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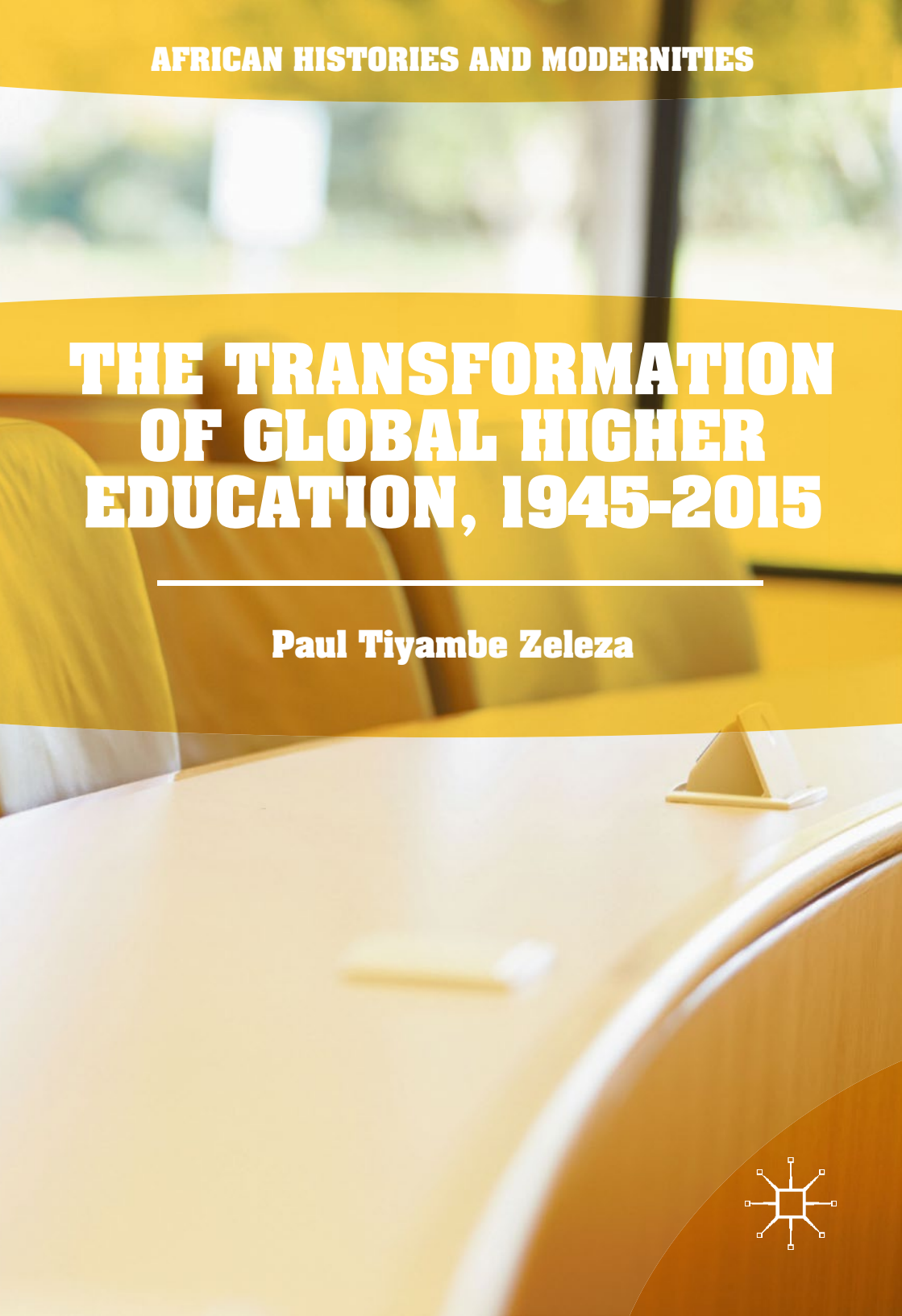

THE TRANSFORMATION OF GLOBAL HIGHER EDUCATION, 1945-2015

Paul Tiyambe Zeleza

African Histories and Modernities

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Preface

I have been in universities from the age of 17 when I first went to the University of Malawi as an undergraduate student. Since then I have traversed three continents and been located at nearly a dozen universities either as a student or as a faculty member or as an administrator. In my long, circuitous academic journeys I have witnessed vast changes and institutional differences in the landscapes of higher education. It was to make sense of the diversities and transformations I lived through that this book owes its genesis.

More concretely, my interest in higher education as a field of study was triggered and nourished by fascination with intellectual history both in terms of the history of ideas and of knowledge producing institutions. The first dates back to my introduction to historiography and critical theory as a joint History and English major, the realization that concepts, analytical frameworks, and research methodologies are constructed in specific intellectual, institutional, and ideological contexts and carry with them the baggage of their historical and epistemological formations. This lesson permeated the air of the newly established postcolonial university many African scholars of my generation attended that were struggling to decolonize the Eurocentric knowledges they inherited.

My interest in intellectual history blossomed in the effervescent cosmopolitan and radical Pan-African encounters of graduate school in Britain and Canada in the late 1970s and at the turn of the 1980s. In hindsight, the world was on the cusp of the fraught transition to neoliberalism and witnessing the impending demise of settler colonialism in the apartheid laagers of Southern Africa thus bringing decolonization, the twentieth

century's most significant political movement, to a close. As a newly minted faculty member at the University of the West Indies, and later Kenyatta University, I faced the changing institutional contexts of higher education and intellectual dynamics of knowledge production wrought by neoliberalism or what in Africa came to be called structural adjustment programs (SAPs).

The dreaded SAPs severely eroded the social contract of the postcolonial developmentalist state in the global South and the welfare state in the global North. Higher education did not escape the ruthless clutches of neoliberalism, which ushered a new era of privatization and globalization. I added globalization to my growing list of research fields and wrote extensively on the subject. Africa's once proud public universities struggled for survival as many of their beleaguered academics sought refugee in greener pastures at home and abroad. I was one of them. Thus began my 25-year sojourn in Canada and the USA, where my intellectual and institutional horizons widened further. The disastrous effects of SAPs on African universities kindled my curiosity about the history of knowledge producing institutions, which complemented my old interest in intellectual history.

As I rose in academic rank and assumed higher administrative positions as a residential college principal, an African studies center director and department chair, and later as a college dean and an academic vice president, my twin interests in intellectual history became ever more interwoven and mutually reinforcing. As center director, I delved into the history of African and area studies in the American academy, the construction of knowledges about Africa in the major disciplines and several interdisciplinary fields and in various world regions, as well as the development of African universities. This opened avenues to a major project on a global dictionary on the history of ideas and consultations with several American foundations on African higher education.

My intertwined interests in the history of academic ideas and institutions broadened and deepened as dean and vice-president. First, I became more exposed to fields beyond my own areas of expertise and interest in the social sciences and humanities and especially to the STEM disciplines and various professional fields. Second, I became acutely aware of the massive challenges facing American higher education because of disruptive internal and external forces. The idea of this book was born. I wanted to investigate and provide a comprehensive overview of the development of

higher education across different world regions from the end of World War II to the present.

The project assumed greater urgency following two new developments in my professional life. One, I was asked to write the framing paper for the *1st African Higher Education Summit: Revitalizing Higher Education for Africa's Future*, and second, I was appointed a university vice chancellor (president) at the United States International University-Africa in Nairobi that is dually accredited in both Kenya and the USA, the only one with such distinction in the region. In the meantime, I was quite fortunate that I received a fellowship at the Hutchins Center for African and African American Research at Harvard University for Fall 2015, which facilitated the research and writing of this book.

The book seeks to identify the main trends in the transformation of global higher education, their manifestation within and among countries, and their impact on the diversification and differentiation of higher education institutions around the world. Its main focus is on the ways in which the higher education systems of the twentieth century that emerged after 1945 are undergoing profound shifts in the twenty-first century. It is the culmination of a long search to understand the development of the one institutional sector I have been immersed in since I was a teenager. I hope you will derive some of the intellectual pleasure I had in writing it.

Paul Tiyambe Zeleza
Nairobi
February 14, 2016

Acknowledgments

As a project that had such a long gestation, although the proposal itself was conceived and submitted in late 2014, I am grateful to many people I have met and discussed the ideas contained in this book in various contexts, as colleagues in the institutions I studied and worked, and at conferences, as well as through the ubiquitous online media of contemporary academic communication. It is, therefore, quite difficult to single out individuals. The few I will mention are associated with the institutions through which the issues addressed in this book germinated in myriad intellectual encounters and engagements. They include several of my fellow students and teachers at the University of Malawi, where I did my undergraduate studies, the University of London where I studied for my masters, and Dalhousie University where I pursued my doctorate.

I will always cherish the years I spent as a young lecturer at the University of the West Indies and Kenyatta University with their illustrious scholars several of whom generous mentored me and served as role models. At UWI there were my seniors such as my then department chair Patrick Bryan, the exemplary historian Barry Higman, and my age-mate who joined and left the department at the same as I did, the prodigious scholar and public intellectual, and now the university's vice chancellor, Hilary Beckles. At Kenyatta, I learned from the very best. My most important mentor was the incomparable historian, intellectual, and public servant Bethwell Alan Ogot, and I also benefited from my engagements with the late William Ochieng', an iconoclastic and provocative scholar who served as my department chair, Michael Darkoh, an eminent geographer who opened my eyes to environmental studies, and Tabitha Kanogo,

then a young historian who has been an illustrious history professor at the University of California, Berkeley, for more than 25 years.

It is Trent University that taught me the pleasures of academic administration when I served as college principal and acting director of the international program. This came as a surprise as I never thought administration was in my career path. My finest colleagues included Douglas McCalla, a leading economic historian of Canada who took a keen interest in my research on African economic history, and Joan Sangster, an eminent labor and feminist scholar who I collaborated with on an article on academic freedom in Canada. I matured as a scholar and honed my administrative skills in the eight years I served as director of the center for African studies at the University of Illinois at Urbana Champaign, a period I recall with great fondness. It was one of the most intellectually productive periods of my life. The center had more than 80 Africanists, many of them leading scholars in their areas of specialization. It was through the numerous conferences, seminars, public lectures, and courses the center hosted that I became wedded to the infinite intellectual pleasures of interdisciplinary scholarship. It was while at UIUC that I became friends with Ilesanmi Adesida, a brilliant scientist who later served as dean of the university's college of engineering and vice chancellor for academic affairs and provost. He also read the manuscript and offered insightful observations.

At the Pennsylvania State University I worked with some wonderful colleagues. They include two who commented incisively on the book manuscript, Ben Vinson III, a prominent historian of Afro-Mexico and Latin America, who currently serves as dean of the Columbian College of Arts and Sciences at George Washington University, and Tiyanjana Maluwa, a leading international lawyer, endowed professor of law, and associate dean of international affairs. Tiya and I have known each other since 1968 when we both enrolled at St. Patrick's Secondary School and later the University of Malawi. At the University of Illinois at Chicago I was privileged to serve as head of the department of African American studies and worked with some amazing colleagues such as Barbara Ransby, a renowned historian, who brilliantly combines scholarship and public engagement in the hallowed tradition of Pan-African scholar-activists.

My academic and administrative horizons widened immeasurably as dean of the college of liberal arts at Loyola Marymount University, where I worked with a dedicated and inspiring team of administrators from department chairs to the two university presidents I served under, not to mention hundreds of faculty, from who I learned much about the

growing challenges facing American higher education. I benefited from the robust conversations with my administrative team in the dean's office, especially Cheryl Grills, a prominent professor of psychology, public intellectual, and past president of the U.S. Association of Black Psychologists. From my short tenure as vice president of academic affairs at Quinnipiac University I recall the vigorous discussions I held with my direct reports in our regular planning meetings and informally especially William Kohlepp who transitioned from associate vice president of academic affairs to dean of the School of Health Sciences at the same time I left the university.

This book would not have been written without the fellowship I received at the Hutchins Center for African and African American Research at Harvard University that enabled me to spend Fall 2015 using the university's immense library resources and to meet and have conversations with some of the world's finest minds. I am particularly thankful to Emmanuel Akyeampong, professor of history at Harvard and one of Africa's most distinguished scholars, who facilitated the fellowship application and read this manuscript, and the director of the Hutchins Center, Professor Henry Louis Gates, the celebrated scholar, administrator, public intellectual, and committed Pan-Africanist.

I have been extremely fortunate in my academic career in the opportunities I have had to develop a global network of colleagues. Pride of place goes to the Council for the Development of Social Science Research in Africa, where I met many of my closest intellectual associates. Among them is Tade Aina, a steadfast personal friend and intellectual collaborator since the early 1990s when he served as Deputy Executive Director of CODESRIA. Later in his capacity as the regional representative of the Ford Foundation in Eastern Africa and program director of higher education and libraries in Africa for the Carnegie Corporation of New York, Tade became a central figure in global efforts to revitalize African higher education, a passion he continues to pursue in his current role as Executive Director of Partnership for African Social and Governance Research based in Nairobi. His insights on higher education and review of the book manuscript were invaluable.

There are of course many more networks and friends and colleagues I thank for their commitments to the African and global academy that influenced and even shaped my thinking on the issues covered in this book. One that deserves special mention is Toyin Folala, the prolific and influential historian and eminent scholar at the University of Texas at Austin

who has been a friend for more than two and half decades. He kindly introduced me to the publishers.

I apologize in advance to my other long-term intellectual comrades for not mentioning them here. But I trust they know I am indebted to their generosity in sharing their ideas and perspectives over many years in all manner of contexts in our collectively privileged lives of the mind.

Above all, I am eternally grateful to my closest friend and life partner, Cassandra Rachel Veney, for sharing a life of the mind and marriage, with all their demands and joys. As always, she was the first reader of the manuscript, indeed, the person who witnessed its birth from inchoate ideas to the long days and nights of research, reflection, writing, and revisions, with the magical smile and wiry sense of humor only she possesses. She knows how much this book means to me as a prolonged reflection on the academy. I want her to know how much her precious support on this project, and many others before, means to me.

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CHAPTER 1

The Postwar Boom: The Universalization of Higher Education

Introduction

The history of higher education goes back centuries and in a few African, Asian, and European countries for more than millennia. But the bulk of the world's universities were established in the twentieth century, the vast majority since 1945. Before World War II, higher education, where it was available, was largely characterized by elitism and sexism in so far as it was primarily accessible to men from privileged backgrounds. Also, liberal arts education was prized over professional training, and public investment and state intervention remained relatively limited. All this was to change in the face of the profound, complex, and contradictory transformations in national and global political economies wrought by the war and its unpredictable aftermath.

Higher education was characterized by many new developments that will be explored in this book. One of the most immediate and far-reaching was the trend toward massification as demand accelerated, the number of universities and other post-secondary institutions exploded, and public interest intensified in the emerging welfare states and developmentalist states of the developed and developing countries, respectively. Comprehensive universities, which combined, often uneasily and sometimes contentiously, commitments to teaching and research, disciplinary and professional education, and intellectual pursuits and public service

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rose to the top of the pecking order in the increasingly diverse, differentiated, and hierarchical domestic and international higher education order.

These changes were facilitated by a wide array of political, economic, social, and cultural forces in the tumultuous postwar world. Key among them was rapid population growth, urbanization, decolonization, and demands from women and other disadvantaged groups for the inclusive opportunities of higher education, which was seen as a desirable public good. The rapid growth of higher education resulted in significant changes in the purpose and rationale of universities, their management and governance, funding sources and models, quality and value, and modes of access and accountability.

There can be little doubt that the dynamics and trajectories of higher education varied enormously within and between countries and different world regions. This book seeks to compare the patterns of growth, processes of change, and the challenges and opportunities encountered by universities as they confronted and negotiated internal and external transformations, and the pressing and conflicting demands of the academy and society for new knowledges, innovation, autonomy, accessibility, affordability, and accountability.

This chapter provides a broad overview of the postwar boom in higher education in different world regions. It is divided into four parts. First, it examines the explosive growth in the number of higher education institutions in every world region. Second, it chronicles and compares the patterns of growth in student enrollments, which turned pre-World War elite education into postwar mass education. Massification had a profound impact on the organization, role, and purposes of higher education. It offered unprecedented opportunities for higher education and social mobility for previously marginalized social groups of low income or racial and ethnic backgrounds, as well as for women. But social inequalities based on gender, class, ethnicity, race, and nationality persisted, and higher education became a powerful force for reproducing old structures of inequality and producing new forms of marginalization. This is the third focus of the chapter. Finally, the chapter outlines some of the key disruptive forces that faced higher education as the twentieth century transitioned into the twenty-first century. Some of the issues are discussed more fully in subsequent chapters, but this chapter looks at the emerging demographic challenges in greater detail, noting two broad global trends. One was the specter of demographic decline haunting not only many of the developed countries, especially Europe and Japan, but also China. The

other trend was the demographic bulge in the developing countries especially in Africa. Both trends had grave implications for the future of higher education institutions and the economy in these countries.

Institutional Explosion

In 1945, higher education was largely confined to what were called in the development discourse of the postwar world, the developed countries and some of the major developing countries. Large swathes of colonial territories and recently independent countries did not even have a single university. Altogether, in 1944, the world had 3703 degree-granting higher education institutions, a fifth of the number in 2015.[1] Thus, over the next 70 years, higher education institutions grew by a staggering 408 %, or at annual rate of 5.83 %.

The expansion resulted from several interlocking developments, including the creation of entirely new institutions, the conversion of existing constituent colleges or branch campuses into autonomous institutions, amalgamations of assorted institutions into new institutions, and the upgrading of lower-level institutions into higher education institutions. These processes played themselves out in various ways in different countries, but they were evident in one or the other almost everywhere.

The USA was the undisputed colossus of global higher education in 1944. The country's 1327 higher education institutions represented more than a third of the world's total. Overall, North America claimed 39.2 % of the world's higher education institutions, followed by Europe with 32.2 %, Asia 21.2 %, and trailing further behind was Latin America and the Caribbean with about 4.0 %, Africa with a mere 0.83 %, and Oceania with 0.62 %. There were glaring discrepancies among countries in the number of institutions within each region at the end of World War II. In North America, Canada and Mexico had a handful of higher education institutions in 1944, numbering 60 and 63, respectively, less than 10 % of the US total.

In Europe, Russia dominated; its 320 higher education institutions represented a quarter of Europe's 1266 institutions at the end of 1944. The next leading countries with 20 or more institutions included the UK (177), France (131), Ukraine (127), Germany (99), Poland (41), Italy (40), Spain (34), Belgium (24), Ireland (21), and Hungary (20). They were followed by two, Austria and Belarus, which had 18 institutions each, then Switzerland with 14, and Azerbaijan, Czech Republic, Holy

See, and Sweden each of which had 13. Five countries had between 10 and 12 institutions. For the remaining ones, nine had five or more institutions, five had one institution, and seven had none.

The hierarchy in Asia was led by the Philippines with 185 institutions, followed by China (177), Japan (173), India (50), Republic of Korea (35), Thailand (33), Uzbekistan (19), Taiwan (17), and Kazakhstan and Pakistan, each with 16. Combined, the ten countries claimed the lion's share, 67.9 %, of contemporary Asia's 45 countries. Sixteen countries did not have a single higher education institution, including most in the contemporary Middle East, such as Bahrain, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, and Yemen. Five countries had four institutions each, another five had three each, four had two each, two had one each, another two, Israel and Iran, had seven each, and one, Lebanon, had six.

The distribution of higher education institutions in Latin America and the Caribbean reflected the Asian pattern in so far as higher education institutions were either non-existent or very limited in scope in the colonial territories or recently independent countries. In 1944, there were no higher education institutions in eight countries, and one each in ten. In five, there were two institutions, another two, Bolivia and Ecuador, had seven each, and Argentina and Peru had ten each. Only in three countries were there more than ten institutions, led by Brazil with 49, Colombia with 38, and Chile with 12. In the Caribbean islands, there were eight institutions altogether led by Haiti and Jamaica with two each, while Cuba, Dominican Republic, Martinique, and Trinidad and Tobago had one each.

The situation in Africa, most of whose 54 countries were still under colonial rule in 1944, as far as higher education was concerned was the worst among the major world regions. Only 13 countries had institutions of higher education, led by the white settler dominated South Africa with nine, followed by semiautonomous Egypt with six, and French settler Algeria with four. Independent Liberia had two as did Morocco, and the remaining eight countries had one each, namely, today's Congo Democratic Republic, Kenya, Senegal, Sierra Leone, Somalia, Tunisia, and Uganda. Thus in 1944, the entire continent had a grand total of 31 institutions of higher education, far fewer than the number of countries!

The African case captures most poignantly the political economy of global higher education in the first half of the twentieth century, its gross underdevelopment in the colonial and developing world, and its

inaccessibility to large numbers of people even in the industrialized or developed countries. The few colonial universities that existed were modeled on, or were branches of, universities in the European imperial metropoles, which they replicated in institutional structure, instructional practices, and intellectual values. Colonial higher education served a tiny colonial elite comprised mostly of men and in the settler colonies, whites. It intersected with, reproduced, and reinforced other cleavages of colonial society including ethnicity, region, and religion.

Unequal access to higher education was evident in other parts of the world including Europe and North America. In the USA, the country boasting the world's largest higher education system, a distinction it would enjoy for decades to come, opportunities for higher education at the end of World War II remained closed to most racial minorities, women, and the working class. Clearly, the massification of higher education even in the USA was a postwar phenomenon.

The underdevelopment of higher education in Africa and the colonial and recently independent countries of Asia and the Caribbean at the end of World War II underscores the historic importance of decolonization as a catalyst for the explosion of higher education institutions in these countries as part of the construction of the developmental state in the Global South more generally including Latin America. Decolonization occurred in the context of a global economic boom that brought to an end the devastations of the Great Depression and World War II itself. In the Global North, this was facilitated by and reflected in the construction of the Keynesian welfare state in which the expansion of higher education was increasingly seen as imperative for national economic growth and competitiveness, reintegration of millions of returning servicemen, and social mobility and well-being for the general population anxious to put the hardships of the 1930s and 1940s behind them.

The exponential growth of higher education in all world regions is evident in Table 1.1. In the three decades after World War II, more universities were established than existed before the war. The 1990s and 2000s registered exceptionally rapid growth as more than 3000 new universities were established in each decade, which was only slightly lower than the total number of universities in 1944. The growth in Asia was particularly impressive so that by 2015, the continent had the largest number of universities in the world; it had one-and-half times as many universities as Europe, 1.6 times more than North America, almost twice as many as Latin America and the Caribbean, and 3.7 times as many as Africa.

Table 1.1 Growth of Universities by World Region Numbers

Region	*Year*								
	Before 1944	*1945–1959*	*1960–1969*	*1970–1979*	*1980–1989*	*1990–1999*	*2000–2010*	*2010–2015*	*Total*
World	3703	1732	1496	1629	1694	3454	3207	1895	18,808
Asia	786	1034	625	480	778	1041	1072	284	6100
Europe	1266	295	231	351	187	913	504	295	4042
North America	1450	228	267	324	275	540	249	495	3826
Latin America and Caribbean	147	120	255	336	278	606	730	588	3060
Africa	31	45	94	124	152	338	647	209	1639
Oceania	23	10	24	14	24	16	5	24	140

Source: Data extracted from Worldwide Database of Higher Education Institutions (http://www.whed.net/home.php) Accessed September 1–20, 2015

It was in Africa, however, where the magnitude of growth was the largest from a very low base of course. The number of higher education institutions on the continent increased by 52.87 times between 1945 and 2015. Latin America and the Caribbean came second, boasting an increase of 20.67 times. The equivalent figure for Asia was 7.76 times, for Oceania 6.08 times, Europe 3.19 times, and in last place was North America, where the number of higher education institutions grew by 2.63 times.

These trends are confirmed in Table 1.2, which shows the average rate of growth of higher education institutions during this period. It can be seen that worldwide, the average rate of annual growth was 5.83 % between 1945 and 2015. Africa's average rate was a staggering 74.10 %, followed by Latin America with 26.42 %, Asia 9.66 %, Oceania, 7.27 %, Europe 3.13 %, and North America 2.34 %. There were fluctuations from one decade to the next but for the world as a whole, the fastest rate of growth between decades was experienced from 1990 to 2000. This was true for North America and Africa, whereas for Asia, the fastest rate of growth was in the 1980–1990 decade as it was for Oceania; and for Latin America, it was the decade from 1960 to 1970.

The expansion of higher education institutions was uneven within regions in both temporal and spatial terms. As shown in Table 1.1 above, in Asia, the largest growth occurred in the 2000s, followed by the 1990s,

Table 1.2 Growth of Universities by World Region Average Percentage Rate

Region	*Year*							
	1945–1960	*1960–1970*	*1970–1980*	*1980–1990*	*1990–2000*	*2000–2010*	*2010–2015*	*1945–2015*
World	3.12	8.63	10.88	10.39	20.39	9.28	5.91	5.83
Asia	8.77	6.04	7.68	16.21	13.38	3.00	2.65	9.66
Europe	1.55	7.83	15.19	5.33	14.82	5.52	5.85	3.13
North America	1.05	8.08	12.13	8.49	19.63	4.16	19.88	2.34
Latin America and Caribbean	5.44	21.25	13.18	8.27	21.00	12.05	8.05	26.42
Africa	9.68	13.93	13.19	12.26	22.24	19.14	3.23	74.10
Oceania	2.90	24.00	5.83	17.14	6.67	3.13	48	7.27

Source: Percentages Calculated from Table 1.1 above

then the immediate postwar years. The 1970s registered the lowest number of new institutions. Five countries accounted for 68.2 % of the 5314 institutions established between 1945 and 2015, and 69 % of the region's total by 2015. The Philippines founded 1170 new institutions to reach a total of 1355, China 733 for a total of 910, Japan 601 for a total of 774, India 576 for a total of 626, and Indonesia 543 for a total of 546. The largest expansion for the Philippines and China occurred between 1945 and 1969 when 274 and 336 new institutions were set up, respectively. For Japan and India, it was between 2000 and 2009, which saw the creation of 113 and 181 institutions, respectively, while for Indonesia, it took place between 1980 and 1989 with the formation of 183 new institutions.

No other Asian country came close to these five in the number of institutions. The next cohort consisted of five countries with 100–200 institutions by 2015. They included the Republic of Korea with 192, of which 157 were established between 1945 and 2015; over two-fifths immediately after World War II and more than a quarter in the 1990s. Thailand had 150 institutions in 2015, 117 started since 1945, 34 in the 1980s, and another 30 in the 1990s. Iran maintained 146 institutions all but seven formed since 1945 including 57 initiated in the 1980s, 32 in the 1970s, and 27 in the 2000s. Pakistan possessed 125, 109 of them newly instituted, 44 in the 2000s, and 22 in the 1990s. Finally, there was Kazakhstan

with 116 institutions, 100 of them constructed after 1945, more than two-thirds in the 1990s and 2000s.

The rest included five countries with 50–99 institutions (Myanmar 99, Vietnam 70, Democratic People's Republic of Korea 72, Uzbekistan 64, and Malaysia 51). Another seven had between 25 and 49 institutions (Saudi Arabia 48, Israel 41, Cambodia 37, Lebanon 37, Afghanistan 35, Iraq 32, Jordan 30, and Palestine 26). Eight countries had between 10 and 24, and six less than 10. As with the countries with the larger systems, the establishment of new institutions of higher education tended to vary, but was concentrated in the early postwar or post-independence years and in the 2000s. For example, Afghanistan, Saudi Arabia, and Cambodia set up 18, 32, and 24 institutions, respectively, between 2000 and 2009.

Similar patterns can be seen in Africa. The bulk of contemporary Africa's 1639 higher education institutions were established from 1980; 152 in the 1980s, 338 in the 1990s, and 647 in the 2000s. The institutions created between 2000 and 2009 alone represented a staggering 39.5 %, or more than one-and-half times the number created up to 1989. No African country came close to the leading Asian countries, but there were five with more than a hundred institutions by 2015. They included Morocco with 149, South Africa with 147, Nigeria with 129, Egypt with 127, and Senegal with 113. Forty-five of Morocco's 147 institutions were established since 1945; 33 were created in the 1990s and 45 in the 2000s.

For South Africa, 68.38 % of the post-1945 higher education institutions came on stream in the 2000s. The figure was even higher for Senegal, where 73.21 % of the 112 institutions established since 1945 were founded between 2000 and 2009. For Nigeria, where the first and only colonial higher education institution was created in the late 1940s, 61 were developed in the 2000–2009 period, representing 47.28 % of the country's total. For Egypt, the 1990s witnessed the largest number of institutional formation, accounting for 44 compared to 19 in the 2000s, which constituted 36.36 % and 15.70 %, respectively, of the 121 institutions acquired since 1945.

There were five other countries whose higher education institutions by 2015 numbered between 50 and 99. They were Algeria with 76, Ethiopia 69, Congo Democratic Republic 68, Sudan 66, and Tanzania 50. Next came eight countries with between 25 and 49 institutions, such as Kenya with 49, Uganda 43, Ghana 42, Mauritius 40, and Tunisia, Somalia, and Mozambique with 36 each, and Liberia 33. A much larger group comprising 17 countries held between 10 and 24 institutions, and an

equal number had less than ten including six that boasted only one or two institutions.

The patterns of growth in Latin America and the Caribbean straddled those between Asia and Africa in so far as the region had countries that had been politically independent for a long time and others especially in the Caribbean that had only recently been decolonized. Also, some countries supported relatively large higher education systems as in Asia, and others much smaller ones as in Africa. The region as a whole had almost two times as many higher education institutions as Africa. In fact, in 2015, Brazil alone had more institutions than the entire African continent. Brazil ranked second to USA in the total number of higher education institutions, 1879 compared to 2155 for the USA. Brazil accounted for 61.41 % of the total number of higher education institutions in Latin America and Caribbean.

Because of Brazil's overwhelming institutional weight, developments in the country dominated trends in the region. A third, or 624 of Brazil's higher education institutions, were established between 2000 and 2009. For the region as a whole, 23.86 % of the institutions were created during this decade. When only the 2916 institutions founded since 1945 are included, the relative proportions for Brazil and the region are 19.71 % and 25.03 %, respectively. The 606 institutions opened in the 1990s, the decade with the second-highest rate of institutional growth, eclipsed the total number of institutions created in the region's history up to 1970.

Four other countries in the region hosted more than a hundred institutions of higher education by 2015, led by Colombia with 232, Peru 140, Chile 107, and Argentina 103. For Argentina, the largest number of institutions, 25, were set up in the 1990s; for Colombia, it was in the 1970s which saw the establishment of 40 new institutions; for Chile, it was in the 1980s with 46; and for Peru, the 2010s with 39. Another four countries held between 50 and 100 institutions. They included Venezuela with 80, Costa Rica 74, Bolivia 59, and Cuba 50. In Bolivia, nearly half of the country's 53 institutions created since 1945 came into being in the 1990s, almost the same for Costa Rica's 73 institutions, while for Cuba, more than a quarter of the 49 new institutions emerged in the 1970s. For Venezuela, the creation of the 77 new institutions was more spread out from the 1970s.

The North American countries stood in a league of their own enjoying the highest concentration of higher education institutions in the world. By 2015, the USA possessed more than half of Europe's total, while

Mexico's 1529 institutions comprised more than a third. With its 142 institutions, Canada's story was far less remarkable. But for the USA, institutions increased at a much slower pace than many countries in Asia, Latin America and the Caribbean, and Africa. The 828 new institutions created over the next 70 years, while obviously impressive accounted for only 38 % of the total. Thus, much of the institutional growth of American higher education occurred before the end of World War II. In fact, many trace their origins to the second half of the nineteenth century and the early twentieth century (Rudolph 1990; Thelin 2004). The period of fastest growth after the war was between 1945 and 1959 during which 167 new institutions were founded, followed by the 1960s with 138, which petered out to 72 in the 1980s, 83 in the 1990s, and 42 in the 2000s.

It was quite a different story in Mexico. To begin with, 97.06 % of its higher education institutions were developed after 1945. Momentum began to gather in the 1960s, which witnessed the emergence of 179 new institutions, accelerating to 200 in the 1980s and 446 in the 1990s. It continued into the new century with the establishment of 526 institutions between 2000 and 2015. Canada resembled the USA in that many of its higher education institutions, 60 or 42.25 %, had pre-World War II origins, some dating back to the nineteenth century. Thirty-seven new institutions came into being in the 1960s, and another 18 in the 1970s; combined, the two decades accounted for about half of the country's institutions of higher education, and three-fifths of those started since 1945.

The American and Canadian trajectories in which large numbers of higher education institutions predate the postwar era is quite pronounced in many European countries. For the region as a whole, 31.32 % of the 4042 higher education institutions were created before 1944, many going back centuries and a few more than a millennium (Ridder-Symons 1992, 2003; Rüegg 2004, 2011). The largest batch, 913 or 22.59 % of the total and 32.89 % of the institutions introduced after World War II, came in the 1990s. The next most dynamic decade for the growth of European higher education institutions was the 2000s that witnessed the rise of 504 new institutions. The 1970s came third with 351 new institutions. The slowest were the 1960s, whose 231 institutions were even below the 295 created in the decade and half immediately after the war.

As was the case in other world regions, there were wide discrepancies in the patterns of growth within the region. On one end was the Russian Federation with 837 higher education institutions in 2015 and on the other end were Luxembourg and San Marino with one institution

each. Altogether, 520 new institutions were established in the Russian Federation between 1945 and 2015, the largest number 236 or 45.38 %, in the 1990s, followed by the 1945–1959 period during which 77 new institutions were created. The new institutions in the Russian Federation accounted for nearly a fifth of Europe's total, and overall more than a fifth of the region's higher education institutions.

Eight other countries had more than a hundred higher education institutions each by 2015. Next to Russia came Poland with 414 institutions, 373 of which were established after 1945, mostly in the 1990s and 2000s when 161 and 134 institutions, respectively, were set up. France created 238 new institutions to reach a total of 369 by 2015. Save for the 1970s when 80 new institutions came on stream, the pattern of growth was more even in France ranging from 37 institutions established in the late 1940s and 1950s to 29 in the 1960s to 31 in the 1990s. On top of its existing 99 institutions in 1944, over the next 70 years, Germany created 254 new institutions, the largest number, 70, in the 1970s, then 58 in the 1990s, and 38 in the 2000s.

The UK, which had the fifth-highest number of higher education institutions in Europe, 254 by 2015, established only 76 new institutions, 31 of them in the 1960s and 18 in the 1970s. After that, only 15 new institutions were formed. Similarly, the Ukraine, next in line, with its 229 institutions, started 102 new institutions after 1945, most of them, 42, in the 1990s, another 19 in the 1960s, and 13 between 1945 and 1959. In Turkey, where only nine of its 164 institutions were in existence before 1945, established nearly two-thirds of its new institutions in the 1990s and 2000s, 42 and 55, respectively. In Portugal, with its 115 institutions in 2015, out of which 109 developed in the postwar era, most of the new institutions emerged in the last two decades of the twentieth century, 31 in the 1980s and 34 in the 1990s. Finally, in Spain, with its 108 institutions, 78 of which were postwar, introduced 30 new institutions in the 1990s and 11 in the 2000s.

The rest of the European countries followed the varied patterns of the countries discussed above. They included eight that had between 50 and 100 institutions by 2015, namely, Armenia with 69 (50 postwar), Austria 53 (35 postwar), Belarus 51 (33 postwar), Belgium 64 (40 postwar), Ireland 63 (42 postwar), Italy 97 (57 postwar), and the Netherlands 60 (49 postwar). Another 14 countries had between 25 and 49 institutions, and the rest had less than 25 including seven with less than ten.

Among the countries of the Oceania region, where Australia's dominance was overwhelming, 117 new higher education institutions were established to bring the total to 140 by 2015. Australia's share of the new postwar institutions was 64.96 %, and 64.29 % of the total. The creation of new institutions in the country was relatively evenly spread out, ten in the 1945–1959 period, 12 in the 1960s, seven in the 1980s, 14 in the 1980s, and ten in the 1990s. New Zealand, with its 28 institutions in 2015, and 20 since 1945, came in second place. Seven of the new institutions were formed in the 1960s, four each in the 1970s and 1980s, and five in the 1990s. Papua New Guinea had nine, all postwar institutions, four created in the 1960s, one each in the 1980s and 1990s, and three in the 2010s. The remaining 13 were distributed between Fiji with five, Solomon Islands three, Samoa two, and French Polynesia, New Caledonia, and Tonga with one each.

Degrees of Massification

The number of institutions a country had often correlated with the number and proportion of students who attended higher education institutions, although that was not always the case as evident in the United Nations Educational, Scientific, and Cultural Organization (UNESCO) data on gross tertiary enrollments and enrollment ratios discussed in this section. For example, while the number of higher education institutions worldwide between 1970 and 2013 grew by 119 %, or at annual rate of 2.79 %, the number of student enrollment rose by 509 %, or at annual rate of 11.84 %. Another example is that of the USA. While the country still had the world's largest number of higher education institutions in 2015, more than twice as many as China, the latter had overtaken the USA in terms of gross enrollments, but not in the enrollment ratio.

In 1939–1940, the USA, which for decades to come would boast the world's largest and most diversified higher education system had 1.5 million students enrolled in its colleges and universities. Within a decade, the number grew by 80 % to reach 2.7 million. Enrollments grew by an additional 900,000 in the 1950s to reach a total of 3.6 million in 1960 (Thelin 2011: 261). Growth further exploded in the 1960s to reach 8.5 million in 1971, which represented 47.1 % of the college-age population. By 1980, the figure had risen to 11.6 million, which translated into a gross enrollment ratio of 53.5 %. In second place was the Russian Federation, with 5.7 million tertiary students, although the rate of growth was minimal, as the

numbers had only risen from 5.2 million in 1970; in terms of the enrollment ratio, the increase was from 45.2 % to 45.3 %.

Altogether, the number of students enrolled in higher education institutions worldwide rose by more than six times from 32.6 million in 1970 to 198.6 million in 2013. The fastest growth was recorded between 2000 and 2010 followed by the 1970s as shown in Table 1.3. The 1980s and 1990s experienced lower growth rates. By 2013, Asia claimed the largest number of students in tertiary education, more than that of the rest of the world combined. This was a remarkable development. In 1970, Europe had nearly twice as many students as Asia; and the later had fewer students than North America. The tide began to turn in the 1980s. By 1990, Asia had overtaken the two regions. This phenomenal development was captured in a series of publications, best captured in a collection by the Institute for International Education, *Asia*: *The Next Higher Education Superpower*? (Bhandari and Lefébure 2015), and a book entitled *Palace of Ashes*: *China and the Decline of American Higher Education* (Ferrara 2015).

The rapid growth of higher education in Asia was not an isolated phenomenon. Africa and South America also experienced explosive growth. In fact, between 1970 and 2013, enrollments in Africa grew faster than in any other region, although from a low base so that by 2013, the continent still had the lowest number of tertiary students outside of Oceania.[2] South America enjoyed the second-fastest rate of growth during this period, followed by Asia, while Europe had the lowest, trailed by North America.

There can be little doubt that the developing countries of Africa, South America, and Asia were playing catch up with the developed economies of Europe and North America. These regions also continued to experience a demographic bulge and increasing demand for higher education by their rapidly growing middle classes. In the meantime, for Europe and North America, the postwar demographic boom had long run its course as can be seen in the enrollments in 2013, which were lower than in 2010.

The shifting terrain of global higher education is evident when we examine the changing composition of countries with the largest enrollments between and within regions. In 1970, for countries that had data, there were only 11 with tertiary enrollments of more than 50,000, and only two with more than a million, the USA and the Russian Federation. Chile, Columbia, and South Africa had enrollments of 50,000–99,999; another five countries enjoyed enrollments of 100,000–249,000, namely,

Table 1.3 Gross Tertiary Enrollments (millions)

Year / *Region*	*1970*	*1980*	*1990*	*2000*	*2010*	*2013*	*Average Annual Percentage Change*				
							1970–1980	*1980–1990*	*1990–2000*	*2000–2010*	*1970–2013*
World	32.6	49.6	67.5	99.6	181.7	198.6	5.2	3.6	4.7	8.2	11.8
Africa	0.74	1.7	2.8	6.1	11.4	12.2	13.0	6.5	11.8	8.7	36.2
Asia	7.3	13.00	22.8	41.0	91.4	108.2	7.8	7.5	8.0	12.3	32.1
Europe	13.3	16.8	18.6	25.5	33.7	31.5	2.6	1.1	3.7	3.2	3.2
North America	9.8	14.4	17.7	17.7	27.3	27.0	4.7	2.3	0	5.4	4.1
South America	1.2	3.3	4.9	8.3	16.3	18.0	17.5	4.8	6.9	9.6	32.6
Oceania	0.23	0.41	0.62	1.04	1.6	1.7	7.8	5.1	6.8	5.4	14.9

Source: Data extracted from UNESCO Institute for Statistics (UIS/ISU), September 24, 2015

Australia, Bangladesh, China, Indonesia, and Peru; and two had enrollments ranging from 250,000 to 499,999, namely, Argentina and Brazil.

The growth of tertiary enrollments in the 1970s was such that by 1980, the number of countries with more than 50,000 students had risen to 52. The majority, 19, had enrollments of between 100,000 and 249,000, followed by ten with enrollments of between a quarter and half a million. In ten countries, enrollments ranged between a quarter and half million, and in another 19, between 100,000 and 249,000. Six countries—Egypt, Mexico, Poland, South Korea, Spain, and the UK—had enrollments of between half a million and a million. Another six, namely Brazil, China, France, Italy, Japan, and the Philippines, boasted of enrollments of 1–2.49 million, while there were more than three million higher education enrolments in India, the Russian Federation, and the USA.

By 1990, 21 countries enrolled more than half a million students, led by the USA with 13.54 million, the Russian Federation 5.20 million, India 4.78 million, China 3.92 million, and Japan 2.68 million. The next ten countries with enrollments of more than a million included Canada (1.84 million), Ukraine (1.66 million), Republic of Korea (1.63 million), France (1.59 million), Brazil (1.54 million), Indonesia (1.52 million), Philippines (1.52 million), Italy (1.36 million), Mexico (1.31 million), and UK (1.18 million). Eleven countries had enrollments ranging from a quarter to half a million, and 23 between 100,000 and 249,000. Altogether, 69 countries had enrollments of more than 50,000 compared to 11 in 1970.

Previously, countries with enrollments of less than a quarter million constituted the largest cohort. By 2000, pride of place had shifted to countries with enrollments of more than a quarter million; there were 48 such countries compared to 32 with enrollments of less than a quarter million. In 1990, the proportions were 32 to 37, and in 1980, 25 to 27, respectively. The number of countries with enrollments of more than a million increased to 19 in 2000 from 16 in 1990 and 9 in 1980. The new comers to this cohort included Argentina (1.77 million), Poland (1.58 million), and Iran (1.40 million). From other sources, Nigeria should be included on this list. The country's tertiary enrollments reached 1.70 million in 2010, up from 1.03 million in 2000, and 179,494 in 1990 (Okuneye and Oluwaseyi 2014: 3–4).

In 2000, the USA remained in first place with 13.20 million, a slight dip from 1990. Second place went to India with 9.40 million. China came third with 7.36 million, and the Russian Federation fourth with 6.33 million. Enrollments surpassed three million in three other Asian countries,

Japan (3.98 million), Indonesia (3.13 million), and the Republic of Korea (3.00 million). Brazil came close with 2.78 million. The trends evident in 2000 accelerated over the next decade. In 2010, the number of countries with enrollments of more than a quarter million rose to 49, compared to 44 with enrollments of between 50,000 and 499,000. Altogether, 25 countries had enrollments of more than a million, led by China with 31.05 million, followed by India with 20.74 million, and the USA slid into third place with 20.4 million. Brazil and Indonesia joined the league of countries with enrollments of more than 5 million, with 6.55 million and 5.00 million, respectively.

In the meantime, the number of countries enrolling between 2.5 and 4.9 million rose to ten from four in 2000. They included Japan (3.84 million), Iran (3.80 million), Turkey (3.53 million), the Republic of Korea (3.27 million), Mexico (2.85 million), the Philippines (2.77 million), Egypt (2.65 million), Ukraine (2.64 million), and Argentina (2.52 million). Among the countries joining the "millionaires" club were Algeria (1.14 million), Australia (1.27 million), Columbia (1.67 million), Malaysia (1.06 million), and Peru (1.15 million). South Africa could be included. In 2011, it had 938,201 students enrolled in public higher education institutions, approximately 534,719 in what are called "Further Education and Training Colleges," 297,634 in "Colleges of Adult Education and Training," and 144,121 in "Sector Education and Training Authorities" for a total of 1.91 million (Department of Higher Education and Training 2012: 2).

The data from the UNESCO Institute for Statistics for 2013 shows the increasing strides among countries in the Global South. Quite glaring was the growing gap among the three leading countries. Enrollments in China and India rose to 34.09 million and 28.56 million, respectively, while in the USA, it declined slightly to 19.97 million. Chile, Pakistan, and Saudi Arabia joined the ranks of countries with enrollments of more than a million. At least eight other countries including Belarus, Ethiopia, Greece, Kazakhstan, Netherlands, Romania, Sudan, and Syria enjoyed enrollments of between half a million and a million.

