guidance on study decisions; fair and equitable selection and admission procedures; better links between admission and the needs of students and the labor market; and low costs of changing study paths later on strong collaboration among schools, universities and policymakers.³⁰ Issues in the area of retention and promoting an effective learning environment can be addressed through interventions such as remedial interventions for students admitted based on potential but lacking in the preparatory development and skills to succeed in the intensity of postsecondary education, expanded information sharing and outreach from the earliest stages of education; accessibility of premises and learning materials; flexibility of provision; bridge programs; adaptation of course design; academic and psychosocial guidance, learning laboratories, and tutoring to support extracurricular academic development; and counselling and targeted financial support.

Both vertical (from admission to completion) and horizontal (distribution of students across the breadth of academic fields) equity considerations must anchor interventions designed to expand opportunities for all who wish to access them and promote the outcomes sought by graduates, particularly with regard to labor market outcomes that can be evaluated and understood via tools such as graduate tracer studies and labor market forecasting efforts. Equity policies must consider not just improvements in the number of enrolled students but must also promote access to every possible field of study, especially those most valued by the job market, and support all students toward completing their degree programs.

Finally, gender equity is a challenge systems and institutions continue to face, and in a broad variety of ways. In some systems, the challenge is providing girls and women avenues to access learning across all academic disciplines. In others, systems are experiencing a gender divide in which working- and lower-class males are no longer accessing tertiary education opportunities, limiting their own social mobility, and creating troubling social dynamics. Further, institutions across the globe need to confront the pervasive challenges of sexual harassment and assault on campuses by developing policies and responses to support their communities.³¹

Policy interventions known to support expanded equity include both monetary and nonmonetary mechanisms. These include³²:

30. See European Commission (2017) and Geven and Herbaut (2019).

31. To give just one example, a 2017 study on sexual harassment covering 39 Australian universities (with more than 30,000 students) revealed that more than a quarter of respondents were sexually harassed during the previous year in a university setting and 1.6 percent were sexually assaulted (<https://www.university-worldnews.com/post.php?story=20170808164952202>).

32. Lumina Foundation 2019.

Monetary

- Fully or partially subsidized education (legal frameworks; constitutional directives)
- Targeted free or partially subsidized tuition (system- and/or institution-level policies connecting admission to financial aid)
- Needs-based (targeting low-income student groups) scholarships and grants (system- and/or institution-level policies disbursing financial aid based on the personal income situation of students/families)
- Scholarships and grants targeted toward equity groups (system- or institution-level programs strategically directing financial support to students identified as members of underserved/underrepresented groups)
- Student loans (public and/or private provision of loans to cover tuition, fees, living expenses of students enrolled in recognized tertiary education programs; repayment policies vary based on loan program type)
- Policy levers, such as equity-linked financial incentives built into the national and state higher education institution-level funding formulas (strategic incentivizing institutions to implement equity interventions using rewards and, sometimes, penalties in the distribution of some portion of public funds in support of systems/institutions).

Nonmonetary

- Outreach initiatives, including information campaigns, and training of college counselor and community leaders in underserved areas and schools (system- or institution-level interventions to provide vital information on the benefits and opportunities of tertiary education for students/families from as early in the education pipeline as possible)
- Satellite campuses in remote or disadvantaged communities (through use of existing facilities—primary and secondary schools during evening hours, such as community centers—and/or new construction, to provide simplified access and promote local labor market alignment)
- Distance learning (requires commitment to infrastructure development, provision of hardware to students where needed, robust quality assurance mechanisms to ensure relevance, and so forth)
- Specialized courses and institutions directly related to underserved communities and groups (involving the community and employers in the development of programs and courses to ensure alignment with local needs and to promote desired outcomes)

- Flexible pathways to allow for re-entry at any point over a lifetime (system- or institution-level policies connecting all institutions in a robust and articulated system that can accommodate the diverse preparation, interests, experiences, and outcome goals for learners through their lifetimes)
- Transition and retention programs to provide emotional, academic, and social support to students at the points where dropout is most likely to occur (system- or institution-level policies that acknowledge the breadth of challenges students, especially those from underrepresented groups, face in persevering through postsecondary education programs and provide sustained supports through degree completion).

A 2019 World Bank study³³ on effective equity intervention in higher education found that mixed modes of intervention tend to be strongly effective in supporting the most at-risk students in accessing and persisting through degree completion. Outreach policies—when inclusive of both information of academic programs and opportunities and counseling/advising support—are broadly effective in increasing access for disadvantaged students, but outreach is less useful when providing only general information on higher education. Likewise, need-based grants do not independently or reliably increase enrollment rates unless such financial support provides funding sufficient to cover fully unmet need and/or includes early engagement and support during secondary school. On the other hand, need-based grants lead to improved completion rates of disadvantaged students, requiring institutions to play a strong monitoring role of the financial and academic experiences of their students most at-risk for early school leaving. Finally, interventions combining outreach (information and counseling) and financial aid have brought promising results for both expanded admission equity and retention and persistence of disadvantaged students.

Effective equity interventions require comprehensive assessments of the root causes of local inequities of access and success to determine the most useful course of action. There is no single policy or practice that can solve every equity challenge in every context. A concerted effort to diagnose problems at the local systems and institutional level will lead to a more specific understanding of the range of challenges impeding student attainment of tertiary education and determine which interventions have the greatest likelihood of resulting in improved access and success.

33. Herbaut and Geven 2019.

EFFICIENCY

The design and application of purposeful financing mechanisms, quality assurance, and talent management are essential for effective and efficient sector and institutional steering.

Efficiency in tertiary education is not merely conscientious spending to maximize outcomes while minimizing costs. Efficiency for tertiary education steering refers to ensuring that resources—fiscal and human—are used thoughtfully and strategically to promote desired outcomes, both public and private. Given the enormously complicated and consuming nature of tertiary education, the diverse resources required to be effective demand systemwide commitments to promoting efficiencies at every level. To have efficient tertiary education systems and institutions, strategic directions need to be connected to goal-oriented financing, quality assurance, and human resource or “talent” management.

Performance-based financing can play a crucial role in goal-oriented steering

Financing models for tertiary education continue to evolve, in terms of more effective processes and steering toward outcomes. This includes, for example, moving from line-item budgeting to block-grants and toward performance-based funding. This process is often related to an overall change in governance: instead of steering via detailed legislation, governments are steering through reformed funding mechanisms, which have autonomous and accountable institutions as a precondition. Performance-based funding not only requires a certain budgetary flexibility, however; above all, it requires clarity of goals at the system and institutional levels. Arnhold, Kvisito, Vossensteyn et al. (2018) summarize criteria for good tertiary education funding systems with a view to strategic and incentive orientation, sustainability, legitimization, autonomy, and freedom, as well as practical feasibility. Such criteria can also be applied to institution-level funding models³⁴:

“In addition to leverage, strategic financing can offer other potential advantages. It can enhance the strategic dialogue between the state and HEIs as well as provide more and better information on policy goals and priorities. It can also clarify for HEIs how they can contribute toward the realization of national policy objectives and signal to them what is and is not working. Transparency can be improved by providing greater and more useful information and indicators. This focus on key indicators can improve the quality, relevance, productivity, and efficiency of the higher education sector by sharpening the focus on key, measurable outcomes. This also

34. See Arnhold, Kvisito, Vossensteyn et al. 2018.

encourages a greater emphasis on strategic planning and assists in aligning institutional strategic plans with national higher education strategies.”³⁵

The strategic dialogue between the state and institutions benefits from the use of instruments like performance (or target) agreements. Where such instruments are used, significant considerations need to be devoted not only to the tool itself, but also to the related process. Institutions need sufficient time to fulfil the requirements, the process needs to be clear, and the criteria transparent; and the use of performance agreements requires a trustful relationship between the actors involved (box 3.7 and 3.8).³⁶

BOX 3.7 The Quality Improvement Program in Tunisia: An innovative funding mechanism to improve the employability of graduates

In the early 2000s, the tertiary education sector in Tunisia was facing two major challenges: (1) an overall decrease in the quality and relevance of academic programs, and (2) a rigid and centralized budget allocation mechanism that was not conducive to improved educational outcomes. In 2006, the Government of Tunisia decided to tackle these issues by introducing an innovative funding mechanism, the Quality Improvement Program (QIP), supported by the World Bank Higher Education Reform Support Project (PARES). The aim was to provide financial incentives for higher education institutions to improve academic quality, increase efficiency, and better align their programs with the demands of the labor market.

The QIP was a new, flexible, and equitable scheme for HEIs to access additional resources that would help them address specific priorities. It combined (1) competitive grants to improve the quality of programs and teaching, and (2) management capacity grants to strengthen management practices. All HEIs are eligible to access these grants, based on a clear and transparent process of proposal submission, evaluation by peer reviewers, and management approval. A key feature of the funding mechanism is that it can be adapted to respond to new priorities or rapid policy changes. For instance, the design of the QIP was later adjusted to respond to the new government's

objective to improve the employability of tertiary education graduates by, among other things, emphasizing “co-constructed programs” where both universities and employers were involved in the design, implementation, and evaluation of programs.

Internal and external evaluations^a of the first phase of the QIP confirmed that it is an efficient mechanism to foster changes. Some key outcomes include:

- Instilling a culture of quality and accountability within HEIs in Tunisia
- Promoting partnerships between HEIs and private sector entities
- Enhancing the quality of learning and teaching and improving practical training, which resulted in increased exam passing rates
- Promoting partnerships between and among HEIs
- Reinforcing the link between HEIs and their economic environments.

The innovative funding mechanism also played a catalyst role in leveraging funds and attracting other organizations. Through the development of co-constructed programs and certification programs in soft skills, the QIP attracted funding from many other organizations, including the British Council, AMIDEAST, and the French Institute for Cooperation, and gained attention internationally.^b

a. Froment and Surssock 2015; Ministère de l'Enseignement supérieur et de la Recherche scientifique 2014.

b. World Bank-led event “Fonds compétitifs pour l'enseignement supérieur, quelles perspectives?,” June 2015.

35. World Bank 2016, 8.

36. World Bank 2019b.

BOX 3.8 Higher education funding reforms in Latvia – Focus on performance

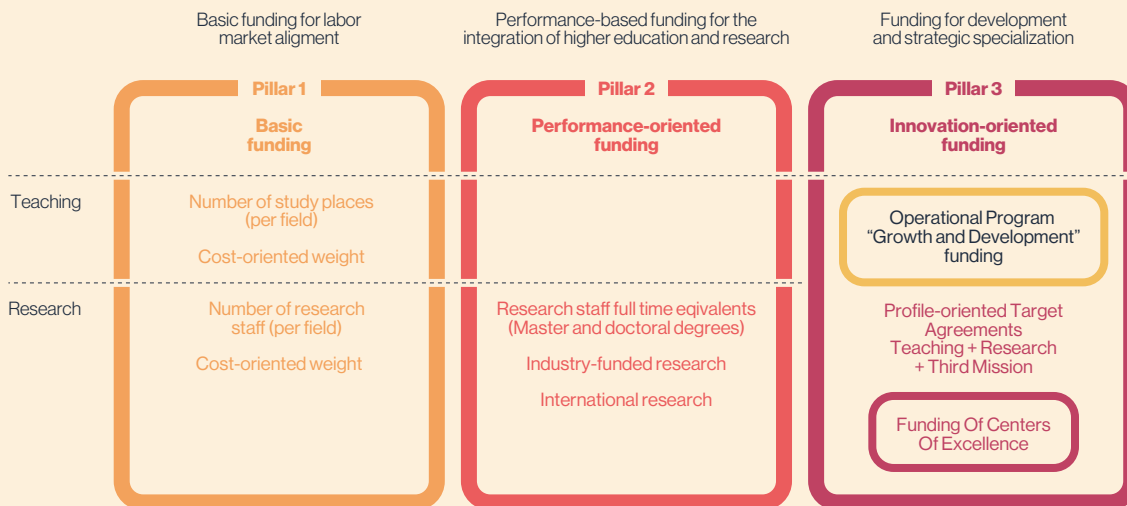
Since 2013, the World Bank has supported higher education reforms in Latvia via two successive Reimbursable Advisory Services (RAS). Country-specific recommendations by the European Commission, which requested the government of Latvia to evaluate its higher education funding system and to devise allocation mechanisms that promote sector performance, constituted the starting point of the engagement. After an initial focus on system-level funding, the scope of the engagement was broadened toward a more comprehensive coverage of key levers for strengthening performance orientation throughout the sector.