There can be little doubt that in the post-World War II, all regions experienced explosive growth in tertiary enrollment. It was particularly marked from the 1970s. The rate of growth was fastest among the developing countries in Africa, South America, and Asia in that order. The result is that the USA no longer claimed the largest higher education

system in the world in terms of enrollments, a distinction it ceded to China and India. In 2013, only two European countries, the Russian Federation and Turkey, were in the top ten countries as far as gross enrollments were concerned. The Russian Federation (7.56 million) came in fourth place after China, India, and the USA, while Turkey was in seventh place (4.00 million). The other countries on this list included Brazil (7.32 million), Iran (4.37 million), the Republic of Korea (3.36 million), the Philippines (3.32 million), and Mexico (3.30 million).

The growing importance of Brazil, Russia, India, China, and South Africa (the BRICS) in global higher education is quite evident. The collection by Schwartzman et al. (2015) provides a welcome systematic comparative overview of higher education among the BRICS, focusing on the complex dynamics of supply and demand, the diverse range of stakeholders and their interests, the role of government policy especially in dealing with questions of access, financing, and quality assurance, and the ways in which higher education institution in these countries are responding to internationalization and intensifying global competition in terms of research and innovation.

The global economic significance of the BRICS is no longer in doubt. From the 1990s, the BRICS began growing much faster than the developed countries so that their share and importance for the global economy rose while those of the economies including the USA and the European Union (EU) fell signaling a historic shift in the direction of the world economy. Growing interaction between the emerging markets was a major factor in their economic expansion. In 2012, the BRICS including South Africa, which acceded to the group in 2011, accounted for 40 % of the world population and 25 % of the world's landmass. The relative share of the BRICS of world GDP increased by some 3.6 times from 1990 to 2012 so that they accounted for 56 % of world GDP growth. In 2012, they claimed about 20 % of world GDP compared to 24 % for the EU and 21 % for USA, and 43 % of the world reserves of foreign exchange. The BRICS increased their share of total world trade to 21.3 % as compared to 25 % for the EU, and 27 % for the USA. This represented a relative decline for the latter two regions (Lo and Mary Hiscock 2014; Stuenkel 2015).

Needless to say, the BRICS face numerous challenges including the differences and disproportionalities in the size of their economies, political systems, and competitive pressures. The virtual stagnation of the economies

of Russia, Brazil, and South Africa in 2014, and economic slowdown in India, and especially China in 2015, which roiled world financial markets, underscored the structural challenges facing the BRICS and other emerging economies (Beausang 2012; Schuman 2014; Elliott Inman 2015). Nevertheless, the fact remained Western economic dominance of the last several centuries seemed to be slipping as the rest in Asia, Africa, and Latin America saw their economic fortunes rise.

More broadly, as shown in Table 1.4, it can be seen that the largest growth in gross enrollment ratios between 1970 and 2013 was in the middle-income countries (118.7 million), followed by the upper-middle-income countries (67.45 million), and the lower-middle-income countries (51.25 million). The lowest numbers were in the high-income countries (43.23 million) and low-income countries (4.02 million). In terms of average rates of growth, the low-income countries led, although from a very low base, followed by the upper-middle-income countries, middle-income countries, and lower-middle-income countries. The lowest rate was for the high-income countries, whose starting level in 1970

Table 1.4 Gross Enrollment Ratios by Levels of Development

Region	*Year*						
	1970	*1980*	*1990*	*2000*	*2010*	*2013*	*Average Annual Percentage Change 1970–2013*
Low-income countries	0.16	0.38	0.76	1.09	3.59	4.18	58.43
Lower-middle-income countries	6.15	9.57	13.92	24.98	46.78	57.40	19.38
Middle- income countries	9.32	17.62	28.074	49.83	110.97	128.02	29.6
Upper-middle-income countries	3.17	8.04	14.15	24.85	64.19	70.62	49.48
High-income countries	23.13	31.64	38.62	48.72	67.17	66.36	4.3

Source: Data extracted from UNESCO Institute for Statistics (UIS/ISU), September 24, 2015

was quite high, 23.13 million, which was more than all the other groups of countries combined.

Clearly, the levels of economic and higher education development were mutually reinforcing. The demand for, and capacity to provide, higher education was greatest among the three tiers of middle-income countries. These countries witnessed not only rapid economic development but also population increase and the broadening of access to secondary education, all of which fueled pressures for further expansion.

The rapid expansion of tertiary education worldwide was evident in increased enrollment ratios in every region. However, there were significant variations within and among regions. Table 1.5 shows the patterns of growth at five-year intervals from 1970 to 2013 for each continent. It can be seen that gross enrollment ratios for the world as a whole more than trebled from 10.01 % in 1970 to 32.88 % in 2013. During the same period, the ratio for Europe more than doubled from the relatively high rates of 25.77 % to 68 %, while for North America, during the same period, it rose from 35.36 % to 61.51 %. By 2013, Europe had overtaken North America as the region with the highest enrollment ratio in the world, a trend evident from 2000.

Even more remarkable in global tertiary enrollments was the rate of expansion in Oceania, South America, and Asia. In fact, Oceania took second place to Europe, while South America was fourth and Asia fifth. In both Asia and South America, enrollment ratios expanded by 7.6 times between 1970 and 2013 from 6.77 % and 3.78 % to 51.76 % and 28.84 %, respectively. Africa remained at the bottom, although its enrollment ratio

Table 1.5 Gross Tertiary Enrollment Ratios by Region, Both Sexes (%)

Region	*1970*	*1975*	*1980*	*1985*	*1990*	*1995*	*2000*	*2005*	*2010*	*2013*
World	10.01	11.11	12.26	13.31	13.63	15.55	19.02	24.13	29.34	32.88
Africa	2.21	2.90	3.68	4.66	5.00	6.25	8.00	9.76	11.66	12.08
Asia	3.78	4.34	5.36	6.73	7.1	8.76	12.71	17.41	23.36	28.84
Europe	25.77	27.75	29.76	32.27	34.79	40.41	50.55	62.45	67.64	68.00
North America	35.36	37.58	40.38	43.40	49.04	50.23	46.11	55.79	63.84	61.51
South America	6.77	12.59	13.66	18.47	17.56	20.86	24.52	33.66	46.80	51.76
Oceania	13.19	18.95	20.35	22.45	27.55	49.58	45.68	51.52	57.26	61.71

Source: Data extracted from UNESCO Institute for Statistics (UIS/ISU), September 24, 2015

increased from 2.21 % in 1970 to 12.08 % in 2013. The widening developmental gap between Africa and Asia is quite clear. In 1970, the disparity in gross enrollment ratios between the two regions was a mere 1.57 %; by 2013, it had grown to 16.76 %.

Altogether, by 1970, in 33 countries, the gross enrollment ratio had reached more than 10 %, rising to 48 a decade later. Among the latter, 23 had ratios of between 10 % and 19 %, 16 between 20 % and 29 %, and seven between 30 % and 39 %. The latter included Belarus (37.80 %), Ecuador (33.70 %), Finland (31.76 %), Israel (31.27 %), Japan (31.20 %), Lebanon (32.29 %), and Sweden (36.38 %). The USA and the Russian Federation enjoyed the highest enrollment ratios of 45.27 % and 53.46 %, respectively. The only African country on the list was Egypt, which had an enrollment ratio of 15.85 %.

By 1990, the number of countries with enrollment ratios of more than 10 % had skyrocketed to 66, still led by the USA with 70.8 % and the Russian Federation with 55.4 %. In 20 countries, the ratios ranged between 10 % and 19 %, in 23, between 20 % and 29 %, in 16, between 30 % and 39 %, and in another four, between 40 % and 49 %. The third group included Australia (35.08 %), Austria (32.26 %), Belgium (38.34 %), Denmark (34.12 %), France (36.26 %), Israel (33.60 %), Lithuania (33.25 %), Netherlands (35.43 %), New Zealand (39.37 %), Norway (38.37 %), Peru (30.28 %), Republic of Korea (36.87 %), Moldova (35.42 %), Spain (35.68 %), Sweden (30.69), and Switzerland (37.69 %). The fourth group included Belarus (48.76 %), Finland (44.50 %), Kazakhstan (40.19 %), and Ukraine (48.55 %). The list now included five African countries, Algeria (10.23 %), Egypt (14.36 %), Libya (12.47 %), Morocco (10.42 %), and South Africa (11.95 %).

Ten years later, 75 countries enjoyed enrollment ratios of more than 10 %. They included 16 with enrollment ratios of 10–19 %, ten with 20–29 %, and 13 with 30–39 %. The number of countries whose enrollment ratios had risen to 40–49 % had increased to nine. Twenty countries joined the ranks of those with enrollments of 50–59 %. They included Argentina (53.07 %), Austria (57.09 %), Belarus (54.47 %), Belgium (57.52 %), Canada (58.88 %), Denmark (57.25 %), Estonia (56.35 %), France (56.90 %), Greece (51.09 %), Ireland (50.05 %), Latvia (56.64 %), Libya (50.31 %), Lithuania (50.63 %), Netherlands (52.54 %), Poland (50.29 %), the Russian Federation (55.40 %), Slovenia (55.11 %), Spain (58.74 %), Switzerland (52.76 %), and the UK (58.09 %). Five belonged to the select group maintaining 60–69 % enrollments ratios, namely,

Australia (65.03 %), New Zealand (66.15 %), Norway (69.34 %), Sweden (67.11 %), and the USA (67.85 %), while two were in the rarefied company with more than 70 % enrollment ratios, Finland with 82.44 % and the Republic of Korea with 78.83 %.

In 2010, the number of countries with tertiary enrollments of more than 10 % stood at 91, including 16 that had enrollments of 10–19 %, another 12 with enrollments of 20–29 %, nine countries each with enrollments of 30–39 % and 40–49 %, and 11 with enrollments of 50–59 %. The group of countries with 60–69 % rose to a dozen. They were Austria (58.72 %), Barbados (64.81 %), Belgium (67.52 %), Chile (61.79 %), China-Macao (61.79 %), Czech Republic (63.21 %), Hungary (60.38 %), Italy (64.33 %), Netherlands (64.33 %), Portugal (65.95 %), UK (60.51 %), and Uruguay (63.15 %). The once exclusive club of those with enrollments of more than 70 % skyrocketed to 22 countries. They included Argentina (74.83 %), Australia (79.77 %), Belarus (78.99 %), Cuba (95.00 %), Denmark (73.58 %), Estonia (71.65 %), Finland (94.05 %), Iceland (78.47 %), Greece (108.09 %), Latvia (70.55 %), Lithuania (80.75 %), New Zealand (82.56 %), Norway (72.79 %), Poland (73.52 %), Puerto Rico (86.35 %), Republic of Korea (100.96 %), Slovenia (88.47 %), Spain (78.09 %), Sweden (74.63 %), Ukraine (76.66 %), and the USA (93.29 %).

Over the next three years, improvements continued, although data was available for only 77 countries. A few registered declines, for example, Finland whose tertiary enrollment ratio dropped to 91.94 %, Hungary to 56.70 %, Latvia to 66.35 %, Lithuania to 69.96 %, New Zealand to 78.04 %, Poland to 71.55 %, Slovenia to 84.41 %, Sweden to 64.90 %, and the USA to 89.08 %. In the meantime, the number of African countries with more than 10 % enrollments increased in both 2000 and 2010. In the latter year, they included Algeria (28.76 %), Botswana (16.99 %), Cape Verde (17.98 %), Egypt (33.47 %), Guinea (10.28 %), Mauritius (34.17 %), Morocco (14.32 %), Sudan (15.18 %), and Western Sahara (10.87 %). By 2013, many of them had increased their enrollments quite noticeably; for example, for Algeria to 33.30 %, Botswana to 24.83 %, Cape Verde to 22.85 %, Mauritius to 41.21 %, Sudan to 17.15 %, and Tunisia to 33.69 %. New comers included Ghana (14.33 %) and Lesotho (10.15 %). It is clear, however, that despite these improvements, even the better performing African countries lagged awfully behind.

Persistent Inequality

The disparities in higher education were of course not only between regions and countries. Inequalities of access persisted based on various social dynamics particular to each region and country. But there were some social inscriptions, which despite their national iterations were pervasive and persistent across the world. The most critical were gender and class. In multicultural and multiracial societies, either of which singly or jointly applied to most countries, access was also mediated through the sociocultural dynamics of ethnicity, race, and religion. Spatial dynamics played a role as well, as evident in differential access to higher education within and between counties, provinces or states, and among rural, urban, and suburban areas.

Almost invariably, these social and spatial filters of access and facilitators of inequality were intersected often in complex and contradictory ways. They frequently provoked struggles for redress by the underrepresented, marginalized, and excluded constituencies. Ameliorative interventions tended to include various forms of affirmative action, positive discrimination, or preferential treatment that, in turn, engendered further contestations and even conflict.

Comparative global data is more readily available for gender than it is for the other structural and social dimensions of higher education structured around the constructs of class, ethnicity, race, religion, and location. Much of this chapter, therefore, focuses on patterns of gender access to higher education, while the other aspects and persistent forms of inequality are examined in subsequent chapters using nation-specific data where available. This will be previewed, in this chapter, by looking at race in some of the countries where such data is collected. General observations will also be made about spatial inequalities in the provision of higher education opportunities.

UNESCO's data on tertiary education, the term it uses, clearly shows the huge changes that occurred in gross tertiary enrollments for women and men between 1970 and 2013. As outlined in Table 1.6, the female enrolment ratio worldwide increased from 8.46 % in 1970 to 12.91 in 1990 to 18.99 % in 2000, the last time the female enrollment ration lagged behind that of males. By 2010, female enrolled at a higher rate than males, 30.44 % to 28.29 %, respectively, which increased to 34.54 % to 31.32 % in 2013. As indicated in Table 1.7, this represented an increase

Table 1.6 Gross Female and Male Enrollment Ratio by Region, 1970–2013

Region	*Year*											
	1970		*1980*		*1990*		*2000*		*2010*		*2013*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
World	8.46	11.51	11.14	13.32	12.91	14.32	18.99	19.04	30.44	28.29	34.54	31.32
Africa	1.62	2.79	2.70	5.06	3.60	6.29	6.91	9.03	10.61	12.69	11.08	13.07
Asia	2.38	5.11	3.72	6.88	5.49	8.74	11.17	14.18	22.56	24.11	29.07	28.62
Europe	25.15	26.37	29.90	29.62	36.22	33.42	55.28	45.98	76.23	59.37	75.53	60.80
North America	29.09	41.69	39.82	40.94	52.78	45.37	51.48	40.90	72.63	55.21	69.43	53.80
South America	5.21	8.31	12.41	14.89	17.63	17.49	27.11	21.97	53.50	40.28	59.62	44.11
Oceania	9.08	17.13	18.26	22.36	29.21	25.96	51.06	40.51	66.37	48.69	71.63	52.24

Source: Data Extracted from UNESCO Institute for Statistics UIS/ISU, October 14, 2015

Table 1.7 Gross Female Enrollment by Region in Millions, 1970–2013

Region	*Year*					
	1970	*1980*	*1990*	*2000*	*2010*	*2013*
World	13.48	22.00	31.19	48.72	91.94	101.34
Africa	0.27	0.59	1.03	2.64	5.17	5.56
Asia	2.23	4.35	8.45	17.51	42.67	52.44
Europe	6.40	8.29	9.49	13.74	18.62	17.11
North America	4.05	7.08	9.44	9.74	15.37	15.05
South America	0.46	1.50	2.46	4.52	9.22	10.24
Oceania	0.08	0.18	0.32	0.57	0.88	0.95

Source: Data Extracted from UNESCO Institute for Statistics UIS/ISU, October 14, 2015

in gross female enrollments from 13.48 million in 1970 to 48.72 million in 2000 to 91.94 million in 2010 to 101.34 in 2013.

The regional patterns reflected the general global trends. Africa, which had the lowest female enrollment ratio in 1970, held on to that dubious distinction in 2013, although the female enrollment ratio increased from 1.62 % in 1970 to 11.08 % in 2013, or from 0.27 million to 5.56 million. Africa remained the only region where females still lagged behind males in enrollments in 2013. In Asia, the growth in the female enrollment ratio was from 2.38 % in 1970 to 29.07 % in 2013, when it finally outstripped the male ratio. Numerically, women's enrollments rose from 2.23 million to 52.44 million during this period.

In Europe, the female–male enrollment ratios were already almost balanced by 1970, 25.15 % to 26.37 %, respectively. By 1980, females had overtaken males and the gap widened over time to reach 55.28 % to 45.98 % in 2000 and 75.53 % to 60.80 % in 2013. In terms of actual size, female enrollments rose from 6.40 million in 1970 to 17.11 million in 2013, although the latter signified a drop from 18.62 million in 2010. In North America, the disparity in the female–male enrollment ratio was much broader in 1970 than it was in Europe, 29.09 % to 41.69 %, but had almost closed by 1980. Ten years later, females were ahead of males, claiming an enrollment ratio of 52.78 % to 45.37 %, rising to 69.43 % to 53.80 % in 2013, a magnitude comparable to Europe. Overall, female enrollment expanded from 4.05 million in 1970 to 15.05 million in 2013, which also reflected a slight dip from 15.37 million in 2010.

Similarly, in South America and Oceania, where women who lagged behind men in enrollment ratios and totals in 1970, they had caught up by 1990. From then on, women surpassed men with widening margins. For South America, the female–male enrollment gap spread from 27.11 % to 21.97 % in 2000 to 53.50 % to 40.28 % in 2010 and 59.62 % to 44.11 % in 2013. The rising totals of women in higher education from 0.46 million in 1970 to 4.52 million in 2000 to 10.24 million in 2013 underscored the spectacular growth of female enrollment. For Oceania, the female–male enrollment ratio jumped from 51.06 % to 40.51 % in 2000 to 66.37 % to 48.69 % in 2010 and 71.63 % to 52.24 % in 2013. The shift in actual numbers in female enrollment was from 0.08 million in 1970 to 0.57 million in 2000 to 0.88 million in 2010 and 0.95 million in 2013.

As noted in the previous section with reference to general enrollment trends, the disparities in female–male enrollment ratios not only applied to geographical regions but also reflected different levels of development among countries. Table 1.8 shows enrollment ratios in this regard. Predictably, by 2013, female enrollment still lagged behind that of males in low-income and lower-middle-income countries, 5.58 % to 9.51 % and 21.52 % to 22.70 %, respectively. For the upper-middle-income countries, in 2000, the female enrollment ratio lagged behind that of males at 13.70 % to 14.47 %. The female lead achieved in these countries by 2010 and in 2013 remained relatively small, 30.90 % to 37.95 % and 37.95 % to 32.85 %, respectively. In contrast, in the high-income countries, the female enrollment ratio had exceeded the male ratio by 1990 and widened from 43.90 % to 41.38 % in that year to 59.46 % to 50.74 % in 2000 to 82.39 % to 64.22 % in 2010 and narrowed slightly to 82.52 % to 65.50 % in 2013.

Table 1.9 clearly demonstrates the gender parity indexes for different world regions. By 2013, Africa still remained far below the world average. Asia, which had the lowest gender parity index in 1970, was at 1.02, just below the world average of 1.10. Interestingly, in 2013, the gender parity index was highest in Oceania and South America, where it was at 1.37 and 1.35, respectively, followed by North America at 1.29 and Europe at 1.24. The table shows that globally the gender parity index was reached by 2000. This milestone was preceded by two decades in Europe, and a decade in South America; North America lay in between, although in 1990, it enjoyed the highest gender parity index, a position it ceded within a decade.

Table 1.8 Gross Female Enrollment Ration by Levels of Development, 1970–2013

Region	*Year*											
	1970		*1980*		*1990*		*2000*		*2010*		*2013*	
	Female	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*
Low-income countries	0.47	1.39	0.90	2.52	1.62	3.66	1.98	3.85	5.10	9.02	5.85	9.51
Lower-middle-income countries	4.54	7.52	5.19	8.10	6.35	9.13	9.95	12.54	16.63	19.81	21.52	22.70
Middle-income countries	3.27	4.99	4.93	7.17	6.29	8.60	11.62	13.39	23.22	23.35	28.65	27.13
Upper-middle-income countries	.	.	4.67	6.26	6.24	8.12	13.70	14.47	30.90	27.44	37.95	32.85
High-income countries	23.78	31.32	32.79	35.32	43.90	41.38	59.46	50.74	82.39	64.22	82.52	65.50

Source: Data Extracted from UNESCO Institute of Statistics UIS/ISU, October 14, 2015

Table 1.9 Gender Parity Index by Region, 1970–2013

Region	*Year*					
	1970	*1980*	*1990*	*2000*	*2010*	*2013*
World	0.74	0.84	0.90	1.00	1.08	1.10
Africa	0.58	0.53	0.57	0.76	0.84	0.85
Asia	0.47	0.54	0.63	0.79	0.94	1.02
Europe	0.95	1.01	1.08	1.20	1.28	1.24
North America	0.70	0.97	1.16	1.26	1.32	1.29
South America	0.63	0.83	1.01	1.23	1.33	1.35
Oceania	0.53	0.82	1.13	1.26	1.36	1.37

Source: Data Extracted from UNESCO Institute of Statistics UIS/ISU, October 14, 2015

Table 1.10 Gender Parity Index by Level of Development, 1970–2013

Region	*Year*					
	1970	*1980*	*1990*	*2000*	*2010*	*2013*
Low-income countries	0.34	0.36	0.44	0.51	0.57	0.62
Lower-middle-income countries	0.60	0.64	0.70	0.79	0.84	0.95
Middle-income countries	0.65	0.69	0.73	0.87	0.99	1.056
Upper-middle-income countries	.	0.75	0.77	0.95	1.126	1.155
High-income countries	0.76	0.93	1.06	1.17	1.28	1.26

Source: Data Extracted from UNESCO Institute of Statistics UIS/ISU, October 14, 2015

The divergence in the gender parity index among the low-, medium-, and high-income countries is underscored in Table 1.10. The low income and lower-middle income scored below average, and it rose proportionally for the middle-income, upper-middle-income, and high-income countries. The latter group had reached gender parity by 1990, while the upper-middle-income group had reached it by 2010, and the middle-income group by 2013. On this trajectory, the lower-middle-income group, with gender parity index of 0.95, were on the way to reaching parity, while the low-income countries with an index of 0.62 had some way to go.

The gender dynamics of higher education are of course confined not only to the changing patterns of access but also to the distribution of academic programs. Global data on the latter is far less available than it is for gross enrollment and enrollment ratios. UNESCO's data on enrollment by field of study in tertiary education is limited to a few countries for the

period after 2000, which calls for considerable caution in making generalizations over time and within and across regions.

Given the size of the higher education system and the high level of female enrollments in the USA, the trends there are quite instructive on the gender distribution of enrollment by academic programs. Female and male enrollments in the country in 2000 and 2010 were almost evenly spread in the humanities and arts programs, while there was a small gap in favor of males in the social sciences, business, and law programs. A far higher percentage of women were enrolled in education and health and welfare programs, while for men, this was true in the sciences, engineering, manufacturing, and manufacturing programs. In 2010, the actual percentage among women enrolled in education was 10.39 % compared to 3.94 % for men, and in health and welfare programs, it was 25.48 % for women contrasted to 8.90 % for men, respectively. In the sciences, the proportions were 7.01 % among women and 13.39 % among men, and in engineering, manufacturing, and construction programs, it was for women 1.89 % and 13.66 % for men, respectively. There was little change between 2000 and 2010.

The overall patterns in the various world regions are summarized in Table 1.11. It can be seen that globally the percentages of enrollments among women were higher than those among men in health and welfare programs and lower in engineering, manufacturing, and construction programs. The converse was true for men. In the sciences, the proportions were higher for men in Europe, South America and the Caribbean, and North America, while they were split in Asia and Africa, where women enjoyed higher enrollment percentages in 4 out of 27 and 9 out of 27 countries, respectively. The four African countries comprised Algeria, Guinea, Sierra Leone, and Zimbabwe, while the nine Asian countries included Azerbaijan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Oman, Qatar, Saudi Arabia, and United Arab Emirates, although the margins of difference tended to be small.

The distribution of female and male enrollments in the social sciences, business, and law programs showed greater divergence. Men enjoyed a higher percentage of enrollment in these fields than women in North America and Asia. In Asia, this was the case in 16 out of 28 for which there was data. In Africa, women's ratios were higher in 25 out of 28 countries and in Europe, in 31 out of 42 countries. In the humanities and arts programs, women enjoyed higher enrolment rates in all 41 countries for which data was available. In Asia, this was true in 25 out of 28 countries,

Table 1.11 Distribution of Enrollment by Academic Programs and Number of Countries, 2000–2013

Academic Programs		*Region*					
		Africa	*Asia*	*Europe*	*South[a] America*	*North America*	*Oceania*
	Gender with higher %	*No. of countries*	*No. of countries*	*No. of countries*	*No. of countries*	*No. of countries*	*No. of countries*
Humanities and Arts	Female	18	25	41	9	1	
	Male	10	3	0	4	1	
Social Sciences, Business, and Law	Female	25	12	31	11	0	
	Male	3	16	11	3	2	
Education	Female	15	28	40	14	2	
	Male	13	0	1	0	0	
Sciences	Female	4	9	0	0	0	
	Male	23	18	40	11	2	
Engineering, Manufacturing and Construction	Female	0	0	1	0	0	
	Male	28	28	41	12	2	
Health and Welfare	Female	26	27	42	13	2	
	Male	1	1	0	0	0	

Source: Data Extracted from UNESCO Institute of Statistics UIS/ISU, October 15, 2015

[a] Includes Caribbean

and in Africa, in 18 out of 28 countries. In North America, the patterns showed small differences between the USA and Mexico. In Mexico, the percentage of enrollment in the humanities and arts programs was slightly higher for women, while it was marginally higher for men in the USA. In 2013, in the social science, business, and law programs, enrollments for women were 46.82 % compared to 32.77 % for men, while in the USA, the figures were higher for men, 28.78 %, compared to the women's, 26.55 %.

The regional data offers interesting reading. Among the African countries, the highest enrolment percentages tended to be in the social sciences, business, and law, reaching as high as 76.84 % and 70.71 % in 2013 for women in Congo and Cote d'Ivoire, respectively, and 63.35 % and 53.08 % for men in Congo and Madagascar. They registered more than

40 % for women in 18 countries, and for men, in 13. In the humanities and arts, the highest percentages for women were recorded in the Central African Republic (32.93 %), Morocco (31.12 %), Liberia (29.02 %), Egypt (25.48 %), and Tunisia (22.65 %); they were also relatively high for men in these countries.

In education programs, where enrollments remained relatively low, those for females topped 10 % only in 11 African countries in 2010 and 2013. They included Lesotho (39.72 %), Swaziland (37.74 %), Ethiopia (37.73 %), Ghana (27.03 %), and Mozambique (24.22 %). In contrast, the three highest male enrollments in education were in Ethiopia (27.97 %), Swaziland (27.57 %), and Mozambique (25.21 %). Also low were enrollments in the health and welfare programs. They were below 10 % for both sexes in 16 countries, and surpassed 15 % for women in Cote d'Ivoire (28.48 %), Egypt (15.62 %), Niger (33.60 %), and Zimbabwe (16.07 %), and for men, only in Cote d'Ivoire (17.95 %).

Some of the lowest enrollments especially for women in Africa were in the scientific and engineering fields, where they clustered in the single digits for both men and women. In 2010 or 2013, enrollments in the sciences exceeded a dozen percentage points for women only in Botswana (12.04 %), Morocco (20.14 %), and Zimbabwe (14.43 %), while for men, this occurred in 12 countries, led by Tunisia (25.92 %), Morocco (23.96 %), Cote d'Ivoire (19.03 %), and Cameroon (22.07 %). In engineering, manufacturing, and construction programs, they surpassed 5 % in four countries, led by Tunisia (11.85 %), Guinea (6.29 %), Seychelles (6.29 %), Morocco (5.32 %), and Cape Verde (5.43 %). In contrast, in 19 countries, male enrollments exceeded 10 %, including five where it was more than 15 %, such as Cape Verde (19.49 %), Lesotho (19.44 %), Seychelles (46.84 %), Tunisia (29.09 %), and Zimbabwe (23.67 %).

In Asia, enrollments were also relatively higher in the social sciences, business, and law than in the humanities and arts programs. For women, in 2010 and 2013, they exceeded 25 % in the social sciences, business, and law in 19 countries, and for men, in 27 countries. The highest percentages for women in the social sciences, business, and law were in Macao (51.02 %), Laos (46.13 %), Singapore (46.30 %), Lebanon (43.70 %), and United Arab Emirates (41.99 %), while for males, they were in Macao (53.70 %), United Arab Emirates (53.88), Lebanon (46.97 %), Palestine (43.65 %), and Laos (42.20 %). In the humanities and arts, enrolments registered more than 20 % in nine countries for women and in only three for men, namely, Brunei (21.66 %), Saudi Arabia (21.38 %), and Sri

Lanka (34.34 %). For women, the three leading countries were Sri Lanka (54.88 %), Saudi Arabia (31.95 %), and Qatar (28.31 %).

Enrollments in education programs were relatively higher in Asia than in Africa for the countries with available data, exceeding 10 % in 18 countries for women and in eight for men. They surpassed 30 % for women in Nepal (47.56 %), Palestine (37.82 %), Kuwait (32.91 %), Bhutan (31.46 %), and Kazakhstan (30.11 %). For men, this threshold applied only to Nepal (34.32 %) and Bhutan (30.13 %). Much lower were enrollments in the health and welfare programs, where they reached 10 % and more for women in 12 countries and more than 15 % in three countries, namely, Tajikistan (27.11 %), Japan (17.08 %), and the Republic of Korea (17.02 %). There was not a Asian single country where enrollments for men reached 10 %, the highest were in Japan (9.97 %), Palestine (7.95 %), Tajikistan (7.84 %), Saudi Arabia (7.80 %), and Sri Lanka (6.88 %).

Also much higher in Asia than in Africa were enrollments in the science programs. In 2010 and 2013, they exceeded 10 % for women in 11 countries led by Oman (21.90 %), Brunei (19.87 %), Saudi Arabia (15.20 %), Azerbaijan (13.62 %), and Singapore (12.09 %). For men, they did so in 15 countries including Brunei (24.80 %), Sri Lanka (18.91 %), Oman (17.63 %), Singapore (16.07), and the Philippines (15.86 %). For programs in engineering, manufacturing, and construction, the trends were largely similar for women, and even more pronounced for men. There were 11 countries where women's enrollments comprised more than 10 %. Claiming the highest percentages was Oman (18.77 %), followed by Vietnam (17.67 %), Singapore (13.89 %), Malaysia (13.63 %), and Kazakhstan (12.35 %). For men, enrollments outstripped 10 % in 25 countries, including six where they were more than 30 %, such as the Republic of Korea (36.57 %), Oman (35.54 %), Malaysia (35.12 %), Singapore (34.49 %), Qatar (32.89 %), Kazakhstan (32.65 %), Israel (32.64 %), and Mongolia (31.33 %).

Enrollments in the social sciences, business, and law were even higher in Europe than in Asia. In 2010 and 2013, they surpassed 25 % for women in all 40 countries that had data, and in 38 countries for men. In fact, they were more than 40 % for women in 21 countries led by Liechtenstein (61.43 %), Romania (61.37 %), Turkey (54.34 %), Latvia (54.21 %), and Lithuania (52.67 %). For men, the same proportions held for 11 countries headed by Liechtenstein (75.30 %), Cyprus (58.09 %), Andorra (57.47 %), Turkey (54.38 %), and Georgia (46.90 %). In the humanities and arts, enrollments were lower than in Asia; they were above 20 % only

in one country for men, Georgia (24.06 %). They ranged between 10 % and 19 % for women in ten countries, led by Germany (19.33 %), Malta (19.09 %), and the UK (18.32 %).

In Europe, enrollment percentages for women in education programs were higher than in Asia. They stood at 10 % and above for women in 27 countries in 2010 and 2013, the largest proportions being in Luxembourg (22.43 %), Iceland (20.08 %), Norway (18.12 %), Austria (17.97 %), and Sweden (17.16 %). However, unlike Asia, they did not surpass 10 % in all but one country, Malta (17.16 %). They ranged below 5 % for men in 26 countries. Similarly low were the percentages of male enrollments in health and welfare programs, although the proportion of countries with ratios above 10 % was a little higher, six in all, specifically, in Belgium (12.79 %), Denmark (10.54 %), Andorra (10.41 %), France (10.39 %), Slovakia (10.09 %), and Albania (10.01 %). Enrollments for women in these programs were much higher, exceeding 10 % in 32 countries; in 13, they went beyond 20 %. The latter encompassed Denmark (28.88 %), Belgium (28.38 %), Finland (25.35 %), Andorra (24.92 %), and the Netherlands (24.03 %).

The percentages of enrollments for women in the science programs in 2010 and 2013 were much lower in Europe than in Asia. They were higher than 10 % only in Germany (12.20 %), Greece (10.09 %), Ireland (10.24 %), and the UK (14.35 %). For men, they excelled 10 % in 27 countries; in the lead were the UK (22.43 %), Germany (20.10 %), Malta (19.82 %), Ireland (18.08 %), and France and the Czech Republic (with 17.56 % each). Enrollments ratios for women in engineering, manufacturing, and construction programs were concentrated below 10 % in 34 countries altogether, compared to four where they stood above. The latter countries included Belarus (13.57 %), Portugal (11.00 %), Ukraine (10.48 %), and Bulgaria (10.17 %). In contrast, male enrollments bested 10 % in all European countries. Seven countries boasted enrollments of more than 30 %, such as Belarus (46.43 %), Finland (41.83 %), Portugal (34.93 %), Ukraine (34.44 %), and Lithuania (32.41 %).

The gender distributions of enrollments among academic programs in South America and the Caribbean as well as Oceania were variations on the patterns in the regions examined above. The percentages of female enrollments in the humanities and arts in the 14 countries with available data in South America and the Caribbean show that they rose above 10 % only in Barbuda (12.89 %) and Argentina (13.57 %). The same was true for the proportion of male enrollments. The enrollment levels were much

higher for both sexes in the social sciences, business, and law. They were above 25 % in all 14 countries; in seven, they were above 40 % for women, and in two, for men. The countries included Curacao (77.16 %), Aruba (58.66 %), Colombia (55.53 %), and Antigua and Barbuda (45.06 %) for women and Aruba (53.66 %) and Brazil (41.96 %) for men.

In the field of education, the enrollment percentages for women in 2010 and 2013 were higher than 10 % in all but one country in the region, and in five, for men. For women, the leading countries were Guyana (44.46 %), followed by Honduras (25.68 %), Brazil (23.94 %), and Cuba (21.19 %), while for men, they were Barbados and Cuba (with 15.91 % each), Guyana (15.59 %), and Honduras (14.67 %). In health and welfare programs, enrollments for both women and men were highest in Cuba (36.96 % and 30.95 %, respectively), followed by Saint Lucia (22.89 % and 24.74 %), and Chile (33.37 % and 11.48 %). For women, they surpassed 10 % in six additional countries.

The percentages of female enrollments in the sciences were exceptionally low in South America and the Caribbean rising above 10 % only in Antigua and Barbuda (16.14 %) and Barbados (11.55 %). In six countries, they hovered around 3 % or lower. They were a lot better for men ranging from 4.49 % for Saint Lucia to 60.19 % for Antigua and Barbuda. The next three highest were Barbados (28.96 %), Guyana (18.52 %), and Panama (11.77 %). Similarly, the percentage of female enrollments in engineering, manufacturing, and construction programs lagged far behind those for men. Only in Columbia (13.71 %) did it register higher than 10 %; in four countries, it was less than 5 %. For men, enrollments in these fields surpassed 20 % in eight countries, led by Aruba (37.61 %), Curacao (34.96 %), Colombia (33.15 %), and Chile (30.99 %).

The enrollment percentages for both women and men in the four countries of Oceania for which data was available underscore the patterns in other world regions. In the humanities and arts programs, women enjoyed higher enrollment ratios than men, while they lagged slightly behind men in the social sciences, business, and law. In education, the enrollment ratios were much higher for women than men, as were enrollments in the sciences for men compared to women. The gap between the two were even greater in engineering, manufacturing, and construction programs in favor of men, as were the proportions in health and welfare programs for women over men.

Gender was not the only social variable in which disparities in higher education were visible, structured, and reproduced. Race played a sig-

nificant role in multiracial societies, although globally comparative data is unavailable because of the different configurations of racial identities and formations in various parts of the world. In many countries, ethnic, religious, and other cultural differences were more salient. But even where racial differences were pervasive in structuring opportunities for higher education, reliable data is hard to come if it is not officially collected, as is the case in France. Trends in the few countries where such data is available is quite instructive about the powerful role race has played historically and continues to play in engendering and reproducing persistent inequalities in higher education. This is certainly the case in the USA, South Africa, and Brazil, which are briefly examined in this chapter.

In the USA, race has always been central to all facets of the country's social, economic, political, and cultural life. Education at all levels has been no exception. Throughout its history, race often intersected with other social forces especially class, gender, and location and conditioned the patterns of access, structures of opportunity, forms of inequality, and the trajectory of outcomes in American higher education. After World War II and especially following the Civil Rights movements of the 1960s and 1970s, higher education enrollments increased for every racial and ethnic group in the USA.

In fact, as shown in Table 1.12, enrollments increased faster for the racial minority groups than for the white majority. The share of whites in total enrollments dropped from 82.61 % in 1976 to 77.59 % in 1990 to 60.52 % in 2010 and to 56.88 % in 2013, while the enrollments of the minority populations rose. During the same years, it increased for Blacks from 9.40 % to 9.02 % to 14.46 % to 14.10 %; for Hispanics, from 3.49 % to 5.66 % to 13.08 % to 15.17 %; for Asians and Pacific Islanders, from 1.80 % to 4.14 % to 6.10 % to 6.18 %; for American Indians, from 0.69 % to 0.74 % to 0.93 % to 0.80 %; and for those with more than one race (who were included in the US Census from 2000), from 1.55 % in 2010 to 2.76 % in 2013. These shifts were largely commensurate with changes in the composition of the US population presented in the table.

A more revealing exposition in the persistent inequalities in higher education access is evident when we examine other factors. According to a 2010 report by the US Department of Education, *Status and Trends in the Education of Racial and Ethnic Groups*, the immediate transition rate to college, which refers to those who completed high school in a given year and enrolled in college, remained much higher for whites than for Blacks and Hispanics. In 2008, the rates were 71.7 % for whites, 55.7 %

Table 1.12 Enrollments by Race in the USA, 1976–2013

	Fall Enrollment in Thousands						*Percentage distribution of US residents*					
Year	1976	1980	1990	2000	2010	2013	1976	1980	1990	2000	2100	2013
Total	10,985.6	12,086.8	13,818.6	15,312.3	21,019.4	20,375.8	100.0	100.0	100.0	100.0	100.0	100.0
White	9076.1	9833.0	10,722.5	10,462.1	12,720.8	11,590.7	84.3	83.5	79.9	70.8	62.6	59.3
Black	1033.0	1106.8	1247.0	1730.3	3039.0	2872.1	9.6	9.4	9.3	11.7	15.0	14.7
Hispanic	383.8	471.7	782.4	1461.8	2748.8	3091.1	3.6	4.0	5.8	9.9	13.5	15.8
Asian/Pacific	197.9	286.4	572.4	978.2	1281.6	1259.6	1.8	2.4	4.3	6.6	6.3	6.4
American Indian	76.1	83.9	102.8	151.2	196.2	162.6	0.7	0.7	0.8	1.0	1.0	0.8
Two or more races	–	–	–	–	325.4	559.4	–	–	–	–	1.6	2.9
Non-resident alien	218.7	305.0	391.5	528.7	707.7	840.3	–	–	–	–	–	–

Source: Institute of Education Sciences, National Center for Education Statistics, Digest of Education Statistics, 2014 Tables and Figures. Available at https://nces.ed.gov/programs/digest/d14/tables/dt14_306.10.asp?current=yes Accessed October 16, 2015

for Blacks, and 63.9 % for Hispanics, up from 49.8 %, 42.7 %, and 52.3 % in 1980, respectively (Aud et al. 2010).

The college participation rate for 18–24-year-olds also underscored the persistent racial inequalities. Despite increasing for all racial and ethnic groups, disparities endured. The overall participation rate increased from 26.1 % in 1980 to 32.1 % in 1990 to 35.5 % in 2000 to 39.6 % in 2008. For whites, it rose from 27.7 % to 35.1 % to 38.7 % to 44.2 %; for Blacks, from 19.25 % to 30.5 % to 32.1 %; and for Hispanics, from 16.3 % to 15.9 % to 21.7 % to 25.0 % during the same period. For Asian and Pacific Islanders, it changed from 56.9 % in 1990 to 55.9 % in 2000 to 57.6 % in 2008; and for American Indian and Alaskan Natives, from 15.8 % to 15.9 % to 21.9 % for the same years.

There were also divergences in terms of the types of institutions attended. In 2008, 73.4 % of students went to public institutions, 35.4 % of them to two-year institutions, 18.7 % to private not-for-profit institutions, and 7.8 % to private for-profit institutions. Hispanics and American Indians and Alaskan Natives attended public institutions at higher rates, 80.6 % and 79.2 %, respectively, than Asian and Pacific Islanders (75.4 %), whites (72.9 %), and Blacks (68.1 %). A higher proportion of Hispanics (49.4 %) and American Indians and Alaskan Natives (41.6 %) also enrolled in two-year institutions than Blacks (36.1 %), Asian and Pacific Islanders (35.7 %), and whites (32.6 %). In contrast, whites (20.8 %), Asian and Pacific Islanders (18.2 %), and Blacks (16.7 %) led American Indians and Alaskan Natives (12.5 %) and Hispanics (10.9 %) in attendance at private institutions. For their part, the predatory for-profit institutions disproportionately targeted Blacks (15.2 %), Hispanics (8.4 %), and American Indians and Alaskan Natives (8.3 %) compared to Asian and Pacific Islanders (6.4 %) and whites (6.3 %).

Data on graduate enrollments, financial aid, fields of study, and educational outcomes demonstrate continued inequalities in US higher education. Table 1.13 shows persistent inequalities in levels of educational attainment for the various groups despite overall improvements nationally and for each group. In 2008, the proportion of Blacks and Hispanics holding bachelor's degrees was less than half that of whites, and lagged behind the latter in the attainment of master's and doctorate or first-professional degrees.

In terms of employment, an important outcome of education, the unemployment rate for persons ages 25 and older with at least a bachelor's degree was 1.9 % for whites, 3.4 % for Blacks, 3.0 % for Hispanics, w2.5 % for Asian and Pacific Islanders, and 5.3 % for American Indians and

Table 1.13 Educational Attainment of adults ages 25 and over, Percentage Distribution, 1996–2008

Degree	*Racial/Ethnic Group*											
	Total		*White*		*Black*		*Hispanic*		*Asian/Pacific Islander*		*American Indian/ Alaskan Native*	
	Year											
	1996	*2008*	*1996*	*2008*	*1996*	*2008*	*1996*	*2008*	*1996*	*2008*	*1996*	*2008*
Bachelor's	23.6	29.4	25.9	32.6	10.1	13.6	9.3	13.3	42.3	51.9	11.2	14.9
Master's	5.4	7.5	6.0	8.4	2.9	4.9	1.8	2.9	9.2	14.0	3.7	3.6
Doctorate or first professional	2.4	2.8	2.7	3.1	0.8	1.3	0.9	1.0	5.3	6.4	1.6	1.4

Alaskan Natives. Also pronounced were differences in median incomes. The median income of Black and Hispanic males was 23.08 % lower than that of White males with similar qualifications; for females, who collectively had lower median income than males, the gaps were smaller, but existed nonetheless. Black and Hispanic female median incomes were 8.70 % and 13.04 % less than for White women, respectively.

Similar racial inequalities can be seen in South Africa, another country with a troubled racial history. As in the USA, enrollments grew for all racial groups, especially following the demise of apartheid in 1994. According to a report by the country's Council for Higher Education (CHE), while the proportion of African students in the public higher education institutions increased from 49 % in 1995 to 65 % in 2009, it still fell short by 14 % of the proportion of Africans in the country's population. Also underrepresented was the Colored population (Council of Higher Education 2009). Despite continued enrollment growth in subsequent years, disparities persisted. To quote CHE's 2013 report,

> Overall the student enrolments increased by 23 % from 2008 to 2013. The African student compliment in particular increased by 34 % from 515 058 in 2008 to 689 503 in 2013.African enrollments increased from 64 % of all enrolments in 2008 to 70 % in 2013. The African representation in the South African population was 80 % in 2013, which is shows there is basically a 10 % proportional difference between the country's population and the higher education participation of Africans.

The imbalances were even greater at the graduate than the undergraduate level. In 2009, Africans accounted for 47 % of masters and doctoral students, compared to 37 % for whites, 9 % for Indians, and 6 % for Coloreds. The overall participation rates are outlined in Table 1.14, which shows clearly that in 2013, the rate for whites was nearly 3.5 times that for Africans, and for Indians three times as much. Coloreds lagged behind every group at 15 %.

Also discrepant was the distribution according to mode of instructional delivery. In 2013, Africans constituted 73 % of participants in distance education, up from 63 % in 2008, compared to 5 % for whites in both years. In contrast, Africans comprised 62 % of contact education in 2008, rising to 68 % in 2013, while the figure for whites declined from 24 % to 19 % during the same period.[3] The racial distribution of enrollment according to institutional type is depicted in Table 1.15. It shows that the largest concentration of Africans attended the distance education

Table 1.14 Enrollment by Race in South Africa, 2004–2013

	Enrollment Numbers					*Participation Rate By Race*					
Year	2004	2008	2010	2012	2013	2008	2009	2010	2011	2012	2013
Total	744,489	799,490	892,943	953,373	983,698	17	17	18	17	19	20
African	453,640	515,058	595,963	662,123	689,503	13	13	14	14	16	16
Colored	46,090	51,647	58,219	58,692	61,034	14	14	15	14	14	15
Indian	54,315	52,401	54,537	52,296	53,787	45	45	46	47	47	49
White	188,687	178,140	178,346	172,654	171,927	56	58	57	47	55	55
Unknown	–	2244	5858	7608	7447						

Source: The Council on Higher Education, *Vital Statistics, Public Higher Education 2013*, p.3–5

Table 1.15 Percentage Distribution of Enrollment by Race and Institutional Type, 2008–2013

Institutional Type	*2000*				*2013*			
	Africans	*Whites*	*Coloreds*	*Indians*	*Africans*	*Whites*	*Coloreds*	*Indians*
Universities of Technology	21.30	7.88	22.08	9.49	19.34	5.83	18.19	8.34
Comprehensive	17.47	9.00	8.4	5.81	15.49	7.30	8.61	4.93
Traditional	28.69	51.52	39.90	41.37	28.39	53.56	41.90	41.32
UNISA	32.54	31.60	29.59	43.32	38.78	33.30	31.30	45.37

Source: Extracted from The Council on Higher Education, *Vital Statistics, Public Higher Education 2013*, p.33

institution, University of South Africa (UNISA). The percentage actually increased from 32.54 % in 2008 to 38.78 % in 2013. For whites, the largest ratio went to traditional universities in both 2008 and 2013, the same as for Coloreds and Indians, although the proportions varied.

In terms of course success rates, although they improved from 68 % to 71 % between 2008 and 2013 for Africans, they still lagged behind those of whites that rose from 80 % to 82 %. In 2013, among whites, the largest percentage, 34.43 %, were enrolled in science, engineering, and technology programs, followed by business and commerce (26.74 %), the humanities (25.79 %), and education (13.05 %), while among Africans, business and commerce (28.33 %) led, then came science, engineering, and technology (27.38 %), humanities (24.86 %), and education (24.86 %).

Unlike apartheid South Africa and the USA with their openly racist ideologies, from the 1920s, Brazil constructed an official ideology of racial equality, the notion that it was a lusotropical paradise of "racial democracy," a country blissfully free of racism and discrimination against people of African descent and other non-whites. The reality of course was that racial inequality and prejudice were as rampant as anywhere in the Americas. Research has conclusively demonstrated the social, spatial, class, and gender marginalizations of Afro-Brazilians throughout the course of the twentieth century, regardless of changes in political regimes, economic structures, or social dynamics (Twine 1997; Marx 1998; Bailey 2009).

Higher education was not immune from the endemic racial inequalities of Brazilian society. The rates of college enrollment and completion remained quite low for Afro-Brazilians. According to the 1991 census,

Euro-Brazilians completed high school and college at a rate three times higher than that of Afro-Brazilians (Lovell 2000: 282). The Brazilian higher education system experienced rapid expansion, mostly fueled by the establishment of private institutions. It doubled in size in the 1990s from 1.5 million to 3 million; 70 % of the students were enrolled in private institutions. Despite this expansion, little changed in the social composition of the country's higher education (Schwartzman 2004). Access in both free public and tuition-charging private institutions remained largely confined to the Euro-Brazilian elite and Afro-Brazilian representation remained limited. Enrollment in the public universities was regulated by a highly competitive entrance examination, known as the vestibular, in which those who attended private school and could afford the preparatory pre-vestibular course, tended to do best. In the meantime, low-income groups could not afford tuition fees at the less prestigious but expensive private institutions.

Several initiatives were introduced in the early 2000s to improve access for Afro-Brazilians and low-income groups. For the private higher education sector, new loan schemes were established in 1999. In 2004, the number of loans offered increased to 50,000, up from 35,000 previously. However, demand far outstripped the resources of the available loans. In 2004, a new program was launched that required non-profit institutions to allocate 20 % and for-profit institutions 10 % of their places to low-income students in exchange for tax exemptions. This was designed to both expand access and maximize the institutions' capacity utilization. But the equity goals of the initiative became subservient to the financial interests of the private institutions and served to fuel their further expansion (McCowan 2004: 587–590).

For the more prestigious public sector, some higher education institutions on their own introduced admission quotas before this became official government policy. It was the Black movement that forced the adoption of affirmative action policies. Black activists adeptly took advantage of the 2001 United Nations World Conference on Racism held in Durban, South Africa to push their agenda. Keen to avoid international embarrassment, the Brazilian government became more receptive to reform (Htun 2004). The University of Rio de Janeiro was the first to adopt quotas, by reserving 40 % of its admissions for Afro-Brazilians and another 10 % for students from public schools. The initiative soon spread to other public institutions including the University of Brasilia, which in 2004 reserved 20 % for Afro-Brazilians.

In 2010, 45,000 students, representing 11 % of students in public higher education, were beneficiaries of affirmative action, numbers that were projected to rise following the passage of a new affirmative law in 2012. The 2000 census showed that Afro-Brazilians constituted 46.5 % of the country's population, but comprised less than 20 % of the total student population. In the 2010 census, the proportion of Afro-Brazilians in the total population had surpassed half. The affirmative action law passed in 2012, called the Law of Social Quotas, sought to address the historic legacies of racial discrimination in Brazilian higher education. It required public universities to set aside half of their admissions for Afro-Brazilians and students from public schools. The universities were expected to assign admissions according to the racial makeup in each of the 26 states.

By 2013, "a majority of Brazil's federal and state universities, which are attended by about 80 percent of Brazilian students in public higher education, [had] some kind of quota system, while less than one-third of the remaining institutions (municipal universities, isolated public college-level courses, and technical schools) [did]" (Telles and Paixão 2013: 10). The affirmative action debate and legislation had the effect of encouraging the growth of Black identity as racial awareness increased and the material benefits of identification as Afro-Brazilian rose (Francis and Tannuri-Pianto 2012). The policy attracted both vociferous national support and opposition, and triggered a "culture war" among rival groups of academics. It also garnered international attention including in the USA where affirmative action was under fire (Romero 2012). Also, the university entry requirements were changed as the vestibular examination was replaced by selection by results in the National Examination of Secondary Education. Schwartzman and Paiva (2014: 17) maintain that, "Although public debates about affirmative action in Brazil were originally framed as racial quotas, there is now a predominance of affirmative action as 'social inclusion,' with race often being subsumed within class-based categories of deservedness."

If color was the face of discrimination in the USA, South Africa, and Brazil, in India, it was caste. Hasan and Nussbaum (2012) seek to capture the commonality of the discriminatory experiences in three of these countries, namely, the USA, South Africa, and India. Discrimination based on caste in India goes back centuries, and endured into the modern period. It permeated all aspects of social, cultural, political, and economic life. The new Independence Constitution adopted in 1950 guaranteed equal rights to all Indians and the government sought to curtail some of the worst

aspects of the caste system by instituting a quota system that reserved more than one-fifth of places in higher education institutions for students from what referred to as the Scheduled Castes (SCs), the Scheduled Tribes (STs), religious minorities, and women. In 2011, the SCs numbered 200 million and STs 96 million (Neelakantan 2011).

Despite its good intentions, many critics maintained, the policy failed to bridge the gap between policy and practice in overcoming the enduring divisions of caste, class, religion, region, and gender. By 1988, "a total of 279,720 Scheduled Caste and 69,189 of Scheduled Tribe students had enrolled in higher education constituting 7.3 and 1.8 percent of total enrolment respectively" (Chanana 1993: 80). While this represented an increase from ten years earlier, the participation of these students in the most prestigious and lucrative fields such as medicine, engineering, education, and research remained appallingly low. Instead they were concentrated in "the softer non-professional subjects." By 2011–2012, enrollment for the SCs had increased to 12 % and for the STs to 4.5 %. The progress and challenges facing the SCs and STs are captured in Table 1.16. It can be seen that between 1983–1984 and 2009–2010, the SCs and STs significantly increased their enrollment ratios from 3.7 % to 14.8 % and 2.4 % to 11.8 %, respectively, but they still lagged behind the general population.

Table 1.16 Progress in Enrollment Ratios in Indian Higher Education by Caste

	Scheduled Castes	*Scheduled Tribes*	*Other Backward Castes*[a]	*Non-SC/T*
Gross Enrollment Ratio				
1983–1984	3.7	2.4	–	9.0
1987–1988	4.0	3.0	–	10.2
1993–1994	3.8	3.4	–	10.6
1999–2000	5.1	6.4	7.0	11.9
2004–2005	7.9	7.3	10.1	14.6
2009–2010	14.8	11.8	22.1	–
Eligible Enrollment Ratio	51.2	61.5	50.1	53.9
Transition Ratio 2009–10	13.88	21.6	20.17	18.54[b]

Source: from Jandhyala Tilak's (2015: 199) [a]Other backward castes [b]Others

The persistence of caste marginalization was amply borne out in research on the most marginalized caste, the Dalits, once disparagingly referred to as the "untouchables." They comprised 15 % of the population. The implementation of the policy was not always as robust as many Dalits would have wished. This was evident in the inadequacy of scholarship schemes and the high failure and dropout rates of Dalit students. Research on the lived experiences of Dalit students showed that they continued to face prejudices in the higher education system from recruitment to their treatment on Indian campuses in the context of persistent, and mutating, forms of caste and class hegemonies. They were routinely harassed, bullied, and even physically assaulted by their non-Dalit high-caste peers and teachers. "In the most egregious cases," Shailaja Neelakantan (2011) reported, "Dalit students and their supporters say, upper-caste students beat up Dalits for no given reason; professors ignore questions from Dalit students in class; upper-caste students, with the complicity of professors, ostracize their Dalit peers or force them out of university housing; and professors compel students to reveal their caste publicly, and then give Dalits lower grades." This drove some Dalit students, in the most gruesome cases, to suicide; there were at least 18 Dalit student suicides in the four years leading to 2011.

As in the USA, by the 2010s, many non-Dalit students, faculty, and administrators felt affirmative action policy had outlived its justification, and they articulated their prejudices through a meritocratic discourse in which affirmative action was equated to preferential treatment for the unqualified. The intersectionality of caste, class, and gender was particularly debilitating for Dalit female students. Dalit students responded to the practices of exclusion and inclusion in university life in different ways filtered through the prism of growing class differentiation within the Dalit community itself engendered by higher education, as well as by regional and linguistic differences. This shows that despite all its limitations, the quota system succeeded in producing a layer of middle-class Dalits (Ovichegan 2015).

In India, Brazil, and South Africa, the racial and caste inequalities in access to higher education overlapped with spatial disparities. To quote Tilak (2015: 203) on India,

> There are wide inequalities between different states in India in higher education in terms of number of universities and colleges, infrastructure in those institutions, student enrolment and even public expenditure. The gross enrolment ratio in higher education varies among major states between less than or

around 10 per cent in Jharkhand and Chhattisgarh on the one side and above or around 40 per cent in Chandigarh and Tamil Nadu on the other side.

Within each state, there were also wide disparities between rural and urban areas. The enrollment ratio in the urban areas in 2009–2010 was 2.3 times higher than the rural rate, which had narrowed from 4.5 times higher in 1983.

In Brazil, the unequal spatial distribution of educational opportunities was also quite pronounced. It followed the historic patterns of uneven region development. There were far more higher education institutions in the predominantly white and industrial regions of the Southeast including São Paulo than in the less developed and Northeast dominated by Afro-Brazilians. In 2008, the share of enrollments in the Southeast was 49.4 % (down from 50.2 % in 2002), followed by the South (17.5 % down from 19.5 %), the Northeast (18.0 % up from 15.6 %), the Midwest (8.8 % down from 9.3 %), and the North (6.4 % up from 5.5 % in 2002). Thus, the Northeast claimed 50.2 % of total enrollments, followed by the South with 19.5 %. The Northeast and North enjoyed higher growth rates in enrollments (68.2 % and 70.0 %, respectively), compared to the Southeast and South (70.0 % and 30.9 %, respectively), but the dominance of the later regions remained overwhelming (Lima 2011).

Similarly, in South Africa, the persistence of regional, rural–urban, and urban disparities proved enduring. It was a product of decades of uneven regional development and distribution of resources, infrastructure, and opportunities spawned by segregation and apartheid. Apartheid fundamentally represented the intertwined institutionalization of racial and spatial divisions and disparities of economic opportunities and political power. Historical regional differences in the development and access to higher education were evident in the USA as well, and persisted into the twenty-first century. Geographical inequalities were of course much more widespread than these examples suggest. Indeed, around the world, spatial barriers were as ubiquitous as class disparities. A few examples drawn from countries in Africa, Europe, North America, and Asia will suffice.

In Nigeria, the educational imbalance between the North and the South rooted in British colonial policies became highly politicized and a source of ethnic tensions in the post-independence period as it skewed the distribution of business and employment opportunities. Successive governments intervened by establishing federal universities in each state and introduced admission quotas to these institutions. While the regional

educational disparities remained, Ukoha Ukiwo (2007: 280) argues, the proliferation of higher education institutions simultaneously "promoted sub-national consciousness and mobilization" and reduced horizontal inequalities "through the creation of an autonomous realm for each group to operate," thereby "averting the provocative situation of 'native foreigners' dominating the bureaucracy of some regions… that could potentially trigger violent group mobilization."

Writing about the spatial structure of higher education in the Balkans, Horváth Gyula (2011: 23) observes that it "is characterized by the dominance of the capital cities. More than 50 percent of students are concentrated in the largest cities—two thirds in Albania and Macedonia…. The concentration of higher education is twice or three times as high as the proportion of the national population living in the capital." Such large spatial disparities undermined the development of vibrant national educational and research systems for economic transformation. Further north in Sweden, from the 1960s, the government sought to use the higher education institutions as an instrument of regional policy but the universities were lukewarm. This altered "with changes in Swedish higher education legislation and financing during the 1990s," which "increased the incentives for and pressures on HEIs to become more actively involved in their regions and in the processes of regional governance." A key mechanism was the establishment in 1998 of regional growth partnerships that brought together universities and "various regional stakeholders to participate in forming sustainable growth strategies" (Hudson 2006: 387).

In Canada, higher education developed quite unevenly between and within the country's ten provinces in the period after 1945 as recorded in the collection by Glen Jones (1997). A study of British Columbia argued that barriers to participation remained due to the persistence of settler-colonial patterns of spatial stratification. The government created 15 college regions, as they were called, in an effort to promote the geographic dispersion of higher education and increased the number of public higher education institutions from 21 in 1988 to 25 in 2008. But the establishment of new universities was not accompanied by increased funding. Moreover, the 11 universities (the provincial higher education system also comprised 11 colleges and 3 institutes) were not only geographically concentrated but also located in regions

> with the lowest percentage of Aboriginal residents, a population already not well served by the higher education in Canada…. From a socioeco-

> nomic standpoint, the wealthier regions will likely continue to prosper with increased access to university-level education, while the less-wealthy regions will not likely benefit from the public and private resources allocated to these institutions (Metcalfe 2009: 215).

Regional disparities became a matter of concern in China as the unequal effects of the expansion of higher education for different regions and population groups became more evident. This was partly due to financial constraints in a context in which there were steep increases in tuition in the 1990s and 2000s, which were beyond the means of families in poorer regions. The decentralization of the education system meant higher education resources were not equally allocated, so that the impact of expansion was felt differently in different provinces. According to Li and Xing (2010: 13), "minorities, families from central-western regions, non-single-child families [benefited] less than their majority, eastern, and single-child counterparts." As a result of the government's concerted regional development policies to develop and improve higher education in the poor provinces in the country's least-developed Western region, "the inequality in the distribution of higher education opportunities across different provinces in China decreased," and the poor provinces "realized an increasing advantage over rich provinces with respect to the number of university places relative to GDP" (Bickenbach and Liu 2013: 296).

Demographic Destinies and Other Disruptions

Clearly, from World War II, higher education experienced astronomical expansion throughout the world as borne out by the explosion of institutions and massification of enrollments. However, in every region and country, higher education, like other socioeconomic sectors, continued to face challenges including those tied to inequalities in access and outcomes. The rest of this book will be examining the various structural changes and challenges that faced, are confronting, and are likely to confound higher education systems in different world regions in the future. It cannot be overstressed that the way the disruptive forces were, and are, manifested and navigated has varied and will continue to vary between countries and over time.

Building on many of the issues explored in this chapter, the rest of the book identifies and investigates several of the key developments that unfolded over the 70 years from 1945 to 2015, and accelerated at the turn of the twenty-first century. They included changing demographics, rapid

economic and occupational transformations, extraordinary advances in technology, intensification of globalization and internationalization, shifts in the processes of knowledge production and consumption, and escalating demands for access, affordability, accountability, and quality.

The explosive growth and demand for higher education after World War II and its trajectory in the twenty-first century cannot be divorced from the dynamics of population growth. Historians of higher education in the countries of the Global North commonly attribute the rapid expansion of higher education in the immediate postwar decades partly to the baby boom of the late 1940s and 1950s. Similarly, the population explosion in the Global South that continued well to the end of the twentieth century and for Africa into the early decades of the twenty-first century swelled demand for higher education. At the turn of the twenty-first century, in many of the developed countries, the demographic dividend of the baby boom generation was long gone, and concerns began to be expressed about an ageing population and the impact the new demographic trends would have on higher education. In the meantime, the bulging youth populations and unmet demand in many parts of the developing countries posed a different set of challenges.

The exponential growth of the world population between 1950 and 2100 is outlined in Table 1.17. One of the most crucial developments has been the shift in the regional distribution. In 1950, Europe and North America claimed 28.55 % of the world population; a figure which subsequently consistently declined, to 26.76 % in 1960, 24.04 % in 1970, 21.39 % in 1980, 19.10 % in 1990, 17.20 % in 2000, 15.16 % in 2010, and 14.91 % in 2015, and was projected to fall to 11.72 % in 2050 and 10.22 % in 2100. The fall in the European population was particularly marked. In 2015, Europe almost had the same population as it did in 1990, and based on current projections, in 2100, its population will be back to about the level it was in 1970.

The contrast with Asia and Africa cannot be starker. Asia almost doubled its population between 1950 and 1980, and it rose by a further 66.89 % between 1980 and 2015. Asia continuously increased its share of the world population till 2010, from 55.53 % in 1950 to 56.31 % in 1960, 58.04 % in 1970, 59.36 % in 1980, 60.18 % in 1990, 60.62 % in 2000, and peaked at 60.74 % in 2010. In 2015, the Asian proportion fell to 59.78 %, and it was projected to be 54.15 % in 2050 and 43.60 % in 2100. The primary reason for the forecasted decline in Asia's share is that Africa's percentage is expected to increase to 25.48 % in 2050 and 39.12 %

Table 1.17 Growth of World Population, 1950–2100

	1950	*1960*	*1970*	*1980*	*1990*	*2000*	*2010*	*2015*	*2050*	*2100*
World	2518.6	3021.5	3692.5	4434.6	5263.5	6070.5	6830.1	7349	9725	11,213
Africa	221.2	277.4	357.3	469.6	622.4	795.7	984.2	1186	2478	4387
Asia	1398.5	1701.3	2143.1	2632.3	3167.8	3679.7	4148.9	4393	5267	4889
Europe	547.4	604.4	655.9	692.4	721.6	728.0	719.7	738	707	646
Latin America and Caribbean	167.1	218.3	284.9	361.4	441.5	520.2	594.4	634	784	721
North America	171.6	204.2	231.9	256.1	283.5	315.9	348.1	358	433	500
Oceania	12.8	15.9	19.4	22.8	26.7	31.0	34.8	39	57	71

Source: United Nations (2004: 187); United Nations (2015: 1)

in 2100. This represents a remarkable historic development considering Africa had merely 8.78 % of the total world population in 1950, which rose to 9.18 % in 1960, 9.68 % in 1970, 10.59 % in 1980, 11.82 % in 1990, 13.11 % in 2000, 14.41 % in 2010, and stood at 16.14 % in 2015. In 2100, Europe's predicted population of 646 million will be just slightly higher than Africa's population in 1990; and its share of the world population (5.76 %) will be far lower than Africa's was in 1950.

The demographic changes have attracted rising attention from governments and researchers because of their profound implications on all aspects of the economy, politics, society, and culture. Higher education is no exception. An Organization for Economic Co-operation and Development (OECD) study noted, "While demographic issues have not featured prominently in debates on higher education in recent decades, ongoing demographic trends are giving rise to unprecedented concern." It went on to state, "Demography has become a subject of concern in a growing number of countries. The population of some OECD countries is rapidly ageing, especially in Japan, Korea and Southern and Eastern Europe" (Vincent-Lancrin 2008: 2).

In addition to absolute decline in the population of the OECD countries, the report observed that the population would continue to age rapidly leading to high dependence ratios. In 2005, the average dependence ratio in the OECD reached 26 %, and 36 % for the 15 original members of the EU. It was projected to rise to 42 % for the OECD as a whole and 54 % for the 15 EU countries. In 2008, the percentage of those aged 65 and over was already over 18 % in such countries as Germany, Greece, Italy, and Japan, and on average it was expected to increase for the OECD countries from 14 % in 2005 to 21 % in 2030. In the meantime, the traditional college-age population would fall on average by 9 % by 2025, and by more than 15 % in ten countries, namely, Austria, the Czech Republic, Germany, Greece, Hungary, Japan, Korea, Poland, the Slovak Republic, and Spain. It was believed the shrinkage of the youth population would affect enrollments in so far as 80 % of students in higher education were below the age of 25.

The exact trajectory can only be a matter of conjecture. One scenario posited enrollments would peak in 2015 and fall to 2005 level in 2020, and to 2 % less of the 2005 level in 2025. This would lead to the contraction of the higher education system in several countries. Another scenario suggested there would be continued enrollment growth so that the 2005 enrollment levels would increase by 13 % in 2020 and 14 % in

2025. The OECD report contended the second scenario was more likely than the first because, "First, the political will to pursue the expansion of higher education systems exists in most countries. … Furthermore, there is still significant potential for growth in participation rates in many countries. Finally, the demand for higher education will probably continue to increase" (Vincent-Lancrin 2008: 52). Only a few countries, such as Japan and Korea, had moved from "massification" to "universal" access in their enrollments ratios.

Whatever the likelihood of either scenario, the changing demographics in the OECD had funding implications for higher education. The ageing of the population affected public expenditures in part because of the relative electoral weights of the youth and the elderly. In many OECD countries, the elderly increasingly constituted a more powerful voting bloc than the youth, so that public expenditures became skewed in favor of health care and other services of interest to them at the expense of education that was of importance to the youth. Trends in higher education expenditures are examined in greater detail in the next chapter. The other side of the coin of demographic decline in the OECD countries was the rising percentage of graduates in the population aged 25–64. The proportion of graduates averaged 26 % in 2005, ranging from the highs of 46 % in Canada and 40 % in Japan to the lows of 12 % in Italy and 10 % in Turkey. Projections suggested that the OECD average would rise to 36 % in 2025, led by Japan (60 %) and Korea (57 %), while Turkey (11 %) and Portugal (17 %) would lag furthest behind.

Variations in demographic patterns existed both between and within countries. The USA offers a good case in this regard. Because of immigration, the US population grew faster and aged more slowly than in its OECD partners. In 2010, the country was home to 42.8 million immigrants (13.8 % of the country's total population), higher than any country in number and third in percentage terms behind Israel and Spain. Between 1960 and 2005, migrants contributed to 51 % of the growth in the US population, and were projected to account for 82 % of the increase from 2005 to 2050 (Pew Research Center 2014: 24). Yet, as far as higher education was concerned, population growth in the USA was regionally uneven.

Population growth was slowest in the Northeast and Midwest than in the South and the West, which threatened enrollments in the first two regions. As enrollment declines intensified in the 2010s, some warned, to use the title of one business media story, "Small U.S. Colleges Battle Death Spiral as Enrolment Drops." The story reported that some experts

were predicting that "as many as half of the more than 4000 universities and colleges in the U.S. may fail in the next 15 years" (McDonald 2014). A report by Lyken-Segosebe and Shepherd (2013: 1) mentioned that, "On average, five private 4-year non-profit colleges and universities have closed per year over the last ten years, with as many as 9 institutions closing in 2009." In addition, in 2010–2013, 37 institutions merged three times the number between 2006 and 2009.

Moody's Investor Service threw its considerable weight behind the alarm. In its annual tuition survey for fiscal 2013, it stated enrollment pressure combined with weakened pricing power was impeding "revenue growth for an increasing number of US colleges and universities," especially in the Northeast and Midwest (Moody's 2013a: 1). This was particularly true for small, tuition-dependent, and less selective institutions. Strategies to mitigate enrollment and tuition pressure included "increasing retention efforts, recruiting out of state students, and introducing online courses" (Moody's 2013b: 13). In its 2015 survey, Moody's (2014a) lamented, "US public and private colleges and universities expect the weakest net tuition revenue growth in a decade in fiscal 2015." The most affected "regional public universities and small private colleges, particularly those in the Northeast and Midwest, are increasingly unable to grow net tuition revenue at a rate higher than inflation." It predicted, "Smaller entering classes foreshadow continued revenue pressure. Universities project that enrollment will decline for 37 % of public and 45 % of private universities in fiscal 2015, with many indicating declines in their entering classes. This will lead to ongoing tuition revenue pressure over the next several years." In an unprecedented move, in 2009, Moody's gave a negative outlook for the entire US higher education sector, which was repeated for fiscal 2013, 2014, and 2015 (Moody's 2013a, 2013c, 2014b).

If the USA was feeling the demographic chills of enrollment decline, the situation in smaller economies became more worrisome. The impact of the demographic slump was particularly noticeable in the post-communist countries of Europe. Between 1995 and 2005, Poland experienced one of the most rapid demand-driven expansions of higher education in Europe. Unable to absorb the demand, the private sector mushroomed, so that by 2010, the country boasted the biggest private higher education system and the highest share and numbers of students in the private sector in Europe. Sharp demographic pressures threatened both the expansion and the inter-sector composition of higher education. It was projected the 19–24 age would decline by 43 % between 2007 and 2025, reducing the

number of students from 1.82 million in 2010 to 1.17 million in 2025. This would result in the decline of demand-driven and tuition-dependent private higher education. But there was a possible silver lining. "From a sector-blind perspective," Marek Kwiek (2013: 571) contends, "regardless of the future of the private sector institutions, under severe financial constraints the expansion of tuition-free vacancies in the public sector may contribute more to social justice."

Latvia was another former communist country that faced severe demographic challenges. The country's birth rate fell sharply from the 1990s and ageing accelerated. Zane Cunska (2010: 18) concluded somberly, "Enrolment will in the foreseeable future never be as high as it was in the early 2000s. By 2020 the number of students in higher education will decrease by 18-38 percent under the alternative scenarios. This implies that the current number of higher education institutions cannot be sustained." In Europe, the demographic plunge was of course not confined to the post-communist countries. It was particularly acute in Italy as well. "A reduction of the population entering tertiary education," one study advised, "is embedded in the contemporary and future Italian demographic prospects, but its effects can be mitigated through policies promoting higher numbers of native and foreigners enrolling in university" (Mencarini and Vignoli 2008).

The impact of demographic pressure became alarming in the two leading OECD countries in East Asia, Japan and Korea. After reaching a peak of 2.49 million in 1966, the number of 18-year-olds in Japan fluctuated downward and rose again to 2.05 million in 1992, before plunging into terminal decline. The size of the 18-year-old population had dropped to 1.8 million in 2014 and was projected to fall to below a million (990,000) by 2031. The fact that Japan had achieved "universal" access limited options for mobilizing residual youth demand. In the words of Harada Kazuyoshi (2015), "Roughly 40 % of private universities had fewer students than their capacities as of 2014, and from 2018 onward, national and public universities located in regional areas could also face financial difficulties. Universities are now working on ways to cope with this '2018 problem.'" Threatened with closure, some institutions opted for mergers; by 2012, ten national universities had merged. In its characteristic cheekiness, *The Economist* (2014) dubbed Japan "The Incredible shrinking country," and postulated "by 2110 the number of Japanese could fall to 42.9m, i.e. just a third of its current population. It is plausible to think that the country could learn to live with its shrinking population. But that

might mean also embracing a much diminished economic and political role in the world." In the meantime, it was reported in an essay written in 2012 that,

> South Korea's drop began in 2003. Education Minister Lee Ju-Ho said last year that higher education enrolment could decline by 40 % in the next 12 years. The college age population will peak this year at 690,000 falling to 420,000 by 2025. Within six years the number of high school graduates will fall below the university enrolment figure, according to Statistics Korea (Sharma 2012).

Surprisingly, it was reported China had also begun to feel the demographic winds and growing competition for students. There were predictions that the country's college-age cohort would decline from 137 million in 2010 to 109 million in 2020. Nevertheless, given its relatively low enrollment rates, China appeared likely to continue to be a giant of global higher education. Altbach (2009) predicted China would continue to reap the demographic dividend of relatively low enrollment rates. The other giant was India, destined to overtake China as the world's most populous country after 2022. India's population was projected to reach 1.5 billion in 2030 and 1.7 billion 2050 (United Nations 2015: 4). Not only would enrollments continue to be propelled by growing population but also rising participation rates. India's college-age cohort was likely to reach 139 million in 2020, and the "Asian Development Bank predicts that India, along with Pakistan, the Philippines and Malaysia, will reap a demographic dividend for at least two more decades" (Sharma 2012).

The demographic dividend was destined to be particularly large for Africa. It was anticipated that 28 African countries would see their populations more than double between 2015 and 2050. With a population of 398.51 million by that date, Nigeria would overtake the USA (388.9 million) as the world's third most populous country after India (1.71 billion) and China (1.35 billion). Three other African countries would be among the dozen most populated countries in the world, namely, the Democratic Republic of the Congo (195.28 million), Ethiopia (188.46 million), and Egypt (151.11 million). The rest would include Indonesia (322.24 million), Pakistan (309.64 million), Bangladesh (202.21 million), and the Philippines (148.26 million) in Asia, and Brazil (238.27 million) and Mexico (163.75 million) in South and North America, respectively.

In 2015, those aged under 15 accounted for 41 % of the total African population, and in the 14–24 age bracket, for a further 19 %. The percent-

ages of children were lower in Latin America and the Caribbean (26 % and 24 %, respectively), while those of the youth was more comparable to Africa's (17 % and 16 %, respectively). Altogether, these regions were "home to 1.7 billion children and 1.1 billion young persons in 2015" (United Nations 2015: 6). These billions of young people already born and the billions more to be born were sure to seek education at all levels. The challenge for these countries would be to not only build more institutions of higher education and increase their participation rates but also ensure the provision of quality education. Failing to do so would turn the potential demographic dividend into a Malthusian nightmare. It was in recognition of this daunting reality that "quality education" was included in the Sustainable Development Goals (SDGs) world leaders adopted at the United Nations (UN) in September 2015 that succeeded the Millennium Development Goals. Higher education was included in the SDGs. The objective was

> By 2020 [to] substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programs, in developed countries and other developing countries (United Nations 2015).

The demographic shifts were by no means the only major changes and challenges that emerged. In subsequent chapters, other transformations that occurred from 1945 will be examined including the disruptive forces that gathered momentum at the turn of the twenty-first century. One concerned the profound changes in the global political economy. Perhaps none was as consequential as the rise, role, and impact of neoliberal ideology, which provided part of the context for the privatization of higher education, and changes in funding models, occupational landscapes, and expectations of higher education. This is the subject of Chap. 2. The exponential growth of universities in the Global South reflected shifting economic power from the developed to the developing nations as manifested by the extraordinary rise of the BRICS. Rising demand for higher education was also a product of the intensification of global economic competitiveness, expansion of knowledge economies as evident in the emergence of new occupational fields such as the vast new industries spawned by information and communication technologies (ICTs). As the services sector became more significant in many parts of the world, the

need grew for working and middle classes to overcome deepening income and wealth disparities through the acquisition of skills and certifications provided by higher education.

Reinforcing these trends was neo-liberal ideology that dominated economic policy in developed and developing countries alike from the turn of the 1980s. Neo-liberal policies led to a conception of higher education as a private good rather than as a public good. As higher education institutions became less dependent on public funding, they sought to cultivate new revenue streams including raising student tuition, soliciting private donor support, and marketing institutional services. Rising costs posed challenges for access, affordability, and accountability. The result of declining public funding for higher education was the privatization of public institutions, and expansion of private institutions, including the emergence of the for-profit sector higher education system. But countervailing trends gradually became more evident as student struggles for free or cheap public higher education mounted in several countries around the world.

The changing higher education landscape was further reflected in the fact that in many parts of the world, tertiary institutions became increasingly corporatized in their management, values, and focus, often at the expense of their primary role as educational institutions. This was simultaneously propelled and accompanied by the consumerization of students as colleges and universities progressively came to treat students and students, in turn, expected to be treated more as consumers than learners, and as economic rather than educational outcomes assumed greater salience.

Another set of disruptive forces centered on the effects of advances in information technology (IT). The rapid developments in ICTs in the post-World War II world, which accelerated from the 1980s to 1990s, had a profoundly unsettling and transformative impact on virtually every sector. Higher education was no exception. The technological advances radically changed the processes of teaching and learning, research and scholarship, and intra- and inter-institutional collaborations. Currently, the digital revolution includes the use of lecture-capture technologies, flipped classrooms, hybrid courses, online courses, free or open education resources, and the use of big data to improve student learning and success. The hype in the first half of the 2010s over the introduction of Massive Open Online Courses (MOOCs) or online degree programs by highly prestigious universities captured widespread attention raising both hopes for distance education enabled by technology and concerns about the future of resi-

dential institutions. The patterns in which these developments unfolded varied among institutions within and across countries and world regions.

These changes were part of the transformations in the patterns, processes, and practices of knowledge production and consumption in different higher education institutional settings and world regions. One of the consequences of neoliberalism was the growing commoditization of knowledge. This was reflected in the increasing production, sponsorship, and dissemination of research by commercial enterprises and for-profit institutions or companies established by universities, the tendency to apply intellectual property rights and copyright to research and instructional materials, and the appropriation of academic journals and other scholarly outlets by for-profit multinational publishing conglomerates. Within universities, the age-old divisions between the humanities and sciences disciplines were increasingly overshadowed by competition from the vocational and professional fields.

Also, new disciplines and interdisciplinary configurations continued to emerge that challenged the supremacy and relevance of older disciplines and models of instruction and certification. For example, in some countries, competency-based education began to attract much attention as a possible bridge in the tensions between academic education, occupational skills, and the needs of non-traditional students. Also, this was reflected in "vocational creep" for tradition universities at the same time as there was "academic creep" for vocational institutions seeking prestige and higher rankings in the crowded academic market place. For its part, IT altered the processes of knowledge production, practices of scholarly communication, economics of publishing, and the role of libraries as repositories of scholarly information and librarians as information professionals. Technology and globalization facilitated as never before collaborative research across national boundaries as reflected in international co-authorship of research articles. For example, in 1988, only 8 % of the world's science and engineering articles had international co-authors; by 2009, this share had grown to 23 %. These issues will be explored in Chap. 3.

The other disruptive force that will be examined concerns the manifestations and consequences of the globalization of higher education. One visible indicator of this trend was the rapid growth of students' and faculty mobility. Between 2000 and 2009, for example, the number of foreign students worldwide grew by more than 75 % to reach 3.43 million, bringing billions of dollars to local economies. There was also the growing importance of global rankings that compared individual universities,

countries, and fields of study, which became a powerful feature of the competitive landscape for higher education within institutions and at the national and global levels, in the competition for talented students, top faculty, scarce resources, and reputational capital.

Moreover, new forms of international inter-institutional cooperation among universities emerged ranging from twinning arrangements to joint- or double-degree programs, franchised and validated programs, to the establishment of branch campuses and distance and online learning. Trends toward transnational research and scholarly collaborations intensified as well. More and more multinational corporations, international financial institutions, and transnational social networks became key players in the internationalization of higher education. These developments and global competition had contradictory effects on the differentiation and homogenization of universities across the world that will be explored at greater length in Chap. 4.

Finally, in Chap. 5, the book looks at how universities in different parts of the world dealt with increasing demands for accountability, access, and affordability. As the costs and competitiveness of higher education rose, demands for accountability from students, families, the general public, governments, and industry grew. Higher education represented a huge investment by governments, students and their families, all of whom expected high returns on their investments. Massification and the proliferation of private universities also fueled concerns about the quality of higher education. It was no longer enough for colleges and universities to focus on and brag about inputs such as the quality of incoming students and faculty. Now they were increasingly expected to demonstrate value through outputs, including retention and graduation rates, placement rates, and even the debt ratios and incomes of their graduates.

Besides efforts to strengthen national regulatory and accreditation processes for quality control, there was also the rise of regional and international public and commercialized accrediting agencies and quality control mechanisms. The proliferation of constituencies for higher education in terms of the diversity of institutional goals, composition of students, range of programs, and competitive pressures made it both imperative and more challenging for universities to articulate their value proposition.

Conclusion

In this chapter, we have examined the unprecedented expansion of higher education institutions, enrollments, and the changing patterns of inequality and demographic pressures facing the sector. In many countries in

Africa, Asia, and South America, the growth of higher education was increasingly driven by the demographic upsurge of the youth population, while in North America and Europe, falling youth populations reinforced pressures for importing international students, and attracting older students, part-time students, and other types of students. Almost everywhere, the social base and composition of higher education changed dramatically as participation levels for women and other historically underrepresented groups continued to expand rapidly.

But class, gender, racial, ethnic, and spatial and other forms of inequality persisted as demonstrated in the case of the USA, South Africa, Brazil, India, and several others. Higher educational institutions were increasingly challenged to develop new and robust systems of support for the changing student demographics in terms of student aid, ancillary services, curricula content, faculty and staff diversity. These developments demanded universities to become more nimble in managing divergent student levels of preparedness, expectations, and outcomes. The changes raised profound questions about the roles and purposes of higher education, the dynamics of social and institutional inequalities in higher education within institutions, national systems, and among countries.

By 2015, the celebratory rhetoric that greeted the expansion of higher education around the world after World War II, in some countries marking the introduction of higher education institutions for the first time, had long gone replaced by the discourse of "crisis." This discourse even swept countries with large and, on a global level, highly developed and relatively well-financed higher education systems like the USA. Publications on the higher education "crisis" became a staple feature of the popular US media as college costs rose exponentially and returns on investment seemed to diminish. Major magazines and newspapers published lead stories seriously questioning the value proposition of college education.[4] Books lamenting the higher education "crisis" became best sellers, such as those by Richard Arum and Josipa Roksa's (2011) *Academically Adrift*: *Limited Learning on College Campuses* that indignantly questioned the superficial and insufficient learning in contemporary US higher education, and William Deresiewicz' (2014) *Excellent Sheep*: *The Miseducation of the American Elite*, which offers a searing indictment of even the prestigious Ivy League schools.

It is not far-fetched to argue that the impact of these developments and disruptive forces in the political economy of global higher education that erupted in often complex, contradictory, and uneven ways within and between countries led to the unbundling of the higher education systems created in the immediate aftermath of World War II. Particularly critical

were the intensification of demographic and social pressures, the processes of globalization and privatization, and the proliferation of new ITs, all which transformed higher education institutions in terms of their purpose, budgeting models, institutional roles, and instructional practices. Universities in particular rapidly lost their monopoly over higher education, research, and credentialing with the emergence of new entrepreneurial providers and research institutions sponsored by governments, businesses, non-governmental organizations (NGOs), and other agencies.

Also, many functional activities that were previously integrated became increasingly disaggregated and even outsourced. Faculty roles were unbundled with the professionalization of some of their functions and the transformative impact of technology as well as through the changing composition of the professoriate and rising academic mobility. In addition to traditional emphases on inputs, universities came under growing public pressure to demonstrate outputs. The educational and economic outcomes of higher education were also increasingly positioned in conflict. These issues will be examined in global comparative perspective and broached for more in-depth analysis in subsequent chapters in the book.

Notes

1. The data in this chapter is drawn from the International Association of Universities' Worldwide Database of Higher Education Institutions (http://www.whed.net/home.php). I went through every country and every institution (more than 18,800!) noting the dates when the institutions were established and their status as private or public institutions. The data only includes degree-granting institutions and public and non-profit private institutions. Excluded are for-profit institutions and tertiary institutions that grant tertiary qualifications below a degree. In this sense, it is not a comprehensive list of higher education institutions, but it is the only source of comparable data of universities and degree-granting institutions worldwide. The data is based on contemporary nation-states; it lists China, China-Taiwan, China-Macau, and China-Hong Kong separately; and for some universities, such as Oxford and Cambridge, the different constituent colleges are also listed separately.
2. The explosive growth of African higher education can be seen in the shifting quantity, quality, and tone of the higher education literature. This is evident in comparing the earlier studies, such as those by Ashby (1966), Ngara (1994), Ajayi et al. (1996), and the voluminous studies from the 2000s such as Teffera and Altbach (2003), Zeleza and Olukoshi (2004a,

2004b), Wiseman and Wolhuter (2013), and International Association of Universities (2013).

3. The Council on Higher Education, *Vital Statistics*, *Public Higher Education* 2013, p.9.
4. Examples include *Newsweek* ("Is College a Lousy Investment," September 3, 2012), *The Economist* ("Creative Destruction: Reinventing the University," June 28-July 4 2014) and *The Atlantic* ("Is College Doomed," September 2014). Similar stories appear regularly in the popular media and among leading columnists in such influential newspapers as *The New York Times*, *The Washington Post*, and *The Wall Street Journal*.

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CHAPTER 2

Money Matters: Economic and Occupational Disruptions

Introduction

The explosion of higher education institutions examined in the last chapter was accompanied by drastic changes in their institutional mix. In 1945, in much of the world, higher education was dominated by public institutions in both numbers and enrollments. This changed dramatically over the next few decades as private institutions grew exponentially. The profound changes in the institutional architecture of higher education reflected the confluence of several disruptive forces in the wider political economy. One was escalating student demand that overwhelmed the supply capacities of public institutions. The other was the growing incapacity or unwillingness of the state to support public higher education arising out of financial constraints and the ideological imperatives of neo-liberal austerity. Yet another factor was the rapidly changing economic and occupational landscapes arising out of unprecedented and unpredictable structural changes, which strained the capabilities of lumbering public higher education institutions to respond to the ever-changing demands of the labor market.

Private higher education institutions mushroomed to fill the gaps opened up by these pressures and changing contexts. The process of privatization itself became increasingly disaggregated into three broad categories: expansion of private non-profit institutions, the creeping privatization of public institutions, and the emergence of for-profit institutions. In

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reality, the boundaries between the three models of higher education institutions were rather porous. Public institutions adopted the cost-sharing ethos and fee-dependency of private institutions, and private institutions including the for-profit ones sought access to public subsidies especially in the form of student loans. For example, in the USA, the paragon of privatization, the for-profit sector was primarily reliant on federal student loans. For their part, non-profit higher education institutions were increasingly forced to diversify their revenue sources through fundraising and direct and indirect investments in financial markets.

Also, ever more interchangeable, despite rising institutional differentiation, were the purposes of higher education in which credentialism led to "academic creep" for vocationally oriented institutions and "vocational creep" for their academically oriented counterparts. The growing premium placed on academic degrees and occupational skills reflected changing economic structures and occupational opportunities, and the fluctuating needs and competitive demands of the job market. This gave rise to both deflation and inflation of higher education provision: deflation in terms of the expansion of specialized and nimble institutions focused largely on professional fields with high, and shifting, labor market demand; and inflation among conventional universities keen to attract students by increasing their job-related course offerings. Credentialism accompanied by the spread of cost-sharing in which parents and students bore a rising share of the cost of higher education bred a culture of consumerism in higher education institutions, whether elite or mass, public or private, which had profound implications for teaching and learning and student expectations.

In the context of intensifying inter-institutional competition at national and international levels, the consumerization of students contributed to rising instructional costs per student especially for the more conventional and comprehensive universities. In many developed and the major developing countries, student demands for attractive accommodations and facilities, combined with accelerating costs of technology, and for institutional administration and regulatory compliance, and declining state subventions reinforced the financial pressures on both institutions and students and their families. Many institutions responded by trying to contain the costs of academic labor by cutting faculty positions and employing more part-time faculty, even as administrative staff expanded, which adversely affected the quality of instruction. These developments brought changes and struggles over higher education financing. Institutions scrambled to find new revenue streams, students fought for affordable education, and

governments strived to find an ideological balance between the demands of higher education as an intricately intertwined public and private good.