Under the two RAS, system-level financing, institutional-level financing, and governance, as well as academic careers, were addressed. Based on the World Bank's experience with funding reforms, several sets of recommendations for the Latvian government and Latvian HEIs were developed. In response to one of the key recommendations, a performance-based system-level funding model (figure B3.8.1) was introduced by the Latvian government in 2015. The numerous other recommendations have informed policy design at the national level and assisted HEIs in their

efforts to design more strategically internal funding allocation mechanisms, to enhance the efficiency of governance arrangements, and to support academics with their careers.

Three features of World Bank engagement in Latvia emerged as instrumental for its success. First, complex reforms such as those targeting funding concern all levels of higher education systems. Thus, considering the system level, the institutional level, and the level of the individual allows for an alignment of the various parts of higher education systems that increases the effectiveness of reforms. Second, taking up international good practice while at the same time accounting for the specific country context is key to arriving at solutions that are both state of the art and effective. Third, intensive exchange with various stakeholders has proved to be crucial for obtaining the required knowledge base and for promoting the acceptance of recommendations. In the case of World Bank engagement in Latvia, this exchange included not only the government, system-level governance bodies, and the leadership of HEIs, but also academics, students, higher education managers, and trade unions.

FIGURE B3.8.1 The Three-Pillar System-Level Higher Education Funding Model in Latvia



Note: The collected outputs of the two Reimbursable Advisory Services are available at: <http://www.worldbank.org/en/country/lu/publication/world-bank-support-to-higher-education-in-latvia>.

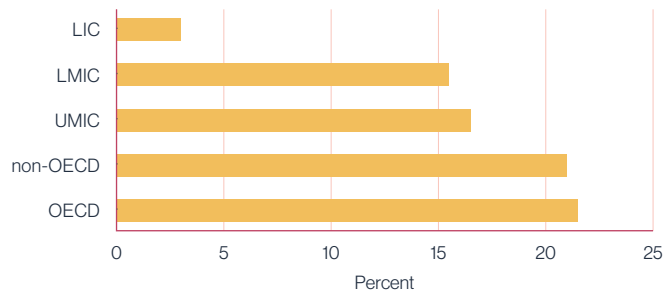
Is there a “right” level of financing? A simple answer to this global question is that the “right” amount of funding is that which enables governments to reach their strategic goals in an efficient manner and that strikes a balance between different missions on the tertiary level like investments in advanced generic and high-level

technical skills (including in STEM subjects), as well as the balance between teaching and learning on one hand and research and development on the other. The importance of the development of a highly skilled workforce, and innovation capabilities that drive the countries' competitiveness and growth, cannot be overstated.

Global investment levels in tertiary education have recently steadily grown, and there has been a global push toward making tertiary education relatively affordable to those from lower socioeconomic backgrounds. Moreover, enhancing the quality of teaching and learning, and meeting the demands for skilled labor, especially in low-income countries have also been important targets for tertiary education reforms. Equitable access to tertiary education contributes to economic growth and reduction of poverty through meeting the challenges of employability. Currently, only 3 percent of the skilled labor force in low-income countries (LICs) has a tertiary degree, however (figure 3.3). While working toward expanding access in an equitable manner, in LICs as in other countries, it will be of paramount importance that tertiary education is closely connected to the needs of the labor market and society more broadly.

In addition to system- and institution-level financing, numerous studies have focused on cost-sharing and student financing.³⁷ While fees continue to be an important source of income around the globe, various European countries have promoted a decrease in fees or even their elimination.³⁸ Expert opinions diverge on the moral, political, and economic issues around fees, particularly given the need for significant investments in quality tertiary education and the considerable private returns. Interestingly, despite decreasing fees in the European setting, countries do not seem to come closer to an “equity optimum.”³⁹ Indeed, fee-free tertiary education has been found to be a form of regressive taxation, where students in higher income quartiles benefit at much greater rates than students from the lowest income quartiles. In such instances, the balance of equity and fairness with public policy and programming becomes extremely complex and, often, politically charged.⁴⁰ The discussion on student fees is currently being revisited in some countries as one of the lessons of the COVID-19 pandemic is the need for “balanced” funding systems, that is, funding systems that are not overly dependent on one income source.

FIGURE 3.3 Skilled labor force by income, average for 1992–2012



Source: ILO 2016 in World Bank Group. 2017.

Note: The figure refers to tertiary education degree holders as a percentage of the overall population. LIC = low-income country; LMIC = lower middle-income country; UMIC = upper middle-income country; non-OECD = high-income non-OECD country; OECD = high-income OECD country.

37. See, for instance: Barr et al. (2018); Salmi (2003); Teixeira et al. (2008).

38. Estermann and Pruvot 2011.

39. This is well-illustrated by Germany, which has, by and large, abolished tuition fees again (Eurostudent.eu, 2018, 56) but is among the countries covered by Eurostudent, with the highest correlation between tertiary learning and paternal attainment level.

40. Johnstone and Marcucci 2010.

Student fees, however, must be carefully balanced with appropriate grants and loan schemes, in particular, income-contingent loans which link today's financing needs with future earnings, where the preconditions (like a well-functioning taxation system) are given. Grants and loans should be based on equity considerations (means-testing) and counteract the effects of student fees on access and retention (see box 3.9), which can be combined with merit considerations; however, countries need to consider what they “buy” if they provide students with scholarships who would have studied in the same way, the same subject, and at the same institution anyway.

BOX 3.9 The Student Loan Facility at Duoc UC, Chile

Duoc is a nonprofit, private Chilean vocational higher education institution founded in 1968. It has 16 campuses offering two-year technical degrees and four-year professional degrees. In 2015, Duoc UC had approximately 95,000 students, of whom three-quarters were from the three lowest income quintiles. From 2007 to 2014, Duoc operated a student loan facility in partnership with the International Finance Corporation (IFC) and Banco de Crédito e Inversiones (BCI). Students could take out a maximum loan of US\$4,500 per year and repay the loan within a period of years commensurate with their study period.

Source: International Finance Corporation 2015.

The university's objectives in introducing the loan program were to increase both enrollment and accessibility of its program to lower-income students, while the IFC and BCI were motivated to participate given the program's social responsibility objectives and the potential to reach new customers.

Duoc UC borrowers were typically those who would not qualify for commercial loans from banks. Marketing was jointly conducted by Duoc and BCI during enrollment periods with emails to admitted students and print advertising on campus.

Purposeful quality assurance promotes transparency and relevance

Quality assurance (QA) is another essential instrument for promoting efficient tertiary education systems. The importance of quality assurance of tertiary education has been rising around the world in response to several key developments. Chief among them is the expansion of higher education, which has put pressure on the public purse and on governments' capacity to run their country's higher education sector effectively.

Rapid expansion, particularly among private and online providers, has also exposed the need for more robust QA instruments to address the multitude of low-quality providers, many of which need to be evaluated, accredited, and either improved or closed. In many countries, this has led to granting more autonomy to tertiary institutions in exchange for greater accountability, resulting in the implementation of quality assurance processes, both internal to the institutions and external in the form of a QA agency. An important lesson is that countries need consistent and coherent regulatory frameworks and they need to ensure the quality of provision of all providers, whether public or private.

Aside from those national concerns, closer regional cooperation and expanded mobility of goods, services, qualifications/degrees, and people across national borders have proven strongly effective in promoting modernization and quality improvements for the nations involved (for example, the PASET initiative, box 3.10).

BOX 3.10 The PASET Regional Benchmarking Initiative — Improving the quality and relevance of programs in Sub-Saharan Africa

The Partnership for Skills in Applied Sciences, Engineering and Technology (PASET)^a Regional Benchmarking Initiative was launched by African governments with support from the World Bank in November 2015 to improve the quality and relevance of programs offered by Sub-Saharan African HEIs. The initiative aims at building capacity in HEIs and national higher education QA agencies in assessing the performance of HEIs and to help institutional leaders make evidence-based decisions to improve performance. The first larger-scale benchmarking exercise is currently ongoing, with more than 70 universities participating across 18 African countries. It looks at over 60 indicators, including equity, access, faculty profiles, quality of facilities, governance, finance, research, technology transfer, and student engagement.

The PASET Regional Benchmarking Initiative comprises several innovative elements:

- Following the data analysis, participating HEIs, governments, and the private sector will have access to a display user interface to visualize the results in ways that meet their needs.
- The initiative is seeking to capitalize on existing and well-developed open-source digital platforms to enhance scalability and interconnectivity between Management Information Systems (MIS) at the HEIs

and MIS at their respective national QA agencies.

- Through the initiative, a network of higher education QA practitioners from both the HEIs and national QA agencies across Sub-Saharan Africa will have a space for regular peer-to-peer learning and crowding in financial and technical support.

Going beyond the regional context in which it was developed, the initiative holds relevant insights for the development of higher education in general:

- Initiatives of this kind need to go back to the basics of data quality and promote a culture of proper data management.
- User input and feedback into the methodologies of the tools are critical to ensure that the tools are adaptable to the context within which they will be used and to obtain the right level of buy-in from the potential users.
- There is a need for capacity building and intentional knowledge transfer that not only covers participating institutions and national agencies, but that also includes a regional organization to implement the technical aspects of the initiative.
- It is important to seek out existing innovative ways of using technology to scale up and support more efficient ways of data management.

Source: World Bank 2018b.

a. The PASET (www.worldbank.org/paset) is an African government-led initiative that serves as a convening platform that focuses on strengthening science and technology capability for the socioeconomic development of Sub-Saharan Africa.

This political and economic aspiration finds its translation in tertiary education as well. The European Higher Education Area was launched in 2010. The African Union and ASEAN are working toward the same objective. In these three regions, quality assurance is viewed as an important building block to facilitate cross-border mobility as well as interinstitutional regional cooperation in research and teaching. It is helpful to think about quality assurance by using the following *framework*:

- The institutional level: This has to do with the internal quality assurance processes that a tertiary institution will have put in place to ensure its quality. This is the most fundamental aspect of the whole framework and the one most likely to ensure and improve quality.

- The national level: This is generally carried out by a quality assurance agency, recognized by the government.
- The regional/international level: Where this is politically important (Africa, Association of Southeast Asian Nations [ASEAN] countries, Europe⁴¹), the regional QA framework includes agreement on a set of principles for Internal Quality Assurance (IQA) processes, External Quality Assurance (EQA) processes, and a shared basis for recognizing quality assurance agencies.

The three levels are generally interlinked and reinforce one another to ensure that the framework provides a coherent, efficient, and effective approach to quality assurance.

The tools for IQA generally include processes (i) to validate, approve, and evaluate study programs; (ii) to recruit, evaluate, promote, and develop academic and administrative staff; and (iii) to ensure the quality of the learning environment and learning support. A good information management system is essential for data mining and analysis. The most mature IQA will also include a process to evaluate the IQA system itself and ensure that it continues to be fit for purpose.

The tools for EQA are varied: evaluation / accreditation, of program / institution; institutional audits (which examine the IQA). Their purposes vary, as well. In a nutshell, most will have a combination of improvement and accountability but will vary the placement of the cursor between the two aspects.

The COVID-19 pandemic has also had an impact on quality assurance, with evaluation and accreditation procedures being redesigned and adjusted in a virtual context. Many QA agencies have pivoted to an online format, which includes training their experts and conducting site visits online. Tertiary education institutions have done the same with their own internal quality assurance processes. Lessons are being drawn from this experience to adapt and strengthen both external and internal QA processes during the post-pandemic period. It is likely that new processes will combine online and face-to-face elements in a different mix than was the case before the pandemic to take fuller advantage of online formats.

41. Quality and relevance of provision have been fostered in Europe within the Framework of the Bologna Process, a pan-European higher education reform process (https://ec.europa.eu/education/policies/higher-education/bologna-process-and-european-higher-education-area_en). Within the Bologna Process, quality assurance has received significant attention on the institutional, state, and regional level. An important regional outcome are the Standards and Guidelines for Quality Assurance in the European Higher Education Area (https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf).

Policymakers and institutional leaders need to pay attention to the talent pipeline

Governments and institutions must pay closer attention to the quality of postgraduate education, to ensure that the Master's and PhD students of today become the strongest possible professors, lecturers, researchers, entrepreneurs, and leaders of tomorrow. All too often, the talent pipeline in tertiary education is overlooked, with priority going to inputs such as student enrollment numbers or faculty salaries. But, fundamental to the successful outcomes of teaching and research investments—and thus to the efficient delivery of tertiary education—is a high-quality, well-trained teacher and researcher. This training of the “trainers” happens in postgraduate education and staff development. Investments in postgraduate education, though such education may seem something of a luxury in low-income contexts, are investments in the success of all students. And, if countries do not invest in their local talent, that talent leaves and very often does not return.

Graduate schools (postgraduate studies)—and policymakers and institutions more generally—often ignore or underinvest in training doctoral candidates—future academic staff—in modern, effective pedagogical methods for their fields. Across the globe, new academic staff are tasked with the teaching of the foundational courses in TEIS, and yet they have the least training and experience as teachers. Future generations require a new model for teaching in tertiary education, one that focuses on ensuring skills development and knowledge acquisition that is relevant and applicable to the outcome desired by the student. Moreover, as both states and citizens invest heavily in financing tertiary education, they demand outcomes that reflect their investment. TEIS must develop their learning environments to ensure they can live up to these lofty, yet valid, expectation.

Strong tertiary educational outcomes require capable staff and institutions that are attractive employers. To ensure this, TEIS need to develop suitable, transparent, and reliable academic career models, conditions that help them attract the right type of staff and consider tenure track models to provide a perspective for their best academics. Important national and regional initiatives (see box 3.11) that seek to build not only the size of the academic staffing pool but also the quality and impact of that academic talent can serve as transformative investment for improved quality today and in the future.

Academic staff and students benefit immensely from a strong commitment to embedding internationalization in teaching and research as well as in academic career development. Internationalization, a tool that embeds global interconnectivity, integration, and awareness into the holistic tertiary education student and staff experience, is an important factor in building the capacity of countries, institutions, and individuals to harvest the benefits of cross-country cooperation on an equal footing. From mobility programs across borders to promote collaboration and cooperation to curricular inclusion of international issues and examples to normalize an international perspective in all academic activities, impactful

internationalization is an important contributor to 21st Century skills development. Teaching and learning at the tertiary level are often closely tied to research and development, but each contributes separate and important skills and opportunities to tertiary education constituents. TEIS—universities, polytechnics, and colleges alike—are hubs for both knowledge creation and application, and this contribution must be valued and supported alongside teaching. And, while research tends to attract more global attention—in the form of university league tables and the subsequent policy initiatives crafted to improve national showing in the rankings—teaching and learning are at the heart of any tertiary education enterprise. Well-taught students, given opportunities to learn and explore and expand their horizons, become the citizens, leaders, and entrepreneurs of tomorrow.

BOX 3.11 Africa Higher Education Centers of Excellence Projects

The World Bank's Africa Higher Education Centers of Excellence (ACE) Projects aim to build capacity of Africa's HEIs in areas that are important for the region's development challenges and economic growth. Through addressing critical gaps in human capital and innovation in science and technology, the ACEs become regionally acclaimed research and academic institutions in their respective fields. The project embraces the importance of industry/sector partnerships in providing labor market-relevant training and of regional and international academic partnerships in raising quality through the joint delivery of programs and sharing of resources. Developing such regionally specialized centers of excellence – by regional coordination of national investments – facilitates economies of scale through the sharing of high-end expensive technology, laboratories, equipment, and trained faculty.

Since the launch of the first phase of the project in 2014 in West and Central Africa (Africa Centers of Excellence for West and Central Africa, ACEI), the ACEs have been able to provide opportunities for African students to enroll in quality, market-relevant postgraduate education programs in priority growth sectors such as health, agriculture, extractive industries, renewable energy, water, railways, information and communications technology, and education. Following the success of the ACEI model, the second phase was launched in Eastern and Southern Africa with a more targeted approach toward regional integration. The Africa Centers of Excellence for Eastern and Southern Africa (ACEII) project provides competitive scholarships for students to undertake a two-year Master's degree program

at an ACE outside of their home country. In addition, there is provision for technical assistance to develop partnerships with the private sector. Under ACEI and ACEII, there are 46 university-based ACEs in 15 participating African countries that are involved in cutting-edge research.

The third phase of the project, ACE Impact, is now effective in West and Central Africa. The goals of ACE Impact are similar to its predecessors; however, there is a stronger focus on development impact, which will be achieved through deeper engagement and partnership with private and public sector stakeholders. In addition, ACE Impact places increased emphasis on strengthening institutional impact by supporting the adoption of global sound practices for university governance and operational policies.

During implementation of the projects and beyond, the ACEs will build the capacity of HEIs in Africa to create the new knowledge that meets the aspirations of the region. In addition to meeting the ACE targets, the projects complement the ongoing national projects on skills and innovation, raise youth employability, and enhance cross-border research networks. Through performance-based financing linked to quality and relevance and sustainability, universities can be at the forefront in addressing development challenges within their society. The ACE model – which has already led to, among other things, crucial research on the Ebola virus and the development of a plant-based Malaria prevention medicine – can be successfully adapted to different national and regional contexts to create programs for regions beyond Africa.

The ACE project also illustrates the enormous potential of regional cooperation in tertiary education. Cross-border higher education allows for joining forces in research as well as teaching and learning, to develop new focal areas that go beyond the scope and possibilities of a single country and that also allows for a division

of labor through the creation of regional centers of excellence. Resources can be pooled allowing for larger investments and more quality options for graduate training.

RESILIENCE

Systems and institutions can turn the challenges faced during the pandemic response into opportunities to become more innovative, adaptable, and resilient to future shocks.

By early April 2020, the COVID-19 pandemic had completely altered the norms of tertiary education delivery across the globe. Universities and other tertiary education institutions were forced to shutter campuses in 175 countries and communities, and over 220 million postsecondary students—13 percent of the total number of students affected globally—had their studies ended or significantly disrupted due to COVID-19. Table 3.1 depicts the state of disruption and the proportion of tertiary education students affected out of the regional total tertiary student populations at the peak of the first wave of the COVID-19 pandemic. What was seen globally were deep impacts in every region and a notably pronounced effect on upper- and lower-middle income countries. The pandemic exposed how vulnerable TEIs and tertiary education systems across the globe were to wholesale shocks to their traditional operational norms. And, while the capacity to pivot quickly to remote delivery was admirable and, in many ways, astonishing, the weaknesses in terms of equity, financing, and management, to name just a few factors, exacerbated by the pandemic's impacts, must now lead to more conscientious resilience planning for tertiary systems and TEIs.

When the pandemic closures began to spread across the globe, few, if any, tertiary systems, regardless of region or income level, had rapid response plans in place to coordinate such a massive effort as closing entire education systems. The ad-hoc nature of institutional closures continues to plague systems globally, as students, academic staff, and government officials grapple with the implications of these closures for their learning, teaching, research, innovation, educational

TABLE 3.1 Total affected tertiary education students, by region and income level

a. Disaggregated by region and as proportion of total disrupted tertiary education students

Region	Out-of-school TE students	Total TE students	%
East Asia and Pacific	72,391,442	73,538,139	98
Europe and Central Asia	36,948,926	38,030,033	97
Latin America and the Caribbean	27,007,997	27,111,868	100
Middle East and North Africa	14,282,666	14,282,666	100
North America	20,640,820	20,640,820	100
South Asia	40,468,782	40,468,782	100
Sub-Saharan Africa	8,399,127	8,533,188	98
Grand Total	220,139,760	222,605,496	99

b. Disaggregated by income level and as proportion of total disrupted tertiary education students

Income Level	Out-of-school TE students	Total TE students	%
High income	53,479,089	54,103,566	99
Upper middle income	97,493,490	97,934,594	96
Lower middle income	65,358,490	66,421,264	98
Low income	3,808,691	4,146,072	100
Grand Total	220,139,760	222,605,496	99

Note: As of April 8, 2020, based on World Bank calculations.

outcomes, and financial stability. The road from suspension to resumption of operations has been long and difficult, and some of the changes that the crisis has brought to tertiary education systems around the world will be permanent.

The COVID-19 crisis has shifted the emphasis to sector resilience

Global public health experts have referred to the COVID-19 pandemic as the “perfect storm” of adverse risk factors. In the global context of tertiary education, governments ordered the closure of tertiary education institutions’ (TEIS’) physical campuses for undetermined periods as part of their national policy response to limit the virus’ spread. As a result of these closures, significant implications have emerged regarding the impact on teaching and learning, as well as on student admissions, examinations, and graduation—a perfect storm to be weathered by the global tertiary education institutions and systems.

University leadership teams were forced to make many decisions, rapidly and with little information, to minimize disruptions during the pandemic, with the goal of resuming “normal” operations. In most countries, the closure of TEIS’ physical campuses prompted the transition toward online delivery to continue teaching and learning, despite wide-ranging variations in preparedness regarding digital systems and infrastructure. This transition cascaded into other decisions, namely the continued use of online platforms for curriculum delivery (for the foreseeable future).

In addition to the rapid response required to transition toward online modalities are issues related to coordinating one-off events such as examinations, graduation, and admissions (compared to ongoing teaching and learning). These events are interconnected. For example, in practically all countries, secondary school graduates comprise the majority of new university enrollees who, in turn, account for TEIS’ revenue through state funding for places and/or fee-paying students. Delays and/or postponements of decisions regarding selection—both secondary school and university entrance exams—and admission are likely to disrupt the tertiary education pipeline of a country’s human capital.

Policies regarding exams, graduation, and admissions in the COVID-19 context merely exposed the fragility of these vitally important benchmarks/assessments in the face of massive disruption. Many countries—such as the Republic of Korea and Bangladesh—postponed university entrance examinations for several months, temporarily alleviating pressures on administrators to conduct exams and the urgency for a conclusive result. Others chose to use makeshift adaptations—using teacher assessments instead of standardized exams, for instance—which has injected uncertainty and mistrust into once highly respected processes.

The World Bank responded quickly by helping countries mitigate learning loss at all levels. In December 2020, the World Bank’s Education Global Practice was working on 87 projects in 62 countries with COVID-19 response components, totaling

US\$4.7 billion, covering the entire education cycle from early childhood to tertiary education. In 2020/21, new education commitments reached US\$5.3 billion, of which US\$1.1 billion was related to COVID-19 responses.⁴² Afghanistan, for example, moved toward a multimodal delivery system for technical and vocational training, supported by the World Bank's Second Afghanistan Skills Development Project.⁴³

Relatively timely graduation and/or the transition for students to proceed toward their next academic year relies on systems leveraging all available options for administering assessments, including pass/fail assessments, open-note exams, and adjusting grade components from exams to research papers. Diverse assessment formats have long existed in contemporary university admission processes and are likely to be used in increasing numbers to resolve students' status for the next year or phase of their lives. The availability of several options means that there are more possibilities for academic staff to support students' efforts to conclude or continue with the latter's tertiary education experience. Student transition and graduation policies during the pandemic are also likely to have a direct impact on future admission policies, both for students and for institutions, particularly in the context of TEIS' financial sustainability.