These issues are the focus of this chapter, which is divided into four parts. First, it explores the growing privatization of higher education and the growth of private higher education institutions both non-profit and for-profit. Second, the chapter examines the varied patterns in the spread of cost-sharing as an important feature of higher education financing. Third, the chapter looks at the manner in which changes in economic conditions and occupational structures affected the complex and contradictory interconnections between higher education and employment. Finally, the issue of contestations over higher education organized around the vexing questions of access, affordability, and accountability is analyzed in the context of the changing dynamics of student activism around the world.

Waves of Privatization

In 1944, the majority of the world's higher education institutions were public. In that year, there were 2267 public and 1436 private institutions, respectively. By 2015, the script had completely flipped, as there were far more private institutions (10,810) than public ones (8000). Table 2.1 shows the growth of private institutions from 1945 to 2015 in different world regions. Globally, the number of private institutions grew by 7.5 times, or by 652.79 %, representing an average annual growth rate of 9.19

Table 2.1 Growth of private universities as percentage of total number of universities, 1945–2015

Region	*Year*							
	1944	*1959*	*1969*	*1979*	*1989*	*1999*	*2009*	*2015*
World	38.78	38.82	40.60	41.04	44.93	51.34	55.63	57.47
Asia	43.26	41.65	46.19	45.68	50.28	43.39	56.00	56.70
Europe	7.98	8.39	9.21	9.01	11.07	25.90	31.41	33.47
North America	63.72	63.47	61.18	60.69	62.41	64.92	64.03	65.99
Latin America and Caribbean	40.82	48.31	56.13	62.47	66.20	73.82	79.33	79.64
Africa	22.58	25.00	20.59	19.05	25.11	43.24	58.56	59.27
Oceania	17.39	24.24	19.30	21.13	30.53	33.33	36.21	44.29

Source: Data Extracted from World Higher Education Database (WHED). Accessed October 15, 2015. http://www.whed.net/home.php

%. This was much faster than the growth rate for public institutions, which was 252.89 % in total, translating into an average annual growth rate of 3.56 %.

The percentage share of private higher education institutions between 1945 and 2015 is shown in Table 2.1. It can be seen worldwide the proportion of private institutions rose from 38.78 % in 1944 to 51.34 % in 1999, and reached 55.63 % in 2010 and 57.47 % in 2015. In 1944, the highest percentage of private institutions within regions was in North America (63.72 %), followed by Asia (43.26 %), Latin America and the Caribbean (40.82 %), Africa (22.58 %), Oceania (17.39 %), and Europe (7.98 %). North America lost its lead in the 1970s, when its percentage of private institutions dropped to 60.69 %, while in Latin America and the Caribbean, it rose to 62.47 %. The share in Africa also dropped to 19.05 %, the lowest ever during the entire period.

In the meantime, by 1979, the proportions in Asia had risen to 45.68 %. Oceania experienced a modest rise to 21.13 %, while Europe lagged behind, as only 9.01 % of its higher education institutions were private. Ten years later, more than half the institutions in Latin America and the Caribbean, North America, and Asia, in that order, were private. By 2009, Africa had joined these regions, as its proportion of private institutions increased to 58.56 %, and reached 59.27 % in 2015. In Latin America and the Caribbean, in 2015, the share of private institutions skyrocketed to 79.64 %, followed by North America (65.99 %) and Asia (56.70 %). In Europe, a third of the institutions were now private, a huge jump from as late as 1989, when they represented a mere 11.07 %, while in Oceania (44.29 %), they inched closer to half.

In quantitative terms, by 2015, the largest number of private institutions was, as shown in Table 2.2, in Asia (3459), followed by North America (2526), Latin America and the Caribbean (2437), Europe (1353), Africa (972), and Oceania (62). This represented a significant shift from 1944 when North America had nearly twice as many private institutions as the rest of the world combined. North America maintained its numerical lead until the 1980s, when it was overtaken by Asia. In 1989, Asia had 1862 private institutions, compared to 1594 in North America, 752 in Latin America and the Caribbean, 193 in Europe, and a mere 56 in Africa, and 15 in Oceania.

Clearly, the wave of privatization in Africa was a development that gathered momentum from the 1990s. The number of private institutions on the continent doubled every decade from the 1980s to the 2000s. Also remarkable was

Table 2.2 Growth of the number of private universities, 1945–2015

Region	*Year*							
	1944	*1959*	*1969*	*1979*	*1989*	*1999*	*2009*	*2015*
World	1436	2110	2814	3513	4607	7038	9410	10,810
Asia	340	758	1120	1336	1862	2533	3257	3459
Europe	101	131	165	193	258	840	1177	1353
North America	924	1065	1190	1377	1594	2002	2134	2526
Latin America and Caribbean	60	129	293	536	752	1286	1961	2437
Africa	7	19	35	56	112	339	838	972
Oceania	4	8	11	15	29	35	42	62

Source: Data Extracted from World Higher Education Database (WHED). Accessed October 15, 2015. http://www.whed.net/home.php

the upsurge in Europe, from 258 private institutions in 1989 to 840 in 1999 to 1177 in 2009. The most explosive growth was in Asia, where the number of private institutions almost doubled in the 20 years between 1989 and 2009. North America also registered notable expansion as the size of its private institution rose by nearly a 1000 between 1989 and 2015. The extensive data from the International Association of Universities' Worldwide Database of Higher Education Institutions offers a more detailed picture of the massive growth of non-profit private higher education institutions in many of the 180 countries covered. The data for Asia shows that eight countries did not yet have a private institution by 2015, while 37 did. Another 16 had less than ten, including eight that had five or less. Another eight maintained between a dozen and two dozen private institutions.

To appreciate the massive changes that had taken place in Asia, one only needs to compare figures for 1944, 1979, and 1999. In 1944, 32 countries did not have a private institution; the number of such countries dropped to 27 in 1979 and 12 in 1999. As for countries that had more than ten private institutions in 1944, there were only four, led by Japan (142), the Philippine (136), Republic of Korea (19), and India (12). By 1979, the number had risen to more than nine countries led by the Philippines (557), Japan (344), Indonesia (129), Republic of Korea (85), China (77), Taiwan (68), India (31), and Lebanon and Thailand (13 each). Over the course of the next 20 years, not only did the number of private higher education institutions skyrocket in each of these countries, accompanied by slight changes in the pecking order, seven more countries operated more than

ten private institutions. In terms of ranking, Philippines (956) maintained its lead and then came Japan (493), Indonesia (356), Republic of Korea (140), China (125), India (95), Taiwan (90), Thailand (48), and Lebanon (28). The new comers included, in alphabetical order, Bangladesh (21), Iran (17), Jordan (12), Kazakhstan (43), Malaysia (21), Pakistan (37), and the United Arab Emirates (10).

By 2015, the composition of countries with the largest number of private institutions had changed slightly, led by the Philippines (1179), Japan (601), Indonesia (480), India (240), China (162), Republic of Korea (146), Taiwan (95), Bangladesh (73), Thailand (72), Kazakhstan (62), Lebanon (37), and Malaysia (32). What is remarkable is that many of these countries emerged from various types of statist control of higher education modeled on their former British and Dutch colonial powers (India, Indonesia, Bangladesh, and Malaysia), or the Soviet model (China and Kazakhstan). It is also clear that this process accelerated with the introduction of political and economic reforms from the 1980s to 1990s that were propelled by a complex intersection of domestic and global developments and pressures.

In the Philippines, the largest number of private institutions was established in the 1980s (261) and 2000s (191); in Japan, 142 private institutions existed in 1944, and 102 were created in the 1960s, followed by the 1990s (93) and 2000s (91); in Indonesia, in the 1980s (178) and 2000s (77); in India, in the 2000s (94) and 2010s (51); in China, in the 1960s (41) and 1990s (27); in the Republic of Korea, in the 1950s (37) and 1990s (40); in Taiwan, in the 1950s (13) and 1960s (46); in Bangladesh, in the 1990s (18) and 2000s (35); in Thailand also, in the 1990s (25) and 2000s (20); in Kazakhstan, in the 1990s (37) and 2000s (15); in Lebanon, in the 1990s (9) and 2000s (9); and in Malaysia, in the 1990s (12) and 2000s (11).

In Europe, as in Asia, there were still countries in 2015 that did not have a private higher education institution, six altogether out of 47. Another 15 had less than ten, among them nine with five or less. Eight countries had established between 12 and 25 private institutions. No European country had the number of private institutions that remotely approached the top three in Asia. But as in Asia, the rate of change was quite remarkable when compared to the situation at the end of World War II and before the wave of reforms began to take hold in the 1980s and 1990s.

In 1944, private higher education institutions did not exist in 26 European countries; the number dropped to 21 countries in 1979 and

12 in 1999. In 1944, only two countries had more than ten private institutions, namely, France (43) and Germany (16). Thirty-five years later, there were four countries, namely, Germany (41), France (31), Portugal (14), and Cyprus (10). Over the next two decades, by 1999, there were 12 more countries on the list, and the ranking largely shifted in favor of the new comers. On top now was the Russian Federation (182), then came Poland (156), Portugal (69), Germany (65), France (49), Armenia (36), Turkey (25), Ukraine (24), and Spain (20).

By 2015, the leading European countries with private higher education institutions were Poland (293), Russia (235), Germany (115), France (93), Portugal (80), Turkey (63), Armenia (42), Ukraine (30), Spain (29), and Austria, Cyprus, and Georgia that had 28 private institutions each. It is instructive that the list was topped by Poland and Russia and included three other countries that were part of the former Soviet Union, and Germany, which integrated East Germany after the fall of the Berlin Wall, where higher education had been incorporated under state institutions. Looking at the dates when they were established buttresses the point that they are post-Soviet institutions, and elsewhere in Europe, they emerged in the context of political and economic liberalization from the 1970s that speeded up over the next three decades.

In Poland, privatization flourished in the 1990s (152 new institutions established) and 2000s (121), as in Russia, where 174 private institutions were founded in the 2000s and in the 2010s (44). The 1990s also saw a flurry of private institutions emerge among the former Soviet republics, in Armenia (35), Ukraine (22), and Georgia (17). In Germany, 20 were created in the 1990s, 28 in the 2000s, and 23 in the 2010s. In Portugal, freed from the Estado Novo dictatorship in 1974, the trend accelerated in the 1980s (24) and 1990s (31). Similarly, in Spain, following the end of the Franco dictatorship in 1975, privatization hastened in the 1990s (13) and 2000s (8). In France, nearly half of the country's private institutions already existed in 1944 (43), and between 1979 and 2015, only 22 new ones were established. In Cyprus, half the private institutions were set up after 1990.

In North America, the USA remained the leading nation in terms of the size of its private higher education sector, followed by Mexico. The number of private higher education institutions in the USA between 1945 and 2015 almost doubled, from 898 to 1590; the largest numbers were established in the late 1940s and 1950s (118) and in the 2010s (132), followed by the 1970s (95) and 1960s (86). In contrast, most of Mexico's

private institutions were set up from the 1980s with the adoption of economic reform policies. Up to 1979, there were only 164 private higher education institutions in the country. Over the next decade, 144 new ones were created, another 326 in the 1990s, and 344 between 2000 and 2015. The expansion of private institutions in Mexico between 1945 and 2015, from 18 to 978, was one of the most phenomenal in the world.

Canada bucked the trends among its southern neighbors, as the number of its private higher education institutions remained small. In 2015, there were only 27 such institutions, up from eight in 1944. In the interim, private institutions were established at a crawling pace, three each in the 1950s and 1960s, two each in the 1980s and 1990s, and one in the 1990s, and four each in the 2000s and 2010s.

The picture in Latin America and the Caribbean resembled that in Asia and Europe in so far as privatization of higher education often came in the aftermath of the demise of dictatorships and adoption of economic and political reforms. Also, as in the two regions, there were wide divergences in the scope of the private higher education sector because of the huge variations in the size of countries in the region. Out of the 31 countries that had data, in 2015, eight did not have a single private institution; four countries had less than five, and another two had less than ten.

The patterns of growth in private higher education in the region were especially noteworthy. In 1944, 19 countries had no private higher education institution, which dropped to 11 in 1979, and ten in 1999. In the meantime, the number of countries with more than ten institutions rose from two in 1944, Brazil (25) and Colombia (13), to five in 1979 including Brazil (346) and Colombia (72), now joined by Chile (73), Argentina (29), and Peru (15). Twenty years later, seven new countries joined the group. Brazil (768) was still in the lead, and Chile (130) claimed second position, followed by Colombia (112), Argentina (53), Costa Rica (50), Peru (42), Ecuador (34), Bolivia (29), the Dominican Republic (26), El Salvador (23), Venezuela (20), and Panama (20).

By 2015, the uncontested giant of private higher education in the region remained Brazil (1688), followed in the far distance by Colombia (160), then Peru (87), Chile (85), Costa Rica (59), Argentina (55), Ecuador (47), Bolivia (42), Venezuela (31), the Dominican Republic (31), Panama (30), and El Salvador (25). The transformations in the landscape of higher education in which private institutions assumed a dominant role reflected the profound changes taking place in the political economies of the region as many countries shifted from authoritarian regimes to more democratic

ones, and as statist development policies gave way to neo-liberal market economic policies. Even Cuba, following the collapse of socialism in the Soviet Union and Central and Eastern Europe, its principal trading partners, embarked on reforms. This resulted, for the higher educational sector, in the establishment of 23 private institutions by 2015.

This trajectory is clearly borne out when the spread of privatization among the major countries in the region is examined more closely. In Brazil, the fastest growth in the number of private higher education institutions occurred in the 1990s (345), 2000s (602), and 2010s (318); in Colombia, in the 1970s (28), 1980s (29), and 2010s (42); in Peru, in the 1990s (18), 2000s (22), and 2010s (23); in Chile, in the 1980s (39) and 1990s (16); in Costa Rica, in the 1980s (8), 1990s (35), and 2010s (7); in Argentina, in the 1960s (14) and 1990s (19); in Ecuador, in the 1990s (21) and 2000s (13); in Bolivia also, in the 1990s (22) and 2000s (11); in Venezuela, in the 1990s (7) and 2010s (8); in the Dominican Republic, in the 1980s (10) and 1990s (7); in Panama, in the 1990s (7) and 2010s (16); and in El Salvador, in the 1980s (13) and 1990s (6).

As in other regions in the Global South, privatization hastened in Africa from the 1980s in the face of structural adjustment programs often imposed with missionary zeal by the international financial institutions and the major Western countries that provided what is called overseas development assistance. This led to reduction in state support for the social sectors including higher education and their liberalization and subjection to market forces, which combined with rising demand, created propitious circumstances for the expansion of private institutions. But the pace of privatization remained uneven. In 2015, out of the continent's 54 countries, 13 did not yet have a private higher education institution, 15 had less than five, six had up to ten, and another six between 11 and 25. Thus, more than half had yet to join the privatization bandwagon seriously.

Nevertheless, the change from the past was remarkable. In 1944, only four African countries had a private institution, led by Egypt with four and the rest, Liberia, Sudan, and South Africa had one each. By 1979, on the eve of the privatization upsurge, the number of countries without private institutions had dropped to 38 from 50 in 1944, but only Egypt had more than ten institutions, after which came the Democratic Republic of the Congo (DRC) (7), Kenya (6), Ghana (5), and Liberia and Tanzania (4 each). By 1999, the number of countries with no private institutions had dropped to 15, while those with more than ten institutions had increased to ten, led by Egypt (59), Morocco (47), the DRC (31), Kenya (19),

Sudan (18), Ethiopia (17), Senegal (15), and Mauritius and Liberia (13 each), and Ghana (10).

The leading countries in terms of the number of private higher education institutions in 2015 were South Africa (123), Morocco and Egypt (104 each), Senegal (99), Nigeria (50), Ethiopia (42), Sudan (36), and the DRC, Mauritius, and Uganda (32 each), and Tanzania (31). As elsewhere in the world, most of these institutions emerged from the 1990s. In South Africa, they ballooned in the 2000s (85) and 2010s (36); in Morocco, in the 1990s (29) and 2000s (44); in Egypt, in the 1990s (43) and 2010s (27); in Senegal, in the 1990s (12) and 2000s (78); in Nigeria, in the 2000s (38) and 2010s (9); in Ethiopia, in the 1990s (15) and 2000s (21); in Sudan also, in the 1990s (13) and 2000s (18); in the DRC, in the 1980s (9) and 1990s (15); in Mauritius, too, it was in the 1990s (8) and 1990s (18); in Uganda, in the 2000s (14) and 2010s (11); and in Tanzania, in the 1990s (5) and 2000s (19).

In Oceania, Australia exerts overwhelming dominance, followed distantly by New Zealand. In 1944, the two were the only countries in the region, out of nine, with private higher education institutions; Australia had three and New Zealand had one. By 1979, the two were still the only ones; Australia had 13 and New Zealand two. In 1999, they were joined by Papua New Guinea and Fiji that had established two and one private institutions, respectively. In the meantime, Australia's number had increased to 28 and New Zealand's to three. In 2015, Australia held 51 of the region's 63 private institutions, while seven were in New Zealand, three in Fiji, and two in Papua New Guinea.

The establishment of non-profit private institutions was the most dramatic manifestation of the privatization of higher education around the world. But it was by no means the only one. The other was the increasing privatization of public institutions in their funding models, as they became less dependent for their operations, sustainability, and even survival on public resources. As will be shown in the next section, in many countries, public institutions were forced to embark on various cost-cutting strategies, some of which proved counterproductive for their institutional mission and long-term viability. They faced growing pressure to cultivate alternative revenue streams that included raising tuition fees, enhancing fundraising from alumni, foundations, and businesses, and marketing institutional facilities and services.

Another dimension of the privatization phenomenon was the rise of for-profit private institutions. Their expansion raised passionate debate,

but they underscored the fact that higher education had emerged as a major global service industry, that academic capitalism was scaling to new heights of provision or predation. To its proponents, the for-profit sector offered opportunities to diversify access to higher education, increase competition that would benefit students, especially non-traditional students by offering them more choices and greater flexibility. The critics accused for-profit institutions of misleading recruitment practices, charging excessive tuition fees, providing low academic quality, poor students support services, and generating high dropout rates and levels of unemployment for their graduates. It was also pointed out, to quote one study, "for the average student, the short-run returns appear to be too low to justify the private cost and much too low to justify the additional cost to taxpayers," so that "from a student's perspective, it would seem that a lower-cost community college would likely be a better choice than a for-profit associate's degree program" (Cellini and Chaudhary: 2014: 138–9; Belfield 2013).

The expansion of the for-profit higher education sector was fueled by the same forces that led to the expansion of the non-profit private sector, namely, the high demand for higher education and incapacity of the public and non-profit sectors to meet that demand. A more permissive policy environment that allowed education to be treated as a commodified service was also a major facilitating factor. In the late 1990s and early 2000s, several countries either enacted legislation permitting the operation of for-profit institutions or simply allowed them to operate. The USA took the lead, but for-profit companies emerged elsewhere as well. In China, the first for-profit higher education services company was set up in the late 1990s, and a law to facilitate private schools was passed in 2002. Similar laws were passed in Britain in 2004 and Australia in 2005, and in several Asian and Latin American countries (Sanyal and Johnstone 2011: 168–169; Berg 2005; Kinser and Levy 2005; Kinser 2015; Smith 2015).

As more countries incorporated for-profit provision into their national higher education systems, the operations of the larger companies from the bigger countries became transnational. Examples include the US-based University of Phoenix, a publicly held firm founded in 1976, a flagship institution of Apollo Education Group. It became the largest for-profit higher education provider in the country, and spread to 19 countries. Another was Laureate Education, which developed an even larger global presence. In 2012, it enrolled 800,000 students in more than 30 countries on all six continents in 78 institutions it owned or controlled including

22 in South America (its largest market), 10 in Asia, and 19 in continental Europe. For future expansion, Laureate set its eyes on Africa. It established a partnership to manage the campus of Australia's Monash University in South Africa, and set up another campus in Morocco. The company's revenues in 2012 were $4.3 billion, 80 % of which was generated from its overseas operations (Ridden and Fain 2013). The India-based National Institute for Information and Technology, a publicly listed firm, enrolled five million students in its classroom and online programs across India and in 30 other countries.

The growth of for-profit institutions was staggering. They included corporate universities, corporate-owned universities, non-degree-granting institutions, and degree-granting institutions. By the early 2000s, these institutions had spread to many countries, although in some including East Africa, and parts of Latin America and Europe, private higher education legally remained non-profit education (Kinser and Levy 2005). According to N.V. Varghese (2004: 10), "Many private universities that appeared in the 1990s were for-profit organizations or not-for-profit institutions supported by religious bodies." Writing in 2012, Shah and Nair (2012: 308) noted, "The private for-profit sector caters for more than 70% of students in India, Malaysia, Japan, South Korea, Indonesia and Philippines, more than 30% in mainland China, more than 15% in Thailand and Vietnam … and around 9% in New Zealand."

In Brazil, the for-profit institutions enrolled more than two million students in 2010 that represented 43 % of the private sector and 32 % of overall enrollments. The for-profit sector grew by 537 % between 2000 and 2010 compared to 88 % for the private non-profit sector and 85 % for the public sector (Salto 2014). Nevertheless, it is difficult to know the exact size of the for-profit sector, as comprehensive global data is hard to come by. For-profit institutions are not listed in the International Association of Universities' Worldwide Database of Higher Education Institutions, Systems and Credentials from which the data used previously in this section is drawn.

A UNESCO report in 2004 on the spread of for-profit programs in Jamaica, Malaysia, Bangladesh, and Bulgaria concluded that while for-profit programs were welcomed "as potentially more flexible, entrepreneurial, employment-relevant and innovative than the more 'structurally rigid' public sector," and were expected to "stimulate increased innovation and more efficient management and governance amongst local public providers… a negative quality perception of the private sector by local employers, students, and parents persists" (Middlehurst and Woodfield

2004: 32). Private for-profit institutions were reportedly weak in terms of facilities and resources, including their overdependence on part-time faculty from public institutions, high faculty–student ratios, and low admission criteria.

These concerns were not confined to the small or poor countries. They were also heard in China, Singapore, and Australia (Mok 2009; Lim 2010; Shah and Nair 2012). In Australia, in 2010, the 170 for-profit institutions enrolled 43,676 students, or 9 % of the total higher education enrollment. But the sector suffered from lack of planning, excessive dependence on international students, low admission criteria, poor academic quality, and weak monitoring and regulatory framework. As elsewhere, this provoked closer scrutiny and the tightening of regulatory and quality-assurance mechanisms, which some saw as unfairly targeting the for-profit institutions.

Even in the USA, where some of the largest companies offering for-profit higher education around the world originated, the for-profit sector was met with mixed opinions. The sector has a long history going back to the mid-nineteenth century and grew considerably in the 1920s (Douglas 2012: 243). A report by the US Senate investigating the sector noted that the number of students enrolled in for-profit institutions in the country increased from 765,701 in 2001 to 2.43 million in 2010 (US Senate 2012). In 2009–2010, the sector received $32 billion in public funds (up from $5 billion in 2001), which represented 25 % of the total student aid program funds from the Department of Education (up from 12.1 % in 2001), and 86 % of the sector's total revenues. Yet, the student dropout rate was extremely high, 54 % in 2010 for those enrolled in for-profit degree-granting colleges, and 63 % for those in the two-year community colleges. Dropout rates were even higher for online degree programs (64 %). The for-profit companies spent far more on recruitment, $4.2 billion, or 22.7 %, of their revenues than on instructional costs; 80–90 % of the faculty were part-time. In the meantime, the chief executive officers of these companies took home an average of $7.3 million in 2009!

The report was scathing on the low academic quality of the programs, poor career-placement services, lack of programmatic accreditation, and high tuition fees and interest rates on loans ranging between 11 % and 18 % in comparison to 5.6 % for Federal student loans. In comparison to their counterparts in public institutions, 48 % of who borrowed money to pay for college, 96 % of students in for-profit did so. Consequently, 57 % of the latter owed $30,000 or more after graduation compared to graduates of

public institutions. Not surprisingly, the report continued, students who attended for-profit colleges accounted for 47 % of all defaults of Federal student loans, and defaulted within three years because they also suffered from very high rates of unemployment, up to 23 %.

This state of affairs was blamed on weak accreditation, state oversight, and Federal regulations. The introduction of more stringent regulations and Federal oversight including the establishment of minimum student outcome thresholds, including imposition of "gainful employment" rules, to access Federal financial aid resulted in the collapse of several large for-profit higher education companies and shrinkage in the size of the remaining ones (Fain 2015).[1] Others sought to transition to non-profit status. Another avenue, writes Elizabeth Redden (2015), is that "As U.S.-based for-profit education companies continue to face stricter regulations and slumping enrolments and revenues at home, some are venturing abroad in the name of diversification, with Brazil being a main destination." Despite the long list of problems, some analysts believed the for-profit sector would continue to grow because of the continuing disjuncture between supply and demand and the sector's exceptional ability to quickly respond to changes in the labor market (Douglas 2012: 255–6; Gilpin et al. 2015).

Clearly, student tuition fees, whether paid from students' own resources, or through publicly funded student loans, financed the for-profit higher education sector in the USA and in many other countries. As Kevin Kinser (2013) notes, the dependence and dominance of the sector in the USA on federal government aid programs is evident from the fact in "2000–01, there were just three for-profit institutions among the top 20 recipients of Title IV grants, and just two in the top 20 for loans…. By 2010–11, nine of the top ten institutions in Title IV loans, and seven of the top ten institutions in Title IV grants were for-profits." So much for the purported superiority of the market-driven private higher education sector market over the state-dependent public sector.

The Cost-Sharing Craze

Privatization involved far more than the establishment of private institutions, both non-profit and for-profit. It entailed the changing modalities of financing higher education between public and private sources. Historically, in many countries, governments largely financed higher education. Well into the turn of the twenty-first century, governments continued to be a major source of funding for higher education, but state

support increasingly fell short of the needs of higher education institutions that were exploding in number and enrollments. Together with the expansion of private higher education to meet rising demand, the balance between public and private sources of funding increasingly tipped toward the latter as institutions came to rely more and more on resources from students, parents, donors, and businesses. The mounting share of costs borne by private sources came to be known as cost-sharing.

The changing patterns of government expenditure on education in general and higher education specifically can be seen in Tables 2.3 and 2.4. Currently comparable global data going back decades is unavailable. Even the data from the UNESCO Institute of Statistics is missing entries on many countries for the 2000–2013 period, on which some data is available. Table 2.3 paints a mixed picture on the patterns of government expenditures on education as a percentage of GDP and on higher education as a percentage of total government expenditure.

It can be seen that in all world regions, the levels of government expenditures fell in some countries and rose in others, thereby making it difficult to make blanket generalizations. Out of the 122 countries that had data on government expenditure on education in general as a share of GDP

Table 2.3 Patterns of Government expenditure on education as % of GDP and expenditure on tertiary education as % of total government expenditure

	Government expenditure on education as % of GDP		*Expenditure on tertiary education as % of total government expenditure*	
Year	2000–2013 Rose—Number of countries	2000–2013 Fell—Number of countries	2000–2013 Rose—Number of countries	2000–2013 Fell—Number of countries
Total	83	39	58	34
Region				
Asia	12	13	9	7
Europe	27	8	16	12
North America	3	–	–	2
Latin America and Caribbean	14	5	14	2
Africa	25	12	17	11
Oceania	2	1	2	–

Source: Data Extracted from UNESCO Institute for Statistics, October 20, 2015

Table 2.4 Patterns of expenditure on tertiary education as % of Government expenditure on education and Government expenditure per tertiary student in constant $PPP

	Expenditure on tertiary education as % of government expenditure on education		*Government expenditure per tertiary student in constant $PPP*	
Year	2000–2013 Rose	2000–2013 Fell	2000–2013 Rose	2000–2013 Fell
Total	62	33	41	37
Region				
Asia	11	5	8	7
Europe	19	11	21	8
North America	1	1	1	1
Latin America and Caribbean	15	3	5	4
Africa	15	12	5	16
Oceania	1	1	1	1

Source: Data extracted from UNESCO Institute for Statistics, October 20, 2015

between 2000 and 2013, it rose in 83 countries and fell in 39 others. Only in Asia were there more countries where it fell than it rose (13 to 12). Europe had the largest number of countries where it rose (27–8), followed by Africa (25–12), and Latin America and the Caribbean (14–5).

The detailed data from the UNESCO Institute for Statistics shows that in none of the Asian countries covered did government expenditures on education fall below 2 % of GDP; expenditures averaged more than 5 % in five countries (Bhutan, Israel, Kyrgyzstan, Malaysia, and Mongolia). In Europe, government expenditures exceeded 5 % of GDP in 20 countries; in nine of them, it was over 6 %, and three over 7 % (Cyprus, Iceland, and Moldova). All three North American countries spent more than 5 % of their GDP on Education. In Latin America and the Caribbean, this level of expenditure applied to eight countries, led by Cuba (12.84 %) and Bolivia (7.60 %), while in Africa, it showed in 15 countries, led by Sao Tome and Principe (9.48 %) and Namibia (8.35 %).

In terms of expenditure on tertiary education as a percentage of total government expenditure, between 2000 and 2013, it rose in 58 countries and fell in 34. In North America, it fell in the two countries that had data, Mexico and the USA, while all other regions showed more countries with rising than falling percentages. In Europe, the margin was much narrower compared to that of government expenditure on education as a percent-

age of GDP. In fact, by 2013, out of the 28 European countries included only two governments that spent more than 4 % of their total expenditures on higher education (Norway 4.53 % and Moldova 4.02 %). In Asia, five countries did so, led by Singapore (7.04 %), Malaysia (6.34 %), and Hong Kong (5.58 %). In Latin America and the Caribbean, there were two countries, Bolivia (7.20 %) and Barbados (4.50 %). Africa had the largest number of countries allocating more than 4 % of their total government expenditures on higher education. In 2010–2013 (whichever date represented the latest data), there were nine such countries altogether, including Namibia (6.05 %), Tunisia (5.89 %), Tanzania (5.56 %), Guinea (5.51 %), and Senegal (5.09 %). In Oceania, New Zealand (5.21 %) was the only country that belonged to this league.

The number of countries that invested below 2.5 % of government expenditure in higher education rose to 34 in 2010–2013. Thirteen of these countries were in Europe, nine in Africa, seven in Asia, and five in Latin America and the Caribbean. The latter included 15 countries whose governments spent less than 2 % on higher education, of which six were in Europe, five in Africa, and two each in Asia, and Latin America and the Caribbean.

Table 2.4 provides additional data on the patterns of government expenditure on higher education. Out of the 95 countries for which data was available covering the 2000–2013 period, government expenditure on tertiary education as a percentage of its expenditure on education rose in 62 and fell in 33. Europe claimed the largest number of countries that experienced a rise (19), and Africa those that fell (12). In 2010–2013, the percentage of government expenditure on higher education exceeded 20 % in 11 out of the 27 African countries for which there was data. They were headed by Guinea (34.64 %), Malawi (28.36 %), Tanzania (28.30 %), Tunisia (28.17 %), Ghana (25.95 %), and Sierra Leone (25.93 %).

In contrast, in Europe, 24 countries out of the 30 in Table 2.4, fell in this category, led by Finland (31.85 %), Norway (29.63 %), Serbia (29.08 %), Sweden (29.02 %), Romania (28.47 %), and Netherlands (28.05 %). The patterns in Asia and Latin America and the Caribbean fell in between those in the African and European regions. Among the 16 Asian countries referred to in Table 2.4, there were ten where the proportions surpassed 20 %, including China-Macao (48.41 %), India (36.08 %), Singapore (35.28 %), Malaysia (34.45 %), Lebanon (28.74 %), and China-Hong Kong (28.04 %). In Latin America and the Caribbean, there were seven among them Cuba (34.23 %), Barbados (32.51 %), Bolivia (29.86 %), Ecuador (26.58 %), and Nicaragua (26.05 %).

The acute challenges facing African higher education systems in terms of public funding become more glaring when data on government expenditure per tertiary student in constant purchasing power parity ($PPP) is examined. Table 2.4 only provides a snapshot. It shows expenditures fell in 16 countries and only rose in five, the only region where this happened. In contrast, in Europe, the ratio was 21 to 8, in Asia 8 to 7, and Latin America and the Caribbean 5 to 5. Overall, it can be seen there were more declines in regions in the Global South than in the Global North. The levels of per capita expenditures further buttress the point, and underline the disparities within regions as well.

Using a baseline of $5000 per capita expenditure in constant PPP, in 2010–2013, this threshold was met by 7 out of 15 countries in Asia, and 5 out of 21 in Africa, 2 out of 9 in Latin America and the Caribbean, 2 out of 2 in Oceania, and 2 out of 2 in North America. In Asia, the group included China-Macao ($23,011), Singapore ($16,858), China-Hong Kong ($11,767), Malaysia ($9752), and Japan ($8335). In Africa, there was Swaziland ($16,100.6), Tanzania ($13,412), Malawi ($13,102), Mali ($9752), and Tunisia ($6203). The lone member in this cohort in Latin America and the Caribbean was Barbados ($6203); in North America, Mexico ($6527) and the USA ($10,139); and in Oceania, New Zealand ($9728) and Australia ($8959). The top five in Europe were Norway ($28,386), Denmark ($23,733), Switzerland (21,877), Netherlands ($18,464), and Sweden ($17,230).

Clearly, in many countries, especially in the Global South, public support for higher education was diminishing or under stress. Public funding came under intensifying pressure because of the explosion of higher education enrollments to meet development goals and the needs of the bourgeoning youth populations, while in parts of the Global North, ageing populations and the electoral clout of older voters skewed public expenditures in favor of the interests of the latter for whom higher education was not a high priority. Traversing both, in varying scales of magnitude, were rising instructional costs and the pressures of neo-liberal market ideology that gained political ascendancy from the turn of the 1980s.

Besides expanding enrollments, rising costs of instruction per student, or unit costs, were driven by technology, intensifying competition for rankings, higher consumer expectations among students, and the propensity of higher education institutions to add new programs without subtracting outdated ones. The increasingly cutthroat ideological context of neoliberalism that permeated all sectors including higher education further fueled

the structural trajectory of rising unit costs, and further compounded the inflation of enrollments, expectations, programs, facilities, and administrative, but usually not academic, staffing. The intermittent recessions triggered by the end of the long postwar boom in the 1970s that spawned the rise of neoliberalism, such as the Asian financial crisis of the late 1990s, and the Western financial crisis of the late 2000s, exacerbated the pressures on public revenues.

These developments led to the spread of what Johnstone and Marcucci (2010) call "higher education austerity" variously reflected in the deterioration of instructional resources and facilities, loss of secure faculty positions and declining morale, and rising student debt loads. To address the austerity pressures, higher education institutions were forced to adopt various strategies to rein in costs and raise alternative sources of revenue. The former included "enlarging class sizes and teaching loads, deferring maintenance, substituting lower-cost part-time faculty for higher-cost full-time faculty, dropping low-priority programs and cutting or freezing financial assistance," while on the revenue side, solutions included "instituting tuition fees (or rapidly raising them), encouraging faculty and institutional entrepreneurship, promoting philanthropy, and allowing or encouraging a demand-absorbing private sector."

In some countries, implementing the cost-side and revenue-side solutions at the institutional level was increasingly accompanied at the system-wide level by more radical strategies that encompassed sector diversification through greater differentiation among institutions to reduce costs for the lower tier, mergers, and the promotion of distance learning, technologically assisted instruction, and virtual universities. Above all, cost-sharing assumed greater salience in the funding of higher education. The primary parties to the cost-sharing equation were governments, parents, students, and individual or institutional donors including business. Cost-sharing comprised a variety of forms, which were combined in diverse ways over time in different countries. This led to the emergence of an assorted mosaic of cost-sharing rationales, practices, and resistances.

To its proponents, cost-sharing was justified in terms of social equity (that it is unfair to subsidize wealthy students with public resources), efficiency (that it fosters better use of resources and makes institutions more responsive to students and forces the latter to take their studies more seriously), and the sheer reality that higher education institutions needed revenue that could not be adequately provided from overstretched government coffers. The critics of cost-sharing contended that higher educa-

tion should be treated as a public good like elementary education and health care to ensure access especially to the needy and disadvantaged. They pointed out that student financial aid schemes often tended to be too limited to provide sufficient redress, and ignored the debt aversion prevalent among students of certain socioeconomic or cultural backgrounds. In many countries, students were increasingly left with unsustainable levels of debt, or financial challenges led to high dropout rates especially for low-income students.

Jeffrey Williams (2013) contends the accumulation of student debt went beyond a mode of financing the "post-welfare university," but became a mode of pedagogy. Premised on a shift in conception of higher education from a public good to a private good, it broke the inter-generational compact of the "welfare university" of the welfare state in the Global North or developmentalist state in the Global South. It upended conventional rationales of higher education as a process of transmitting humanistic knowledge, fostering self-exploration, promoting national culture, cultivating citizenship, or providing occupational skills. Instead, debt taught students higher education was a consumer service, promoted careerism and the primacy of the capitalist market. It also taught that the role of government was to serve the market, not the public interest, and the worth of a person was measured according to one's financial potential, rather than the content of one's character. Further, the culture of debt inculcated high levels of stress, and a sensibility of fear of failing.

In reality, the debate between the proponents and opponents of cost-sharing was less about whether or not government support was necessary; rather it was about its appropriate level. In the USA, for example, the iconic model of cost-sharing, the federal government provided at least a third of the total expenditures on higher education. The disbursement of grants and students loans by the federal government alone rose by nearly three times from (in constant 2011–2012 dollars) $53.7 billion in 2000–2001 to $146.4 billion in 2012–2013. During this period, the proportion of students receiving aid (from federal, state, and institutional sources) rose from 70.3 % to 80.1 % (National Center for Education Statistics 2015b; U.S. National Center for Education Statistics 2015c).

Government and popular attitudes to cost-sharing depended on many factors, including the prevailing state of free-market capitalism in general and academic capitalism in particular, and the rates of higher education participation. On the whole, cost-sharing tended to be more accepted in countries that espoused aggressive forms of free-market capitalism, had a

robust private education sector, and enjoyed high rates of enrollment, as opposed to countries attached to welfare-state policies, where the higher education sector was predominantly public, or enrollments rates were low. Policies, attitudes, and impacts of cost-sharing were also framed by the different levels of development as evident in the varied experiences between and within the advanced industrialized countries, the so-called transitional countries, middle-income countries, and low-income countries examined by Johnstone and Marcucci (2010: Chap. 9).

Five forms of cost-sharing can be identified (Johnstone and Marcucci 2010; Marcucci and Usher 2011, 2012; Marcucci 2013). First, the introduction or imposition of sharp increases in tuition fees; second, establishment of dual-track tuition fees for different groups of students; third, the imposition of user-charges for services that were previously free or heavily subsidized; fourth, the reduction in the value of student loans, grants, and other stipends; and fifth, the diminution in the size of the public sector and official encouragement of the expansion of tuition-dependent private institutions, both non-profit and for-profit. Though critical, tuition fees only constituted one aspect of the costs of attending college or university. Other costs included living expenses, which could be greater than tuition fees. Combined, rising tuition and living expenses impacted students differently in various countries depending on family income levels, the availability of loans, and income-generating opportunities including part-time work.

Three major tuition fee policies were adopted. First, in some countries, no or nominal tuition fees were charged; second, tuition fees were imposed for all, which could be paid upfront or deferred; and third, dual-track tuition fee policies were established. Table 2.5 shows the different tuition fee policies for public higher education institutions in 2011 for 132 countries. It can be seen the majority, 82 countries, charged tuition, 41 upfront and ten deferred, and 33 had dual-track schemes, while 49 did not charge or only charged nominal tuition fees. Out of the 22 Asian countries, only four had a policy of no or nominal tuition fees, five had dual-track tuition policies, and none had deferred tuition, while the majority (13) charged tuition upfront. For Europe, the three categories were more evenly split: 12 charged fees upfront and two deferred, 14 had dual-track policies, and 15 had no or nominal tuition policies. In Latin America, 9 out of the 13 countries maintained no or had nominal tuition policies. In Africa, out of the 43 countries, 11 pursued upfront and 6 deferred tuition policies, 14 dual-track policies, and 19 had no or nominal tuition policies.

Table 2.5 Tuition fee policies for public higher education institutions, 2011

Tuition fee policy	*Upfront*	*Deferred*	*Dual track*	*None or nominal*
Asia	China, Hong Kong, India, Indonesia, Japan, Jordan, Korea, Malaysia, Mongolia, Philippines, Singapore, Taiwan, Thailand		Cambodia, Jordan, Kazakhstan, Pakistan, Vietnam	Lebanon, Saudi Arabia, Syria, United Arab Emirates
Europe	Belgium, Bulgaria, Germany, Italy, Lichtenstein, Luxemburg, Netherlands, Portugal, Serbia, Spain, Switzerland, Turkey	England, Wales	Bulgaria, Czech Republic, Estonia, Hungary, Bosnia-Herzegovina, Lithuania (1992), Latvia, Poland (1999), Romania, Russia (1992), Serbia, Slovakia, Ukraine	Austria, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Luxembourg, Malta, Norway, Scotland, Slovenia, Sweden,
Latin America and Caribbean	Chile, Colombia, Costa Rica, Ecuador			Argentina, Bolivia, Brazil, Cuba, Guatemala, Honduras, Paraguay, Peru, Uruguay Mexico
North America	Canada, USA			
Africa	Botswana, Burkina Faso, Cote d'ivoire, Gambia, Kenya, Liberia, Mozambique, Nigeria (State), Sierra Leone, South Africa 11	Ethiopia, Lesotho, Namibia, Rwanda, Swaziland, Tanzania 6	Angola, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Malawi, Mauritius, Rwanda, Senegal, Tanzania, Uganda, Zambia, Zimbabwe 14	Benin, Cameroon, Cape Verde, CAR, Chad, Congo-Brazza, Congo-Dem, Eritrea, Gabon, Ghana, Guinea, Mali, Mauritania, Morocco, Niger, Nigeria (Fed), Sudan, Togo, Tunisia 19
Oceania		Australia, New Zealand		

Source: Adapted from Pamela Marcucci (2013)

According to extensive reports by Marcucci and Usher (2011, 2012), covering what they called the G-40 countries around the world that collectively accounted for 90 % of global enrollments and 90 % of research production, tuition fees in public institutions were charged in 32 of them. The Asian countries included Saudi Arabia, which remained one of the few in the region without tuition fees for public higher education. Iran maintained free education at the undergraduate level. China signaled the dawn of a new era when tuition fees were introduced in 1997. It established a comprehensive student aid system, which by 2008, consisted of six major programs.[2] In some countries, such as Pakistan, the government set tuition fees. More commonly, institutions set their own tuition fees subject to government approval as in Singapore, annual review by the government as in Hong Kong, or within a range set by the government as in Vietnam and Taiwan, where the government set a maximum except for continuing programs for which institutions were free to set their own rates.

Elsewhere in the region, tuition fees were linked to the rate of inflation. This was the case in the Philippines and Israel, while in South Korea, they were capped within 150 % of a three-year average consumer inflation rate, unless granted special permission. In Japan, tuition fees were set within the 120 % range of the standard annual tuition fee established by the government. In Malaysia and Thailand, tuition fees tended to follow the ceiling set by the student loan boards, although in Thailand, they varied by type of public institution and discipline. In Indonesia, institutions also set their own fees based on discipline. In India, nominal tuition fees were introduced in 2001, although public central and state institutions charged much higher sundry fees. The rates of increase in tuition varied from country to country. For example, in South Korea, they doubled in the 2000s, and rose by 19 % in one year alone in Vietnam, in 2011 over 2010, while they were frozen in Malaysia for 20 years, and also in China, between 2006 and 2011.

Overall, Asian countries developed both high levels of private education enrollment and tuition fee-dependency. In addition to the tuition fee policies noted above, another trend was the affiliation of private tuition fee-based institutions to public institutions. Under this arrangement, the private institution got access to the academic facilities of the public institution in exchange for a slice of the tuition fees for the latter. The private–public partnerships became popular in India, China, Pakistan, Bangladesh, and Nepal (Levy and Kanwar 2013; Yang and Cheng 2013).

Similar divergent patterns were evident in Latin America and the Caribbean. In Chile, both public and private institutions set their own tuition fees and their rates remained largely similar. They rose by an average 26 % annually between 2005 and 2011. In Colombia, the government set minimum rates tied to the consumer price index, and tuition levels varied according to the students' socioeconomic situation. In Argentina, a law passed in 1995 allowed the charging of tuition fees, but institutions refrained from imposing fees on undergraduates and introduced them for graduate students according to program of study. In Brazil, public higher education remained free, but debate raged as to whether wealthy students should be charged, which provoked fierce opposition.

Tuition fees were widely adopted across Africa from the 1990s, although they were first introduced in the early 1970s in Nigeria and Kenya. In some countries, they remained nominal before being allowed to rise swiftly. The collection by Damtew Teferra (2013) offers detailed accounts of the funding dilemmas and strategies adopted by several African countries. The G-40 countries included Nigeria, South Africa, and Egypt. In Nigeria, federal universities were prohibited from charging tuition fees in 2002, but state universities were permitted to set their own rates, so that tuition levels varied from state to state. Efforts to introduce tuition fees at the federal universities met with widespread protests that forced the government to back down. In South Africa, institutions were free to set their own tuition fees. In 2011, they increased by 10–15 %, and efforts to increase fees by more than 10 % in 2015 provoked a nation-wide student rebellion. In Egypt, tuition in public institutions was only charged for programs taught in foreign languages.

In Europe, there was considerable variation in the tuition fee regime for public institutions in different countries (European Commission 2014–2015). By 2015, students paid fees to cover between 50 % and 100 % of their education in nine countries, while the Nordic countries operated a "no-fee" regime, but in 2011, Sweden introduced a new regulation allowing the charging of tuition fees for non-EU/European Economic Area (EEA) students; enrollments of non-EU/EEA students fell by 80 %. Finland also introduced tuition fees for non-EU students in select master's programs, and allowed institutions to set their own rates, although the law expected them to provide scholarship schemes. France introduced nominal tuition fees set centrally by the government, but much higher supplementary fees augmented them. Germany bucked the trend. A High Court ruling in 2005 overturned a ban on charging tuition, and fees were

introduced in 2007. But they were abandoned several years later so that in 2014–2015, tuition fees were no longer charged anywhere in the country.

The most expensive tuition fees in Europe were charged in England. More than nominal tuition fees were introduced for domestic students in 1998, and in 2012, the fees were raised to £9000 per year. Tuition fees were also relatively high in Ireland, Italy, Latvia, Lithuania, Hungary, the Netherlands, and Slovenia. In the Netherlands, fees were adjusted annually based on inflation rates, and policies were introduced in 2010 that almost doubled the tuition fee for students who failed to finish their undergraduate degrees in three years, and students older than 30 were also charged higher fees. In Spain, tuition rates were set by institutions within limits ascertained by the autonomous regions, which led to considerable variations. In Switzerland, tuition levels depended on the institution, while in Italy, they were set within prescribed limits, and in Turkey, they were centrally determined and could not exceed half the unit costs as determined by the Council of Higher Education.

In Oceania and North America, different tuition paying systems were introduced. In Australia, the government set maximum levels and four bands of programs. Students paying upfront, instead of after graduation on an income-contingent basis, received a 20 % discount. In Mexico, individual institutions set fee levels, while in Canada, they were regulated by each of the ten provinces, so that different tuition fee regimes emerged by province, and often by discipline. In the USA, tuition rates began to climb swiftly as state subventions declined. According to the National Center for Education Statistics, in constant 2012–2013 dollars, for four-year public institutions, tuition rose from $7534 in 1982–1983 to $17,474, or 4131.94 %, representing an average annual rate of 4.40 %. This was higher than the rate of inflation. The comparable rate of increase for private non-profit and for-profit institutions was 108.81 %, or 3.63 % annually, from $16,797 to $35,074. For all institutions, the increase in total tuition, fees, and room and board was from $10,385 in 1982–1983 to $23,872 in 2012–2013, an increase of 129.87 %, or an annual rate of 4.33 % (National Center for Education Statistics 2015a).

The dual-track strategy entailed dividing students enrolled in public institutions into two groups, those on government scholarships, who increasingly became a minority, and those admitted on a tuition fee-paying track. As evident in Table 2.5, this system was adopted by many former socialist countries in Central and Eastern Europe, and among many countries in Africa and several in Asia and Africa previously wedded to

socialist or developmentalist ideologies that wanted to maintain the constitutional or political fiction of continued strong state support for public higher education. In Poland, tuition fees were applied not only to students who were not on government merit scholarships but also to those being taught in a foreign language, or studying part-time and retaking classes. The proportion of tuition fee-paying students grew rapidly. In Ukraine, by 2011, it affected 60 % of all students who were not covered by the state or employers.

The adoption of tuition fees was often accompanied by the development of student-assistance schemes, many of them sponsored or subsidized by governments. Student financial assistance from governments took the form of grants, loans, and through indirect family assistance programs and tax credits and deductions. Many countries used multiple student-assistance programs to meet the needs of different groups of students and their families. In Africa, several countries, such as Ghana and Tanzania in 2005, established market-oriented loan trust funds or loan boards in the early 2000s (Pillay 2013). Generally, the grant or loan programs were means-tested, merit based, or universal. In terms of grants, means-tested programs operated in 29 of the G-40 countries, merit or otherwise limited programs in eight, and universal programs only in three countries. For loan programs, the proportions among the three categories were 20 countries, 2 countries, and 17 countries, respectively (Marcucci and Usher 2012: 8–9).

In addition to government-supported financial aid schemes, in some countries, both public and private institutions provided student financial aid. In the Philippines and Indonesia, most private institutions did so (Levy and Kanwar 2013). But the trend of institutional subsidies often varied. In the USA, for example, data covering the period 1987–2007 shows elite and well-endowed institutions increased their subsidies, while they declined for most other institutions including the public ones desperate to raise more resources (Taylor and Morphew 2013). In general, institutional subsidies became increasingly skewed in favor of merit awards that often went to students from privileged backgrounds, which served to lessen the enrollment of lower-income students and some claim even led to declining state support for need-based programs (Ehrenberg et al. 2006; Orsuwan and Heck 2009; Griffith 2011; Doyle 2010a, b).

Levels of financial assistance rose or declined over time. Looking at the year 2011, for example, Marcucci and Usher (2012: 11–17) noted that financial aid decreased in the USA, did not change in 22 countries, and

increased below the inflation rate in 10, and above in 6 including Chile, Colombia, Indonesia, Nigeria, Singapore, and South Africa. The result is that higher education affordability declined for students in a growing number of countries. Altogether, in 2010, affordability decreased in the Netherlands, the Philippines, Pakistan, Singapore, Thailand, and Ukraine; in 2011, it declined in Canada, Israel, Italy, the Philippines, Switzerland, South Korea, Spain, and the USA; and in 2012, in the Philippines, USA, and UK. Affordability remained the same for 25 of the G-40 countries in 2010, 21 in 2011, and only 3 in 2012, while it increased for 8 in 2010, 6 in 2011, and 5 in 2012.

Shifting Economic and Occupational Landscapes

The rapid expansion of higher education was propelled by the fervent belief that it was good for the economy and for the individual as it fostered economic and income growth and competitiveness. Notions of the "knowledge economy" and "knowledge society" that became popular at the turn of the twenty-first century reinforced higher education's critical role in human capital formation and accumulation (Sörlin and Vessuri 2007). But the world that the tens of millions of students were being educated and trained for was changing in quite fundamental ways, and was a far cry from what it was in 1945. The structure of the world economy had changed profoundly as the composition and hierarchies of developed and developing economies shifted. Old occupations were changing, and new ones emerging. Massification was undermining quality, mismatches between education and the labor market were deepening, intensifying competition was reinforcing social inequalities, and the standard employment model of stable and salaried full-time jobs was disintegrating.

Notwithstanding the periodic cycles and fluctuations, the long-term trajectory in the world economy was toward the expansion of international trade, investment, transnational production, and growth of multinational corporations as powerful players. There was also the restructuring of the international economic order, emergence and fierce contestations over institutions of global economic governance, and formation of economic blocs. Further, it was characterized by the reconfiguration of primary, secondary, and tertiary sectors, and extraordinary technological developments, and shifts in economic models including the rise and fall of socialism and the ascendancy of neoliberalism. Finally, environmental,

gender, and sustainable development issues were mainstreamed (Allen 2005; O'Brien and Williams 2013; Eckes 2011).

The changes were captured most dramatically by the spectacular rise of China and other emerging economies as important players in the global economy and the relative decline of the Western economies. The transformations in the world economy can be seen in Table 2.6, which shows that by 2015, the emerging market and developing economies accounted for 57.58 % of the world production, up from 36.16 % in 1980; they had overtaken the advanced economies, whose share dropped from 63.84 % to 42.42 % during the same period. The erosion of US dominance was quite remarkable. In 1960, it accounted for 35 % of world GDP, which fell to 22.04 % in 1980, and 15.88 % in 2015. The share of the EU also fell from 30.34 % in 1980 to 15.46 % in 2015.

Between 1945 and 2015, major changes took place in the nature and composition of occupations, which had implications for higher education. At a global level, the services sector became dominant as early as 1970. In that year, it accounted for 52 % of world production, rising to 66 % in 2008. During the same period, the relative shares of agriculture and industry declined from 10.0 % to 4.0 % and 38.3 % to 30.0 %, respectively. As shown in Appendix 2.3, there were significant differences between and within regions. For example, in 2008, the services sector in Africa remained below 50 %; industry and services were more evenly divided, at 40.7 % and 42.8 %, respectively. The services sector was largest in North America (76.4 % up from 63.0 % in 1970), followed by Europe (74.7 % up from 46.7 % in 1970). By 2014, as shown in Table 2.7, services had increased its share to 70 % of the world economy; only in East Asia and the Pacific had it dropped below 50 %. As shown in Appendix 2.3, it had been 54.6 % in 2008 and as high as 59.3 % in 2000. This underscores the rapid growth of industry in the region.

The changes in economic structures brought new conditions of work, skill expectations, and forms of labor control and organization. Some have argued that the upper-end service sector jobs of the "knowledge economy" required new "soft skills." In reality, the "new" and "old" economies co-existed, and reinforced each other often to the detriment of low-skilled labor or professional activities that were increasingly disassembled by digital technologies. Demand grew for intellectual and technical skills essential for interactive service work, and for highly trained labor in Science, Technology, Engineering, and Mathematics (STEM) occupations. In the meantime, new cultures of labor control emerged,

Table 2.6 Growth of the World economy by region, 1980–2015 in $billions

Region	*Category*	*1980*	*1990*	*2000*	*2010*	*2015*
World	GDP based on current prices	11,137.26	23,216.15	33,455.71	65,338.93	73,506.82
	GDP based on PPP	12,990.06	26,877.56	49,143.95	88,523.12	113,162.22
	% share of world total based on PPP	–	–	–	–	–
Advanced Economies	GDP based on current prices	8357.64	18,123.30	26,484.53	42,819.69	44,368.74
	GDP based on PPP	8292.84	17,189.88	28,128.11	40,998.56	48,004.74
	% share of world total based on PPP	63.84	63.96	57.24	46.314	42.42
Emerging market and developing economies	GDP based on current prices	2779.63	5092.84	6971.18	22,519.25	29,138.08
	GDP based on PPP	4697.23	9687.67	21,015.84	47,524.56	65,157.48
	% share of world total based on PPP	36.16	36.04	42.76	53.69	57.58
Emerging and developing Asia	GDP based on current prices	754.12	1110.20	2309.99	9711.70	16,084.62
	GDP based on PPP	1182.27	3396.54	8333.57	23,012.64	34,952.03
	% share of world total based on PPP	9.10	12.64	16.96	26.00	30.89

(*continued*)

Table 2.6 (continued)

Region	*Category*	*1980*	*1990*	*2000*	*2010*	*2015*
Latin America and Caribbean	GDP based on current prices	888.62	1197.07	2218.71	5067.74	4948.60
	GDP based on PPP	1581.42	2712.19	4540.51	7753.68	9432.507
	% share of world total based on PPP	12.17	10.09	9.24	8.76	8.34
Middle East and North Africa	GDP based on current prices	518.18	1039.92	1057.07	2556.93	2824.31
	GDP based on PPP	936.09	1661.13	2917.57	6259.26	7576.23
	% share of world total based on PPP	7.21	6.18	5.94	7.07	6.70
Sub-Saharan Africa	GDP based on current prices	341.31	344.17	374.87	1273.34	1509.77
	GDP based on PPP	385.70	726.43	1185.56	2572.90	3520.77
	% share of world total based on PPP	2.97	2.70	2.41	2.91	3.11

Source: Extracted from International Monetary Fund World Economic Outlook Data, October 2015 https://www.imf.org/external/pubs/ft/weo/2015/02/weodata/weoselagr.aspx Accessed November 22, 2015

and protections for labor eroded through the anti-trade union assaults of capital emboldened by neo-liberal states. Work flexibility, which allowed for schedule variability or reduced work arrangements, became a feature of the "new economy," although it benefited capital far more than labor as the intensity of work increased partly because technology blurred the boundaries between home and work, free time and work time (Sweet and Meiksins 2013).

The trajectories of opportunity continued to diverge for different groups of people depending on their respective levels of education, social class, gender, race, ethnicity, and nationality, which led to widening inequality in many countries. The power of elite education to reproduce the power and privileges of traditional and new elites, both national and global, became even more pronounced. "The elites and other well-resourced groups," argues Agnès van Zanten (2015: 5), "have managed to continue successfully hoarding educational opportunities despite increasing competition from other groups," thanks to the ability of dominant groups to define scholastic merit and "to transform their economic capital into cultural capital in order to help their children."

Various reports by the International Labor Organization (ILO) paint a sobering picture of labor market developments in the 2000s and 2010s. The 2014 report bemoaned the risks of a jobless recovery since the beginning of the financial crisis in 2008. "Almost 202 million people were unemployed in 2013 around the world, an increase of almost 5 million compared with the year before," the report lamented. "This reflects the fact that employment is not expanding sufficiently fast to keep up with the growing labor force.… If current trends continue, global unemployment is set to worsen further, albeit gradually, reaching more than 215 million jobseekers by 2018" (ILO 2014: 11).

The ILO's (2015) *World Employment and Social Outlook* highlighted one of the major changes in the organization of the labor market. Salaried employment was on a downward spiral and by 2015 accounted for only about half of global employment, while self-employment and other forms of employment had expanded. Among those in salaried employment, less than 45 % were in full-time work. The decline in full-time jobs was often accompanied by growth in part-time jobs, as happened in the EU, where between 2009 and 2013, full-time jobs declined by 3.3 million and part-time jobs increased by 2.1 million. On the whole, employment growth slowed to 1.7 % between 2000 and 2007, dropping to 1.4 % between 2011 and 2015. Due to slow economic growth, Europe's performance

Table 2.7 Structure of World output 2000–2014, by regional levels of development, percentage

Sector	*Agriculture % of GDP*		*Industry % of GDP*		*Manufacturing % of GDP*		*Services % of GDP*	
Year	2000	2014	2000	2014	2000	2014	2000	2014
World	4	3	29	26	19	16	67	70
Low and Middle Income	14	10	36	35	22	21	50	55
East Asia and Pacific	15	10	45	42	29	29	41	48
Europe and Central Asia	13	8	32	28	16	16	54	63
Latin America and Caribbean	6	5	31	30	14	14	64	65
Middle East and North Africa	13	–	38	–	–	–	49	–
South Asia	23	18	26	29	17	17	51	58
Sub-Saharan Africa	17	14	34	28	11	11	49	53
High Income	2	2	28	25	15	15	71	74

Source: World Bank, http://wdi.worldbank.org/table/4.2 Accessed November 22, 2015

was among the worst; employment growth during the two periods was 0.9 % and 0.1 %, respectively. The developing countries fared better in economic growth, which accelerated from 3.9 % from 1991 to 1999 to 6.4 % from 1999 to 2007. By 2013, the global jobs gap cost the world $1.22 trillion in lost wages.

Partly fueled by technological changes and reorganization of production, these developments depressed wages, aggregate demand, and fostered income insecurity and inequality. Unemployed benefits declined consistently from 2007, but positive steps were undertaken in the developing counties to improve pension coverage and protection for the self-employed and workers in non-standard jobs. Another significant change in employment patterns was the growth of global supply chains, which employed 20 % of workers by 2015, or 453 million people compared to 296 million in 1995. In the meantime, protections for workers were eroded in many parts of the Global North especially in Europe, while

some countries in the Global South such as Argentina, Brazil, China, and South Africa experimented with new forms of social protection.

Changes in employment patterns raised significant issues about the connections between higher education and the labor market. This became a subject of growing policy and systematic academic research interest in Europe. In the 1990s, several comparative studies examined the increasingly problematic transitions from educational institutions to work in the region's post-industrial societies with the precipitous decline of the youth labor market. The studies variously attributed the phenomenon to the segmentation of opportunities and restructuring of work, the systems of regulation between qualifications and employment (such as the robust apprenticeship system in Germany and the loose system in the USA), the life-course dynamics of individual orientations, decisions, and social opportunities, the fields of study, and the state of linkages between employers educational providers (Jobert et al. 1997; Heinz 1999; Chorafas 2011).

Pessimism and concern about "over-qualification" reflected the fact that "increased educational opportunities did not seem to translate into corresponding equality of professional opportunities except in a very few countries such as the Netherlands and Sweden" (Teichler 2011: 331). Four major structural responses were adopted. First, previously specialized professional colleges were integrated into multidisciplinary universities. Second, efforts were made to differentiate the higher education system into universities emphasizing the pursuit of academic knowledge and other institutions focusing on professional and occupational needs. Third, attention to adult education grew which resulted in legislation in several countries requiring the incorporation of lifelong learning as a core function of university education. Fourth, curricula reforms were undertaken to increase the "employability" of graduates. This resulted in professional disciplines gradually gaining ascendancy over the humanities and social sciences, and in greater attempts to combine general education and practical work experience. The dual institutional model soon showed signs of strain as the professional institutions experienced "academic drift" and universities saw "occupational or professional drift." An example was the conversion of British polytechnics into universities in 1992.

In general, across the OECD countries, and elsewhere, earnings and employment rates for individuals with higher education continued to be higher than for those without, and unemployment rates lower. Graduates of tertiary education enjoyed significant earnings differentials over those with upper secondary and non-tertiary education. Also, the former's

employment rate in 2005 was ten points higher than the latter, and their unemployment rate averaged 4 %.[3] But the question remained even as to whether the demands of the labor market were being matched by the supply of the higher education institutions and vice versa. In short, were labor markets generating enough jobs requiring higher education, and were tertiary qualifications meeting the needs of the labor market?

Clearly, the connections between higher education and the labor market became more fraught than ever, subject to mismatches, not least because higher education institutions are not always nimble enough to respond effectively to shifts in occupational landscapes. This was particularly challenging for comprehensive universities supporting a multiplicity of academic and professional programs, which exhibited heterogeneous patterns of responsiveness to labor market signals. This may be one reason behind the explosion of private institutions offering occupationally oriented programs. Yet, at the same time, the profound changes taking place in global and national economies and the nature of work required the cognitive, creative, and communication skills of lifelong learning best provided by the less marketable liberal arts programs. Training for specific jobs and education for adaptability, versatility, and employability over a lifetime, imparting knowledges and cultivating entrepreneurial and problem-solving skills, constituted a vexing challenge for higher education institutions. This conundrum lay at the heart of the nexus between higher education, economy, and society.

The mismatches between higher education and the economy were evident in the swelling ranks of unemployed and underemployed graduates, which served to escalate the need for more qualifications in a continuous chase for credentialism that in turn inflamed intra- and inter-institutional competition. It was also evident in the apparent paradox in some countries whereby graduate unemployment existed side by side with shortages of labor in certain professions. Among the OECD countries, for example, there was growing concern that young people "might be performing jobs requiring lower skills than those acquired in tertiary education" (Santiago et al. 2008: 202).

Such concerns became acute in South Korea, an OECD country, where the perception grew that university graduates were taking jobs designed for "college graduates whereas college graduates similarly fill jobs that previously were given to graduates from secondary vocational schools," while there were "apparent shortages of trade-level workers." In the meantime, "In Mexico, it was reported that between 1990 and 2000, 45.6% of tertiary graduates did not find employment in an area matching the competencies

and skills acquired in tertiary education. Of those, about half were employed in less specialized areas in which most employed individuals did not hold a graduate degree" (Santiago et al. 2008: 202). In fact, it was reported that "between 1995 and 2005, over-education increased in 15 of the 22 countries for which data were available, in a significant way in Austria, France, common among 15–28 years old workers who are on temporary or part-time jobs and more prevalent among women than men." Another survey of 19 countries suggested, "that between 1995 and 2006, the supply of tertiary education expanded at a greater pace than the demand for tertiary qualifications" (Santiago et al. 2008: 204). Nearly a third of 15- to 28-year-olds were found to be overeducated in Poland, the Slovak Republic, and the UK.

The challenges became increasingly acute in the world's largest economy, the USA. The country's age-old racial and gender inequalities in the labor market for graduates persisted (Flabbi and Tejada 2012; OECD 2011, 2012; U.S. Bureau of Labor Statistics 2014; Boshora et al. 2015).[4] Of growing concern also was the growing mismatch between the skills required in the job market and the skills of college and university graduates. Press headlines claimed millions of jobs were going unfilled because of a growing "skills gap," which provoked spirited debate among economists. Some thought the gap partly explained the country's prevailing high unemployment rate, while others blamed the latter on weak aggregate demand (CBS 2012; Shierholz 2014; Bessen 2014). The "skills gap" was largely blamed on colleges and universities. But examining US data covering the period 1984–2008, Bardhan et al. (2010: 3) found

> a great deal of heterogeneity in the responsiveness of higher education degree programs to corresponding occupations. While several degree programs such as computer science and information technology are highly responsive to labor market outcomes (albeit with a short lag), other degrees such as for medical doctors or doctors of medical dentistry appear largely unresponsive, even in the face of longer term trends.

A sobering report from the Center on Education and the Workforce (CEW) at Georgetown University put it starkly: the USA was "on a collision course with the future" (Carnevale et al. 2010). Federal and state governments were challenged to increase educational investment and higher education institutions "to be much more career-oriented than they have been and to overhaul the way they educate students, to much more closely align the curriculum with specific jobs" (Jaschik 2010). Several

years later, the CEW issued another report projecting job growth to 2020 (Carnevale et al. 2013). By that year, the country would have an estimated 164.6 million jobs, both new and replacement, from 140.6 million in 2010. In 2020, the report predicted, 65 % of all jobs would require post-secondary education and training, up from 28 % in 1973, 37 % in 1992, and 45 % in 2010. The most valued skills were and would increasingly be communicative in nature (active listening, speaking, reading comprehension, critical thinking, and writing). But according to the Bureau of Labor Statistics, since "only 31 percent of Americans need postsecondary education as the minimum education level required for their jobs, and 60 percent have postsecondary education, then 30 percent of our workforce is overqualified" (Carnevale et al. 2013: 6–7).[5]

The case of Russia was quite instructive in showing the impact of marketization on a previously planned socialist economy. Market reforms led to notable shifts in the relative earnings of degrees in various fields. Earnings fell in engineering and science, fields that were previously highly valued in the former Soviet Union, and rose for economics and law. Science majors faced higher unemployment than before, and degrees earned after 1985 were more valued than those earned before. As Gerber and Schaefer (2004: 50) observed, "The steep growth in the proportions of enrollments in economics/business and law/administration and the rapid decline in enrollments in engineering show that Russian students themselves recognize this fact."

Academics and policy makers in the OECD countries adopted a series of initiatives and policies to improve the processes of transition. They ranged from those targeted at students, institutions, and governments. For students, they urged the need to encourage better choices of study fields, provision of more accurate information about the labor market, career paths, and outcomes of graduates, and robust career guidance. On their part, institutions needed to become more responsive to labor market needs, students' preferences, and provide more flexible study conditions to accommodate diverse learners. Governments were asked to shape student and institutional choices by providing information about labor market outcomes for graduates, targeted funding for institutional provision, and preferential pricing and financing for fields of study in high demand, and through rationing and regulation, and the promotion of vocational study opportunities. Professional, disciplinary, business and employer associations were also called upon to partner with higher education institutions to improve their labor market responsiveness. Similarly, national

qualifications frameworks and quality-assurance systems, as well as ministries of education, had a role to play in linking labor market demand and high education supply (Santiago et al. 2008: 205–230).

The mismatch between graduate qualification and employment needs was also expressed as a concern in many countries in the Global South. In Asia, China's breakneck economic expansion was simultaneously facilitated by and fostered the explosion of higher education. In the initial phases of the transition to the market economy, Wu and Xie (2003: 439) found that, as in other post-socialist economies, the early entrants did not fare as well as the later entrants who were the only group to enjoy "the earnings advantage of the market sector." The authors did not discover "any difference between early birds in the market sector and stayers in the state sector," thus casting "doubt on the proposition that bigger returns to education in the market sector than in the state sector are caused by marketization per se."

The marriage between the higher education and the labor market became more complicated over time. University graduates increasingly faced employment difficulties. Writing in 2011, Ren et al. (2011: 3440, 3444) noted that in that year, 6.5 million university and college graduates would "seek to enter the labor marker. Less than three in four will find work right away, however." The worsening graduate market reflected growing paradoxes in the Chinese economy, including the juxtaposition of a critical skill shortage and increased number of graduates who could not find jobs. This conundrum was attributed to the immaturity of the labor market and the misaligned goals of the strategic actors, namely, "the different levels of government, the universities, labor market intermediaries and individual graduates in China."

Four years later, it was found that massification negatively affected both graduate employment and social mobility in China. The employment opportunity gap widened between students from elite and non-elite institutions, and from rural and urban residents. Students' social and cultural capital embedded in family background and networks also played a growing role. Together with the underemployment fostered by the crowding out effect of massification, higher education contributed to growing inequality. Not surprisingly, university students "started to doubt the ability of higher education to improve their competitiveness in the job market. This, in turn, has led to a wide dissatisfaction with higher education development in China" (Mok and Wu 2015: 77). Other scholars corroborated the mounting social and spatial inequities of access to college, educational attainment, and returns to education (Wang et al. 2014; Yang et al. 2014; Fleisher et al. 2011, 2010).

Many of the developments and challenges identified in China also applied to India with their own characteristics. In addition to rural–urban and class disparities in access to higher education and employment, for example, in India, religion, caste, and English-language ability played a crucial role. Geetha Rani (2014: 1) showed that returns to higher education varied considerably "between 4.9% among the rural workers and 38.2% among fluent English ability group." As liberalization in India accelerated from the 1990s, the segmented labor market underwent significant changes, which affected the expectations, employment, and employability of the rapidly growing college and university graduates. The discrepancies between higher education and the labor market entered a new phase.

In the 1990s, the majority of students and their parents preferred government employment, which was reflected in the fact that "over 73% of the students in Indian higher education [were] enrolled in the humanities and the social sciences. Given the low employment probability of graduates in these disciplines, they have been adding rapidly to the ranks of the educated unemployed" (Dhesi 2000: 760). Autar Dhesi proceeded to warn,

> in the rapidly changing economic environment, educated youth will face serious unemployment problems unless educational training is reoriented to the emerging skill needs, and graduates are prepared to break away from older perceptions of opportunity and security. They have to seek new opportunities that are opening for appropriately educated persons in the private sector, especially as self-employed entrepreneurs.

As in other parts of the world, the mismatch between higher education and the labor market in India only worsened in the 2000s and 2010s as the occupational structure and nature of work changed. Pawan Agarwal (2008: 29) found that education and unemployment and underemployment were becoming more positively correlated. Unemployment was "lowest among the illiterates, but rose progressively with education…. Those with more than 12 years of education that is the graduates have the highest rate of unemployment and underemployment…. Nearly 40 percent of the graduates are not productively employed." At the same time, Indian industry bemoaned the severe shortage of qualified people with English-language skills. Subsequent studies elaborated on several of these issues (Aggarwal et al. 2010; Khare 2014). The challenges were readily acknowledged in an ambitious plan unveiled in 2014 to catapult Indian higher education toward global relevance and competitiveness by 2030 (FICC and EY 2014). The report identified four major gaps, namely, the

low employability of graduates, low impact research output and patents filed, limited focus on entrepreneurship on campus, and complex regulatory requirements and hurdles.[6]

Across Africa, the phenomenon of graduate unemployment and underemployment was particularly troubling. In Nigeria, it was estimated in 2001 that the graduate unemployment rate was as high as 22 %, up from 6 % in 1992. A survey of employers showed widespread dissatisfaction with the deteriorating quality in key skill areas including oral and written communication and technical proficiency. This forced employers to organize remedial courses, which increased their operating costs and reduced profitability and competitiveness (Dabalen et al. 2001). The system produced more graduates in the social sciences and humanities than in such critical fields as engineering, the sciences, medicine, and the health sciences. The majority of graduates were absorbed in the public rather than private sector. By 2015, the situation had not changed much as massive graduate unemployment persisted. Some saw salvation in the promotion of entrepreneurial education (Osagie 2014; Megbo and Ahaotu 2015).

The Nigerian patterns and debates were reflected elsewhere on the continent. A survey of seven West African countries found that access to formal sector jobs and earnings levels even in the informal sector corresponded to years of schooling, with the highest premium going to those with higher education. But the public sector had greater absorptive capacity for university graduates than the private sector to the detriment of overall economic growth. To quote the survey,

> an additional year of education always tends to yield the maximum impact, allowing the person to enter the public sector; this may reflect the inability of formal private firms to create highly qualified jobs for those finishing higher education. We also found evidence that vocational education might better help people enter the formal sector, compared to general education, at least for five out of the seven cities (Nordman and Pasquier-Doumer 2014: 460).

In South Africa, one survey showed two levels of mismatch, one between what high school students planned to study against what they actually studied when they went to university. The ratio of high school learner preferences was heavily biased toward the science, engineering, and technology (SET) disciplines, followed by business and commerce, over the humanities, which aligned with the skill demands of the economy. But the proportion of graduates in the humanities outstripped those in SET. Thus "radical shifts take place within the HE system between first-year enrolment and

graduation in favor of the Humanities" (Cosser 2010: 50). Another study pointed to "clear differences in the way the call for responsiveness is framed and legitimated in the expectations of representatives of the private and public sectors, Professional Associations, Sectoral Education and Training Authorities, and higher education institutions" (Kruss 2004: 673).

Given its history and the structure of its economy, the South African case throws into sharp relief the complex intersections "between the global, national, sectoral and spatial dimensions when thinking about the connection between education and economic development" as well as the role of higher education in both ameliorating and reinforcing racial, gender, spatial income inequalities (Kruss et al. 2015: 29). One study showed that "earnings inequality remained remarkably stable between 1997 and 2007…. The reason that we see no change in inequality is that the improvements in schooling, which had an equalizing effect, were offset by changes in the returns associated with education characteristics, particularly" (Branson et al. 2012: 11; also see Gastrow 2012).

The role of higher education institutions in perpetuating the mismatch between graduates and the labor market is a complex one. This was readily recognized in Egypt by the government that adopted a series of initiatives to "enhance quality and relevance of education and training; and initiatives to improve labor market efficiencies" (Ghada 2014: 7). A study investigating the role of institutional structures and incentives compared private and public institutions and found, contrary to popular opinion, "that the characteristics of higher education institutions do not matter much for labor market outcomes; enrollment in private institutions does not cause better (or worse) labor market outcomes." Instead they discovered that "labor market outcomes, even among the select group of higher education graduates in these two fields, are primarily driven by ascriptive characteristics such as gender, family background and place of residence" (Assaad et al. 2014: 2–3). Most graduates (61.1 %) found their first jobs through family, friends, or network. This suggested, the study concluded, "labor markets function poorly and are unable to distinguish differences in quality among higher education graduates and must rely instead on more easily observed attributes that may or may not be correlated with worker quality. With poor signals emanating from the labor market, neither public nor private institutions are able to adequately respond to labor market needs." But the fact still remained that the country's higher education institutions were not seen as adequately preparing students for the labor market as another study of engineering students posited. It found that these students had "moderate or

minor competence in most of the employability skills. Those competences are acquired mostly outside the university" (Osman 2011: 2).

Concerned by these challenges, and the quality of education in general, some African countries undertook systematic reform and increased investments to make improvements. For example, examining the situation in Senegal following the educational reforms introduced in 2000 to improve access and quality of instruction, Boccafunso et al. (2015) found that the reforms significantly increased the employment rate of graduates who were "better able to find jobs in the services sector and in government, all of which are presumably associated with better returns to education."

Many of the developments noted above in Europe, North America, Asia, and Africa were manifested in Latin America. As was the case in most countries, Brazil suffered from a gender wage gap, which by 2013, averaged 5–7 % in the formal labor market despite the fact that women had on average achieved more on the job experience and higher levels of education than men (Martics 2015: 39). Brazil also resembled other multiracial societies such as the USA in that racial discrimination in the wider society played a critical role in higher education and labor market outcomes. In Brazil, the structures of unequal racial access to educational and employment opportunities were mediated by the geographies of disparity; the sharp levels of uneven regional development broadly between North and South, rural and urban, and favelas and suburbs. At all levels of education, Afro-Brazilians earned less than Euro-Brazilians. Research covering the period between 1980 and 1991 showed that "Afro-Brazilians and women, for example, received roughly 60 percent of the respective wages of whites and men in São Paulo. However, both the gender and color wage gaps were highest in Bahia" (Lovell 2006: 286).

The introduction of affirmative action in Brazilian higher education, noted in Chap. 1, was not extended to the labor market, except for a few large enterprises that voluntarily adopted it. In fact, Mary C. King (2009: 113) found, looking at the period between 1989 and 2001, that "Racial differentiation grows with education, while sexual segregation declines. Differentiation has declined modestly since 1989 in almost all categories except by race among younger people, men and the most educated." Occupational differentiation by race actually showed an increase. Such outcomes reflected the proposition observed in many countries that as selectivity declines with massification the social capital of family and class origins is strengthened, which reduces social mobility.[7] Torche and Ribeiro (2010, 2012) amply demonstrate the role of parental wealth

in their children's outcomes. The "declining mobility returns to higher education" evident in Brazil also applied to Mexico (Torche and Ribeiro 2007), and other parts of Latin America (Torche 2010, 2014). Writing several years later, Amaral et al. (2015: 9) reached a similar conclusion, noting that while college graduates received higher incomes than those with lower levels of education, in both Brazil and Mexico "the returns to education have declined from 2000 to 2010."

The mismatch between the supply of graduates and labor market demands evident in other countries was also noted in Brazil. In 2002, for example, the bulk of students majored in the social science fields (40 %), followed by education (21.7 %), while demand was growing fastest in social services occupations requiring more STEM and entrepreneurial proficiencies. One researcher concluded, "we find no evidence that the growth of higher education is a response to the demands of a changing labor market.… we do not see any clear trend in transforming the country's growing human capital (measured in years of schooling) into tangible social or economic benefits" (Schwartzman 2004: 185).

Brazil like many countries saw salvation in developing a vibrant tertiary technical sector. Some analysts found that there were significant wage premiums for students completing technical education, although differences in courses and student profiles led to heterogeneous impacts (Almeida et al. 2015). A study comparing the development of this sector in Brazil, Mexico, and Colombia argued that it contributed to democratizing opportunities for higher education in so far as it was easier to access for the underprivileged. However, articulation and integration between this sector and the universities remained weak in the three countries. Also, technical education graduates earned far less than university graduates and "due to limited demand, are more constrained in their placement in the labor market" (Jacinto and de Fanelli 2014: 12).

In both the Global North and the Global South, possessing an undergraduate degree was increasingly no longer enough to guarantee a well-paying job in the crowded markets of degree holders. What mattered was the quality of the degree, the competencies acquired, and fields of study. As noted earlier, massification and privatization tended to undermine quality, leaving many graduates ill-educated, ill-trained, and ill-prepared for employment. The rising skill requirements and technological intensity of work reinforced the demand for highly educated labor and the challenges for higher educational institutions to produce the broad range of competencies required by the labor market.

Writing about Europe, although their analysis was applicable elsewhere, García-Aracil and van der Velden (2008: 220) noted, "These changes have raised concerns about the accuracy of the match between HE and employment of graduates." Using six categories of competencies, namely, organizational, specialized, methodological, generic, participative, and socioemotional, they concluded,

> Enhancing these competencies in the educational process requires an approach that is different from what has traditionally been offered by HE institutions, an approach that is focused on active learning, stimulation of relationships and cooperation of individuals, promoting multidisciplinary approaches, and so on. In summary, current social demand requires a different style learning process that is far removed from the traditional methods based on passive accumulation of knowledge (García-Aracil and van der Velden 2008: 234).

While horizontal variations in higher education had always mattered in terms of the prestige of the institution one attended and field of specialization, they became even more pronounced in the era of massification, privatization, and globalization. The broad disparities in earnings and status between degrees among professional fields and between them and the humanities and social sciences shifted and intensified with the unbundling and transformation of many of the professions as a result of new technologies, the reorganization of work, and changing social norms.

The transition from higher education to the labor market constituted a critical meeting point between higher education and the labor market. The patterns of such transitions of course varied among countries due to both the institutional characteristics of the higher education system and the nature of the labor market. For example, Jacob and Weiss (2010: 529–30) found that transitions in the USA whose higher education was "stratified more diversely and sequentially with more flexibility between different tracks" were "less standardized and regulated than in Germany."

Critics pointed out that the various interventions adopted by higher education institutions and governments could only paper over what were profound structural cracks in the political economy of higher education, in which the mismatches were systemic. Sukarieh and Tannock (2015: 116–9) argued passionately that the expansion of higher education and the extension of youth (the rise of a new phase variously called "emerging," "frozen," "delayed," "arrested" or "aspiring" adulthood, or "waithood" that can last to the late 20s) were deeply imbricated.[8] They attributed the

prolonged transitions of students and young people more generally into adulthood to three factors.

> First, with the rise of neoliberalism and its attacks on labor unions and the welfare state, alternative routes for social mobility increasingly disappeared, so that post-secondary education became not just the most important but virtually the only pathway to social and economic well-being.… Second, many post-secondary graduate jobs are themselves being standardized and automated, in a process [referred] to as "digital Taylorism." Leading to the deterioration of wages and working conditions.… Third, there has been a massive increase in post-secondary enrollment in the global South particularly in East Asia (Sukarieh and Tannock 2015: 117–118).

Struggles for Affordability and Accountability

Students reacted to the changes in the organization, financing, and outcomes of higher education through protests and revolts. Students around the world have a long history of activism to protect or advance their group interests, as well as of engaging in wider political and social protests. Institutional issues that provoked student protests ranged from the mundane desires for better services and facilities to the pedagogical drive for relevant curricula to assorted demands for greater involvement in decision-making, and the creation of more inclusive campus climate. Students have also played multiple roles, sometimes as leaders, followers, and active or passive participants in broader struggles against repressive regimes, imperial wars, socioeconomic inequality, and racial, ethnic, and religious discrimination, and in pursuit of many other causes, both progressive and reactionary.

Thus student protests have been characterized by complexities and contradictions, and ambivalences and ambiguities. They were triggered and sustained by a variety of causes and contexts some tied to internal institutional matters, others to issues involving the wider society, and the complex and changing confluences between the two. Student activism is often fueled by the energy, exuberance, insolence, fearlessness, naivety, and idealism of youth, their liminal inter-generational status, the relative freedom from the constraining attachments of family and career, the confidence and impatience to bring about change, and the impulses of curiosity and excitement of exposure to radical ideas.

The internal and external dimensions of student activism are determined in their development and connections by the shifting intersections of four key forces, namely, the nature and dynamics of the higher education system, students' collective identity, the reigning political regime, and prevailing transnational influences; what Weiss et al. (2012) call the education system story, the collective identity story, the regime story, and the international diffusion story. The ways in which these dynamics or stories are interwoven differs between and within countries, and change over time, hence the great variability and the ebbs and flows in the history and trajectories of student activism around the world.

As we have seen, after World War II, higher education changed dramatically in many parts of the world. It ceased to be a preserve of a small elite as massification changed both the collective identity of students and the patterns of student mobilization and protest. These transformations were reinforced in complex and contradictory ways by the privatization of higher education. Between 1945 and 2015, every region in the world witnessed major shifts in the nature of political regimes, which also altered the terrain of student activism. At a global level, the most significant changes related to the struggles for decolonization, development, and democratization, in which student movements sometimes played quite a pivotal role. For their part, the processes of globalization in general, and the internationalization of higher education in particular, affected the transnational flows of ideas, practices, models, styles, and symbols of student protest (Fominaya 2014).

Since 1945, student activism has undergone several phases. In general, three can be identified, although it needs to be stressed the actual periodization for each region and particular country varied. The first phase saw the dramatic upsurge of student activism that shook institutions of higher education and the wider society, and in some cases, even brought down regimes. Emerging in the context of the emerging forces of disruptive massification when students still enjoyed special status as relatively untainted moral or civic custodians of society and its future, this phase coincided with the early post-colonial and developmentalist eras in Asia, Africa, and Latin America, and the eras of postwar reconstruction and civil rights in Europe and the USA. The revolutionary momentum could not be maintained, and sooner or later, it gave way to prolonged periods of low-level student activism, which constituted the second phase.

The third phase of reawakened student activism was spawned by the exponential growth of privatization of higher education. The expansion

of private institutions both non-profit and for-profit not only accelerated massification, thereby further robing students of their special status in society, it undermined their collective identity, all of which added to the delegitimization of their political role. In so far as privatization was often accompanied by the growth of the more utilitarian professional fields of study at the expense of the critical liberal arts, it became part of the arsenal of student deradicalization. At the same time, however, the rising cost of education and imposition of cost-sharing inflicted greater burdens on students and their families. The protests against tuition fee increases became an integral part of the struggles for educational access, affordability, and accountability. As Altbach and Klemencic (2014: 3) have argued, "The fight against tuition fees remains the single most powerful mobilizing force for student activism worldwide." Student opposition mounted "against cuts in public finding of higher education and increases in tuition fees, both of which are associated with neoliberal reforms in higher education."

The first phase peaked in Europe in the 1960s (DeGroot 1998a, 1998b; Vos 2011). In the annals of European student activism after World War II, 1968 often stands out as a defining moment of heroic student resistance. In the immediate aftermath of the war, student movements in Europe were caught up in the maelstrom of escalating tensions of the Cold War, symbolized by the rivalry between the Soviet-backed International Union of Students and the Central Intelligence Agency (CIA)-backed International Students Conference. In the Soviet bloc, and the dictatorships of Spain and Portugal, strenuous efforts were made to depoliticize the students, punctuated by a brief eruption of dissident student voices in 1956. In the democratic countries of Western Europe, students were also largely depoliticized as they were preoccupied with improving student conditions and institutional democratization.

At the turn of the 1960s, this began to change. European students were variously mobilized by disillusionment with the postwar order, opposition to the Vietnam War, solidarity with third world decolonization and liberation movements, and internally against academic authoritarianism, technocratic reforms, and the pretensions of objective science. Germany was at the crossroads of the Cold War tensions, which inflamed student opinion (Minnerup 1998; Moses 1998). These developments culminated in the wave of protests of 1968 that spread across capitalist and communist Europe. But student activism went into decline soon thereafter, thanks to the repressive measures adopted by the authorities, ideological infighting

and fragmentation, and loss of faith in the student movement as a revolutionary vanguard.

The New Left heavily influenced the "new student movement" that emerged in Western Europe in the aftermath of 1968. It gravitated to new causes including environmentalism, rejected the "politics of reason" for "idealistic engagement," stressed the "expressive politics" of cultural non-conformism rather than "instrumental politics," or returned to focusing on defending student interests. In Britain, this included protests against increased tuition fees. The decline of student activism in the region reflected a profound shift in the social position of students. Since they were no longer exceptions in their age group, and increasingly lived off campus, they "no longer saw themselves as a group but rather as individuals who spent their formative years in a certain social environment in relation to their personal learning-cum-lifetime project. They had become customers of a diploma mill, no longer members of a community" (Vos 2011; 315).

In contrast, in the non-democratic countries of Europe, the ideals of freedom, truth, and justice still enjoyed powerful resonance. In Portugal, this was combined with calls for an end to the colonial wars in Angola and Mozambique. In the communist countries, struggles to establish independent student committees were paralleled by the bourgeoning independent trade union movement. The issues of national autonomy and democratic reform increasingly preoccupied students' movements in the 1980s. Even the Soviet Union could not escape. "In the first half of 1989, just before the fall of the regime, student activism reached its climax in the Soviet Union" (Vos 2011: 311).

In the new century, the resumption of student protests in Europe was concentrated in countries with rising tuition fees, such as Britain. In 2010, the tuition cap was raised from £3290 to £9000. This was greeted with nation-wide student protests, including a demonstration in London on November 10, 2010 that was attended by about 50,000 people, another at Parliament Square on December 9 attended by 40,000 people. There were widespread occupations of building at dozens of universities and establishments. The anti-tuition fee protests were repeated each subsequent November with attendance in the thousands and met with heavy police repression (Lewis et al. 2010; Topping and Malik 2011; Mulholland 2012; Bastani 2013; Taylor 2014). While the protests in Britain had failed to achieve their goal by 2015, in Germany, students succeeded in forcing all German states to scrap tuition fees after massive protests, and to establish free higher education (Smith 2014).