From this pandemic response experience, the focus on reforms for tertiary systems and institutions must include resilience planning at the highest levels. For a social sector system like education, systems resilience can be defined as (1) the capacity of an enterprise to survive, adapt, and grow in the face of turbulent change⁴⁴; and (2) the capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and, therefore, identity.⁴⁵ Both definitions are relevant to tertiary education systems, which need not simply "survive, adapt, and grow in the face of change" but, as COVID-19 proved all too clearly, must also know their essential functions and identities (missions and stakeholder communities) in order to sustain those when faced with transformative shocks. Tertiary education systems/institutions must embrace agile frameworks that promote using the shock as an opportunity for reflection, assessment, and evolution in order to maintain commitment to their essential function and identity; that is, there must be adaptation without capitulation. As the history of tertiary education has shown, universities and colleges are among the most resilient institutions on the planet, because their value and function remain essential to society.

As noted, strategic direction via good governance is crucial to tertiary systems that are agile and effective. Governance is even more important in times of crisis response, providing a resilience mindset into the operational frameworks of the

42. Based on <https://pubdocs.worldbank.org/en/487971608326640355/External-WB-EDU-Response-to-COVID-Dec15FINAL.pdf>

43. <https://blogs.worldbank.org/education/multi-modal-tvet-delivery-during-covid-19-expanding-access-continued-learning-afghanistan>.

44. Fiksel 2006.

45. Kerner and Thomas 2014.

sector. Table 3.2, adapted from the Resilience Alliance's⁴⁶ work on assessing resilience in socio-ecological systems, depicts a new model of governance that supports agility and adaptability in times of shocks. While few countries had rapid response plans in place for their education systems, one opportunity that COVID-19 has offered tertiary education leaders is the chance to build resilience thinking into the sector's governance frameworks, to anticipate and respond quickly to such critical challenges as experienced in 2020.

TABLE 3.2 Conventional governance compared to adaptive governance for systems resilience

Conventional Governance	Adaptive Governance
Stakeholder participation promoted for legitimacy and efficiency of management	Collective action and network building promoted to strengthen capacity to deal with unexpected events
Social learning to create consensus around management initiatives	Social learning institutionalized to understand system dynamics
Institutions designed to achieve fixed targets	Institutions designed for adaptation to change
Evaluation is unsystematic and applied ad hoc	Policy viewed as hypotheses and management as experiments from which to learn
Strategies to deal with uncertainty are absent	Strategies to tackle uncertainty/complexity are a fundamental aim
Emphasis on solutions to achieve fixed quality and quantity targets	Emphasis on solutions to reduce vulnerability and strengthen capacity to respond and adapt
Models as a base in management plans	Models as collaborative processes to understand behavior of systems and identify critical thresholds
Institutional homogeneity promoted to secure administrative equality	Institutional diversity encouraged to promote innovation and reduce vulnerability
Multilevel governance encouraged for legitimacy and efficiency with regard to fixed targets	Multilevel governance promoted to secure local knowledge, reduce vulnerability, strengthen capacity

Source: Adapted from the Resilience Alliance's training on assessing resilience in socio-ecological systems (Resilience Alliance 2010).

While few countries had rapid response plans in place for their education systems, one opportunity that COVID-19 has offered tertiary education leaders is the chance to build resilience thinking into the sector's governance frameworks, to anticipate and respond quickly to such critical challenges as experienced in 2020.

Adaptive governance offers an immediate, strategic resilience intervention that tertiary education leaders and policymakers can take onboard today and in the coming months, as they do the work of realigning their operations with the new normal of the post-COVID-19 era. For tertiary education systems, adaptive governance for embedded resilience would need to address significant short- and long-term challenges facing tertiary education systems and institutions as a result of the shocks brought on by the pandemic, including diminished resources for institutions, personal and academic challenges for institutions and students, demand for improved infrastructure to support continued distance and blended learning models, reduced mobility placing pressures to improve regional and local tertiary institutions, questions of sustainability of funding models, and much more.

While traditional governance models generally offer prescriptive frameworks for interventions for addressing challenges, adaptive governance builds agility into the response options available to institutions and anchors the sector within systems that are mean to adjust and evolve as and when necessary. More than anything, adaptive governance accepts that change is inevitable and with preparation can lead to stronger and more relevant systems and institutions. Whether it is through quality assurance norms that can pivot quickly to evaluate and legitimize new modes of delivery or through emergency preparations for adapting technology, teacher training, community relations, or, even, residential facilities in case of civil unrest, natural disasters, or, indeed, pandemic, adaptive governance inherently embraces leading systems for resilience and relevance regardless of shock.

46. Resilience Alliance 2010.

SECTION 4

Moving forward

The accelerated modernization of the 21st century will realize new levels of automation and mechanization destined to transform not only labor markets but societies more generally. Technology will provide the answer for many of the challenges societies face, but it will also generate new challenges, in particular, with a view to equity and participation. It is thus of paramount importance that tertiary education systems, providers, and actors prepare for inclusive and efficient ways of higher learning that not only help solve innovation issues, but also bring different strata of society more closely together to ensure poverty reduction and shared prosperity for all.

Now and in the future, the World Bank will continue to support the development of agile, equitable, and efficient tertiary education systems and dynamic tertiary education institutions. This development is enabled by goal-oriented steering, effective financing geared toward performance, and purposeful quality assurance. It aims at a strong contribution of tertiary education to equitable growth, social cohesion, societies with strong democratic foundations, and the success and advancement of individual students.

It is against this backdrop and with a view to turn the challenges wrought by the COVID-19 crisis into opportunities to build back better for impactful reforms that this paper encourages tertiary education policymakers and stakeholders to **STEER** systems and institutions by:

Strategically diversified systems

- Exploring and investing in opportunities to diversify the tertiary education sector, including technical and vocational institutions, short courses, online provision, and private provision, as well as supporting more traditional research universities.
- Developing future-oriented strategies that center on a strong contribution of tertiary education not only to growth and competitiveness, but also to social cohesion and human development, more broadly, for the tertiary education sector, subsectors, and institutions.
- Positioning tertiary education as a single, integrated ecosystem that supports lifelong learning by promoting flexible pathways, second-chance options, and greater adaptability to the needs and opportunities afforded by employers, civil society, and governments.

Technology

- Adapting and applying new technologies in a purposeful and equitable manner. This means harnessing the power of technology to improve teaching and research capacity while simultaneously acknowledging and countering the impact of expanding digital divides.

- Investing in National Research and Education Networks (NRENS), to provide the structure, resources, and outreach capabilities for technology-driven teaching and research expansion that can benefit all institutions and stakeholders across the entire tertiary education system.

Equity

- Building equity reform initiatives that include vertical and horizontal equity interventions, to promote access throughout the tertiary education pipeline and across different institution types and all academic fields.
- Identifying the equity gaps within the national or regional tertiary education system and targeting those gaps explicitly via policy interventions.
- Ensuring innovations that impact students and society are evaluated through an equity lens, to mitigate those impact as proactively as possible.

Efficiency

- Improving information systems so that sectors, subsectors, and institutions can be managed and enhanced based on evidence and sound information.
- Devising and deploying governance, financing, and quality assurance instruments toward a goal-oriented, effective use of resources and in such a way that they weather the current and any future crisis. Financing this means, for example, that systems and institutions diversify their funding basis and reduce dependency on a single income source (such as international students); for quality assurance, this means that remote options for accreditation and evolution are established and applied if the environment requires such way of proceeding.

Resilience

- Acknowledging the need for resilience planning, by taking stock of the successes and failures of the COVID-19 response at the systems and institutional levels, analyzing options that would have mitigated the failures, and building agility and preparation into the governance and operational models of the sector.
- Promoting the development of system- and institution-level emergency contingency plans, to build an institutional ethos around continuing operations and delivering programs as smoothly as possible when faced with disruptions of any kind.

ANNEX 1

The World Bank's portfolio on tertiary education

Since the launch of its first project in tertiary education in 1963, the World Bank has continually evolved its perspective on and commitment to tertiary education as a significant contributor to the global education development agenda. Tertiary education—inclusive of all postsecondary education—is undoubtedly an important part of any complete education system. There is still a broadly held perception, however—inside and out of the Bank—that the Bank supports investments and reforms in tertiary education in middle-income countries only, with low-income and fragile countries not getting attention under the Bank's tertiary education agenda.

Between 2015 and 2021,⁴⁷ the World Bank financed 63 tertiary education projects with a net commitment of US\$3.89 billion. This is 14 percent of the total education portfolio for that period. It is important to note, however, that commitments

in other subsectors such as Adult, Basic, and Continuing Education and Workforce Development and Vocational Education are also tied to tertiary education. Including the two subsectors, a total of 167 projects were financed between 2015 and 2021 with a total commitment of US\$6.65 billion, roughly 25 percent of total education portfolio (tables A1.1 and A1.5). Between 2015 and 2021, 32 World Bank tertiary education projects⁴⁸ were approved that had a commitment of US\$100 million or more, with a total International Bank for Reconstruction and Development/International Development Association (IBRD/IDA) commitment of US\$6.39 billion (table A1.6).

From a portfolio review conducted by the World Bank's Independent Evaluation Group, between 2003 and 2016, there were 49 core and 68 non-core tertiary education investment projects. These projects can be categorized into themes: (i) competitiveness and public sector development, (ii) skills and employability, (iii) public sector

TABLE A1.1 Education sector portfolio summary, fiscal years 2015–2021

Subsector	No. of Projects	Net Commitments (million US\$)	% of Total Ed Commitment
Education	419	26,963.16	
Adult, Basic, and Continuing Education	19	202.82	0.8%
Early Childhood Education	88	2,713.86	10.1%
Other Education	111	2,583.59	9.6%
Primary Education	150	6,126.05	22.7%
Public Administration – Education	197	3,769.73	14.0%
Secondary Education	121	5,119.73	19.0%
Tertiary Education	63	3,885.26	14.4%
Workforce Development and Vocational Education	85	2,562.14	9.5%

Source: World Bank Standard Reports data (as of May 2021).

Note: As of May 2021. Includes IBRD/IDA, Recipient Executed Activities and Special Financing.

47. As of May 2021.

48. As per the portfolio review of tertiary education projects conducted by the World Bank; includes any project across all global practices that have an explicit tertiary education component.

development, (iv) knowledge economy, (v) access and equity, (vi) teaching and learning, (vii) improving research, and (viii) higher education systems (table A1.2).⁴⁹

TABLE A1.2 World Bank higher education projects by region and thematic area

	Total		AFR		EAP		ECA		LAC		MENA		SAR	
	core	non-core	core	non-core	core	non-core	core	non-core	core	non-core	core	non-core	core	non-core
No. of investment projects	49	68	12	26	7	9	3	19	12	4	4	2	11	8
Competitiveness and public sector development	4	10	0	3	0	0	0	1	2	4	0	1	2	1
Skills and employability	12	11	3	3	1	1	0	2	2	1	3	0	3	4
Public sector development	1	5	0	3	0	1	0	0	0	0	0	0	1	1
Knowledge economy	3	5	1	0	0	0	0	2	1	2	1	0	0	1
Access and equity	23	7	6	0	2	0	0	2	7	1	2	0	6	4
Teaching and learning	34	15	9	2	5	3	3	5	7	0	3	0	7	5
Improving research	16	6	5	0	4	1	1	1	3	3	0	0	3	1
Higher education system	26	6	6	1	4	0	1	3	7	1	2	1	6	0
Other	2	30	1	17	1	4	0	9	0	0	0	0	0	0

Source: World Bank 2017.

Note: AFR = Sub-Saharan Africa; EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SAR = South Asia.

In addition to lending operations, the World Bank also provides support through its Advisory Services and Analytics (ASAs). Between 2015 and 2021, a total of 150 ASAs were approved for tertiary education, which is 15% of all education ASAs (table A1.3). In the Independent Evaluation Group evaluation,⁵⁰ a detailed analysis of Bank contributions through ASAs was conducted for 87 ASA products. It noted that the number of ASAs increased notably, from an average of 4.7 per year to 7.5 per year, after the approval of the Education Sector Strategy 2011. Governance of tertiary education institutions became a major theme, and teaching and learning were most common for the Sub-Saharan Africa and Europe and Central Asia regions.

The Reimbursable Advisory Services (RAS)⁵¹ financing tool enables the World Bank to work closely with governments in upper-middle and high-income countries, primarily in the ECA region, on higher education issues through technical advice, analytical services, and capacity building. An example of an RAS activity is Bank

49. World Bank Group 2017.

50. World Bank 2017.

51. The Independent Evaluation Group evaluation was unable to cover RAS due to access issues, especially the confidentiality of some RAS activities.

collaboration with the government of Latvia to evaluate its higher education financing policies of public education. The RAS recommendations were formally adopted with alignment to national strategies.

Currently,⁵² the World Bank's Education Global Practice has 9 active signed RAS legal agreements with a total RAS budget of US\$9.89 million. Of these, five activities have a tertiary education component with a total RAS budget of US\$5.93 million (table A1.4).

TABLE A1.3 Education sector ASAs by number of activities, fiscal years 2015–21

Subsector	Total	FY 21	FY 20	FY 19	FY 18	FY 17	FY 16	FY 15
Education	998	60	113	119	100	118	235	253
Adult, Basic, and Continuing Education	28	0	1	2	2	3	11	9
Early Childhood Education	142	11	31	25	14	18	21	22
Other Education	414	14	29	28	23	32	132	156
Primary Education	158	8	21	18	13	23	39	36
Public Administration – Education	203	23	26	34	37	31	26	26
Secondary Education	134	6	17	16	8	24	33	30
Tertiary Education	150	5	18	19	13	22	39	34
Workforce Development and Vocational Education	165	10	16	29	12	22	32	44

Source: World Bank Standard Reports data (as of May 2021).

TABLE A1.4 Active tertiary education Reimbursable Advisory Services

Task ID	Task Name	Region	Country Name	Lead GP	Delivery FY	RAS Budget (total direct cost, million US\$)
P157508	Technical Assistance to Enhance Quality Assurance in the Higher Education System in Romania	ECA	Romania	EDU	2021	1.03
P171341	Bulgaria: Education Strategy 2030	ECA	Bulgaria	EDU	2022	0.82
P173441	Adult Skills Assessment in Thailand	EAP	Thailand	EDU	2022	0.39
P174532	RAS Russian Education Aid for Development – 3	ECA	Russian Federation	EDU	2025	3.00
P174831	Higher School of Economics: Research and Capacity Building in the area of Human Capital Development RAS	ECA	Russian Federation	EDU	2024	0.69
Total						5.93

Source: World Bank Standard Reports data (as of May 2021).

Note: ECA = Europe and Central Asia; GP = Global Practice; EAP = East Asia and Pacific.

52. As of May 2021.

TABLE A1.5 Subsector commitment as percentage of total education sector commitment for lending operations (FY2015–FY2021)

		Education	Adult, Basic and Continuing Education	Early Childhood Education	Other Education	Primary Education	Public Administration – Education	Secondary Education	Tertiary Education	Workforce Development and Vocational Education
FY 21	No. of Projects	59	1	13	24	26	39	23	5	9
	Subsector Commitment (million US\$)	2,656.85	4.05	200.24	172.58	446.79	842.04	679.44	90.97	220.73
	% of Total Ed Commitment		0.20%	7.50%	6.50%	16.80%	31.70%	25.60%	3.40%	8.30%
FY 20	No. of Projects	73	4	21	14	29	43	23	8	15
	Subsector Commitment (million US\$)	5,338.64	113.99	764.67	234.88	1,337.06	1,035.76	830.4	581.04	440.85
	% of total Ed Commitment		2.10%	14.30%	4.40%	25.00%	19.40%	15.60%	10.90%	8.30%
FY 19	No. of Projects	59	4	11	14	19	28	15	8	14
	Subsector Commitment (million US\$)	3,711.61	13.7	366.71	365.47	565.79	616.87	544.79	782.46	455.82
	% of Total Ed Commitment		0.40%	9.90%	9.80%	15.20%	16.60%	14.70%	21.10%	12.30%
FY 18	No. of Projects	49	3	15	8	21	28	16	5	8
	Subsector Commitment (million US\$)	4,647.61	24.28	713.37	156.5	1,128.04	724.29	1,212.46	423.32	265.35
	% of Total Ed Commitment		0.50%	15.30%	3.40%	24.30%	15.60%	26.10%	9.10%	5.70%
FY 17	No. of Projects	54	3	14	10	23	26	16	9	9
	Subsector Commitment (million US\$)	3,096.17	8.74	244.58	163.7	863.81	261.69	471.92	617.23	464.49
	% of Total Ed Commitment		0.30%	7.90%	5.30%	27.90%	8.50%	15.20%	19.90%	15.00%
FY 16	No. of Projects	56	3	3	20	14	16	13	13	12
	Subsector Commitment (million US\$)	3,250.83	37.78	159.74	708.42	603.27	156.33	579.24	821.06	184.99
	% of Total Ed Commitment		1.20%	4.90%	21.80%	18.60%	4.80%	17.80%	25.30%	5.70%
FY 15	No. of Projects	69	1	11	21	18	17	15	15	18
	Subsector Commitment (million US\$)	4,261.46	0.28	264.54	782.04	1,181.29	132.74	801.48	569.18	529.92
	% of Total Ed Commitment		0.00%	6.20%	18.40%	27.70%	3.10%	18.80%	13.40%	12.40%

Source: World Bank Standard Reports data (as of May 2019).

Note: Includes IBRD/IDA and Recipient Executed Activities and Guarantees.

TABLE A1.6 List of World Bank tertiary education projects with a commitment of US\$100 million or more, approved between FY2015 and FY2021

P-Code	Project Name	Project Approval FY	Country Name	Region	Lead Global Practice	Total Commitment (million US\$)
P160766	Digital Tanzania Program Phase I: Digital Foundations Project	2020	Tanzania	AFR	DD	150.4
P166239	Innovation Development and Effectiveness in the Acquisition of Skills (IDEAS)	2020	Nigeria	AFR	EDU	200.0
P166415	Higher Education for Economic Transformation Project	2020	Tanzania	AFR	EDU	300.0
P166693	Indonesia Skills Development Project	2020	Indonesia	EAP	SPJ	200.0
P166996	Promoting access to new and better jobs	2020	Ghana	AFR	SPJ	200.0
P167992	Belarus Higher Education Project	2020	Belarus	ECA	EDU	109.0
P168551	Rwanda Quality Basic Education for Human Capital Development Project	2020	Rwanda	AFR	EDU	200.0
P168961	Higher Education Acceleration and Transformation Project	2021	Bangladesh	SAR	EDU	300.0
P169064	Second Africa Higher Education Centers of Excellence for Development Impact	2020	Western Africa	AFR	EDU	131.0
P170561	Secondary Education and Skills Development Project	2021	Cameroon	AFR	EDU	125.0
P171050	Ukraine Improving Education for Results Program	2020	Ukraine	ECA	EDU	200.0
P163399	East Africa Skills for Transformation and Regional Integration Project (EASTRIP)	2019	Eastern Africa	AFR	EDU	293.0
P164546	Africa Higher Education Centers of Excellence for Development Impact	2019	Africa	AFR	EDU	143.0
P161386	Assisting Governance and Access in Higher Education for Quality Enhancement	2019	Pakistan	SAR	EDU	400.0
P168911	Improving Inclusion in Secondary and Higher Education	2019	Argentina	LAC	EDU	341.0
P252350	Rwanda Priority Skills for Growth (PSG)	2018	Rwanda	AFR	EDU	120.0
P160331	Odisha Higher Education Program for Excellence and Equity	2018	India	SAR	EDU	119.0
P166177	Additional Financing for Access and Quality in Higher Education Project – PACES	2018	Colombia	LAC	EDU	160.0
P158435	Skill India Mission Operation	2017	India	SAR	EDU	250.0
P156849	Support for Autonomous Higher Education Project (SAHEP)	2017	Vietnam	EAP	EDU	155.0
P154623	China: Gansu Technical and Vocational Education and Training Project	2017	China	EAP	EDU	120.0
P160446	Access and Quality in Higher Education Project – PACES	2017	Colombia	LAC	EDU	160.0
P160309	Mexico Higher Education Project	2017	Mexico	LAC	EDU	130.0
P151847	Eastern and Southern Africa Higher Education Centers of Excellence	2016	Eastern Africa	AFR	EDU	148.0

P-Code	Project Name	Project Approval FY	Country Name	Region	Lead Global Practice	Total Commitment (million US\$)
P152810	Tanzania Education and Skills for Productive Jobs Program (ESPJ)	2016	Tanzania	AFR	EDU	120.0
P151831	Kenya Youth Employment and Opportunities	2016	Kenya	AFR	SPJ	150.0
P154523	Technical Education Quality Improvement Project III	2016	India	SAR	EDU	201.5
P149233	DR CONGO – Quality and Relevance of Secondary and Tertiary Education Project	2015	Congo, Democratic Republic of	AFR	EDU	200.0
P150394	MP Higher Education Quality Improvement Project	2015	India	SAR	EDU	300.0
P133129	Argentina Youth Employment Support Project	2015	Argentina	LAC	SPJ	425.0
P148585	Romania Secondary Education Project	2015	Romania	ECA	EDU	243.1
P167054	Improvement of Skills Development in Mozambique	2021	Mozambique	AFR	EDU	104.0

Note: AFR = Sub-Saharan Africa; EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; SAR = South Asia.

ANNEX 2

Review of World Bank literature on tertiary education

This annex examines the evolution of World Bank policies on tertiary education, while exploring the persisting challenges characterized in the field, at both the policy and implementation levels. It then provides recommendations for future tertiary education reform efforts by looking at trends in regions and countries that have successfully implemented the new reforms. Finally, a summary table of the policy options promoted through these works closes this annex (table A2.1).

World Bank Policies on Tertiary Education

During the initial period of World Bank investment in tertiary education in the 1960s, the focus was mostly on teacher training efforts, building infrastructure for tertiary education institutions, and supporting training initiatives mostly aimed at the alleviation of poverty. In the following decade, tertiary education efforts expanded to also include some pedagogical support, such as skills development, training, and improvement of existing research activities. The portfolio investment in tertiary education initiatives also increased from 17 percent to 38 percent between 1960 and 1980.⁵³ Due to an increased focus on basic education in the 1980s and early 1990s, however, tertiary education reform fell off the prioritized agenda of the Bank's education leadership team. During this period, tertiary education projects often followed a fragmentary reform agenda with a very narrow focus on starting new programs. And, until the early 1990s, there was no formal strategy document underpinning the World Bank's efforts on tertiary education.

Higher Education: The Lessons of Experience (1994)⁵⁴

With the publication of *Higher Education: The Lessons of Experience* (1994), the Bank presented for the first time a coherent assessment of the importance of higher education to a fully realized and effective education system. Some recommendations made in the document include recognition of the private sector as an important actor in the provision (through private institutions) and funding, and diversification of higher education institutes based on mission and markets (including vocational colleges, polytechnics, and so forth), provision of financial support to qualified students from low socioeconomic backgrounds, decentralization of governance

53. World Bank 2016, 2017.

54. World Bank 1994.

to ensure management autonomy for institutions, and increasing access to quality higher education for students from all groups irrespective of gender or socioeconomic status. While acknowledging the challenge to developing countries to maintain the quality of higher education and also catering to the growing number of students, the report suggests maintaining a balance of resource allocation among primary, secondary, and tertiary education, such that the complementarity of relative social rates of return at each level is maintained with the assumption that public expenditure would remain the same.