By 2012, regular student demonstrations were being held in Spain, Portugal, and Greece, and they soon spread to Belgium, Switzerland, and the Ukraine. In Albania, a series of protest rallies were held in 2015 against repeated rises in tuition fees and proposed reform law that they argued would make education unaffordable to the poor (Erebara 2015; Likmeta 2015). In Italy, students expressed their growing outrage against austerity and an impending privatization reform bill by occupying universities. The occupy school movement spread even to high schools (Salomone 2012). In the meantime, in France, students concerned about their increasingly difficult employment prospects joined workers to stage large protests against labor and pension reforms; in 2006, against a law that would make it easier to fire workers below the age of 25 and in 2010, against a law to raise the retirement age from 60 to 62 (Chrisafis 2006; Samuel 2010).

In North America, student protests took different paths in the USA, Canada, and Mexico. Student activism in the USA after World War II developed in the contexts of the rapid expansion of higher education, the Cold War, the Civil Rights Movement, and the anti-war movement. Students also protested over institutional issues ranging from the curriculum to cafeteria conditions to dormitory hours to shared governance to academic freedom. The protests escalated in the 1960s, peaking in 1969–1970 when 43 % of the country's higher education institutions experienced protest (Dyke 1998: 28). By and large, the locus of protests was in the selective and large institutions endowed with the kind of political culture, resources, and critical mass of activists, and history of activism that facilitated mobilization.

Berkeley became the epicenter of student activism in the 1960s as home of the Free Speech Movement, anti-war movement organized around the Vietnam Day Committee, and other movements that constituted the counterculture for which the youth movement and the 1960s became famous or infamous (DeGroot 1998a, b; Cohen and Zelnik 2002; Smelser 2010). In the meantime, African American religious and educational institutions, organizations, and activists led the Civil Rights movement (Cohen and Snyder 2013). While the anti-war and Civil Rights movements served as critiques of state power and sought to change policies, the student movement also pursued the transformation of the curriculum, and the composition, and cultures of higher education.

The struggles over the internal institutional structures and values of the country's segregated historically white universities were led by the droves of increasingly militant African American students and faculty

who were recruited in belated or desperate response to the demands of the Civil Rights Movement for inclusion and diversity. Inspired by leftist and other radical ideologies including pan-Africanism and Black Power, the African American activists fought against the pervasive Eurocentricism of the American academy and for the introduction of Black studies and other marginalized knowledges and modes of knowing. Black studies became a model for other ethnic and interdisciplinary studies programs including women's and gender studies (Reuben 1998; Rojas 2010; Biondi 2012).

The apotheosis of the student protests in the 1960s was the student strike of 1970 that involved four million students in over 450 institutions. It was the largest student strike in US history triggered by the murder of four students gathered at a rally at Kent State University to protest the US invasion of Cambodia. Following the upheavals of the anti-war and Civil Rights movements, student activism went into a lull, save for the struggle against apartheid South Africa (Njubi 2004). Spurred by Transafrica, an advocacy group for Africa and the African diaspora, in the 1970s and 1980s, students across the USA joined the anti-apartheid bandwagon as they pursued the sanctions and divestment campaign against South Africa on their campuses.

At the turn of the twenty-first century, the student movement in the USA was rekindled by protests against rising tuition fees. Presaging the new student activism were the protests at San Diego State University in 1992 against massive budget cuts, threatened faculty layoffs, and elimination of departments. Two decades later, both budget cuts and student protests had become routine. Berkeley and the other campuses of the University of California returned to the center stage of the new wave of protests as thousands of students between September and December 2009 held demonstrations, sit-ins, and occupied buildings against a proposed 32 % tuition fee hike, staff layoffs, and funding cutbacks (Wollan 2009a). The governor capitulated and agreed to freeze tuition fees for three years. But other demands were soon added including forgiveness of student loans and ending the wars in Iraq and Afghanistan (Wollan 2009b). Hundreds of thousands of students participated in a National Day of Action on March 4, 2010 to protest tuition increases and budget cuts.

On some campuses, the student campaign began to replicate the Occupy Wall Street movement (Buckley 2012). Even after the Occupy movement had fizzled out, the wave of student protests continued and escalated. In 2014, there were 160 protests "evenly split between two main themes:

sexism/sexual assault and university governance/student rights. The remainder called for improvements to tuition and funding—about half of them at University of California schools" (Wong 2015; Renda 2015). In November 2015, students from more than 100 universities held what was dubbed a "Million Student March" demanding cancellation of student debt, tuition free public higher education, and a minimum wage of $15 an hour (Mosendz 2015). For their part, graduate students began to actively organize against both soaring tuition and low compensation as teaching or research assistants. Strikes and unionization among graduate student spread. A report in April 2015 noted, "there are currently 31 officially recognized unions in the U.S. and 18 more are in the process of gaining recognition" (Ludwig 2015).

As always in the racially fraught politics of US society and institutions, Black students soon emerged as the vanguard of student protests across the country. Galvanized by the Black Lives Matter movement that emerged in the aftermath of a spree of police killings of unarmed Black youths in 2013 and 2014, Black students rose up against the persistent structural racism, marginalization, and micro-aggressions so rampant on American campuses including the elite institutions. They reprised age-old demands of the Black student movement for an end to such practices, the provision of targeted institutional services, curricula changes, the recruitment of more Black faculty and administrators, removal of racist symbols including the names of slavery holders and racists from institutional buildings or events, and the acknowledgement of the existence of the insidious culture of racism.

Lurking behind the protests were issues of American higher education's access, affordability, and accountability to the society and the youth, issues which disproportionately affected them and their futures. In 2015, the Black student protests succeeded in bringing down the president of the University of Missouri system and the chancellor of its flagship campus, and roiled campuses from Amherst, Claremont McKenna, and Ithaca colleges to Emory, Georgetown, Purdue, Yale, and Virginia Commonwealth universities (Jaschik 2015; Thomason 2015). The embattled and often clueless white administrators scrambled to assuage the protesters with the tired rhetoric of commitment to diversity. But the racial disparities on American campuses were too deep for the token gestures of racial inclusion students and faculty of color heard from their administrators. Nearly 90 % of recently hired college presidents were white, and there were institutions without a single Black or minority member of the senior

administration, save for occasionally the proverbial chief diversity officer (Supiano 2015).

In Canada, the nation was gripped by the massive student general strike in Quebec between February and September 2012 that involved up to 300,000 students and paralyzed the province's colleges and universities. This was the longest strike in the province and country's history. The strike was called against the provincial government's proposed 75 % increase in tuition fees from $2168 to $3793 over a six-year period. Dubbed the "Maple Spring" in homage to the "Arab Spring," the strike was met with police clampdown and draconian legislation trying to restrict demonstrations. The strike drew nation-wide support. "On 31 May 2012, during the first game of the National Hockey League finals, a 'Casseroles Night in Canada' took place. In solidarity with the student movement in Québec, pots and pans rang out from Vancouver to Halifax" (Lambert 2014; Annis 2014). The ruling party proceeded to lose a hastily called election to the opposition, which cancelled the tuition fee increase. But that did not mark the end of the battle over tuition fees and austerity. A few months after taking power, the new government proposed "a new plan of small annual tuition fee increases that were set to begin at 3 percent per year" (Sukarieh and Tannock 2015: 125). In 2015, tens of thousands of students resumed protests against austerity and budget cuts to higher education (Aranoff 2015).

In Mexico, students had a long history of protest going back to the student strikes of 1929 and 1933. The European student revolts of 1968 found a fertile ground under Mexico's one-party dictatorial regime. The country was then preparing for the Olympic games, which offered the students both an opportunity and a danger; the opportunity to get maximum publicity for their struggles against police brutality and authoritarianism and the danger of forfeiting support from the public proud that their country was hosting the Olympics. The protests were joined by "hundreds of thousands of participants from virtually every secondary and university-level school in the Federal District" (Mabry 1998: 137). The students cast their movement as democratic, reappropriated the revolutionary symbols of Mexican history, and used the government's own rhetoric as a basis of critique. But the recalcitrant government mobilized the army to put down the student protests, leaving hundreds dead. "The immediate legacy of the repression," contends Eric Zolov (1998: 83), "was an explosion of countercultural protest."

The brutal crackdown against the students brought the regime peace for a decade. In 1999, the students at the Autonomous University of Mexico, the largest university in the country and Latin America, with over 270,000 students, went on strike demanding the elimination of tuition fees and other charges, revocation of the 1997 measures limiting the time a student could attend the university, end of reprisals against striking students, and the creation of transparent dialogue within the university community. The massive protests lasted for 292 days from March 1999 to February 2000 and resulted in the resignation of the university president and tuition increase was rescinded and remained unchanged for several years after the strike (Welch 2012).

The development of student movements in Asia was exceptionally complex given the number of countries in the region, variety of political regimes, patterns of economic development, and the growth of higher education systems. But it is safe to surmise that in many countries across the region students were involved in anti-colonial struggles and later they played various roles in anti-authoritarian and pro-democracy struggles both by themselves or in collaboration with other social forces. Levels of student participation in wider political and social struggles depended on their status, which tended to decline following massification, although in its early stages, massification tended to reinforce student activism as previously marginalized groups were integrated.

The salience of student collective identities also tapped into traditions of struggle and prevailing ideologies. Moreover, patterns of student activism reflected levels of state repression, and the degree to which avenues for protest were open for other social forces. The less open the political system the more likely students were to become radicalized and enter into a fateful embrace with the authoritarian regimes. In many instances, after achieving their agendas for democracy, student activism tended to decline, only to be revived sometimes through struggles for affordability and institutional transformation. In Asia, as elsewhere, students were inspired by ideological waves and strategies drawn from abroad either within the region itself or elsewhere in the world.

One of the most remarkable student movements in Asia developed in China. Student activism re-emerged in the late 1970s after a long lull following the Chinese Revolution of 1949 and the Cultural Revolution of 1966–1976. It arose from the high status students enjoyed as an elite group, the weakening of the relationship between the state and students, divisions in the political leadership, and the absence of other oppositional

social groups (Pieke 1998; Wright 2012). Students used the adoption of reforms at the turn of the 1980s as an opening to mount a developmentalist critique of the regime, and later to advocate for democratic reform. Student protests reached a crescendo in June 1989, when they occupied Tiananmen Square. The state responded ruthlessly, massacring about 2000 people to the dismay of the students, the nation, and the world at large.

Nowhere was student activism in Asia as passionate and pervasive as in South Korea. It was centered on the issues of democratization, Korean unification, and anti-Americanism (Kluver 1998). The student uprising of 1960 forced the resignation of the country's president, while the mass protests of 1987 led to the end of authoritarian rule. According to Mi Park (2012), Korean student activism underwent five phases, namely, "the anticolonial (1910–45), liberal democratic (1960–61), populist (1964–70), revolutionary (1980–87), and pluralist (1988–present)." Similarly, in Indonesia, a massive wave of student protests brought about the collapse of the country's authoritarian regime in 1998. Earlier, in the mid-1960s, the student movement that saw itself as a moral force for the nation played a major role in the downfall of the first post-independence regime. But, "as Indonesia's democratic transition progressed the energy of student mobilizations dissipated, and students became increasingly disunited" (Aspinall 2012: 162).

There can be no greater contrast in the trajectory of the student movement in Asia than the cases of Japan and Burma or Myanmar. Student activism in Japan peaked in 1960 and 1970, during the renegotiations of the security arrangements between Japan and the USA. Opposition to the Vietnam War exacerbated Japanese student anti-Americanism. Attuned to student protests in the West and elsewhere in Asia, Japanese students also mobilized against police repression and authoritarian university administrations. Activism erupted periodically in the 1980s in support of protests by opposition political parties, labor unions, and other civil society groups (Steinhoff 2012). In contrast, students in Burma remained in the vanguard of struggles against a more ruthless regime. They were thrust in that role because of a political vacuum, a strong sense of corporate student identity, derived in part from the legacy of anti-colonial struggle (Min 2012). In 1988, the student-led political movement succeeded in deposing the military-backed regime, but only to see it replaced by another one that proceeded to close universities for prolonged periods and kill and torture thousands of student activists. But student activism survived, erupting intermittently in demonstrations, as in 1996, and in 2007.

As elsewhere, the escalating costs of privatization triggered a resurgence of student activism in Asia in the 2000s and 2010s. In the Philippines, for example, in 2010, students at the country's largest university, the Polytechnic University of the Philippines, vigorously protested against a government proposal to raise tuition fees by 2000 %. In March 2013, the suicide of a student at the University of the Philippines who was unable to pay the equivalent of $230 that she owed in tuition fees provoked protests around the capital. Undeterred, two months later, the government granted 354 out of 1683 higher education institutions permission to raise tuition fees (Sukarieh and Tannock 2015: 121). By July 2015, more than 130 students organizations had signed a manifesto drawn by the National Union of Students of the Philippines and the Rise for Education to stop tuition deregulation and tuition fee hikes following a new round of tuition increase approved for another 1246 private institutions (Cruz 2015). A wave of protests against tuition increases spread to many other countries in Asia including India, Indonesia, Jordan, Lebanon, Malaysia, Pakistan, Sri Lanka, Taiwan, and Vietnam. In Bangladesh, thousands of students from private universities took to the streets in September 2015 to protest against the imposition of a tax on tuition fees. Students from lower-middle class feared this would put a huge burden on their families who were already struggling to pay for their children's education (Chowdhury 2015).

As in much of the Global South, African students transitioned from a pampered elite in the 1950s and 1960s into a marginal social group in the 1980s and 1990s; from a privileged national bourgeoisie in the making beholden to the developmental state into an insurgent force disillusioned by the broken promises of the independence social contract making common cause with the disaffected and restive masses. The ebbs and flows of the wider political economy also indelibly marked the phases and cycles of student activism in African countries. The student movements served as a reliable barometer of the continent's turbulent transformations from the euphoria and rapid economic growth of the early post-independence years to the harrowing recessions of the "lost decades" of neo-liberal structural adjustment programs in the 1980s and 1990s to the "rising Africa" of the 2000s and 2010s with its renewed growth, unfolding democratization, and deepening social inequalities.

As an incipient intelligentsia, students were at the center of the decolonization struggles; increasingly pauperized by structural adjustment and targeted by the authoritarian post-colonial state they joined battle for the

construction of democratic developmental states; and in the face of ruthless privatization of the economy and their own institutions and graduate unemployment, they fought for inclusive, integrated and sustainable growth, democratic institutional governance, and the affordability, accessibility, and accountability of higher education. The growing list of studies on African student activism ranges from those that examine specific institutions to those that discuss specific countries or compare countries.[9] Leo Zeilig (2007) captures the development of the student movements in Zimbabwe and Senegal in impressive detail.

In Zimbabwe, students were among the first to criticize the government for embracing structural adjustment policies. Student political demands were mixed with self-interested economic critiques of deteriorating university conditions. By the mid-1990s, protests were escalating especially in the urban areas among workers and the economically depressed middle classes, which further galvanized student activism, although the widening convergence of popular resistance diminished the centrality of students as the trade union movement emerged as the anchor of national protests and soon birthed the leading opposition political party. But the regime outmaneuvered the opposition to the dismay of student activists. This contributed, together with state brutal suppression of protests and the opposition party's embrace of neoliberalism, to the unraveling and deradicalization of the student movement.

Developments in Senegal took a different turn. One of the few semi-democratic states on the continent in the 1980s, students in Senegal were acutely conscious of their declining conditions and eroding status due to structural adjustment and they organized strikes in 1984, 1987, and 1999, and galvanized against the disputed national election results of 1988, and played an important role in the elections of 2000 that succeeded in bringing regime change. Within a year, students went on a prolonged strike to protest the new government's education austerity policies. The killing of a student on campus by the security forces inflamed passions. The strike resulted in a series of reforms including increased student financial assistance, but the student movement subsequently lost much of its organizational cohesion through internal factionalism and regime cooptation.

The most gripping demonstrations of student activism on the continent took place on the two ends of the continent, in North Africa, during the Arab Spring of 2011–2012, and in South Africa, during the student protests of 2014–2015. Student martyrs and activists, inflamed by worsening economic conditions and fading prospects for their own futures, were at

the epicenter of the uprisings that shook the bankrupt and sclerotic dictatorships of Tunisia, Egypt, and Libya. They joined forces with new and old social movements, civil society organizations, and opposition parties with varying degrees of success in achieving regime change (Erlikh 2015; Alhassen and Shihab-Eldin 2012; Zeleza 2014).

In the meantime, the student movement in South Africa was ignited by plans by several universities to raise tuition fees by 10–12 %. Tens of thousands of students erupted in protest, marched to the headquarters of the ruling party, parliament, and the office of the country's president, and electrified Nelson Mandela's fading rainbow nation. The student movement brought together simmering rage at the slow pace of institutional transformation at the universities, and the persistence of the apartheid legacies of inequality, injustice, and impunity in the wider society. To the students, universities were failing them with escalating costs and indebtedness, low graduation and employment rates, and Eurocentric curricula. The state was cheating them of their future with corruption, poor service delivery, and the austerities of neoliberalism. They demanded access to free, equal, and quality education, the decolonization and democratization of the universities, an end to institutional racism, and the exploitative practice of outsourcing service work. The government buckled and agreed to freeze tuition fee increases. But the protests continued as the struggle was about more than tuition fees. It was about the very purpose, integrity, and future of higher education in society (Braam 2015; Brodie 2015; Disemelo 2015; Pilane 2016).

Conclusion

This chapter has chronicled the complex transformations that took place in the organization of higher education between 1945 and 2015 as marked by the waves of institutional privatization, cost-sharing, economic and occupational change, and student resistance and protest. The processes, patterns, implications, and impacts of these changes varied in their structural, temporal, and spatial manifestations between and within regions. But the unmistakable trajectory was toward greater turbulence in the internal and external lives of higher education institutions. The institutional stabilities and securities of elite education of the early post-World War II years gave way to the opportunities and challenges of massification and privatization, which were fortified by the ascendancy of neoliberalism as a global ideology from the 1980s.

Financing became a major problem as state subventions for public institutions declined, and private non-profit and for-profit institutions expanded. More and more institutions became tuition-dependent and were forced to cultivate alternative revenue sources and experiment with new budget models. In the meantime, as students and their families bore a greater cost of education, the economy and labor market were changing faster than their institutions prepared them for. The growing mismatch between educational qualifications and employment opportunities exacerbated student disaffection and alienation, which provoked protest. Student activism from the 1990s often ignited the memories and legacies of student agitation in the 1960s and 1970s.

The waves of student protests also rekindled, reflected, and reinforced other social struggles for the construction of more democratic, inclusive, and just societies. Thus money matters, the changing economics of higher education examined in this chapter, mattered because it was about so much more, about the very purpose of higher education in the rapidly changing world of the twenty-first century.

Notes

1. Among those that collapsed in 2015 were Kaplan Inc., Corinthian Colleges, and Anthem Education, while Education Management Corporation, Career Education Corps, and DeVry University announced closure of dozens of their campuses. In the meantime, the University of Phoenix, the largest of them all, cut its enrollment dramatically from 475,000 in 2010 to 213,800 in March 2015.
2. The programs included National Scholarships, the National Encouragement Scholarship, the National Grant, the Government Subsidized Loan Program, work–study program and fee waivers, and free higher education for students at teachers' universities. In 2010, the country provided 40.79 billion yuan to 38.85 million higher education students (Cheng 2013).
3. For a comparison among the OECD countries and the gender patterns of employment and unemployment rates for those with tertiary education, see Santiago, et al. (2008: Chap. 9).
4. Flabbi and Tejada (2012: 1403) note, "The results also provide insight into gender differences. Men clearly earn more over a lifetime than women at all educational levels: the absolute return to higher education is 43 % higher for men than that for women." Examining the impact of the recession between 2007 and 2013 on different racial groups, Emmons and Noeth (2015) observe, "The income- and wealth-boosting effects of education apply

within all racial and ethnic groups. Higher education may also help 'protect' wealth, buffering families against major economic and financial shocks and mitigating adverse long-term trends. Based on two decades of detailed wealth data, we conclude that education does not, however, protect the wealth of all racial and ethnic groups equally. Evidence presented here suggests that college degrees alone do not provide short-term wealth protection, nor do they guarantee long-term wealth accumulation." Writing in *The New York Times*, Patricia Cohen (2015) stated, "From 1992 to 2013, the median net worth of blacks who finished college dropped nearly 56 percent (adjusted for inflation). By comparison, the median net worth of whites with college degrees rose about 86 percent over the same period, which included three recessions—including the severe downturn of 2007 through 2009, with its devastating effect on home prices in many parts of the country. Asian graduates did even better, gaining nearly 90 percent."

5. The CEW report is critical of this conclusion, noting, "Employers are still willing to pay more for the college degree–a symbol of a worker's attainment of the knowledge, skills, and abilities that improve productivity. This persistence of the college wage premium sends a clear message: Through booms and slumps, rising and falling unemployment, job creation and job loss, workers with postsecondary education earn 74 percent more than workers with a high school diploma or less. Among those with full-time, full-year jobs, the wage premium rises to 82 percent. If more than half of the workforce were really overqualified for their jobs, the college wage premium would dwindle and disappear."
6. The four were defined as follows: "Low employability of graduates driven by several factors including outdated curricula, shortage of quality faculty, high student-teacher ratios, lack of institutional and industry linkages, and lack of autonomy to introduce new and innovative courses; Low impact research output and patents led given relatively low government and corporate spending on research, insufficient doctoral students, missing research focus and culture in most institutions, and lack of international research collaborations; Limited focus on entrepreneurship on campus as reflected in the fact that there are few institutes that offer programs in entrepreneurship and have active incubation /entrepreneurship cells; Complex regulatory requirements and hurdles, poor institutional governance standards, and lack of professional management."
7. In one sense, this reflected, at least in rich countries such as the USA, the effects on higher education of what one study calls "generational shockwaves" in educational and economic assets and opportunities between the Baby Boomers and Generation X and the Millennials (Heller and d'Ambrosio 2008).
8. Alcinda Honwana (2012, 2013) has written insightfully about "waithood" and its socially and politically disruptive effects.

9. Examples of the first type include Frederick Kamuhanda Byrarunga (2006) study of Makerere University that analyzes the different generations of student activism from the 1960s to the 2000s, and Daniel Massey's (2010) *Under Protest*: *The Rise of Student Resistance at the University of Fort Hare*. Pretoria: Unisa Press.

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CHAPTER 3

Disciplining Knowledges: Ruptures in Academic Systems

Introduction

The expansion of higher education after World War II was accompanied by massive transformations in the systems of knowledge production, dissemination, and organization. The disciplinary architecture of knowledge underwent profound changes. Equally remarkable were the adjustments in the transmission and consumption of scholarly knowledges as evident in the emergence of new pedagogical practices, and forms of scholarly communication, and the changing roles of libraries and the political economy of scholarly publishing. The rise of new ICTs drove much of the restructuring in the processes of knowledge production and dissemination. These trends manifested themselves quite differently in various world regions. In fact, old disparities persisted and new ones arose. The critical chasms included geographical, capacity, and disciplinary divides that reflected and reproduced enduring hegemonies and inequalities in the global production of knowledge.

Over time the domination of Europe, North America, and Japan in global knowledge production was challenged and eroded. Before World War II, UNESCO (1993: 3) noted, research

> was a leisurely activity carried out with modest funding, and frequently involved groups in which there was a highly effective teacher-student relationship. After the war science became more organized with much greater amounts of money poured into research. Large facilities and major research

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> projects and programs came into existence…. Industrial research laboratories which had existed well before the Second World War grew larger, and some moved extensively into areas at the frontiers of science, even of pure science.

The emergence of "mega science" or "big science" from high energy physics to space exploration to sequencing the human genome relegated the university to the background, although it continued to be "the heartbeat of science."

The changes in regional and national knowledge production systems were accompanied by equally significant transformations in the composition and organization of fields within the academy as old disciplines were restructured and new ones created out of internal intellectual and institutional dynamics and wider socioeconomic, political, ideological, and cultural trends in society. Particularly notable was the emergence of new interdisciplinary fields. The pecking order among academic fields also shifted inside and outside academia. The way these processes unfolded varied, reflecting different national intellectual, ideological, and institutional traditions. Changing the content and methodology of existing disciplines and accepting new fields were fraught with the complexities, contradictions, and contestations the academy is renowned for. A student entering university in 1945 and another in 2015 joined very different institutional landscapes. The student in 2015 was exposed to an extraordinary range of fields of study, some unimaginable in 1945 in all facets of the academic enterprise.

Many welcomed the extraordinary development of ICT for its innovative possibilities for teaching and learning, research, inter-institutional cooperation, and international collaboration. But others dreaded its disruptive potential for the traditional business model of higher education and even feared for the latter's very survival. Technology contributed to the growing importance of the STEM fields in higher education and national research systems. Technology as an independent or joint field of study spread rapidly after World War II and became the structural glue between different disciplines.

This chapter seeks to examine and compare these processes between 1945 and 2015. As evident in the first two chapters, the geographies, hierarchies, and institutional dynamics of knowledge production shifted quite considerably during this long period. The chapter is divided into three parts. First, it compares the changing patterns in the landscapes of knowledge production in different world regions. Second, it examines the

complex and profound transformations in academic fields. Third, it analyses the role and impact of the new ICTs.

Shifting Knowledge Landscapes

Comparable global data on knowledge production is only available from the early 1990s when UNESCO began producing its *World Science* report*s*. The 1993 report was published in the aftermath of the demise of socialism in Central and Eastern Europe, but there was little expectation that much would change in the organization or funding of science because most countries were experiencing economic difficulties and governments were increasingly finding it hard to raise the necessary resources to finance research and development (R&D) activities. The report, like subsequent ones, focused largely on the natural sciences. Later UNESCO began publishing the *World Social Science* reports.

The 1993 report bemoaned the underdevelopment of science in the developing world and called on the developed countries to provide assistance and promote international science cooperation and science for sustainable development. The 2015 *UNESCO Science Report* described a radically different world. It identified three major trends. First, that "despite the financial crisis, global expenditure on research and development has grown faster than the global economy…. Much of this investment is being spearheaded by the private sector." Second, "the North-South divide in research and innovation is narrowing as a large number of countries are incorporating science, technology and innovation in their national development agendas. Broad-based North-South and South-South collaboration is also increasing." Finally, "there are ever more scientists in the world and they are becoming ever more mobile" (UNESCO 2015a: xx).

One of the major changes in the landscape of knowledge production was reflected in the declining dominance of the Western countries and the rising importance of Asia. Table 3.1 shows regional shifts in gross domestic expenditure on research and development (GERD) between 1994 and 2014. It can be seen that worldwide, GERD increased by more than three times, or at an average annual rate of 11.27 %. The fastest rate of growth was in Latin America and the Caribbean, followed by Asia, then Africa, while the slowest was in Europe and North America. In terms of total expenditure, Asia overtook both Europe and North America by 2007. By 2013, Asia's total GERD was 81.67 % of the total for Europe and North America combined, up from 56.62 % in 2007. The USA ($359.4 billion

Table 3.1 Gross domestic expenditure on research and development (GERD) by world region, 1994–2013, in $billions

Year	*1994*		*2002*		*2007*		*2013*		*1994–2013% Change*
	$	*%*	*$*	*%*	*$*	*%*	*$*	*%*	
World	470.4	100	790.3	100	1132.3	100	1477.7	100	11.27
North America	178.1	37.9	297.8	37.7	382.7	33.8	427.0	28.9	7.36
Latin America & Caribbean	9.2	1.9	22.1	2.8	37.1	32.	51.8	3.5	24.37
Europe	147.7	31.4	238.5	30.2	297.1	26.2	335.7	22.7	6.70
Africa	4.2	0.9	6.9	0.9	12.9	1.1	19.9	1.3	19.67
Asia	125.1	26.6	213.9	27.1	384.9	34.0	622.9	42.2	20.94
Oceania	6.0	1.3	11.2	1.4	17.6	1.6	20.3	1.4	12.54

Source: UNESCO (1998: 23, 2010: 3, 2015a: 26)

in 2007 and $396.7 billion in 2013) maintained its lead, but its share of world GERD fell from 31.7 % in 2007 to 28.1 % in 2013.

R&D expenditures generally rose everywhere both as a percentage of GDP and as a per capita as shown in Table 3.2. On both counts, North America outstripped every region, while Africa remained at the bottom, followed by Latin America and the Caribbean. The latter two regions remained far below world averages, compared to Asia that approximated the world average in the first instance and inched closer in terms of GERD per capita. The R&D funding landscape changed as new players entered the scene. Previously governments dominated, followed by universities and businesses. Historically, business expenditure in R&D (BERD) was confined to the developed countries. It grew in the major emerging economies, such as in China where BERD rose from 59.96 % of total GERD in 2000 to 74.45 % in 2010, and in Brazil from 44.73 % to 47.88 % during the same period (Adams et al. 2013: 7). Also growing was investment in R&D across the world by knowledge and technology intensive firms. Major new sources of R&D expenditure included foundations and NGOs.

Changes can also be seen in terms of the regional distribution of researchers. The eroding dominance of Europe and North America and rapid rise of Asia are clear from Table 3.3. Particularly sharp was the drop

Table 3.2 Gross domestic expenditure on research and development (GERD) by world region as percent of GDP and per capita, 1994–2013

	GERD as % of GDP				*GERD Per Capita PPS$*			
	1994	*2002*	*2007*	*2013*	*1994*	*2002*	*2007*	*2013*
World	1.4	1.7	1.7	1.7	–	126.0	179.3	206.3
North America	2.5	2.6	2.6	2.7	–	915.3	1136.2	1201.8
Latin America/ Caribbean	0.3	0.6	0.6	0.7	–	41.2	66.3/38.5	87.2/40.8
Europe[a]	–	1.7	1.6	1.8	–	299.4	368.3	410.1
Africa	0.3	0.4	0.4	0.5	–	8.0	13.5	17.9
Asia[b]	–	1.5	1.6	1.6	–	57.4	97.2	126.9
Oceania	1.5	1.6	1.9	2.1	–	349.9	505.7	528.7

Source: UNESCO (1998: 23; 2010: 3; 2015a: 27)

[a]Sub-regions in Europe were listed separately: Western Europe ($131.5 billion and 28 %; CEE $4.4 billion and 0.9 %, and CIS $11.8 billion and 2.5%)

[b]Sub-regions in Asia also listed separately (Japan and NICs $87.3 billion and 18.6 %; China $23.3 billion and 4.9 %; India and Central Asia $10.1 billion and 2.2 %, and South East Asia $4.4 billion and 0.9 %).

in North America's share from 25.1 % in 2002 to 15.5 % in 2013, while it was less so for Europe where it fell from 32.2 % to 31.0 %. In contrast, it rose for Asia from 32.2 % to 42.8 % so that the region boasted the largest number of researchers, a position it assumed in the 1990s. Lagging far behind were Africa and Latin America and the Caribbean, although they, too, showed increases. However, North America, Oceania, and Europe maintained their lead in the number of researchers per million inhabitants. In 2013, North America also remained ahead in GERD per researcher, followed by the Caribbean and Asia. Africa came last, although it doubled its expenditures per researcher from $53 to $106.

In the *2010 World Science Report*, UNESCO (2010: 6) predicted that China would soon have the world's largest number of researchers. Between 2002 and 2007, China increased its global share of researchers from 13.9 % to 19.7 %. This accounted for two-thirds of the increase in the number of researchers in the developing world, whose percentage rose from 29.8 % to 37.4 %. China achieved that feat in 2011, when its number of researchers rose to 1,152,300 (17.9 % of the world's total), compared to 1,251,000 (17.0 %) for the USA. In 2013, China's share of world researchers rose to 19.1 %, while it fell to 16.7 % for the USA. Only Japan (8.5 %) and the Russian Federation (5.7 %) enjoyed shares exceeding 5 %

Table 3.3 Researchers by world region

	Researchers thousands			*World share of researchers %*			*Researchers per million inhabitants*			*GERD per researcher PPS$ thousands*		
Year	*2002*	*2007*	*2013*	*2002*	*2007*	*2013*	*2002*	*2007*	*2013*	*2002*	*2007*	*2013*
World	5811	6401	7759	100	100	100	926	959	1083	136	177	190
North America	1459	1285	1433	25.1	20.1	18.5	4483	3815	4034	204	298	298
Latin America and Caribbean	170	232	289	2.9	3.6	3.7	317	416/223	488/201	130	160/173	179/203
Europe	1871	2126	2408	32.2	33.2	31.0	2349	2635	2942	128	140	139
Africa	129	150	188	2.2	2.3	2.4	150	157	169	53	86	106
Asia	2065	2498	3064	35.5	39.0	42.8	554	631	786	104	154	188
Oceania	118	111	123	2.0	1.7	1.6	3678	3174	3219	95	159	164

Source: UNESCO (2010: 6–8; 2015a: 27–30)

of the global total. Next were Germany (4.6 %) and the Republic of Korea (4.1 %).

Remarkable changes also took place in the regional distribution of publications. As shown in Table 3.4, the share of Europe declined from 45.5 % in 2002 to 39.3 % in 2014, and for North America from 34.2 % to 28.6 %. In contrast, Asia's proportion rose from 24.2 % to 39.5 %, catapulting the region into the lead. The respective shares for Latin America and the Caribbean, Africa, and Oceania increased but from low levels. Collectively, the three regions accounted for a mere 12 % of world publications in 2014, up from 8.6 % in 2002. China more doubled its stake from 9.9 % in 2008 to 20.2 % in 2014.

Each region experienced internal transformations as well.[1] At the end of World War II, Europe was not only split into different ideological blocs but also contained countries that varied in size and levels of development. Western Europe was dominated by the nations that constituted the European Economic Community, which eventually morphed into EU. Together with the USA and Japan, Western Europe boasted some of the world's largest systems of knowledge production. By 1990, the 12 members of the European Community invested an average 2.02 % of GDP in R&D compared to 2.78 % in the USA and 2.86 % in Japan. In all three groups of countries, industry financed a large share of R&D. In the EC, industry's contribution was 51.7 %, government 41.2 %, and other 7.1 %. The private sector undertook 64.5 % of R&D work, government 17.4 %, and higher education 18.1 %. Altogether, the EC had 1.4 million R&D personnel, dominated by Germany, France, and Britain.

The EC itself sponsored research projects and collaboration through a series of well-funded multiannual Framework Programs. Various intergovernmental organizations did as well including several United Nations agencies that played a major role in enhancing, and benefited from, the research prowess of Western Europe. Among the most significant was the establishment of the European Center for Nuclear Research in 1953, the European Southern Observatory in 1962, the European Space Agency in 1973, the European Molecular Biology Laboratory in 1974, EUREKA in 1985 to promote the technological competitiveness of European business, and the European Bioinformatics Institute in 1992. A range of NGOs also emerged that promoted pan-European research efforts, such as the European Science Foundation.

The countries of Central and Eastern Europe followed a different path based on the Soviet model. Their knowledge system was divided into

Table 3.4 Publications by world region, 2002–2014

	Total publications			*% Change*		*World share of publications %*			*Publications per million inhabitants*	
	2002	*2008*	*2014*	*2002–2008*	*2008–2014*	*2002*	*2008*	*2014*	*2007*	*2013*
World	733,305	1,029,471	1,270,425	40.4	23.4	100	100	100	959	1083
North America	250,993	325,942	362,806	29.9	11.3	34.2	31.7	28.6	3815	4034
Latin America and Caribbean	27,650	51,471	66,614	86.2	29.4	3.8	5.0	5.2	416/223	488/201
Europe	333,317	438,450	498,817	31.5	13.8	45.5	42.6	39.3	2635	2942
Africa	11,776	20,786	33,282	76.5	60.1	1.6	2.0	2.6	157	169
Asia	177,743	292,230	501,798	64.4	71.7	24.2	28.4	39.5	631	786
Oceania	23,246	35,882	52,782	54.4	47.1	3.2	3.5	4.2	3173	3218

Source: UNESCO (2010: 10, 2015a: 36)

three parts, the academies that conducted basic research, the universities that mostly concentrated on teaching, and the research institutes of industry and agriculture that focused on applied research. But the prewar tradition of university staff doing research persisted. The number of researchers grew steadily in various countries except a few. They more than trebled in Romania from 46,382 in 1970 to 169,964 in 1989 and more than doubled in Yugoslavia from 36,476 to 78,704. They increased in Czechoslovakia from 137,667 to 185,492, and in Bulgaria from 46,633 in 1970 to 96,471 in 1987, and in the German Democratic Republic (GDR) from 158,573 in 1975 to 195,073 in 1989. But the numbers fell in Hungary from 50,749 to 42,276 and in Poland from 196,200 in 1970 to 181,000 in 1985.

In the Soviet Union itself, research in the hard sciences faced fewer ideological pressures compared to the social sciences and humanities. Following the collapse of socialism, the entire research apparatus fell into disarray from massive funding cuts, reorganization, and brain drain. The early 1990s proved excruciatingly challenging as economic output fell, and national debt and unemployment rose. Reforms in the structure of higher education and R&D included the integration of the academies and universities, and of national institutions into world scientific and research communities, as well as the establishment of new funding models and institutions. Universities recovered lost status, but many of the old industrial research institutes closed for lack of support and funding.

Between 1989 and 1996, GERD dropped drastically in most countries of Central and Eastern Europe to levels comparable to some developing countries. Also, like the latter, dependency on foreign research support grew, especially from the EU and NATO countries that they aspired to join. Similarly, from 1990 to 1995 the numbers of R&D personnel shrank, for Bulgaria from 31,707 to 25,577, the Czech Republic from 76,487 to 44,700, Hungary from 59,723 to 38,088, for Romania from 148,513 to 117, 089, and for Slovakia from 28,745 to 16,182. Research infrastructures deteriorated and productivity declined. The changes were equally dramatic in the Commonwealth of Independent States (CIS) whose economies contracted by an average 41 % between 1991 and 1996.

This resulted in major cuts in R&D expenditure, which fell by 40–60 % from 1991 to 1993. The downward spiral continued and even accelerated in some countries in the following years, so that by 2015 GERD levels fell to less than 1 % in all CIS countries save for Ukraine; in seven it fell below 0.5 %. Sharp cuts in government funding forced enterprises to increasingly

rely on their own resources and foreign investment in R the latter rose to about 5 % of total research expenditures in Russia and Ukraine from nearly zero in the 1980s. Between 1991 and 1995, the number of R&D personnel fell by 35–40 % in three countries (Kazakhstan, Ukraine, and Russia), by 50–70 % in four others (Kyrgyzstan, Moldova, Tajikistan, and Uzbekistan), and by as much as 82 % in Armenia. On the more positive side, basic research received more attention than before, and these countries increased the range and scope of their international research collaborations.

In the meantime, little changed in the research systems of Western Europe. France, Germany, and the UK dominated all key indicators. Governments became more mindful of achieving cost-effectiveness, promoting technological innovation, cooperation between universities and industry, deepening intra- and inter-regional multilateral cooperation and alliances, and strengthening the training and mobility of researchers. In the early 1990s, there was a downward trend as the GERD/GDP ratio in the region fell to 1.85 % in 1996, down from 1.95 % in 1993. On the flip side, the number of researchers grew modestly to reach 862,000 in 1995 from 712,100 in 1990. The number of publications rose to 38.3 % of the global total compared to 33.4 % in 1990, and the EU overtook the USA. The models of research funding remained the same. There was the federal model of Germany, and Switzerland and Belgium in which the government and regional bodies shared responsibility; the UK and Scandinavian model where specialized organizations handled research funding; and the Mediterranean model characterized by the combined role of public, specialized, and multidisciplinary organizations.

The EU expanded from 15 to 25 members in 2004 with the incorporation of ten countries from Eastern and Southern Europe. This entailed integrating 115,000 new researchers and bringing the infrastructures of the new members up to par. In 2001, the former EU15 had a GERD/GDP ratio of 1.91 %, which dropped to 1.82 % for the EU25, much lower than the ratios of Japan (3.06 %) and the USA (2.74 %). Also, the EU began to fall behind the USA in terms of BERD, which in the USA was 2 % of GDP, compared to 1.24 % in the EU. Little changed in terms of the EU share of world publications (35.3 % in 1996 and 35.7 % in 2001). Enlargement reinforced disparities in research capacities and performance in Europe. Two countries (Finland and Sweden) had GERD/GDP ratios that were higher than in Japan or the USA; seven had ratios higher than the EU average; in another seven the ratio was below; and in six the ratio

was either rising or declining sharply. This necessitated strengthening existing institutions and the instruments of regional cooperation and integration in higher education and R&D.

Despite the challenges, the decline in R&D in the former socialist countries of Central and Eastern Europe was halted. These countries also made progress in increasing research co-publications. The situation remained rather bleak for countries in Southeast Europe that were still experiencing economic and political turmoil. In Bulgaria, for example, the GERD/GDP ratio dropped from 2.38 % in 1990 to 0.49 % in 2002, and the number of researchers fell by 23 % between 1998 and 2002. In Romania, R&D personnel fell by 45.5 % between 1996 and 2001, and GERD by 9.2 % a year between 1997 and 2001. These countries entered into cooperation agreements with various EU institutions and programs, as the EU became a major R&D donor. Turkey was a notable exception in the region. It enjoyed robust economic growth and its GERD/GDP ratio doubled within a decade to 0.64 % in 2000 (actual expenditure trebled from $855.6 million in 1990 to $2.74 billion in 2000). Publications almost trebled from 3313 in 1997 to 9303 in 2002.

In the Russian Federation, researchers continued to face challenges as the higher education and research systems continued to undergo restructuring. The immediate effects of funding cuts were compounded by the introduction of a new competitive, merit-based model for research grants. The effects were devastating. Between 1990 and 2002, the number of researchers and academics declined by a staggering 55.2 % . More than 20,000 emigrated abroad. To stem the tide foundations and programs were created in the mid-1990s to support academic research, and efforts were made to modernize the research infrastructure by creating hundreds of regional innovation and training centers, and R&D parks. By the turn of the new century, Russia had transitioned to a market economy, although the economic growth of the early 2000s gave way to economic recession following the outbreak of the global financial crisis in 2008–9.

Between 1998 and 2008, GERD in Russia doubled to reach 76.4 % of its level in 1991, the number of researchers stabilized, publications increased, and the university system was vastly improved. The country set ambitious R&D priorities, introduced mechanisms to better manage and evaluate R&D performance, and tax measures to incentivize R&D and innovation, and strengthened university-industry and public–private partnerships. It also sought to fortify international cooperation, especially with

the European countries and the emerging economies. But given the rapid progress made elsewhere, it meant that the gap between Russia and leading global performers actually widened; in 2008, the country ranked 31st in terms of its GERD/GDP ratio, 10th in terms of R&D personnel per 10,000 employees, and 14th for publications (down from 7th in 1995 and 3rd for the former Soviet Union in 1980). The research population also began showing troubling signs of ageing. The government remained the major funder of research, but the contributions of business and universities increased, and their R&D performance rose even faster. In fact, R&D as a whole was oriented increasingly toward industrial needs, but concerns grew that university and basic research did not receive the required amount of support.

In 2007, the EU expanded further with the entry of Bulgaria and Romania. This reinforced the disparities within the EU, but did not dampen its ambition of becoming the world's leading knowledge-based economy. As part of this endeavor, the Bologna Process had been launched in 1999 to create a European Higher Education Area, but its aspirations had yet to be realized by 2010. International rankings dominated by American universities demonstrated the region was not as competitive as imagined or wished. The EU remained behind the USA and Japan in innovation performance and research investment, and China was rapidly catching up. In 2007, the GERD/GDP ratio for the EU27 was 1.77 %, contrasted to 3.39 % for Japan, 2.68 % for the USA, and 1.42 % for China. The latter had already overtaken the EU in the number of researchers (1,423,400 to 1,342,100), but the EU27 stayed ahead in the share of world publications, a status it still maintained by 2014 (with a proportion of 34 %). Concerns were raised that national research performance evaluation systems in the EU were weak or uncoordinated. The challenges were compounded by the recession engendered by the global financial crisis. Nevertheless, European research cooperation intensified as new institutions were created, such as GEANT formed in 2000 as a pan-European data infrastructure for the education and research community, and the European Research Council established by the EU Commission in 2007 with a budget of more than €13 billion for the 2014–2020 period.

In the 2010s, disparities in Europe narrowed, while Europe's global position eroded as Asia and the other emerging economies grew much faster as centers of knowledge production. Growing integration and the continued expansion of the EU facilitated convergence within Europe. Under the Seventh Program covering the 2007–2013 period, €42.6

billion was committed to poorer regions to narrow the research and innovation gap, which succeeded for the ten countries that joined the EU in 2004. They saw appreciable increases in their GERD and in the quantity and quality of publications (from 8.0 % of the EU total in 2004 to 9.6 % in 2014). But those that joined between 2007 and 2013 fared less well. Funding was also made available for twinning projects between universities and other institutions in the older and new EU member states and select non-EU countries, including Russia, China, and more than a dozen African countries.

Nevertheless, many EU countries were faced with stagnant or economies in deep recession. General unemployment in 2013 reached 11 %, up from 7 % in 2007, and average youth unemployment was 23 % and more than 50% in Croatia, Greece, and Spain. Public debt soared. This was the backdrop behind the unveiling of *Europe 2020* in June 2010 by the EU Commission as a blueprint for smart, inclusive, and sustainable growth driven by greater investment in R&D, innovation, efficient resource utilization, and more robust youth training and employment. The Seventh Framework covering the 2014–2020 period, called Horizon 2020, earmarked €80 billion to promote excellence in research, industrial leadership, and addressing societal challenges, including health, food security, clean energy, climate action, and creating inclusive and secure societies. In July 2015, a €21 billion European Fund for Strategic Investments was set up, but much of it was money recycled from other programs. The EU's GERD/GDP ratio increased marginally to 2.02 % in 2013, from 1.94 % in 2009. Nineteen countries had ratios of less than 2 %, including 10 with less than 1 %. The E28 lagged behind the USA, Japan, and Korea in high-tech R&D and BERD ratios.

The Russian Federation was even in worse straits. Prolonged economic slowdown turned into an expected 2.5 % contraction of GDP in 2015. The economic problems were engendered by declining oil and gas prices, and worsened by the imposition of Western sanctions in 2014 over Russian involvement in Ukraine. By 2013 government funding for R&D had been increased to $34 billion, slightly higher than that of Germany ($32.1 billion) and lower than Japan's ($35.0 billion), and a target was set for the GERD/GDP ratio to reach 1.77 % by the end of 2015, closer to the EU 2013 average of 1.92 %. But in 2013, Russia's GERD/GDP ratio had declined to 1.12 % from 1.29 % in 2003. Also, industry's GERD contribution could not compare with the much higher rates in the USA, EU, China, and even countries like Turkey. In fact, industry's share fell to

28.2 % in 2013 from 32.9 % in 2000, although industry still performed 60 % of R&D and higher education 9 %. Basic research continued to be short-changed, and the quantity and quality of Russian research output fell behind.

A significant development was the new emphasis put on universities. Plans were laid to increase universities' training of scientists and contributions to R&D to 13.5 % by 2018, closer to the US ratio (14 %), but far below Germany's (18 %). The number of universities and academics conducting research increased noticeably. Russian higher education also benefitted from being aligned with the Bologna Process. In 2013, the 5/100 program was launched, to lift five Russian universities into the world's top 100 universities. Also unveiled that year was the Russian Science Foundation to promote competitive research funding. Efforts were made to increase funding for institutions focusing on basic research and the humanities, stimulate business R&D, and technology-driven markets. Research collaboration with the EU and USA increased but were roiled by political tensions in 2014 and 2015. Less fraught were relations with Asia and the emerging economies elsewhere. But public expenditure on higher education as a share of GDP only increased minimally from 0.6 % in 2005 to 0.7 % 2013.

The USA boasted the largest, richest, and most productive knowledge system in North America and the world at large. Besides vast internal resources, after World War II it was replenished by huge inflows of foreign talent. Dazzled by technological changes, public support for science and R&D was high especially after the USSR launched Sputnik in 1957. Private R&D tripled between 1960 and 1990, and from 1980 overtook government as a source of &RD funds. Government R&D was robust but decreased in the 1968–1975 period, and rose again from 1975 to 1985. Overall, the rate of R&D annual increase fell to 1 % between 1985 and 1992, compared to 5–6 % in the 1975–1985 period. In 1992, total R&D reached $157 billion, 2.8 % of GDP; 51 % was financed by industry, 43 % by government, and 6 % by universities and other non-profits. Industry performed 70 % of R&D, government 11 %, and universities and non-profits 19 %. Only 16 % went into basic research, while 61 % went to development research, and 23 % to applied research. Much of federal R&D, 59 % in 1992, went into defense research, followed by health (14 %), space (10 %), energy (4 %), and general science (4 %).

The trends of R&D investments and expenditure in the subsequent decades represented minor variations on these basic patterns. In the

1990s, R&D expenditure increased by 74 % to reach almost $265 billion in 2000, but as a proportion of GDP it fell to 2.63 %. Reflecting post-Cold War developments, defense R&D fell to 50 % of federal research funding in 1996, down from 70 % at its peak in 1987. Universities and colleges increased their R&D considerably to 12.2 % of the total, up from 2.2 % in 1970 and 8.9 % in 1980; in dollar terms the increase was from $2.34 billion in 1970 to $6.06 billion in 1980 and $22.40 billion in 1996. But R&D from academia and non-profit bodies did not maintain its momentum; in 2003 it fell to $17.3 billion, 6 % of the total, compared to 66 % from industry, and 28 % from the federal government. However, the importance of universities in basic research, which industry had largely abandoned, increased. Although they performed 11 % of total R&D, universities accounted for half of basic research; the top 100 research universities did 80 % of it. Following the recession, federal R&D declined, but business R&D stayed the course. Altogether, out of the $441.7 billion in R&D from 2005 to 2012, industry accounted for 53.9 %, government 26.96 %, and universities and other non-profits 5.59 %. In 2013, R&D fell to 2.73 % of GDP from its peak of 2.82 % in 2009, one further indication that the USA was losing its supremacy in R&D as other nations, especially in Asia caught up.

In Asia, for much of the postwar era, till the 1990s, Japan was the dominant power in R&D. It was later followed by China, the Republic of Korea, and India. The rise of Japan as a major economic power was in part facilitated by the country's enthusiastic embrace of science and technology (S&T) by both the government and private sector. After World War II, rapid economic growth and technological innovation reinforced each other. In the 1950s, a series of national policies and institutions to promote R&D in S&T were adopted. Investment in higher education and S&T activities increased so that the country soon boasted one of the highest rates of investment in R&D. In 1991, total investment in the natural sciences reached 2.76 % of GDP, the highest in the world, up from 0.94 % in the late 1950s. The number of researchers engaged in natural sciences R&D reached 317,487 in 1981, rising to 504,895 in 1991. The country boasted the highest number of researchers per thousand employers, having overtaken the USA in 1986. Government funding accounted for 25.8 % of total R&D expenditure in 1980, which dropped to 16.5 % in 1990. Private sector support for research in general and university research was unusually robust; it rose for the latter from 11.2 % in 1980 to 35 % in 1990.

But basic research did not receive the level of funding commensurate with Japan's ambitions to accelerate innovation and become a leading scientific, not just industrial, power. The strategic goals were laid out in the 1995 *Science and Technology Basic Plan* to raise government funding to levels comparable with other developed countries, strengthen information and technology and R&D infrastructures, and respond to pressing national socioeconomic needs and global issues. Promoting S&T diplomacy by fostering international cooperation was increasingly stressed as a critical part of Japan's "soft power." Priorities were identified in three areas, new materials, microelectronics, and biotechnology. The sense of urgency was reinforced by the prolonged recession as the economy faced intensive competition from newly industrialized countries. S&T was seen as an essential tool for recovery and renewed growth.

Thus, from the mid-1990s, the promotion of basic research was firmly tethered to economic development, as had been the policy in much of Europe and the USA for at least three decades. While in 1995 Japan spent 3 % of its GDP on R&D contrasted to 1.84 % for the EU and 2.32 % for North America, efforts were made to increase the share going to basic research. The government increased its own R&D budget to 1 % of GNP in 2000, up from 0.6 % in 1995. Under the *Second Basic Plan on Science and Technology* adopted in 2001 more funds were provided for basic research and further reforms undertaken. They included encouraging innovation in small and medium enterprises, fostering the development of regional "knowledge clusters," administrative reforms including giving universities more autonomy and flexibility, and solidifying university–industry relationships. These themes and priorities were reinforced in the *Third Basic Plan* issued in 2006 to cover 2000–2010.

Joint university–industry projects increased sharply from 57 involving 50 firms in 1983 to 1442 with 858 participating firms in 1995 to 4190 projects with 2151 firms in 2001. The number of joint projects rose to 6767 in 2002, 17,638 in 2008, and 21,336 in 2013. The role of universities in R&D increased accordingly. In 2001, Japanese universities accounted for 9.0 % of funding sources (compared to 2.6 % in the USA, 0.9 % in the UK, and 1.0 % in France) and 19.6 % of research (compared to 12.9 % in the USA, 21.4 % in the UK, and 17.2 % in France). GERD expenditures in Japan rose steadily from 3.40 % of GDP in 2002 to 3.67 % in 2007, but much of it was from industry as the government's share of R&D fell slightly. The number of researchers in Japan reached 756,336 in 2002, crept up to 827,291 in 2008, and 892,406 in 2013. The number

of publications increased by 160 % between 1981–85 and 1998–2002. In 2002, Japan accounted for 10 % of the world's publications, but this dropped to 7.6 % in 2007 and 5.8 % in 2014. The number of Japanese publications fell from 76,950 in 2005 to 73,128 in 2014; in terms of publications per million the drop was from 606 to 576.

The downward trend in Japanese publications reflected the decline of private funding for research following the financial crisis, and the greater emphasis on funding innovation-oriented research rather than publishing academic papers per se. It became clear that Japan was facing long-term structural challenges of economic stagnation and an ageing society. The country's population peaked in 2008 and was expected to decline steadily from then on. Government debt had risen to unsustainable levels. In the *Fourth Basic Plan* released in August 2011, there was a noticeable shift in emphasis to quality of life issues including "green innovation" and "life innovation" in addition to recovering Japan's industrial competitiveness and contributing to solving global problems. The *Comprehensive Strategy on STI* issued in June 2013 identified three priority areas: ICTs, nanotechnology, and environmental technology. University reform continued with the introduction of a government subsidized new tenure track system in 2006 (which was expanded in 2011) and university research administrators in 2011. Universities were also stratified into three groups, world, national, and regional centers for education and research with differential funding. But government expenditure on R&D remained limited; as a percentage of GDP it fluctuated between 0.29 % in 2008 and 0.32 % in 2013.

Japan was replaced by China as the world's second largest economy and research powerhouse. China has one of the world's oldest civilizations that made significant scientific and technological contributions. But at the time of the 1949 Revolution, it was an underdeveloped country with limited knowledge producing capacities. For decades, investment in R&D remained limited, and only 4.8 % of R&D went to basic research as late as the beginning of the 1980s. Universities were allocated an average $29 million for basic research annually. The country lagged behind other large developing countries such as Brazil and India. The reform policies adopted at the time were soon felt in higher education and the research enterprise. In 1986, the National Natural Science Foundation was founded, to complement the work of the sprawling Chinese Academy of Sciences and the universities. A private S&T sector also emerged. Other reforms were undertaken to buttress and popularize the role of S&T as a

key driving productive force in the economy. Higher education was seen as a cornerstone of the transformation agenda. Before long, the reforms began to yield results.

The number of researchers and level of funding increased, at first steadily, before they exploded. The country entered into numerous international research agreements with more than 135 countries, and by 1993 it had become a member of 827 international academic organizations. Spearheaded by the Ministry of S&T, R&D expenditure surpassed 1 % of GDP in 2000. In the following year, the country ranked seventh in the world in terms of the monetary size of its GERD, and in 2002 China ranked second in the size of R&D personnel (3.22 million), of whom 68 % were scientists and engineers, although as a ratio of the population China trailed many developed and developing countries. China's expenditure on basic science, 5.73 % of GERD in 2002 (75.1 % went to experimental development and 19.2 % to applied research), was also quite low by international standards.

China continued to make great strides in the 2000s, which culminated in the country overtaking Japan as the world's second largest economy in 2010. The *Outline of the Medium- and Long-Term Plan for National Science and Technology Development* (2006–2020) committed the country to becoming an innovation-driven nation. It identified five priority areas for massive investments and development, environmental technologies, IT, biotechnologies, space and marine technology, and basic science and frontier technology. Among the strategies adopted to achieve these ambitious goals was increased investment in R&D, providing tax incentives, assisting endogenous innovation by encouraging to purchase its products and financial support, strategically assimilating imported advanced technology, capacity building in generating patents, strengthening national research infrastructure and platforms, and cultivating foreign talent to develop domestic talent.

Investment in R&D was vastly increased from $10.8 billion in 2000 to $66.5 billion in 2008, which raised the GERD/GDP ratio from 0.9 % to 1.54 %. By 2013, China's gross expenditure on R&D had risen to 2.08 % of GDP, higher than that of the EU, and was expected to surpass the USA in 2019 as the world's leading spender of R&D. Business enterprises raised their share of R&D expenditures from 59.95 % in 2000 to 73.5 % 2008. In the meantime, the number of researchers increased from 695,100 in 2000 to 1,592,400 in 2008 and 3,533,000 in 2013, and research personnel per million inhabitants rose from 847 in 2003 to 2596 in 2013.

Expenditure per researcher grew appreciably as well. Also impressive was China's record of publications, which more than trebled from 28,916 in 2000 to 104,968 in 2008, which was only second to the USA (272,879).

But China remained dependent on foreign core technologies as evident from the fact that the country sustained a $10 billion deficit in its balance of payments for intellectual property. The share of basic research actually fell from 5.96 % in 2004 to 4.78 % in 2008 and 4.7 % in 2013. It became clear that if China was to become one of the world's most innovative nations, develop a more inclusive and environmentally sustainable economy, and avoid the dangers posed by an ageing population, slowing economic growth, and the "middle income trap," it needed to restructure its economy and knowledge production system. In 2013, policy makers recognized the need to increase funding for basic research and unveiled a series of major programs including huge science and engineering projects, and special programs to expand human resources and research infrastructure, which collectively were expected to cost $16.36 billion, representing 60 % of government funding for research that year.

The story of the growth of the Republic of Korea into an industrial and knowledge powerhouse is truly extraordinary. The country's GNP skyrocketed from $2.3 billion in 1962 to $169 billion in 1988, which was translated into an increase of R&D from 0.24 % to 2.1 %. GDP per capita soared from $255 in 1970 to $25,976 in 2013. Like other so-called newly industrialized countries in Asia, Korea sought to use S&T in strategically selected industries to accelerate economic growth and development. Comprehensive S&T policies and institutions were set up to build capacities and foster rapid growth. The share of private R&D expenditure increased from 66 % in 1981 to 84 % in 1990. During the same decade, the number of researchers more than trebled from 20,718 to 70,503 and the number of publications rose to 1780 in 1990, which ranked the country 33 in the world. Within two decades, Korea would be ranked among the top six.

In the 1990s, Korea's progress in knowledge production accelerated as the economy continued its fast growth and structural transformation, and linkages between the knowledge producing institutions and the productive sector were strengthened. As a percentage of GDP, R&D rose to 2.4 % in 1994, only second to Japan (3.0 %), higher than Germany (2.3 %), and almost comparable to the USA (2.5 %). The level of private investment in R&D, which remained at 84 %, was the highest in the Pacific Rim (Japan was second at 67.1 %), and surpassed that in Germany (61.1 %) and the

USA (61.4 %). The total number of researchers reached 190,298 in 1994, third behind Japan (994,622) and China (655,600), while the country ranked fourth in terms of researchers per million (2636), after Japan (6309), Australia (3166), and Singapore (2728). An ambitious program was launched in 1997 to advance basic research at universities from $581 million in 1991 to $1.8 billion; university researchers accounted for only a third of researchers, the bulk were in industry.

The expansion of the knowledge system in Korea and its impact on the economy were facilitated by the consolidation of intermediary institutions that bridged the gap between upstream academic research and downstream commercialization, and the creation of public–private consultative mechanisms. Determined to consolidate the country's status as an advanced and technological power, in 2004 the government launched the *Initiative for Establishing a National Technology Innovation System*, which was succeeded by a new five-year plan in 2008, known as the 577 initiative that identified strategic areas for R&D investment, innovation, coordination, evaluation, and management. As a percentage of GDP, R&D rose to 3.37 % in 2008, despite economic slowdown triggered by the global financial crisis, and 4.15 % in 2013. The share of basic research in government R&D increased from 17.3 % in 2001 to 25 % in 2007 and 35.2 % in 2012. The country claimed one of the world's highest research intensities and expenditures per researcher, which rose from $185,936 in 2008 to $214,195 in 2013.

From 2003 to 2008, the number of researchers increased at an average rate of 8.3 %. They reached 222,000 in 2007 and rose to 315,589 in 2012, which placed Korea among the top five in the world. In the 2003–2008 period, the number of publications almost doubled from 18,830 to 35,569. Five years later, the number had jumped to 49,374. Between 1999 and 2014, Korea improved its technology competitive ranking from 33 to 8, and its science competitiveness ranking from 26 to 6, but less progress was made in its national competitiveness which improved from 36 to 26. The latter figure underscored the challenges facing the country in transitioning from a "catch-up" model that had catapulted it into the ranks of the world's most advanced nations to a new development model. The old model was under increasing strain from the emergence of new competitors, an ageing population, stagnant wages, and rising household debt.

The government embraced a new model, prioritizing the development of a creative economy that would fuse industry, culture, and

entrepreneurship. The five sectors identified in terms of budget share included future growth engine (35 % encompassing solar energy and space launch vehicle, etc.), IT convergence and new industry (28 %), health and longevity (20 %), clean and comfortable environment (9 %), and safe society (8 %). The overall share of GERD earmarked for basic research increased and stabilized at around 18.1 % from 2009, up from 15.2 % in 2006. Research complexes were built incorporating dozens of universities, science parks, and research centers, and the government announced plans to build a global city that would become a cluster of research, innovation, and creativity by combining science, education, culture, and art.

Till the 1990s, India was ahead of China. It remained the dominant nation in South Asia in the relative size of its academic and research systems. After independence in 1947, the government put a lot of emphasis on building the country's scientific and knowledge capacities in general, although in 1958 India's R&D was only 0.18 % of GDP. Three decades later it rose to 1 % in 1988–1987, but fell again to 0.84 % in 1995–1996, 0.80 in 2007, and 0.82 % in 2011 despite ambitions to raise it to 2 % by 2007. Much of the R&D funds, 68.9 % in 1990–1991, came from the government. Private sector investment in R&D increased to 29 % in 2005 and 36 % in 2011. In addition to the universities and Institutes of Technology, the government set up various departments to produce research in major fields, including atomic energy, space, electronics, biotechnology, the environment, and later nanotechnology, ICT software, and pharmaceuticals as the country sought to become a global "knowledge power." In 1973, the government unveiled its first comprehensive S&T Plan. Subsequent plans identified new strategic sectors, in which universities were accorded a key role.

Following the adoption of reforms in 1991, India became one of the fastest growing economies in the world, especially from 2005. Notable developments included a rising share of BERD from 18 % in 2003 to 28 % in 2007, although R&D overall remained stagnant (but shifted in favor of basic over applied research); new investments were made to expand and improve the higher education sector; and foreign R&D centers were allowed to open so that their numbers rose from less than 100 in 2003 to about 750 in 2009. As a result, India's knowledge productivity indicators rose, as did the knowledge intensity of economic output in general and innovations in the services sector in particular. India increasingly became known for its exports of high-tech products and pharmaceuticals;

the latter's output leapt from $300 million in 1980 to $19 billion in 2008 as India captured 10 % of the world market behind the USA and China.

But the dominance of R&D in India by three industries, namely pharmaceuticals, automotive, and IT, and its concentration in 6 out of the country's 29 states became troubling. Also of growing concern was the overwhelming dominance of government, which in 2014 provided 60 % of the R&D budget and employed 46 % of researchers, while the relative shares of industry was 35 % and 39 % and academia 4 % and 11 %, respectively. Rapid growth and high rates of skilled labor emigration also led to shortages of scientists and engineers. The pharmaceutical industry was largely locally owned, while IT companies tended to be foreign owned. The share of foreign companies performing R&D in India increased from 8.93 % in 2001 to 28.92 % in 2011. The expansion in the volume of Indian publications was remarkable. Between 2000 and 2008, the number more than doubled from 16,650 to 36,261. No country in South Asia even came close; Iran was second with 10,894 publications in 2008, up from 1296 in 2000. In 2014, the number of publications in India reached 53,733.

Unlike Asia, Latin America and the Caribbean remained on the periphery of the global system of knowledge production. At the end of World War II, the region's higher education system was relatively small and elitist and R&D generally underdeveloped. As higher education expanded after World War II, research activities in the universities grew, complemented by national academies and scientific societies. A key development was the creation of national research councils and regional research centers and networks, such as the Latin American Center for Physics based in Brazil, and the Latin American Biology Center, the International Center for Tropical Ecology, and the Simon Bolivar International Center for Scientific Cooperation based in Venezuela. Others were regional branches of international associations, such as the Latin American Biosciences Network, or international research networks focused on issues of importance to the region like agriculture, such as the International Center of Tropical Agriculture based in Colombia, the International Potato Center in Peru, and the Inter-American Institute of Agricultural Sciences. Regional organizations and governments also began to support R&D programs in fields of importance for development. Capping these institutional efforts was the creation of the Latin American Academy of Sciences in 1982.

For such a vast region, there were great disparities in the scale of R&D activities. In 1990, Brazil claimed the largest share of R&D personnel

(65,000), research expenditure ($3.2 billion), and publications (3735). Its GERD/GDP ratio was 0.89 %. Next came Argentina with 19,000 researchers, $466 in expenditures, 1934 publications, and a GERD/GDP ratio of 0.80 %. All the six Central American countries combined had 5894 researchers, spent $90.1 million, and published 307 articles. The equivalent figures for the six Andean countries were 16,594, $17.2 million, and 960, respectively. GERD/GDP ratios in Central America varied from 0.89 % in Costa Rica to 0.04 % in Honduras, and among the Andean countries from 2.20 % in Colombia to 0.11 % in Ecuador. In the Caribbean, Cuba was dominant, with 12,502 researchers, $171.2 million in research expenditures, 155 publications, and a GERD/GDP ratio of 0.85 %.

Much of the research in the region, up to 85 % in the 1990s, was done in the universities, so the growth and state of higher education had a much larger bearing in R&D than was the case in Europe, North America, and parts of Asia. While universities expanded in the 1980s and 1990s, conditions were not optimal for research. In fact, the economic crises that faced many of the countries meant that teaching and research infrastructures deteriorated as higher education expanded. There were of course exceptions. The University of the West Indies was reasonably well resourced and developed a strong research infrastructure. Cuba also built impressive research capacities that by the mid-1990s consisted of more than 220 R&D centers and 46 centers of higher education. The dominance of the universities in research not only reflected the limited role of the private sector but also weakened the possibility of developing strong university–industry and public–private partnerships essential for robust national and regional R&D systems.

Research funding was largely provided by the state, and to a much smaller extent by regional or international organizations. Levels of investment in R&D in the 1990s did not change from earlier levels, except in Cuba whose GERD/GDP ratio rose from 0.72 % in 1990 to 1.25 % in 1995 and Costa Rica where it rose to 1.26 % from 0.87 %. Also modest was the growth of publications. The region accounted for 2.6 % of world publications by 2000, up from 1.4 % in 1990. Regional cooperation efforts were weak; the region's researchers collaborated more with their counterparts in Europe (especially France and Spain) and North America than with each other. Research or scientific agencies and philanthropic foundations in Canada and the USA often financed the collaboration activities with their Latin American and Caribbean counterparts. A new

development in the 1990s was the growing collaboration between Latin American and Asian researchers; co-publications increased from 6 % in 1997 to 18 % in 2001.

Nevertheless, there were signs of improving collaboration within the region. A number of university associations were formed to enhance research cooperation, such as the Montevideo Group formed in 1991, the Union of Latin American Universities, the Inter-University Center for Development, and the Network of Public Macro-Universities of Latin America and the Caribbean created in 2002. A number of Latin American science networks were also created or consolidated in the fields of astronomy, biology, physics, mathematics, chemistry, and earth sciences. Diaspora networks began to emerge and were mobilized to build knowledge production capacities in the region. Seven such knowledge exchange networks were in operation by 1999. Moreover, there was more willingness by the governments through intergovernmental organizations to fund regional research infrastructure and projects. The role of multilateral organizations, such as UNESCO, the International Council for Science, and the Inter-American Development Bank was quite crucial in many of these regional R&D collaboration efforts particularly in the study of major challenges that had a global reach, such as climate change.

Efforts to strengthen R&D infrastructures and productivity were redoubled in many parts of the region in the 2000s partly buoyed by economic growth. This was evident in the flurry of institutional and legislative reforms, increased levels of investment in R&D, and creation of new funding instruments to ensure greater efficiency. Between 1996 and 2004, R&D expenditures had largely stagnated at about $10 billion; they jumped to $23.1 billion. Brazil contributed 63.5 % of the regional total followed by Mexico (15.3 %), Argentina (5.8 %), and Chile (2.8 %). Brazil saw its rise of GERD/GDP ratio to 1.07 %, Chile to 0.67 %, and Argentina to 0.51 %. The rest, including Cuba and Costa Rica, that had higher rates before fell below 0.5 %. Four countries still had ratios below 0.10 % (Nicaragua, Guatemala, Honduras, El Salvador, and Paraguay).

The number of researchers and publications almost doubled. Again, Brazil claimed the lion's share as its researchers increased from 64,002 in 2000 to 124,882 in 2007. Mexico was a distant second (from 22,228 to 46,865), and Argentina third (26,420 to 38,691). As for publications, Brazil increased its regional share to 47 % in 2007 from 41 % in 1997 as its numbers trebled from 7401 to 23,109, followed by Mexico (3820–8501), Argentina (3693–6479), and Chile (1793–3559). The next group

of countries was led by Colombia, Cuba, Peru, Uruguay, Costa Rica, and Ecuador, none of who had more than 500 publications in 1996 and only one, Colombia, had more than 1000 in 2007. But major challenges remained, including relatively low levels of R&D investment, lack of critical mass of researchers in many countries, poor links between the academy and industry, weak social policy, and fragmented allocation of resources.

Economic slowdown in the 2010s following the sharp drop in commodity prices and political instability compounded the challenges. The regional economy grew by 1.1 % in 2014, and was expected to drop to 0.5 % in 2015. But earlier institutional and legal reforms were strengthened, competitive R&D funding models and assessment mechanisms, and spending on higher education greatly improved. Business investment in R&D increased to 40 %. Countries like Brazil, Argentina Mexico, and Uruguay adopted sectorial funding schemes for specific strategic sectors. Schemes were also introduced to strengthen regional and diaspora knowledge networks. They included Mexican Talent Network, Chile Global, and Brazil's Science Without Borders. The larger and wealthier countries in the region continued to improve their knowledge production and global R&D rankings. The gap between them and poorer or small Caribbean island nations widened.

By 2014, Brazil had increased the number of its researchers to 138,653, Argentina to 51,685, Mexico to 43,592, and Venezuela to 8686 overtaking Colombia (7702) and Chile (6803). Between 2005 and 2014, the rate of growth in publications was as high as 244 % in Columbia, 152 % in Ecuador, 134 % in Peru, and 118 % in Brazil. More interest was shown in indigenous knowledges and in research and innovation for social inclusion. The Caribbean countries displayed renewed determination not to be left behind. In 2014, the Caribbean Community issued an ambitious *Strategic Plan for the Caribbean Community: 2015–2019* in which science, technology, and innovation featured high as antidotes to the islands' perennial vulnerabilities to low growth, tourism dependency, and hurricanes. It was recognized that the region needed to invest more than it had done historically in R&D, develop a vibrant research culture, and expand its higher education system.

Many of the challenges experienced in Latin America and the Caribbean, and parts of Asia, were evident, even amplified, in Africa. There was little R&D in colonial Africa. As noted in Chap. 1, the growth of higher education was largely a post-independence phenomenon. In addition to the establishment of universities, research institutes and regional cooperation

science bodies were created from the 1950s, such as the Commission for Technical Cooperation in Africa (CCTA) and the Scientific Council of Africa South of the Sahara (CSASS), both formed in 1950. In 1964, organs of the newly formed Organization of African Unity took over the two institutions, the CCTA by Scientific, Technical, and Research Commission (STRC), and the CSASS by the Scientific Council of Africa (SCA).

By 1980, more than 800 research institutions had been established across the continent, but momentum slowed despite the rhetoric of the Organization of African Unity and governments on the importance of S&T for development. The African Academy of Sciences, established in 1985, and many of the continents leading academics, as well as international research agencies and networks, urged African countries to increase their commitment to R&D. But funding remained abysmally low. The total budget of STRC between 1983 and 1984 and 1987 and 1988 was $7.66 million in appropriations and $4.99 in actual expenditures, 65.1 % of which went to operations. Altogether, in 1980 African countries (excluding the Arab states) spent only 0.28 % of their GNP on R&D, dropping to 0.25 % in 1990. In comparison during the same period, Asia allocated 1.40 % rising to 2.05 % and North America 2.3 % rising to 3.16 % of their respective GNPs to R&D.

In the 1990s and 2000s, Africa's knowledge landscape remained underdeveloped. Nevertheless, more states established S&T policies and national research councils, but government research funding was paltry and virtually non-existent from the private sector. Between 1988 and 1992, the ratio of researchers per 1000 populations ranged from a high of 1.3 in Kenya to a low of 0.1 in several countries, including Nigeria. By 1995, counting only sub-Saharan Africa, there were 622 national research centers the majority in agriculture and fisheries (232), followed by the social and human sciences (90), health and nutrition (76), manufacturing (50), environment (38), energy, geology and mining (35), basic sciences (24), and the rest were multidisciplinary (57). The R&D personnel totaled 77,590, but only 15.5 % were researchers, the rest were auxiliary staff (52.0 %), technicians (18.6 %), support professionals (10.1 %), and unallocated staff (3.8 %). The number of scientists and engineers was exceptionally low. R&D expenditures remained below 0.5 % for most countries, save for Benin (0.7 %), South Africa (1.0 %), and Seychelles (1.3 %). Industrial R&D, previously negligible declined even further, accounting for 6.7 % of all R&D activities in 1995.

The knowledge systems in South Africa and Egypt were more robust. For example, 172 of the 622 national research centers and 16,946 of the 77,590 R&D personnel in sub-Saharan Africa in 1995 were in South Africa. Research funding was more diversified than in other African countries. In 1993–1994, the largest source of funding in South Africa was private industry (60.7 %), government (38.2 %), and the non-profit sector, provided only 1.0 %. research work was predominantly carried out in the private sector (52.7 %), government (31.2 %), and tertiary education (16.0 %). Following the end of apartheid in 1994, the new government embarked on major policy reforms of higher education and the S&T sector to promote greater inclusion and innovation. Egypt claimed a large proportion of research expenditures and researchers among the Arab states. Its share of total Arab researchers rose from 52 % in 1992 to 57 % in 1996, and its share of regional GERD was 30 % in 1996, much higher than the relative share of its GDP (12 %).

At the turn of the twenty-first century, conditions for knowledge production remained challenging for much of the continent. Dependency on external sources for research funding was high. In 1999, international organizations provided 54.2 % of the funding in sub-Saharan Africa excluding South Africa, 44.9 % in South Africa, and 41.8 % in North Africa. The proportions from home institutions for the three groups of countries were 18.1 %, 29.5 %, and 20.9 respectively; from national public sources 12.4 %, 13.7 %, and 25.9 %; from foreign private industry and foundations 5.9 %, 5.5 %, and 6.4 %; from national private industry and foundations 1.4 %, 1.9 %, and 2.3 %. Altogether, in the 1991–1997 period, the number of scientific publications totaled 50,361. North Africa accounted for 37 %, South Africa 28 %, English-speaking Africa excluding South Africa 21 %, French-speaking Africa excluding the Maghreb 12 %, and the rest 2 %. In 1999, Egypt and South Africa accounted for 49 % of the continent's publications, followed by Kenya, Morocco, Nigeria, and Tunisia (25 %), and the rest (25 %). The latter ranged from those that produced between 70 and 200 papers per year (7 countries) to those that had 20–70 papers (14 countries), and the remainder that had less than 20 papers.

There was little change in the 2000s as national science, technology, and innovation policies remained weak in many countries. So did the infrastructure and capacities for research, and the relationship between government, industry, and academia. The continent also continued to suffer from high rates of "brain drain." By 2007, only Tunisia surpassed the GERD target of 1 % and South Africa approached it; the rest were still

below 0.5 % (in Algeria it was as low as 0.16 %). Only six countries had more than 10,000 researchers in 2007 led by Egypt (49,363), Nigeria (28,533), Morocco (19,972), South Africa (19,320), Tunisia (15,833), and the DRC (10,411), and another six had more than 1000. In terms of researchers per million inhabitants, Tunisia led (1588), followed by Botswana (942), Morocco (647), Egypt (617), South Africa (382), Sudan (290), Senegal (276), Guinea (253), and Nigeria (203). The continent produced 19,848 articles in 2008. South Africa accounted for more than a quarter (26.44 %), trailed by Egypt (19.97 %), Tunisia (10.21 %), Nigeria (9.41 %), Morocco (5.88 %), Kenya (3.84 %), Cameroon (2.33 %), Tanzania (1.89 %), and Ethiopia (1.83 %). The majority of countries did not even produce 200 papers a year.

In the 2010s, new possibilities emerged as the continent's economic growth solidified. It became ever more pressing, and possible, to harness science, technology, and innovation into more integrated, inclusive, and sustainable development for a "rising Africa." Buoyed by economic growth, the Economic Community of West African States (ECOWAS) adopted *Vision 2020* under whose auspices the *ECOWAS Policy on Science and Technology* was adopted in 2011 to promote and coordinate research investment, infrastructures, and management, strengthen university–industry linkage, and popularize science. However, research indicators had yet to show much improvement in terms of levels of investment, number of researchers, and publications. Only Mali (0.66 %) came close to the AU's target of devoting 1 % of GDP to R&D, while in terms of researchers Senegal stood out with 361 researchers per million population, and only Gambia and Cabo Verde published more than 30 articles per million population.

Similarly contradictory developments were evident in other African regions. As in West Africa, regional organizations adopted policies on S&T modeled on the continental *Africa's Science and Technology Consolidated Plan of Action* for 2008–2013. In East Africa, Kenya, where the renowned money transfer service, MPesa, was invented, it was planned to set up innovation hubs in each of its 47 counties, and raised its GERD/GDP ratio to nearly 1 %, and announced plans to raise it to 2.0 %. The ratio also rose in Ethiopia (to 0.61 %) and Uganda (to 0.48 %). Kenya raised its number of publications from 571 in 2005 to 1374 in 2014, Ethiopia from 281 to 865, and Uganda from 303 to 757. In East and Central Africa, Gabon was the most productive in 1914 in that it had 80.1 articles

per million inhabitants and Ethiopia the least with 9, and Kenya was in between with 30.2 articles.

In Southern Africa, there were also wide disparities. South Africa dominated, although its GERD/GDP ratio lagged behind that of Malawi (1.06 %); South Africa's ratio actually fell from 0.89 % in 2008 to 0.73 % in 2012. The lowest ratio was in Lesotho (0.01 %), followed by the DRC (0.08 %). Lesotho was also at the bottom of the number of researchers per million inhabitants (21), followed by Zambia (49) and Mozambique (49), while South Africa (818) was on top, followed by Botswana (344), and Namibia (343). Similarly, South Africa claimed the bulk of publications, which rose from 4235 in 2005 to 9309 in 2014, followed by Tanzania (323–770), Malawi (116–322), Zimbabwe (173–310), Zambia (96–245), and Botswana (112–210). Four countries had less than 50 publications (Angola, Seychelles, Swaziland, and Lesotho), although Seychelles had the most publications per million inhabitants (364), followed by South Africa (175), Botswana (103), Mauritius (71), and Namibia (59).

In North Africa, the upheavals associated with the Arab Spring, accompanied by economic slowdown, affected knowledge production capacities. However, the research expenditures as a ratio of GDP rose in Egypt (from 0.43 % in 2009 to 0.68 % in 2013), Libya (from 0.11 % in 1009 to 0.86 % in 2014), Morocco (from 0.64 % in 2006 to 0.73 % in 2010), but fell in Tunisia (from 0.71 % in 2009 to 0.68 % in 2012). Governments remained the major source of research funds in Egypt followed by the higher education sector (the private sector provided only 5 %), while in Morocco and Tunisia business enterprises financed 20 % of GERD. The largest number of researchers in 2013 was in Egypt (47,652), followed by Morocco (27.714), and Tunisia (15,159), but the latter led in terms of researchers per million inhabitants (1394), followed by Morocco (864). The number of publications more than doubled in Egypt from 2919 in 2005 to 8428 in 2014, in Tunisia from 1214 to 3068, Algeria from 795 to 2302, and nearly doubled in Morocco from 990 to 1574.

Disciplinary Restructuring

As much else in the world, the trajectory and fate of academic fields reflected the prevailing hegemonies and hierarchies in the global and regional political economies. The two postwar superpowers, the USA and the Soviet Union, influenced the emerging architecture of knowledge in the academy around the world, particularly in the social sciences and

humanities. The humanities and natural sciences constituted the "two cultures" of the academic enterprise since its institutionalization in the late nineteenth century. The social science emerged as the residual confluence of fields that did not fit into the two solitudes. In the course of the second half of the twentieth century, they overtook the humanities, but remained subordinate to the natural sciences in support and status.

From World War II, the development of each discipline in the humanities had its own trajectory, but they also shared some common trends. A number of theoretical perspectives crisscrossed the humanities. One was critical theory. While the term had several meanings, "From the end of World War II through the 1960s, the term signified the use of critical and theoretical approaches within major disciplines of the humanities such as art history, literary studies, and more broadly cultural studies. From the 1970s, the term entered into the rapidly evolving area of media studies" (Kellner 2005: 507). In the 1990s, cultural studies became influential across the humanities. It encompassed various tendencies, including progressive cultural criticism and study of popular culture. It advocated radical anti-essentialism, contextualism, contingency, and constructionism derived from post-modern, post-structural, and post-colonial theories and their ideas of discourse, ideology, subjectivity, cultural, and social identities, the politics of culture, culture, and the state, governmentality, and cultural apparatuses (Grossberg 2005).

By 1945, history was already a long established discipline in many parts of the world. In fact, historical approaches dominated the social sciences. In the postwar era, the major changes in North America and Europe included the expansion of temporal and spatial scope as histories of the non-Western world including Africa and Asia were gradually incorporated into university curricula, while in the latter regions it entailed freeing their histories from the suffocating grips of Eurocentrism and its regional offspring like Orientalism. Also, new branches of history emerged, including economic, social, cultural, intellectual, medical, and environmental history. The new methodologies and foci were popularized in France through the holistic approaches of the Annales School that emerged in the 1960s, the critical theories of the "Frankfurt" school in Germany, the area and gender studies movement in the USA, the radical nationalist historiographies in Africa and Asia, such as subaltern studies in India, and the "turn" of the "posts" in the 1980s and 1990s.

Developments in the fields of anthropology and ethnology were no less divergent. Social anthropology had strong roots in the UK, but in

the postwar era as decolonization gathered momentum the discipline and its functionalist approaches came under sustained attack. The discipline disappeared from many post-colonial universities in Africa. But ethnology derived from American cultural anthropology spreads especially in Europe, although it underwent considerable changes. In the USA, anthropology developed to incorporate several subdisciplines, sociocultural anthropology, physical or biological anthropology, linguistics, and archeology. Elsewhere including Europe and parts of Africa archeology was considered an independent field (Littleton 2005).

Geography started as a liberal arts discipline and became a university subject in several European countries in the 1920s, but expanded rapidly after the war, spurred by the emergence of new nations and interest in ecological issues. It came to straddle the humanities, social sciences, and natural sciences as the different branches evolved, including physical, human, and regional geography and geomatics. The discipline became more diverse in its methodological focus and theoretical constructs as its subdivisions consolidated. Computers enhanced quantitative methods and techniques including the development of geographic information systems that expanded the field, although it remained relatively small and even disappeared from some US universities (Thrower 2005).

The heart of the humanities remained philosophy, literature, and languages, although the latter developed divergent subfields such as historical, social developmental, applied, and neurolinguistics. Linguistics liberally borrowed from the biological and social sciences. Even the canon battles in English departments in the USA and elsewhere could not elide the reality of world Englishes (Saraceni 2015).[2] The emphases of the humanities varied in different regions even on the same subjects and themes. According to a global survey by Holm et al. (2014), in the 2010s the dominant themes in the African humanities were politics, language, development, culture, and religion; in Asia the environment, culture, politics, and religion; in Australia environmental humanities, memory, and popular culture; in Europe and Russia culture, globalization policy, ideological transformation, language, and gender; in Latin America culture, public engagement, politics, justice, religion, plurality; and in North America globalization, health, the public and private, and environmental studies. In most countries, the culture of the humanities was becoming more comparative, interdisciplinary, and international not only partly in response to institutional pressures but also because of intellectual developments in the

humanities fields and the wider academy, and shifting ideological currents in society.

Funding models for the humanities also differed. Competitive funding for large research teams predominated in Europe and competitive funding for individuals in North America, while in Africa there was growing dependency on funding from foreign donors. As funding for the humanities in Europe and North America declined, it rose in China and some Latin American countries. This reflected the changing public presence and perception of the humanities. In the USA, in the late 1990s some in Congress even tried to abolish the National Endowment for the Humanities, a leading public funding agency, although its 2012 budget of $150 million was only 0.45 % of the total federal research budget (Holm et al. 2014: 162).

In China, the humanities were increasingly valued as part of building human capital and projecting Chinese soft power. The establishment of Confucius Institutes around the world was part of this drive. The humanities remained low on the political agenda in other major Asian countries such as Japan and India. In India, for example, the budget for the Indian Council of Historical Research in 2008–2009 was a miserly 106 million rupees, and for the Indian Council of Philosophical Research in 2009–2010, it was 63 million rupees. In Europe, the humanities enjoyed considerable recognition in public policy and more varied sources of funding including the EU, individual governments, and private foundations. Public recognition and support for the humanities also remained high in South Africa and Australia.

By the turn of the twenty-first century, the humanities were on the defensive, forced to plead their value to administrators on their own campuses and a general public enamored by the discoveries and career prospects of the S&T fields and business professions. In their global humanities survey, Holm et al. (2014) make a compelling case that the humanities have intrinsic, social, and economic value, are essential for the preservation of cultural heritage, memory, and identity, contribute to other disciplines in the natural and social sciences, and foster innovation, critical thinking, personal and spiritual development, and aesthetic appreciation. Beleaguered humanities scholars insisted that the very rapid changes taking place in society demanded the understanding provided by the humanities, and the changes in the nature of occupations required students to be equipped with the lifelong skills for critical thinking, creativity, and communication, and the interdisciplinary, international, and intercultural competencies the humanities are so exceptionally designed for. Some

humanities scholars gravitated to the digital humanities as a sign of their innovativeness (Svensson and Goldberg 2015).

It is revealing that UNESCO published separate world science and social science reports but not humanities reports, although the latter was often included in discussion of the social sciences. The social sciences inherited from their budding predecessors in the nineteenth and early twentieth centuries "the disciplinary modes of theorizing in all their variety; an empirical research strategy; and an orientation towards the social problems of the time" (Wagner 1999: 19). Their rise in the context of the emerging nation-state and research university set the institutional and epistemic contours that they would struggle with for decades to come. Over the next half-century, after World War II the social sciences grappled with a shifting array of internal and external issues and challenges. The former coalesced around questions of institutionalization, theory, methodology, hegemonies, and relations of the disciplines to interdisciplinarity. The latter concerned the wider application and relevance of social science knowledges.

Key developments after World War II included the internationalization of the social sciences in terms of geographical spread, subject content, and comparative scope. The capacities for social science research improved as the amounts of data collected by governments and international agencies and the infrastructures for sharing it expanded. Great methodological advances were made in both quantitative and qualitative research. Worldwide social science information systems including electronic databases developed, and transnational and cross-national social science research became more appealing and possible (Rockwell 1999; Denzin 1999; Hobohm 1999; McKie 1999; Øyen 1999).

The social sciences came out of World War II into a world that had experienced and demanded social planning on a massive scale. The proliferation of international organizations including the UN system, as well as the technocratic and bureaucratic demands of the welfare state in the West and the socialist state in the East, fueled the rationalistic revolution of planning societal development. The need for the social sciences by policy makers, and even in the media and popular discourse, intensified although the policy utility of the social sciences depended on the nature of the political system and interest of the policy makers, size of the social science community and its capacity to translate research into policy recommendations, and the channels of communication and ongoing engagement between the two groups (Weiss 1999).

These developments were tied to the expansion of universities. For their part, the winds of decolonization in Africa and Asia battered the elitist Eurocentric sanctuaries of academia as peoples from these regions and their Diasporas in Euroamerica, as well as women, clamored for academic citizenship and inclusion in the production and representation of social science knowledges. In the USA, this gave rise to area studies. Initially, area studies was tied to the national security imperative as the country sought to understand and win hearts and minds, in the new nations of Asia and Africa in its Cold War rivalry with the Soviet Union. In the 1960s, the area studies movement especially African studies gained much traction from the Civil Rights Movement and demands by Black students and faculty. In the 1980s, business rationales gained ascendancy to maintain US competitive advantage. After the 9/11 terrorist attacks, the security imperative returned with a vengeance. The development of African studies around the world exhibited divergent imperial, solidarity, and liberatory tendencies, thereby underlining the varied trajectories of the field in different regions.[3]

The development of women's studies was the product of the global feminist movement and the massive entry of women into universities as students and faculty. They vigorously challenged prevailing androcentric institutional practices, curricula, epistemologies, and research methodologies. They brought in previously marginalized women's experiences, perspectives, and interests. Feminist standpoint epistemologies, methodologies, and philosophies gradually transformed and enriched the social sciences and humanities to varying degrees. Interdisciplinary women's studies and gender studies programs proliferated from the 1970s in the USA, Western Europe, and parts of Asia and spread to Africa and Latin America in the 1980s and 1990s. Feminist scholarship forced national and international agencies to produce sex-disaggregated and gender sensitive data, which laid bare gender inequalities and became a powerful driver in national and global women's struggles for change (Cheung 1999; Harding 2004, 2010). Feminism itself became highly contested as it comprised different strands, including liberal, radical, lesbian, and ecofeminism, and a variety of ethnic, racial, national, and global feminisms. Feminism also enjoyed complex relations with other ideologies (Singh 2005; Mama 2005; Aida and Roa 2005; Cooke 2005).