In the years after this publication, tertiary education regained a focus as a strong area of interest for the Bank. From 2000, the following strategy and policy documents were published by the Bank on tertiary education: *Higher Education in Developing Countries: Peril and Promise* (2000), *Constructing Knowledge Societies: New Challenges for Tertiary Education* (2002), *Education Sector Strategy Update: Achieving education for all, broadening our perspective, maximizing our effectiveness* (2005), *The Challenge of Establishing World-Class Universities* (2009), “The equity imperative in tertiary education: Promoting fairness and efficiency,” and more recently “What Matters Most for Tertiary Education Systems: A Framework Paper” (2016). In 2017, the Independent Evaluation Group of the Bank conducted a detailed portfolio review of tertiary education work done by the Bank and the International Finance Corporation (IFC). *Higher Education for Development: An Evaluation of the World Bank Group’s Support*, is forward-looking and provides recommendations on how the Bank’s higher education support can cater to the 2013 World Bank Group’s twin goals of poverty elimination and promoting shared prosperity.

Higher Education in Developing Countries: Peril and Promise (2000)⁵⁵

The aim of *Higher Education: The Lessons of Experience* (1994) was to highlight the importance of higher education as an important contributor to socioeconomic development, rather than advocating for a shift from investing in basic/primary/secondary education to tertiary education. In *Higher Education in Developing Countries: Peril and Promise*, there is greater stress on the “chronic underfunding” of higher education programs in developing countries that are home to almost half of the world’s students of higher education. Much like *Lessons*, there is a recommendation on inclusion of private funding, but *Peril and Promise* goes further, to include philanthropic individuals, institutions, and students, through a mixed funding model approach. Other practical recommendations made in the report are effective use of physical and human capital (for example, using digital technologies to connect developing countries for global knowledge exchange), a coherent and rational approach toward improving governance structures that promotes better

55. World Bank and UNESCO 2000.

management and institutional autonomy in the face of limited resources, and development of curriculums especially in science and technology as well as general education. The report takes a balanced approach toward higher education through careful examination of historical and comparative knowledge to provide immediate next steps in anticipation of future challenges.

Constructing Knowledge Societies: New Challenges for Tertiary Education (2002)⁵⁶

Building on the findings of *Peril and Promise*, *Constructing Knowledge Societies: New Challenges for Tertiary Education (2002)* focuses on more contemporary challenges of tertiary education, such as meeting the skills demands of technology-driven global economies. It highlights the role of tertiary education in reducing poverty through economic growth, specifically for low-income countries that do not have institutional or human capacity. With globalization and increased use of technology, those countries unable to respond to digital transformation are left behind in the globally competitive knowledge economy. *Constructing Knowledge Societies* explores how inclusion in the modern economy can be achieved through the training of a labor force that can adapt to the changing demands of the market, building capacity to generate new knowledge and access existing knowledge stores, and decreasing inequity through opening better employment opportunities for underprivileged students. The performance of a country's primary and secondary education depends on a successful tertiary education system, which provides trained teachers, curriculum designers, school leaders, and educational researchers.

Constructing Knowledge Societies is grounded in quantitative and qualitative data collected from developing and transition economies. It makes evidence-based reference to a holistic education system building upon *Peril and Promise's* recommendation of having a balanced approach to resource allocation. For developing or low-income countries for which investment in education is 4 to 6 percent of GDP, an ideal investment level for tertiary education would be between 15 and 20 percent of education spending. An allocation of more than 20 percent may result in creation of an elitist university system that widens the quality and access gap. Similarly, countries that spend more than 20 percent of their tertiary education budget on student financing are likely underinvesting in physical infrastructure and maintenance. Thus, it is important to budget and finance the tertiary education subsector carefully and purposefully.

Following a 2002 internal review of World Bank tertiary education efforts, *Constructing Knowledge Societies* summarizes the lessons learned from World Bank support to tertiary education up until the 2000s. It reiterates the importance of holistic education reform that encompasses all levels of education and interventions

56. World Bank 2002.

that target broad reform programs within tertiary education rather than taking a piecemeal approach. While not espousing that all projects should have all-encompassing objectives, *Constructing Knowledge Societies* does propose the reforms should be approached in a sequential manner, through engagement with multiple stakeholders, while also giving close attention to the political economy of a country. The report provides directions for future Bank support through taking advantage of its status as an international organization in facilitating policy dialogue at the national level that enables use of Bank resources to harness global public goods.

Constructing Knowledge Societies acknowledges that the requirements for low-income countries are not the same as those of middle-income and other transition economies. Therefore, it provides targeted recommendations for tertiary education reform in low-income countries, through strengthening primary and secondary education systems, increasing capacity for continued professional development of teachers and principals, training qualified professionals through a cost-effective combination of different funding resources, and diverting investments to advanced research and training, specifically in fields relevant to advancement of a country's economy. For low-income countries that are also small states, the report emphasizes building subregional partnerships with neighboring states to develop a network of tertiary education institutes that facilitate the movement of students and cross-recognition of programs. The Bank is currently doing this through the Centers of Excellence projects in Africa that promote cross-country and cross-sectoral partnerships in science and technology through results-based financing.

Education Sector Strategy Update: Achieving education for all, broadening our perspective, maximizing our effectiveness (ESSU) (2005)⁵⁷

This sector strategy report builds on an earlier one published in 1999, which focused primarily on basic education for all. The 2005 ESSU reiterates the importance of coherent and articulated education systems in promoting knowledge economies and acknowledges the importance of investing in secondary and tertiary education. It emphasizes “integrating education into a countrywide perspective, broadening the strategic agenda through a systemwide approach, and becoming more results-oriented.”⁵⁸ In the context of low-income countries, the report highlights the importance of collaboration with the private sector to meet the demands of higher education, by providing Bank and IFC support in “mobilizing private resources through improved cost recovery at upper levels of education systems, innovating student loans (processes,... (and providing) subsidies for poor but deserving secondary and tertiary students.”⁵⁹ Due to its focus on Millennium Development Goals, it

57. World Bank 2005.

58. World Bank 2005, vi.

59. World Bank 2005, 9.

acknowledges the importance of developing science and technology, especially in low-income countries.

In line with *Constructing Knowledge Societies: New Challenges for Tertiary Education. Directions in Development* (2002) and *Higher Education in Developing Countries: Peril and Promise* (2000), ESSU provides three priority areas for development of tertiary education in low-income countries:

- i. Building instruction and management capacity to improve education quality and relevance
- ii. Producing qualified skilled professionals through cost-efficient public and private tertiary education institutions
- iii. Strategically investing in advanced training and research.

The Challenge of Establishing World-Class Universities (2009)⁶⁰

This report goes beyond making recommendations for an overall reform of the tertiary education subsector to laying out the characteristics of a tertiary education institution, a world-class university, which it attributes to three factors: “(i) a high concentration of talent (faculty and students), (ii) abundant resources to offer a rich learning environment and to conduct advanced research, and (iii) favorable governance features that encourage strategic vision, innovation and flexibility and that enable institutions to make decisions and to manage resources without being encumbered by bureaucracy.”⁶¹

To establish such an institution, strong buy-in from the national government is important. Public initiative, support, and funding, along with a favorable policy environment, are needed for its success. There are several directions governments can take to create a flagship institution. They can provide support to existing universities to upgrade or encourage the merger of certain institutions to achieve the status of a world-class university, or they can create one from scratch. Although expensive and difficult to recruit best talent, they have the opportunity to create a culture of excellence and appropriate regulatory frameworks.

For low-income countries, establishing a flagship institution can be challenging due inadequate funds to sustain a high-cost institution with a limited number of qualified and trained faculty. Due to a lack of such institutions in low-income countries, the talented group of people move to internationally acclaimed universities outside, thus further diminishing the pool of qualified candidates. The report recommends

60. Salmi 2009.

61. Salmi 2009, 7.

developing regional institutions to mobilize human and financial resources more cost-effectively. Funding from donors can be diversified to also include long-term maintenance costs and incentives to retain a qualified pool in the country.

“What Matters Most for Tertiary Education Systems: A Framework Paper” (2016)⁶²

In a more recent update on tertiary education that is in line with the World Bank’s Education Strategy 2020: Learning for All, a benchmarking tool based on the Systems Approach for Better Education Results (SABER) has been developed for tertiary education: the Systems Approach for Better Education Results for Tertiary Education (SABER-TE). The tool helps policymakers make evidence-based decisions on ways to achieve systemwide goals for tertiary education reform, through assessing the readiness of implementation of new policies and the usefulness of already existing ones. “What Matters Most...” gives an overview of the guiding principles of SABER-TE while also taking a deep-dive into the data collection instruments, scoring rubrics, guidelines for data analysis, and methodological approaches to the dissemination of findings. The tool also provides support to national governments in implementing the findings in the regional, national, and local contexts.

Based on a tertiary education conceptual framework, SABER-TE follows the “holistic education system” from *Peril and Promise and Constructing Knowledge Societies*. It acknowledges the intersection of tertiary education with primary and secondary levels, and the need for tertiary education to play a role in strengthening the preceding levels more actively. The conceptual framework includes the most common elements in tertiary education systems. The tool assesses a country’s tertiary education system based on the standards set against each of the components: vision; regulatory framework; governance; financing; educational quality; equitable access, retention, and successful completion; and relevance of tertiary education to economic development.

The direct involvement of the central government in the tertiary education subsector ensures a strong vision and formulation of goals for performance. Decentralized systems, in contrast, have limited involvement in the subsector, and thus a lack of control over the measurement of performance using standardized indicators. A strong regulatory framework should include laws on the eligibility of institutions offering tertiary education, certification mechanisms for programs offered, and guidelines for both private and public institutions to work in partnerships. The degree of regulation may vary across countries and types of institutions, ranging from detailed guidelines on curriculum and maximum number of students for a program to performance-based financing and having quality assurance systems in place.

62. Marmolejo 2016.

The levels in a governance system vary across countries; therefore, having clearly defined and unique roles for each level is essential to the efficient management of tertiary education institutions in a country. The system should enable the transition of students from one institution to the other through a credit accumulation system and cross-recognition of programs. The report recommends having a National Qualification Framework or a similar arrangement to accredit its programs and providing incentives for collaboration between university and non-university institutions.

TABLE A2.1 Key messages from World Bank policy frameworks on tertiary education

Publication	Key messages
Higher Education: The Lessons of Experience (1994)	<ul style="list-style-type: none"> • Recognition of the private sector as an important component in higher education provision and funding • Diversification of higher education institutions • Provision of financial support to qualified students from low socioeconomic background • Decentralization of governance • Increasing access to quality higher education for students from all groups
Higher Education in Developing Countries: Peril and Promise (2000)	<ul style="list-style-type: none"> • Mixed funding model through inclusion of philanthropic individuals, institutions, and students • Use of physical and human capital • Improving governance structures • Development of curriculums especially in science and technology as well as general education
Constructing Knowledge Societies: New Challenges for Tertiary Education (2002)	<ul style="list-style-type: none"> • Holistic education reform that encompasses all levels of education • Increasing capacity for continued professional development of teachers and principals • Training qualified professionals through a cost-effective combination of different funding resources • Diverting investments to advanced research and training • Building subregional partnerships with neighboring states, especially for low-income countries
Education Sector Strategy Update (2005)	<ul style="list-style-type: none"> • Integrating education into a countrywide perspective • Broadening the strategic agenda through a systemwide approach • Becoming more results-oriented
The Challenge of Establishing World-Class Universities (2009)	<ul style="list-style-type: none"> • Strong buy-in from the national government, public initiative, support, and funding to establish a world-class university • Developing regional institutions to mobilize human and financial resources
“What Matters Most for Tertiary Education Systems: A Framework Paper” (2016)	<ul style="list-style-type: none"> • “Holistic education system” • Direct involvement of central government in the tertiary education subsector • National Qualification Framework or a similar arrangement for program accreditation • Provision of strong incentives for collaboration between university and non-university institutions

ANNEX 3

Tertiary education and human capital

Human capital and employment are key determinants of economic growth, together with total factor productivity and capital investments. Tertiary education not only increases individuals' and societies' human capital, but also increases labor productivity and correlates with longer working lives. In addition, it has an important link to innovation and thus also impacts total factor productivity. Technological innovation as well as adaption indeed requires highly skilled individuals.

Training graduates for the labor market—and that includes the local and global ones, the existing or future ones, and the ones that are emerging for industries yet to be created by these and future graduates—and employability more broadly—are key aspects of tertiary educational outcomes that are addressed in many World Bank projects.

Fears that the labor market cannot absorb an expanded supply of tertiary education graduates are misplaced. This argument has resurfaced recently, for instance in the MENA region, where graduate unemployment indeed is high. An older meta-analysis of papers in Europe and the United States⁶³ found that between, roughly, 1980 and 2000, there was no evidence for overeducation, despite a massive shift in graduation rates. More recent evidence, from India, Mexico, the Philippines, and Thailand,⁶⁴ shows that while overeducation may be growing in some places, it only affects the unskilled sector. Moreover, these analyses typically raise some conceptual questions about the notion of “overeducation,” as an individual may have benefited in other ways from having a higher level of education, beyond the occupation that they have.

Graduate unemployment remains a problem, nonetheless. In Bangladesh, for instance, graduates tend to find jobs at marginally lower rates than those with secondary education. It is likely, however, that this has more to do with a mismatch between education and the labor market, particularly in the skills that students learn. Indeed, one of the reasons that returns to tertiary education are increasing is that demand for technical and transversal skills is increasing. Indeed, a recent analysis using Programme for the International Assessment of Adult Competencies (PIAAC) data found that there are some skills mismatching in several labor

63. Groot and van den Brink 2000.

64. Mehta et al. 2011.

markets.⁶⁵ Employer surveys typically highlight the importance of skills like critical thinking, teamwork, and communication skills. Perhaps this means that liberal arts, in combination with a focus on technical skills, may be more relevant than ever.

Apart from its economic benefits and service to society, tertiary education provides important opportunities for individuals. The individual benefits of tertiary education range from a lower risk of unemployment, to longer and more productive working lives, to higher democratic participation and better health outcomes, and even correlate with a healthier bodyweight.⁶⁶ Quality tertiary education increases individual freedom and enables graduates to make positive contributions to society.

Building advanced skills can be viewed as a social endowment while also helping individuals advance on a lifelong learning trajectory. In practice, this means that tertiary education graduates also perform strongly when it comes to participation in lifelong learning offers, a phenomenon the OECD described as “the learning ‘rich’ get richer.”⁶⁷ In contrast, the “learning poor”⁶⁸ are not able to close a constantly growing gap. While significant funds are foreseen, for example, in EU programs for upskilling, the uptake of these funds by lower-skilled parts of the population is low. The advantage tertiary education students gain and the disadvantage lower-skilled groups of the population face, tend to be permanent, which makes investments in early phases of life even more important.

“The changing workforce will create more jobs in the future, but they’ll likely go to higher skilled workers,” said Hawksworth [PwC’s chief economist in the UK]. Expect a “restructuring of the jobs market,” he said, noting that employment levels in many major economies are still quite high despite the encroachment of robots in the workplace.... “Creative and critical thinking will be highly valued, ... said Jon Andrews, head of technology and investments at PwC. Meanwhile, the authors warn that more robots could mean greater social inequality.”⁶⁹

While contributions to dynamic economies are at the forefront of many tertiary education projects, they also support broader change in society (box A3.1).

65. Flisi et al. 2017.

66. Research has shown that higher education graduates tend to have a healthier bodyweight (see, for example, <http://ftp.iza.org/dp10491.pdf> for Turkey).

67. OECD 2004, 22.

68. Arnhold and Kwiek 2011, 87.

69. Petroff 2017.

BOX A3.1 Tertiary education sector reform and societal change in Vietnam

For two decades, Vietnam has shown a strong commitment to tertiary education reform and its partnership with the World Bank. This comprised two Higher Education Projects during 1998–2012, followed by three Higher Education Development Policy Operations during 2009–14. In addition to government investment, total investment support from the World Bank reached nearly US\$300 million during this period. The higher education projects have supported societal change by promoting the targeting of research funds and financial aid to benefit vulnerable populations that may otherwise be excluded from tertiary education.

In recent years, Vietnam has shifted toward financing specific priority universities. This includes the New Model University Project (NMUP) and the Support for Autonomous Higher Education Project (SAHEP), through which five universities receive World Bank financing. SAHEP has a strong commitment from participating universities, since the financing mechanism involves on-lending directly to institutions. The Enhancing Teacher Effectiveness Project (ETEP) supports eight lead teacher training universities. These engagements show a progression in the government's approach to tertiary education investment projects in the

form of specific indicators that track research programs that are led by female researchers and women's enrollment in programs accredited via support under SAHEP; scholarships earmarked for female and disadvantaged students supported under the NMUP; and performance agreements that require institutions to commit to enrolling target numbers of teacher candidates who are of ethnic minority background under the ETEP.

The most recent World Bank engagement is subsector-wide and responds to a request from the Government of Vietnam to provide technical support to develop a Higher Education Master Plan. This engagement focuses on enhancing governance and relevance of the tertiary education system and on improving sustainable financing and accountability and autonomy. While the dialogue is ongoing, the government has also requested an investment operation to pilot reforms proposed in the Higher Education Master Plan through three national universities. With the government's increasing attention to the importance of providing opportunities for all potential students to access and complete tertiary education, the World Bank is committed to ensuring that the next round of investment projects continues to have social impact.

Expanding the World Bank's current commitment to supporting investments in human capital to include tertiary education must be a priority action. Demand for technical support in tertiary education has been growing for years, as improvements in the education pipeline send greater numbers of students from secondary into postsecondary education. As the conceptual framework on education interventions at the Bank continues to evolve toward a "human capital" orientation, it is imperative that tertiary education be included in this narrative. In the first phase of work on the Human Capital Index (see box A3.2), none of the indicators related to postsecondary education. This does not mean, however, that tertiary education is not relevant to human capital formation. On the contrary, there is no doubt that tertiary education is a hugely impactful contributor to individual and social capital development. The next phases of this human capital work, therefore, must include tertiary education, to ensure attention to the benefits of investments in tertiary education are part of any human capital conversation.

Tertiary education contributes to human and social capital development through higher private returns to the individual, higher social returns to communities, and improved citizen engagement, as discussed earlier. It will be incumbent on the World Bank and its team of tertiary education specialists to refine and expand the definitions and scope of understanding of what human capital is, to ensure tertiary education is on the agenda of all global education leaders. The future of even the most vulnerable people and economies will depend upon it.

Whether one is dealing with cognitive matters such as level of factual information about politics or conceptual sophistication in its assessment; or such motivational matters as degree of attention paid to politics and emotional involvement in political affairs; or questions of actual behavior, such as engagement in any of a variety of political activities from party work to voter turnout itself: education is everywhere the universal solvent, and the relationship is always in the same direction. The higher the education, the greater the “good” values of the variable.⁷⁰

BOX A3.2 The Human Capital Project and Tertiary Education

On October 11, 2018, the World Bank Group released its inaugural Human Capital Index (HCI)^a, an advocacy and monitoring tool that quantifies the contribution of health and education to the productivity of a country’s next generation of workers. The storyline underpinning the HCI asks, “How much human capital can a child born today expect to acquire by age 18, given the risks to poor health and poor education that prevail in the country where she lives?” Since its launch, the HCI has received, on balance, a very warm welcome from policymakers, development partners, media, civil society representatives, and others.

The HCI, however, is just one of three pillars under the broader Human Capital Project.^b The other two pillars are Country Engagement, that is, support for countries in their efforts to accelerate formation of human capital; and Measurement and Research, that is, improvements of measurement and research to support investments in human capital development. This Measurement and Research component is extremely important because the World Bank fully acknowledges that *while everything in the HCI is important, not everything that is important is in the HCI*. Any meaningful discussion of human capital must extend beyond the current survival, school, and health indicators, but these provide a strong conversation starter.

For example – and there are many other examples – the current HCI does not include the human capital or corresponding productivity gains associated with tertiary education. A recent review of the literature on the rate of economic returns to education^c analyzed more than 1,000 estimates in 139 countries between 1950 and 2014. A subset of these studies suggests that although tertiary education enrollment has more than tripled since 1970, the global returns have been surprisingly steady. With an average private return of 12.4 percent,¹ the demand for

the skills associated with tertiary education at the global level remains high and might be increasing. Similarly, the social returns² to tertiary education have been steady at 10.6 percent, a sign that tertiary education remains a good investment for both the individual and the government.

With these returns, why is tertiary education not incorporated into the HCI? The existing school indicators in the HCI combine years of expected schooling with harmonized learning outcomes for general education, which is why the storyline stops at age 18. This combination of a quantity and quality indicator – known summarily as learning-adjusted years of schooling – is an important acknowledgment that being in school is simply not enough. Students must be learning in order to reap the productivity gains prized in the HCI storyline.

For tertiary education, a global dataset for quantity of schooling exists to some extent with enrollment or completion rates, but no commonly accepted international learning assessment exists, and certainly none with coverage close to the 157 countries currently included in the HCI. That is not to say that this is a new issue or area of concern born out of the HCI. Several initiatives have been tried, are being tried, or could be tried:

- Around 2010, the Organization for Economic Co-operation and Development (OECD) initiated its Assessment of Higher Education Learning Outcomes (AHELO)^d as the higher education equivalent of the OECD’s Programme for International Student Assessment (PISA). The initial AHELO pilot covered over a dozen countries but failed to gain the backing of key OECD member states to move forward.^e The OECD is now more focused on a benchmarking exercise to help compare countries.

70. Converse 1972, 324.

- The Educational Testing Service (ETS), the U.S.-based nonprofit organization well-known for its Graduate Record Examination (GRE), Scholastic Aptitude Test (SAT), and Test of English as a Foreign Language (TOEFL) assessments, launched a modular assessment tool in 2015 to measure student learning outcomes in higher education. Though its HEIghten® Outcomes Assessment Suite^f is primarily marketed to institutions, it could be applied to a national sample if due consideration were given to local context, translation, sampling, and other relevant factors. A global dataset using such a tool would, however, be many, many years away without a strong push from global actors.
 - The OECD's Programme for the International Assessment of Adult Competencies (PIAAC)^g is a large-scale study to assess and compare cognitive and work-place skills among adults. In its three prior rounds, adults in more than 30 countries have been surveyed on a broad range of abilities, from basic reading to complex problem-solving skills. Using respondent demographics, this might be another way – though far from perfect – to assess outcomes among those with tertiary education.
 - Where university exit exams are commonplace, these assessments could be linked to an international assessment, like the Programme for International Student Assessment (PISA), to determine how much additional knowledge and skills students acquire during tertiary education (compared to their cohort's PISA performance as 15-year-olds). These data could be useful to compare in-country institutions or be harmonized for international comparisons. Though it will make more people nervous, similar linking questions could be incorporated into household surveys or graduate tracer studies.
- If the World Bank's HCI becomes the effective advocacy tool it is intended to become and attracts more and smarter investments in human capital, then it seems only logical that a measure reflecting tertiary education be incorporated in a subsequent version. While many of the aforementioned initiatives have tried, are trying, or could be tried to develop a useful and comparable dataset in tertiary education learning outcomes, international actors – including the World Bank – would need to be bold and creative, settling for something imperfect to start with (think how the definition and measurement of poverty has evolved over the past 25 years) if the hope is to provide tertiary education its due recognition in the HCI within the next five years.

Sources:

- <https://www.youtube.com/watch?v=iCUIAQkOwKw>.
- <http://www.worldbank.org/en/publication/human-capital>.
- <http://blogs.worldbank.org/education/strong-link-between-education-and-earnings>.
- <http://www.oecd.org/education/skills-beyond-school/ahelo-main-study.htm>.
- <https://www.insidehighered.com/quicktakes/2015/06/05/objections-oecd-ahelo>.
- <https://www.ets.org/heighten>.
- <http://www.oecd.org/skills/piaac/>.

Note:

1. Private returns reflect average individual earnings compared with an individual with less education (for example, university graduates compared to high/secondary school graduates).
2. The social rate of return assesses the full resource expenditure on higher education (for example, money spent on equipment, infrastructure, salaries, and so forth) and the nonmonetary and external social benefits of higher education.

Comment: The potential expansion of the HCI remains a matter of discussion. The 2020 Europe and Central Asia Economic Update, for example, discusses human capital while includes more health and education indicators. The higher education variables in this case come from aggregations of university rankings (<https://openknowledge.worldbank.org/handle/10986/34518>).

References

- Africa 3 Connect. “African NREN Partners.” <https://africaconnect3.net/west-and-central-african-nrens/>.
- Arias, O., D. K. Evans, and I. Santos. 2019. “The Skills Balancing Act in Sub-Saharan Africa: Investing in Skills for Productivity, Inclusivity, and Adaptability.” World Bank, Washington, DC.
- Arnhold, N., and M. Kwiek. 2011. “Enabling Smart Growth for Poland Through Education and Skills Supply.” In *Europe 2020 Poland – Fueling Growth and Competitiveness in Poland Through Employment, Skills and Innovation. Technical Report*. Washington, DC: World Bank.
- Arnhold, N., J. Kvisito, H. Vossensteyn, J. Weaver, and F. Ziegele. 2018. “Focus on Performance. World Bank Support to Higher Education in Latvia.” *Volume 1: System-level Funding*. Washington, DC: World Bank.
- Arnhold, N., J. Kvisito, V. Puttmann, H. Vossensteyn, and F. Ziegele. 2018. “Focus on Performance. World Bank Support to Higher Education in Latvia.” *Volume 2: Internal Funding and Governance*. Washington, DC: World Bank.
- Aturupane, H., A. H. Sofizada, and M. Shojio. 2013. *Higher Education in Afghanistan. An Emerging Mountainscape*. Washington, DC: World Bank.
- Barr, N., B. Chapman, L. Dearden, and S. Dynarski. 2018. “Reflections on the US College Loans System: Lessons from Australia and England.” IZA Institute of Labor Economics, Bonn, March. <http://ftp.iza.org/dp11422.pdf>.
- Bloom, D. E., D. Canning, K. Chan, and D. L. Luca. 2014. “Higher Education and Economic Growth in Africa.” *International Journal of African Higher Education* 1 (1): 23–57. <https://doi.org/10.6017/ijahе.v1i1.5643>.
- Calderon, A. 2018. *Massification of Higher Education Revisited*. Melbourne: RMIT University, June. https://www.academia.edu/36975860/Massification_of_higher_education_revisited.
- Converse, P. E. 1972. “Change in the American Electorate.” In *The Human Meaning of Social Change*, edited by A. Campbell and P. E. Converse. New York: Russell Sage Publications.
- Deloitte Access Economics. 2016. “Estimating the public and private benefits of higher education.” Australian Government Department of Education and Training, Canberra.
- Estermann, T., and E. Bennetot Pruvot. 2011. *Financially Sustainable Universities II. European Universities Diversifying Income Streams*. Brussels: European University Association. <https://eua.eu/downloads/publications/financially%20sustainable%20universities%20ii%20-%20european%20universities%20diversifying%20income%20streams.pdf>
- European Commission. 2017. *Study on the Impact of Admission Systems on Higher Education Outcomes. Volume I: Comparative Report*. Brussels: European Commission.
- Eurostudent.eu. 2018. “Social and Economic Conditions of Student Life in Europe.” Eurostudent VI 2016–2018 – Synopsis of Indicators. https://www.eurostudent.eu/download_files/documents/EUROSTUDENT_VI_Synopsis_of_Indicators.pdf.
- Fiksel, J. 2006. “Sustainability and resilience: Toward a systems approach.” *Sustainability Science, Practice, and Policy* 2: 14–21.
- Flisi, S., V. Goglio, E. C. Meroni, M. Rodrigues, and E. Vera-Toscano. 2017. “Measuring Occupational Mismatch: Overeducation and Overskill in Europe—Evidence from PIAAC.” *Social Indicators Research* 131 (3): 1211–49.
- Foley, M. 2016. *The Role and Status of National Research and Education Networks (NRENs) in Africa*. World Bank Education, Technology & Innovation: SABER-ICT Technical Paper Series (#05). Washington, DC: The World Bank.
- Freeman, B., and R. Hawkins. 2016. *Evoke. Developing Skills in Youth to Solve the World’s Most Complex Problems: The Social Innovator’s Framework*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/26106/112721-WP-EVOKESocialInnovatorsFrameworkSABERICTno-PUBLIC.pdf?sequence=1&isAllowed=y>.
- . 2017. *Evoke. Developing Skills in Youth to Solve the World’s Most Complex Problems: Randomized Impact Evaluation Findings*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/29167/122451-REVISED-PUBLIC-EVOKE2-ImpactEvaluation-SABER-ICTno19-final.pdf?sequence=1&isAllowed=y>.
- Froment, E., and A. Sursock. 2015. *Evaluation du Programme d’Appui à la Qualité (PAQ) développée en Tunisie de 2006 à 2014*. Washington, DC: World Bank.
- Geven, K., and E. Herbaut. 2019. “What have we learned from reviewing 75 studies about interventions to reduce inequality in higher education?” *World Bank Blogs*, April 17. <https://blogs.worldbank.org/developmenttalk/what-have-we-learned-reviewing-75-studies-about-interventions-reduce-inequality-higher-education>.
- Goldrick, L. M., and T. Goldrick. 2017. “The top 5 disruptive technologies in higher ed.” eCampus News June 5. <https://www.ecampusnews.com/2017/06/05/disruptive-technologies-higher-ed/>.
- Groot, W., and H. M. van den Brink. 2000. “Overeducation in the labor market: a meta-analysis.” *Economics of Education Review* 19 (2): 149–58.

- Herbaut, E., and K. Geven. (2019). "What Works to Reduce Inequalities in Higher Education? A Systematic Review of the (Quasi-) Experimental Literature on Outreach and Financial Aid." Policy Research Working Paper, 8802, World Bank, Washington, DC. <https://openknowledge.worldbank.org/bitstream/handle/10986/31497/WPS8802.pdf?sequence=4&isAllowed=y>.
- ILO (International Labour Office). 2016. "Key Indicators of the Labour Market (KILM) 2015." International Labour Office, Geneva.
- International Finance Corporation. 2015. "Student Finance: Learning from Global Best Practice and Financial Innovations." Washington, DC: International Finance Corporation. <https://openknowledge.worldbank.org/bitstream/handle/10986/24775/Studentofinancoinancialinnovations.pdf?sequence=1&isAllowed=y>.
- Johnstone, D. Bruce, and Pamela Marcucci. 2010. *Financing Higher Education Worldwide: Who Pays? Who Should Pay?* Baltimore: Johns Hopkins University Press.
- Kerner, D. A., and J. S. Thomas. 2014. "Resilience Attributes of Social-Ecological Systems: Framing Metrics for Management." *Resources* 3 (4): 672–702. <https://doi.org/10.3390/resources304067>.
- Levy and Murnane. 2004. *The New Division of Labor: How Computers Are Creating the Next Job Market*. Princeton: Princeton University Press.
- Lumina Foundation. 2019. *Measuring the Impact of Equity Promotion Policies: Lessons from National and Institutional Case Studies*. Indianapolis: Lumina Foundation.
- Marmolejo, Francisco. 2016. "What Matters Most for Tertiary Education: A Framework Paper." Systems Approach for Better Education Results (SABER) Working Paper, No. 11, World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/26516>.
- Mehta, A., J. Felipe, P. Quising, and S. Camingue. 2011. "Overeducation in developing economies: How can we test for it, and what does it mean?" *Economics of Education Review* 30 (6): 1334–47.
- Ministère de l'Enseignement supérieur et de la Recherche scientifique. 2014. *Rapports d'auto-évaluation des projets PAQ*.
- Montenegro, C. E. and H. A. Patrinos. 2014. *Comparable Estimates of Returns to Schooling Around the World*. The World Bank. <http://documents1.worldbank.org/curated/en/830831468147839247/pdf/WPS7020.pdf>
- OECD (Organisation for Economic Co-operation and Development). 2004. *Co-Financing Lifelong Learning. Towards a Systemic Approach*. Paris: OECD.
- . 2015. "How is the global talent pool changing (2013, 2030)?" *Education Indicators in Focus*, No. 31, OECD Publishing, Paris. https://www.oecd-ilibrary.org/education/how-is-the-global-talent-pool-changing-2013-2030_5js33lf9jk41-en.
- Petroff, A. 2017. "U.S. workers face higher risk of being replaced by robots. Here's why," CNN, March 24. <https://money.cnn.com/2017/03/24/technology/robots-jobs-us-workers-uk/index.html>.
- Psacharopoulos, G., and H. Patrinos. 2018. "Returns to investment in education: A decennial review of the global literature." *Education Economics* 26 (5): 445–58. <http://datatopics.worldbank.org/education/files/GlobalAchievement>ReturnsInteractive.pdf>.
- Resilience Alliance. 2010. "Assessing resilience in social-ecological systems. Workbook for practitioners." Version 2.0. Resilience Alliance <http://www.resalliance.org/3871.php>
- Salmi, J. 2003. *Student Loans in an International Perspective: The World Bank Experience*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/149001468765578181/pdf/272950student1loans.pdf>.
- . 2009. *The Challenge of Establishing World-Class Universities*. Directions in Development; Human Development. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/2600>.
- Salmi, J., and R. M. Bassett. 2014. "The equity imperative in tertiary education: Promoting fairness and efficiency." World Bank, Washington, DC.
- Teixeira, P. N., D. B. Johnstone, M. J. Rosa, and H. Vossensteyn. (eds.) 2008. *Cost-sharing and Accessibility in Higher Education: A Fairer Deal?* New York: Springer.
- World Bank. 1994. *Higher Education: The Lessons of Experience*. Development in Practice series. Washington, DC: World Bank.
- . 2002. *Constructing Knowledge Societies: New Challenges for Tertiary Education. Directions in Development*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/15224>.
- . 2005. *Education Sector Strategy Update: Achieving education for all, broadening our perspective, maximizing our effectiveness*. Washington, DC: World Bank.
- . 2016a. "Investing Strategically in Higher Education. Aligning Public Funding with Policy Objectives." World Bank, Washington, DC.
- . 2016b. *World Development Report 2016: Digital Dividends*. Washington, DC: World Bank.
- . 2017. *Employability of Post-Secondary TVET in Bangladesh: Tracking Survey of Graduates of Polytechnics*. World Bank, Dhaka. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/718501528118077327/employability-of-post-secondary-tvet-in-bangladesh-tracking-survey-of-graduates-of-polytechnics>.
- . 2018a. "Higher Education Quality Enhancement Project." *Tracer Study of Graduates of Universities in Bangladesh*. World Bank, Dhaka.
- . 2018b. "Higher Education." <http://www.worldbank.org/en/programs/paset/brief/higher-education>.
- . 2019a. *Graduate Employability of Affiliated Colleges – New Evidence from Bangladesh: Graduate Tracking Survey on Graduates from Bangladesh National University Affiliated Colleges*. Dhaka: World Bank.

———. 2019b. “Performance Agreements in Higher Education. Overview of the Status Quo in Croatia, Estonia, Finland, Germany, Latvia and the Netherlands.” Washington, DC: World Bank.

World Bank and UNESCO. 2000. *Higher Education in Developing Countries: Peril and Promise* (No. 440). Washington, DC: World Bank/UNESCO Task Force on Higher education and Society.

World Bank Group. 2017. *Higher Education for Development: An Evaluation of the World Bank Group’s Support*. Washington, DC: World Bank, Independent Evaluation Group. <https://openknowledge.worldbank.org/handle/10986/26486>.