Another major development in academia that arose out of the social movements of the 1960s and 1970s was environmental studies. There was hardly any discipline in the humanities and social sciences left

untouched by the environmental revolution. It is instructive that the 2013 *World Social Science Report* was devoted to the subject (UNESCO and International Social Science Council (ISSC) 2013). The report offered an unprecedented comprehensive examination of the key issues in environmental change research, the research capacities on the theme in different world regions, the contributions from various social science disciplines and fields, as well as the conditions and visions for change, the responsibilities and ethical challenges, and new approaches to governance and decision-making needed to deal with the global consequences of environmental change. It represented global social science at its best.

The theoretical and methodological transformations arising out of struggles within the academy and social movements and developments in the disciplines increasingly put the architecture of the social sciences under strain. The planning mania of the early postwar years evaporated. The uneasy co-existence between theory and narrative, quantitative and qualitative paradigms, Eurocentric and androcentric, and inclusive and integrative perspectives turned the social sciences into warring factions haunted by what Peter Wagner (1999: 30) calls the "specter of unintelligibility." Mechanistic views of social action and change were increasingly questioned by neo-positivist social scientists. From the natural sciences came "complexity studies" and from the humanities "cultural studies" with their deconstructive and discursive "turns" that undermined the prevailing epistemological and disciplinary order (Wallerstein 1999).

The internal boundaries among the social sciences became more porous than ever as students and scholars readily borrowed from other disciplines, often in search of methodological and theoretical novelty. The disciplinary boundaries certainly made little difference to the external "consumers" of the social sciences. Moreover, globalization turned major world problems into multidisciplinary issues. The growth of area studies and transnational research networks muddled national disciplinary identities. In short, interdisciplinary pressures mounted. Institutional dynamics played a role as well, in so far as financially strapped universities sometimes latched on to interdisciplinary units and appointments as a means of cutting costs. The disciplinary envy for the natural sciences that were becoming more interdisciplinary exerted added incentives. By the end of the twentieth century, the social sciences embodied diverse methods, approaches, paradigms, ideologies and philosophies, and national traditions in their various disciplines, subdisciplines, and interdisciplines. Some, like sociology, were

embedded in national contexts, others like economics aspired to universal applicability (Lebaron 2013).

The development of the social sciences went through different phases in various regions. In Western Europe, during the first phase from the mid-1940 to mid-1960s, the social sciences were reestablished following the devastations of the war and were dominated by American functionalist approaches and research methods. During the second phase from the mid-1960s to the mid-1970s, student revolts led to the rejection of the American tradition and popularity of the Marxist paradigm, and more attention was given to cultural and psychological issues. The third phase lasted until the early 1990s and was characterized by the rise of constructivism and deconstructivism in which issues of the individual and society, and individual and collective rationality featured high and applied social science became even more specialized. In the fourth phase of the 1990s, the disappearance of East–West rivalries gave rise to the interest in the processes of globalization and construction of European society and the questioning of the concept of the nation-state around which the social sciences were built (Martinotti 1999).

The preeminence of the USA led to the triumph of the social sciences over the humanities in Europe by the mid-1970s (Hammerstein and Heirbaut 2011). Within the USA itself the social sciences rose on the backs of the immense social mobilization and convulsions of the war as vehicles to comprehend and reorganize society. Particularly rapid was the institutionalization of sociology as an academic discipline as evident in the growth of the American Sociological Association (ASA) that had been founded in 1905. Its membership rose from about 1000 in 1945 to 15,000 in 1972 and 80,000 in 1980. Fields of specialization increased as well. In 1963, the ASA had 5 subdivisions, which rose to 15 in 1976 and 26 in 1988. The civil rights and women's rights movements in the 1960s and 1970s in part engendered the expansion and fragmentation of the discipline.

In Europe, the development of sociology took different national paths. In France, the first position in the discipline was created in 1958. As the field grew in the 1960s and 1970s, it comprised four competing structural functionalist, quantitative, Marxist, and ethnography models. Some were imported from the USA and others were rooted in French intellectual traditions. Sociology became a university discipline in Italy in 1950, but the first independent department of sociology was not created until 1964, and by 1991 there were 662 sociology professors. The discipline incorporated American and Marxist methodologies and by the mid-1990s focused

largely on political and cultural sociology and the sociology of work and organizations. In Britain, the discipline of sociology also developed gradually. It infused old commitments to surveys, social work, and social studies. As the field grew in West Germany, where there were only 10 sociology professorships in 1952, it embraced three competitive orientations inspired by theoretical and internationalist, liberal Marxist, and empirical and quantitative traditions. In the GDR, as in the other socialist countries, the Marxist tradition predominated.

Political science was another discipline that became institutionalized and spread after World War II. Also leading the way was the USA where behaviorism was developed in the 1930s as a quantitative method of explaining and predicting political behavior. Like sociology, in Europe political science expanded as a university subject from the 1950s. In Britain, politics had been part of the PPE degree introduced at Oxford and Cambridge in the 1920s and 1930s, but it spread as an independent subject in the 1960s. The field focused on elections, political parties, and political culture. In the Netherlands, the first department of political science was created in 1948, while in West Germany the subject was revived along American lines. In France, separate degrees in political science were first awarded in 1978 and the field had a strong humanistic bent. In Denmark, the first political science professorship was set up in 1968. The introduction of political science as an independent field was also late in Austria, Switzerland, and Sweden. By the end of the 1970s, the number of political scientists had reached "587 in the UK, 390 in the Federal Republic of Germany, 306 in France, 164 in the Netherlands, 112 in Italy, 92 in Belgium, 83 in Denmark, 81 in Switzerland, 80 in Sweden, 26 in Spain and 4 in Portugal" (Hammerstein and Heirbaut 2011: 387–8). Overall, political scientists focused on, successively, questions of power, legitimacy, and political institutions, then in the 1960s behaviorism became popular as well as Marxist political economy. Statistical models became influential from the 1990s as the discipline aspired to greater "scientific" status.

The development of economics was also diverse and influenced by shifts in wider economic, political, and ideological conditions. In much of Europe economics as a separate university subject dates to the postwar period, except Germany where the subject was well established and dominated the social sciences. But the two Germanys pursued neoclassical and Marxist economics, respectively. In Spain, the first independent economics courses were taught in 1944, and the incorporation of business schools in universities from 1970 led to the discipline's expansion. In the

UK, universities followed the American model, as was the case in Sweden, where the number of chairs in economics grew from 8 in 1945 to 57 in 1996. The same was true in Belgium where the discipline was detached from law faculties from 1970. But in the Netherlands, the student protests of the 1960s and early 1970s lessened interest in the growing US preoccupation with mathematics and econometrics and Marxist theories rose in popularity. Political economy also exerted strong influence in Italy where independent economics departments were founded in the 1960s and 1970s (Hammerstein and Heirbaut 2011).

In Central and Eastern Europe, Marxist-Leninist rhetoric and ideas dominated the social sciences till the collapse of socialism, although there were changes over time and differences among countries (Wagner 1999). For example, in the Soviet Union, considerable debate took place from the mid-1960s on political science as an independent discipline, which did not achieve institutionalization until the 1970s. Soviet political scientists largely focused on the nature of political systems, culture, and regimes from a Marxist perspective (Brown 1986). In Latin America, in the early postwar decades sociological and economic research centered on issues of inequality and development, and the region gave the world the influential dependency paradigm (Sánchez 2003; Bernecker and Fischer. 1998; Saad-Filho 2005). In political science, studies of revolutionary movements and class analysis later gave way to democratization, decentralization, and individual and collective identities. Interest grew in quantification, although ethnographic methods remained more popular. In the 1990s, there was a limited trend toward rational choice and post-modern perspectives. In 1994, the social sciences accounted for 41.3 % of enrollments and 42.5 % of graduates (Vessuri 1999: 109).

The social sciences in Africa also became popular and political economy themes and approaches predominated. As in Latin America, the study of economic development from dependency and neo-Marxist perspectives was a major area of focus. In the 1980s and 1990s, structural adjustment attracted much attention, and neoclassical economic models spread, although development economics remained influential. In political studies, issues of nation-building, democratization and civil society, and conflict analyses were prominent. The conflict studies shifted from revolutionary struggles to civil conflicts and ethnicity. Cultural studies influenced by post-colonial theories became quite influential among francophone scholars and in post-apartheid South Africa. Applied social science research, especially in the areas of agriculture, health, environment, demography,

and gender, became quite attractive to social scientists seeking to supplement their meager incomes through consultancies to a rapidly growing development industry of international aid agencies and donors and NGOs in search of social science expertise. In general, qualitative methodologies prevailed, although quantitative methods assumed a notable presence in the "harder" social sciences especially economics (UNESCO 1999; Chimere-Dan 1999; Zeleza 2006, 2007).[4]

The development of the social sciences in Asia shared some similarities with Africa and Latin America in which issues of national development and integration were critical. As in the two regions, North American and Western European paradigms exerted a strong influence, duly adapted to local contexts. China and the other Asian socialist countries followed Marxist tenets. Sociology was even banned in China in 1952 and during the Cultural Revolution, the social sciences almost disappeared. The influence of American social science models was particularly marked in postwar Japan, South Korea, and Taiwan. Countries such as India and Malaysia showed a strong theoretical and methodological orientation toward paradigms in their former European metropoles. Student activism and dissatisfaction with American and European models in the 1960s led to the adoption of both radical neo-Marxist and nationalist approaches excavated from indigenous traditions.

The specificity of the Asian development experience and questions of rapid economic growth and social equity were equally conspicuous, although comparative regional work remained rare. Among the most well-known theoretical advances made was the subaltern studies group (Ludden 2002; Majumdar 2015; Lee 2005). As elsewhere, globalization, environmental, gender, and cultural studies assumed greater salience from the 1980s. The post-Cold War era saw a shift from studies of social cohesion to social conflict, a decline in Marxism, and work on the rural areas in favor of urban studies. Methodologically, the rising currency of quantitative–deductive methods in economics was matched by growing popularity of ethnographic approaches in the other social sciences (UNESCO 1999). In China, the number of social scientists rose to 53,880 in 2005 (Ping 2010: 74). As in Africa, the previously hierarchical relations between local and Western scholars also changed.

Clearly, much changed in the development of the social sciences. By 2010, there were more than 200,000 social scientists around the world. They had done much to influence public policy, the construction of institutions and instruments for change, and predict events. But instability,

inequality, and insecurity persisted, and they had failed to forecast the collapse of communism in 1991 and of financial markets in 2008–2009. Also, huge global disparities endured in social research capacities, as did fragmentation, and the unhealthy hegemony of English. Unequal capacities were manifest at the individual, organization, and overall system levels in terms of access to funding, working conditions, quality of institutional research infrastructures, degree of academic freedom, and patterns of integration into global epistemic communities, including issues of brain drain and brain circulation.[5] Despite increases in the publication of social sciences papers in every region, the dominance of Europe and North America endured. UNESCO and ISSC (2010) even devoted their *World Social Science 2010* report to the subject.

In the new century, according to the report's editors (Caillods and Jeanpierre 2010: 1), the environment of social science production was characterized by three major developments, "first, globalization, leading to the parallel internationalization of some public concerns and of social science research itself; second, changes in the institutional and social organization of social sciences; and third, the increased role of new information technology (IT) in the production and dissemination of social sciences." The report recorded the multiplicity of approaches, and their greater acceptance, in dealing with the global problems of environmental change (O'Brien 2010), poverty and income inequality (Gupta 2010; Milanovic 2010), the world financial crisis (Harvey 2010), population challenges (Chamie 2010), role of global cities (Sassen 2010), and marginalization and violence including terrorism (Apter 2010). It also noted some of the key regional trends. In Europe, the priority areas identified by a group of experts appointed by the EU Commission were "welfare, migration, innovation, the post-carbon society, the crises of value and valuation, space and landscape, time and memory, the technologization of the social sciences, the iconosphere, governance and regulation and, finally, the future of democracy in a globalized world" (Langenhove 2010: 85–6).

In the Arab states, the main fields were "the challenges of the post-independence Arab state, issues arising from 'global' and developmental agendas, and fields emerging from interaction and opposition to Western scholarly agendas" (Shami and Elgeziri 2010: 40). In Asia, they were "employment, social mobility and equity, security and safety, education, population, health, globalization, adaptation to climate change and the governance required to manage these matters" (Beaton 2010: 40). In China, specifically, social scientists focused on "urbanization and massive

rural–urban migration; pension system reform; health care; education for all; housing; and political issues such as the reform of the legal system and the rule of law" (Ping 2010: 73). In Latin America, the topics included "violence, social conflict, the role of the state, democracy, employment, education, indigenous peoples, religion, social justice, environment, integration, development, inequality and poverty" (Cimadomore 2010: 42). In Africa, the social science community still grappled with issues of epistemic autonomy and decolonization, statism, unraveling the impact of neo-liberalism, and investigating democratization violent conflicts, and the impact of HIV/AIDS (Sall 2010; Mouton 2010).

In institutional terms, unlike the STEM fields, social sciences research continued to be "predominantly conducted in universities or in research centers associated with them," and there was "an increase of short-term applied research conducted outside universities by consultancy firms and non-governmental organizations," and funding was "almost everywhere an issue" (UNESCO 2010: 53).[6] The role of autonomous, advocacy, and demand-driven think tanks grew as well, which sometimes blurred the line between research and activism (Anheier 2010; Asher and Guilhot 2010).

Despite facing its own challenges, with more than 100,000 social scientists in Canada and the USA, North American social science exerted "a large global influence due to its scale, its research productivity and the number of international social scientists educated in its Ph.D. programs" (Calhoun 2010: 55). The institutional and funding contexts for the social sciences continued to be problematic in Latin America (Vessuri and López 2010) and Africa (Mouton 2010).[7] In the Middle East, their social embedding remained unsteady and social science research lacked a specific role (Arvanitis et al. 2010). In South Asia, the social sciences were accorded low priority and there was "consensus among social scientists that, with a few exceptions, the quality of both teaching and research in social sciences is declining" (Krishna 2010: 81).

In contrast, in China the status and support for the social sciences and humanities increased significantly (Ping 2010; Lili 2010). In Europe funding for social science and humanities research ranged from 4 % to 25 % of total research funding. But the social sciences became more "project-driven, reactive to external incentives and characterized by the growing role of external and mixed-mode funding," which led "to tension between traditional academic research, based on a long-term vision, secured status and relative autonomy, and the project-based and output-driven model characterized by short-term objectives and more external constraints,

including reporting requirements and the proprietary status of results" (Langenhove, 2010: 81–2). In Russia, where there were 23,200 social science and humanities researchers in 2007, half of them economists, double the number in 1999, the government still underestimated their role (Pipiya 2010).

The uneven institutional capacities resulted in disparities in social science production. The USA and Europe maintained their dominance. Out of the 197,201 articles listed in the social science citation index (SSCI) database between 1988 and 1997, the US share was 57.84 %, Europe 27.62 %, Asia 6.54 %, Oceania 3.96 %, Africa 1.52 %, and the CIS (1.50 %). For the 1998–2007 period, the US share out of 245,965 publications dropped to 48.14 %, but Europe's rose to 35.08, Asia's to 8.21 %, Oceania's to 4.36 %, Africa's to 1.52 %, and the CIS's dropped to 1.15 % (Gingras 2010: 150–2). The supremacy of North America and Europe reflected the two region's control over the bulk of SSCI journals; between 1980 and 2007 North America accounted for 46.5 % of these journals, Europe 46.1 %, Asia 3.7 %, Oceania 1.9 %, Latin America 1.3 %, Africa 0.4 %, and CIS 0.1 %.

The hegemony of English was also a factor. English accounted for 94.45 % of articles published from 1998 to 2007, followed by French (1.25 %), German (2.14 %), Spanish (0.40 %), and Portuguese (0.08 %). This hegemony entailed that there was "an anglophone-centered flow of information and an anglophone perception of scientific achievement. The anglophones' linguistic advantage contributes to the enhancement of their countries' competitive advantage in science, and in related businesses such as publishing, as well as to the attractiveness of their universities" (Ammon 2010: 153; Altbach 2016a, b).[8] The intellectual hegemonies of North America and Europe provoked counter-hegemonic tendencies and calls for alternative discourses in African, Asian, and Latin American social science communities. The internationalization of social science research reinforced these tendencies as many analysts have observed (Danell, et al. 2013; Alatas 2010). Some argued that out these processes, was emerging a true pluralization of knowledge (Wagner 2010).

But it was the hard sciences that dominated the academy. Both superpowers, the USA and USSR, owed their prowess to S&T, which set a powerful example to the rest of the world to prioritize STEM education and research. During the war, vast resources had been invested in the hard sciences, a propensity that was reinforced by the imperatives of postwar reconstruction in the 1950s and national competitiveness from

the 1960s in the Global North and for rapid development in the Global South. In intellectual and organizational terms, four changes in the sciences stand out. First, the emergence of new inter- and transdisciplinary fields; second, the spread of collaborative research practices; third, closer integration of "pure" and "applied" research through academic–industry partnerships; and finally, the extraordinary growth and impact of new ITs.

At the end of World War II, the sciences and scientists were generally enclosed in distinctive disciplines that prided themselves in maintaining strict boundaries between each other and with their corresponding technologies. Across Europe and many parts of the world, in the first postwar decade and half, John Ziman (2011: 429) informs us, "professional 'disciplinism' was still the dominant ideology in the exact sciences in European universities. Nevertheless, the traditional disciplinary and subdisciplinary boundaries were actually becoming as obsolete as national and regional frontiers. The exact sciences were beginning to merge into what might be called a 'language area', characterized by mathematical models built around differential equations." The inter-, multi-, and transdisciplinary drive spawned the development of new fields such as materials science, cognitive science, earth science, geochemistry, geophysics, astrophysics, and IT.

Stunning changes took place in the biological sciences as a result of new discoveries and technologies. Particularly revolutionary was the unraveling of the structure of DNA in 1953, the rise of ecology beyond the speculative and descriptive subject of the 1950s into a field using sophisticated computing and statistical techniques from the 1970s, and the internationally collaborative human genome project conducted between 1990 and 2003 to which the USA contributed $2.7 billion.[9] This gave birth to "new breeds, like cell-, developmental-, molecular-, marine-, and neurobiologists," writes Herbert Macgregor (2011: 451–2). The changes in the biological sciences had extensive implications for the medical and health sciences, which also experienced their own transformations. Medical advances after the war were foreshadowed by several prewar or wartime developments, including the widening usage of blood transfusion, anesthetics, and antibiotics. The introduction of national healthcare services in some countries, and international efforts to deal with outbreaks of regional or global epidemics and pandemics such as HIV/AIDS from the 1980s not only boosted the medical profession and medical research but also raised public awareness about health and disease. Three models of

medical education developed. First, medical education was incorporated into university teaching and research and practical clinical work was confined to short internships (as in Germany and much of Europe). Second, it was under the control of hospitals and clinical experience was emphasized (as in France and Britain). Finally, medical schools were separate from both the universities and research institutes (as in the Soviet Union).

Undergraduate curricula in the medical and health sciences became quite crowded and fragmented as more fields such as nursing and assorted health care occupations sought the certification of undergraduate and graduate degrees. Demands on faculty for basic and applied research increased in the more prestigious medical schools. Over time, the role of universities in medical education increased even in countries where this was not the practice before as did graduate medical training. Pressures for curricula reform, interprofessional collaboration, and interdisciplinary and international research grew. The demands for change came from faculty and students, advances in medicine and instructional technology, as well as the rising costs of medical education. Thus, by the end of the twentieth century, medical education, and health sciences education more broadly, combined, sometimes uneasily and in varied ways, training for specialists and general practitioners, didactic, and experiential and continuing education. The costly research activities were not always well coordinated between the universities, government, and intergovernmental agencies, and proprietary and profit-driven private firms (Ellis 2011).

The interactive flows in scientific knowledges and methodologies, together with demands for "finalization" inherent in the research process, and the need for university researchers to access funds, equipment, and facilities their institutions could not afford eroded the fragile barriers between "pure" and "applied" research. Enlargement in scale and complexity of scientific research promoted collaboration as evident in the growth of multiauthored papers, which was not common practice before World War II when the great majority of such papers "were published either in the name of a single author or two scientists in close collaboration, typically a student or junior researcher together with his or her professor" (Ziman: 2011: 435). Collaborative knowledge production also became more transnational, which reflected the rise of international "big science" research programs and projects and the value placed on them, and the internationalization of higher education that promoted the globalization of institutional rankings. Thus, everywhere the sciences became more cosmopolitan.

The gradual erosion of the cultural divide between the academy and industry furthered the integrative and transnational processes in the sciences, which governments keen on marshaling S&T for economic development and competitiveness were only too keen to promote. The creation of "science parks" or "research parks" on university campuses, as well as joint research centers, and the sharing of laboratories and other facilities fostered academic–industry partnerships. The mobility of scientists between the academy and industry grew. These processes of course varied quite considerably among countries. They were most advanced in the Global North, and were improving among the major emerging economies, and faced enormous obstacles in the less developed countries of the Global South.

The STEM fields overshadowed the social sciences and humanities in terms of both the proportions of researchers and publications. The distribution of researchers by region and field is outlined in Table 3.5. It can be seen that the percentage of researchers was highest in the natural sciences and engineering and lowest in the humanities. In Latin America, out of the 13 countries that had data, the percentage for the natural sciences and engineering was over 40 % in 12 countries (in 9 over 60 %), in Europe in 31 out of 31 countries (over 60 % in 27), in Africa in 25 out of 27 countries (in 18 over 60 %), and in Asia in 11 out of 24 (in 5 over 60 %). The medical and health sciences and the agricultural sciences were clustered in the middle. At the bottom were the humanities where the numbers of researchers were concentrated below the 20 % range. The latter was the case in 11 countries in Latin America (all below 10 %), in 10 countries in Europe (4 below 10 %), in 11 countries in Africa (8 below 10 %), and 18 countries in Asia (12 below 10 %). The social sciences fared a lot better than the humanities with percentages concentrated around 10–19 % in Latin America and Europe, and 20–39 % in Africa and Asia

The regional distribution of publications between 2008 and 2014 is shown in Table 3.6. It underscores the marginalization of the social sciences (the humanities do not appear). Data on publications shows that globally in 2008, the leading fields were clinical medicine, engineering and technology, biomedical research, physics, chemistry, biology, earth and space, and mathematics in that order. A similar order can be seen for North America, except that biomedical research swaps places with engineering and technology. In Asia, the order is led by clinical medicine, engineering and technology, chemistry, physics, biomedical research, biology, earth and space, and mathematics. For Africa, the three leading fields were

Table 3.5 Number of researchers by field, region, and percentage 2013 or closest year

Field	*Natural Sciences*	*Engineering and technology*	*Medical and health sciences*	*Agricultural sciences*	*Natural sciences and engineering*	*Social sciences*	*Humanities*	*Social sciences and humanities*	*Not classified elsewhere*
	Number of countries in the percentage group								
North America	–	–	–	–	–	–	–	–	–
Latin America									
More than 60 %					9				
40–59%					3				1
20–39 %	5	4	1	1	1	6		2	
10–19%	7	7	11	10		6		9	1
Less than 10 %	1	2	1	2		1	11	2	3
Europe									
More than 60 %					27				
40–59 %	1	6			4		2		
20–39 %	15	15	6			3	17	8	1
10–19 %	11	9	12	6		20	6	15	2
Less than 10 %	3		12	14		7	4	8	5
Africa									
More than 60 %	1				18	1			1
40–59 %	1				7	1	1	5	
20–39 %	9	5	4	3	1	8	4	12	1

10–19 %	12	10	11	10	1	8	3	3	1
Less than 10 %	2	9	7	10		8	8	3	12
Asia									
More than 60 %		2		1	5			2	
40–59 %		4	1		6	2		3	1
20–39 %	8	5	1	3	2	4	11	8	3
10–19 %	11	11	11	5	1	9	6	7	
Less than 10 %	4	1	11	13	1	5	12	2	10
Oceania	–	–	–	–	–	–	–	–	–

Source: Worked from UNESCO (2010: 774–776) data.

Table 3.6 Regional share of scientific publications by field, 2002–2008

Region	*Biology*		*Biomedical research*		*Chemistry*		*Clinical medicine*		*Earth and space*		*Engineering and Technology*		*Mathematics*		*Physics*	
	2002	*2008*	*2002*	*2008*	*2002*	*2008*	*2002*	*2008*	*2002*	*2008*	*2002*	*2008*	*2002*	*2008*	*2002*	*2008*
World	58,478	84,102	99,805	123,316	88,310	114,206	229,092	307,043	41,691	60,979	96,194	139,257	23,142	37,397	96,593	119,799
North America	20,234	24,976	44,700	49,590	19,378	21690	89,495	114,674	17,123	22,533	27,183	33,763	7573	10,765	25,307	28,685
Latin America & Caribbean	4321	10,232	3426	6216	3181	4401	6751	14,030	2122	3228	2646	4535	925	1570	4278	4579
Europe	24,133	33,809	43,037	50,464	40,404	44,644	104,060	135,042	21,202	30,763	39,625	53,069	11,834	18,064	49,022	53,599
Asia	10,796	20,062	19,022	31,895	30,017	50,501	40,557	65,957	7456	15001	32,946	58,754	5544	11,614	31,405	49,363
Oceania	4014	5034	3120	4353	1552	2038	7528	11598	2126	2323	2497	3403	716	985	1693	2326
Africa	2255	3366	1122	2397	1535	2012	3075	5640	918	1486	1306	2358	494	893	1071	1498

Source: UNESCO (2010: 10).

clinical medicine, biology, and biomedical research, followed by chemistry, engineering and technology, physics, earth and space, and mathematics.

The imbalances are evident from publication data covering the 2008–2014 period. A few examples from each region will suffice. Table 3.7 lists 20 major countries, three in North America, four each in Europe, Asia, Latin America and Africa, and one in Oceania. The dominance of the medical sciences and biological sciences is clear. With one or the other leading, the two fields claimed between two-fifths and more than half of total publications in most of these countries. The shares were particularly high in the USA (57.93 %), UK (54.74 %), Nigeria (54.6 %), Australia (52.1 %), Brazil (51.27 %), South Africa (49.1 %), Germany (47.47 %), Canada (44.59 %), Japan (45.41 %), France (41.95 %), Egypt (39.97 %), Colombia (39.27 %), Tunisia (38.88 %), Chile (37.04 %), and Mexico (36.8 %). In three countries, one of the two featured among the top two, as in India where the biological sciences together with chemistry accounted for 39.6 % of publications, and in Argentina the biological sciences and geological sciences claimed 41.33 %, while in Korea the medical sciences combined with engineering represented 42.46 %. The only exceptions were China and Russia. In the former, chemistry and engineering dominated, representing 38.87 %, and in Russia, it was chemistry and physics that jointly took 53.45 %. Publications in the social sciences were very low, and even when combined with psychology, nowhere did they reach 3 % of total publications. The highest rates were registered in the UK (2.88 %) and Australia (2.82 %).

The discrepancies in knowledge production went beyond the disciplinary let alone national divides but were also gendered. As demonstrated in Chap. 1, while women made great advances in enrollments, and even came to outstrip men at the undergraduate level, marked gender differences remained in higher education. The disparities were especially marked in terms of women's participation as researchers. This is captured poignantly in the metaphor of "leaky pipeline" used by Sophia Huyer (2015: 85–6).[10] Women went from representing 53 % of bachelor's graduates and maintained the same level for master's graduates, but dropped to 43 % for PhD graduates and slipped to 28 % for researchers. This reflected persistent gender discrimination in graduate enrollments, unequal access to research funding and lack of support, performance evaluation criteria that favored male researchers, and pervasive biases, both unconscious and structural, which sustained sexist institutional cultures and the gender glass ceiling.

Table 3.7 Publications by field in select countries, 2008–2014, percentage

	Total 2008–14	*AG*	*AS*	*BS*	*CH*	*CS*	*EN*	*GS*	*MA*	*MS*	*OLS*	*PH*	*PS*	*SS*
Canada	329,314	2.73	1.65	21.64	7.15	9.04	10.65	9.04	3.27	29.95	1.33	7.56	1.37	1.01
Mexico	59,106	5.42	2.98	25.32	9.32	1.83	10.64	10.38	3.48	14.72	0.27	14.40	0.72	0.61
USA	1,932,127	1.85	1.82	25.27	7.80	2.05	8.23	6.74	0.44	32.66	1.47	9.08	1.21	0.95
France	400,043	1.96	2.74	18.84	11.15	2.41	9.85	8.08	5.32	23.11	0.16	15.10	0.67	0.60
Germany	557,627	1.86	2.80	19.48	11.71	1.57	8.20	6.43	3.23	27.99	0.24	14.95	0.82	0.71
UK	532,280	1.27	2.78	22.15	7.69	2.05	8.20	7.38	2.69	31.59	1.34	9.96	1.47	1.41
Russia	175,516	0.70	2.62	9.78	21.65	0.54	9.18	10.71	6.12	6.73	0.02	31.80	0.08	0.10
China	957,611	2.27	0.62	15.13	20.44	3.14	18.43	6.62	4.67	12.22	0.12	15.90	0.14	0.28
India	266,789	4.20	1.14	18.36	21.24	1.87	16.10	6.11	2.54	13.59	0.09	14.40	0.09	0.26
Japan	479,097	2.47	1.24	19.96	13.91	1.27	11.23	5.11	2.37	25.45	0.17	16.01	0.32	0.28
South Korea	267,229	2.82	0.71	15.82	13.10	3.25	21.56	3.54	2.63	20.90	0.64	15.59	0.19	0.27
Argentina	46,004	5.72	2.22	29.85	10.54	1.09	7.06	11.48	2.97	16.50	0.16	11.17	0.69	0.55
Brazil	193,121	10.97	0.91	24.17	8.32	1.33	7.39	5.79	2.78	27.10	1.36	8.97	0.44	0.48
Chile	30,780	4.58	12.67	18.34	7.80	2.00	7.29	11.64	5.34	18.70	0.60	9.68	0.59	0.78
Colombia	13,931	6.94	0.38	21.99	9.80	1.59	11.00	6.35	4.12	17.28	1.08	17.86	0.54	1.08
Egypt	37,523	3.57	0.49	17.73	18.75	1.62	15.77	5.71	3.00	22.24	0.19	10.57	0.10	0.26
Nigeria	9173	13.63	1.26	24.65	5.40	0.40	8.18	9.40	1.78	29.95	0.95	2.90	0.33	1.19
South Africa	45,736	4.07	3.06	29.95	9.47	0.84	7.99	10.98	3.75	19.15	1.03	7.49	0.59	1.64
Tunisia	16,412	6.59	0.24	23.20	10.39	2.69	14.84	9.24	7.21	15.68	0.04	9.05	0.11	0.71
Australia	40,117	3.05	2.25	21.64	6.30	2.37	10.16	10.51	2.09	30.46	2.51	5.84	1.47	1.35

Source: UNESCO (2015a: 114, 150, 190, 260, 349, 445, 485, 545, 601, 627, 654, 668)
Key: *AG* Agriculture, *AS* Astronomy, *BS* Biological Sciences, *CH* Chemistry, *EN* Engineering, *GS* Geosciences, *MA* Mathematics, *MS* Medical sciences, *OTL* Other Life Sciences, *PH* Physics, *PS* Psychology, *SS* Social Sciences

The highest share of women researchers was in Southeast Europe (48.5 %) and the lowest in South Asia (16.9 %). In between were the Caribbean (44.4 %), Central Asia, and Latin America (44.3 %), then came Eastern Europe (40.2 %), the Arab states (36.8 %), members of the European Free Trade Association (34.2 %), EU (33.1 %), sub-Saharan Africa (30.0 %), West Asia (27.2 %), and Southeast Asia (22.5 %). The proportion of female researchers also varied by field of specialization. From Table 3.8, it is clear that the gender gap was most pronounced in engineering and technology where women were concentrated in the lower percentage ranges, while in the medical sciences and social sciences and humanities they were much better represented in the higher ranges. There was no country where the share of women in engineering and technology exceeded 55 %, and only 3 in the natural sciences, while this was the case in 27 countries in the medical sciences, 10 in social sciences and humanities, and 10 in agricultural science.

The highest shares of women in engineering and technology were in the former socialist countries of Central and Eastern Europe. They were among 14 out of the 18 countries where women's share was 30–39 %, and 4 out of the 7 where it was over 40 %. The other countries included four from Latin America and the Caribbean (Costa Rica and Trinidad in the first cohort and Guatemala and Venezuela in the second) and three from Asia (Philippines in the first cohort and Malaysia and Mongolia in the second). The same was the case in the natural sciences. Out of the 30 countries where women's share exceeded 40 %, 19 were former European socialist countries and 1 from Central Asia. The remainder included

Table 3.8 Female researchers by field and number of countries, 2013

	Natural sciences	*Engineering and technology*	*Medical science*	*Agricultural science*	*Social sciences and humanities*
	Number of countries				
0–14.9	8	16	2	4	3
15–24.9	7	20	4	18	4
25–34.9	16	24	11	14	17
35–44.9	26	12	12	12	13
45–54.9	12	4	18	16	22
55+	3	–	27	10	15

Source: Worked out of data in UNESCO (2015a: 87)

two from Africa (Egypt and Lesotho), six from Asia (Bahrain, Iraq, Kuwait, Malaysia, Philippines, and Sri Lanka), two from Latin America and the Caribbean (Guatemala and Trinidad and Tobago), and only one from Europe (Portugal). Shares of more than half were achieved in the Philippines (59.5 %), Montenegro (56.7 %), Serbia (55.2 %), Kazakhstan (51.9 %), Bulgaria (51.0 %), and Belarus (50.6 %).

The medical sciences opened up to women researchers as more women studied in health-related disciplines and the feminization of health care services continued. The share of women graduates in the fields of health and welfare was over 70 % in 47 out of the 73 countries with data; in 15 it was more than 80 % reaching high rates in Latvia (92.3 %), Brunei (85.7 %), Finland (85.1 %), United Arab Emirates (84.6 %), Lithuania (84.3 %), Belarus (83.8 %), and Norway (83.6 %). In contrast, the share of women graduates in engineering was less than 25 % in 26 countries; at the bottom were Saudi Arabia (3.4 %), Lao (10.6 %) and Switzerland (14 %). Only in four did women represent more than 40 %, Myanmar (64.6 %), Oman (52.7 %), Brunei (41.8 %), and Tunisia (41.1 %). Women's share was much better in the sciences in general; in 23 countries, it was more than 50 %; among them 13 were more than 60 %, led by Oman (75.1 %), Albania (66.1 %), Brunei (65.8 %), Algeria (65.4 %), Bahrain (66.5 %), and Iran (66.2 %).

The Digital Academy

The spectacular development of technology was evident in all aspects of higher education including the growth of technology degrees among all first degrees in S&T. In the 1959–1980 period, enrollments for these degrees grew from 36 % to 41 % in the UK, 48 % to 53 % in France, and in the USA from 49 % to 82 %. The percentage dropped in other countries but still remained high; in Switzerland it fell from 59 % to 42 %, in Germany 68 % to 48 %, and in Sweden 54 % to 49 % (Watson 2011: 530–1). The emergency of new fields in the hard, biological, and medical sciences from the 1950s and 1960s was made possible by the extraordinary developments in technology, which reinforced its centrality in research, teaching, and learning among institutions domestically, regionally, and internationally. The growth of computer science as a field and its merger with other fields played a crucial role (Horowitz 2005).

The integration and impact of technology were driven by both interest and fascination with innovation and opposition to technology. In the

1960s, negative attitudes toward technology among students in some parts of the world especially Europe and North America spread on the backs of the anti-nuclear, anti-war, and ecological movements. "These concerns," Christopher Watson (2011: 536) contends, "had an immediate impact on students of secondary school age, and in due course fed through into a decline in the number of students applying to study science and technology…. More positively, it led to a growth in the demand for courses in 'green' subjects: ecology, alternative technology, renewable energy sources, environmental and earth sciences."

The development and succession of new ICTs after World War II led some to even talk of the Information Age as marking a new epoch in world history. The development of the electronic computer from wartime investments represented a technological watershed. In the 1950s and 1960s wealthy universities began investing in computers whose costs dropped sharply as computing power exploded exponentially. The invention of the personal computer (PC) in the 1970s was another transformative moment. The PC gradually became an indispensable tool of academic communication, research, teaching, and learning. Academic life was also profoundly altered by the invention of the photocopier and its widespread adoption by universities from the early 1970s. Extensive developments in radio and television revolutionized higher education, leading to the expansion of distance education and the creation of open universities. For example, the UNISA, established in 1873, expanded so much that by 2015 it enrolled 400,000 students from across the continent and other parts of the world. The British Open University, an influential pioneer, established in 1969 enrolled 40,000 students by 1974, rising to 120,000 in 1994, and about 250,000 in 2015.[11]

The development of the Internet and rapid advances in digital technologies from the 1980s that led to the emergence of social media and a vast new set of information-related occupations accelerated the transformative impact of technology on higher education and knowledge production. Opportunities for "big science" and huge international projects expanded, which benefitted academic researchers, but also reshuffled the relative roles of the academy, private business, government and intergovernmental agencies, and non-profit entities as centers of knowledge production often to the detriment of academic institutions. The capacities for collaboration grew exponentially, so did the opportunities for technology-mediated forms of teaching and learning from hybrid courses to flipped classrooms to online education. The explosion of information altered the

role of libraries as repositories into nerve centers for digitized information communication and raised the need for information literacy (Barth 2011).

Academic publishing was transformed by the acceleration and commercialization of scholarly communication. Technology simultaneously opened new opportunities for researchers to collaborate and disseminate their output more widely, while at the same time strengthening the role of powerful gatekeepers outside the academy, global firms that dominated the academic publishing and database industry that was estimated to be worth $23.5 billion in 2011 and comprised 28,094 active-peer reviewed journals. Three for-profit firms, namely Reed Elsevier, Wiley-Blackwell, and Springer, accounted for 40 % of all articles published. Altogether, commercial publishers claimed 64 %, professional societies 30 %, university publishers 4 %, and others 2 %. A few providers, upon whom access to global scholarship, rankings, and citation analyses that controlled the fate of millions of academics depended, also dominated research databases (Regazzi 2015: 1–18). There were also problems of data deluge, and open access and proprietary norms (Borgman 2007).

Electronic publishing seemed unlikely to provide immediate salvation to beleaguered academic presses buffeted between declining library budgets, their main market, and university subventions. Even where library budgets remained steady or increased, they could not keep up with the exorbitant and escalating subscription prices of journals published by the large commercial conglomerates. In 2014, the *Journal of Comparative Neurology cost* a staggering $28,787, and the weekly *Science* was priced at $26,675 (Lambert 2015)! Against these predatory practices, the open source movement emerged. Peter Suber (2012: 4) defined open access as literature that "is digital, online, free of charge, and free of most copyright and licensing restrictions." In effect, there was an uneasy coexistence in academic publishing and scholarly communication between print and online publications, expensive and exclusive and open and free access models. This complex hybrid seemed likely to persist for some time to come (Lee 2013). There were also efforts to develop new instruments to measure impact of academic publications beyond the traditional impact factor model of citation counts. To quote George Lossius (2014), "The prospect of throwing citation counts, article views, referrals, downloads and news and social media mentions into the measurement mix seemed to be the perfect solution to the deeply disputed argument that the Impact Factor could no longer be considered."

The new ITs gradually became pervasive in higher education because of growing student demand, rising evidence of their benefits, and institutional strategies for revenue growth and branding. As with any new and disruptive technology, the expansion of e-learning attracted its share of advocates, opponents, and ambivalents. To their proponents these technologies provided innovative, flexible, convenient, personalized, self-directed, independent, and interactive learning. Moreover, it was claimed, they enhanced equity, group collaboration, timely assessments, and access to global intellectual resources. Also, they enabled more people to access higher education, including working adults and people in underserved communities. They also cut travel costs and saved time even for traditional students. Further, e-learning eroded the association of higher education with on-campus learning for 18- to 24-year-olds and thereby opened new possibilities for lifelong learning.

But the critics pointed to the dangers that the absence of face-to-face and lively interactions with instructors, student information illiteracy, limited student assessment and feedback, and the inadequacy of ICT for practical subjects posed for student learning and progression. The costs for setting up and maintaining effective ICT infrastructures, and training and retooling faculty were also high. In poor countries and institutions, limited access to computers and the Internet made e-learning difficult to sustain. The dominance of English as the currency of academic discourse on the Internet presented its own challenges in countries where English was not a language of instruction and knowledges in local languages had not developed a strong online presence.

The adoption of ITs varied for campus-based and distance education, and in their pedagogical purposes and effectiveness. Differences in the levels of ICT infrastructural development and institutional ambitions, and in the availability of instructional design capacities, and effective change agents were rampant. ICT affected all aspects of the learning process from course design, content, delivery and sharing, to communication between learners, instructors and outsiders, to student enrollment, support, monitoring, and evaluation, to knowledge creation, management, dissemination, and application. Computer-mediated programs ranged from fully online to various forms of blended or hybrid learning. This led to the emergence of a complex mosaic of what Caird and Lane (2015: 67), call the face-to-face-teaching model without ICT enhancement, the ICT-enhanced face-to-face teaching model, the distance teaching model using traditional print materials, the ICT-enhanced distance teaching model,

and the online teaching model. The advent of such diverse instructional models further complicated the question of assessment and quality assurance (Draghici and Reiner 2014).

The earliest adopters of the online platforms were distance education and for-profit institutions. The University of Phoenix started online courses in 1989 and Walden University in 1995. In Africa, the World Bank set up the African Virtual University in 1993, which became an intergovernmental institution ten years later with 53 partner institutions in 27 countries by 2015.[12] Campus-based institutions opted for dual or multitrack strategies, usually offering fully online programs to non-campus students and blended programs for campus students. Dual-mode institutions sometimes experienced difficulties in instructional design in so far as on campus and online courses were not always interchangeable. They required more time to develop than face-to-face courses something that faculty, used to autonomy as instructors, found hard to appreciate. Also, the demands of frequent communication and the challenges of developing effective online learning communities varied from on-campus learning practices. Thus, the new learning technologies were disruptive and forced teachers to re-envision, not their centrality but their role as facilitators rather than dispensers of knowledge, and their new responsibility not as transmitters of information but as collaborative interpreters in a horizontal rather than vertical model of knowledge transmission.

The problems were quite acute for institutions that adopted dual-mode instruction largely out of desperation to make up for reduced state funding or lost student tuition from declining traditional student enrollments. This underlined "the need for experienced and centralized instructional designers to ensure the creation of effective, maintainable, and scalable course designs" (Fyle et al. 2012: 61). Course development services were readily available from external vendors. In fact, e-learning gave rise to a new services industry providing course management systems or learning management systems such as Blackboard, a commercial provider, and Moodle, an open source provider.

Depending on the positioning of their institutions, programs, and courses on the wide broadband of ICT intensiveness, faculty in many countries came under growing pressure from their administrators, students, and peers to acquire competencies that would enhance e-learning. One study in the USA divided faculty into four groups in their "motivations to use technology in teaching: the entrepreneurs, risk adversives, reward seekers, and reluctants." The risk adversives were the largest group

whose members were "often lacking in technical expertise, afraid of new teaching environments, and hesitant to engage in self-examination, but able to benefit from peer demonstrations showing the effectiveness of technological innovations." (Renes and Strange 2011: 206–7).

Successful institutions tended to be those that provided sufficient infrastructural, technical, training, and course design resources, and encouraged peer support, as well as effective incentive systems. Research in ICT diffusion in higher education identified different factors. A South African study emphasized the importance of not just formal institutional leadership but also informal opinion leaders "for emerging technologies to be diffused in institutional social systems" (Ng'ambi and Bozalek 2013: 940). A Kenyan study suggested "that environmental, technological, organizational and individual factors are responsible for driving ICT diffusion and infusion by individual users," which entailed the need for training of both students and faculty, and organizational support driven by vigorous commitment from the institution's chief executive officer and top management (Macharia and Pelser 2014: 706).

Surveys on the pedagogical opportunities, challenges and complexities, and cost implications of the introduction of ICTs proliferated. Among the most popular on-campus e-learning pedagogies were blended learning and flipped classrooms. Blended learning "became the 'new normal' in university course delivery," Bocconi and Trentin claim (2014: 16), so that the on campus and online distinction, at least as far as the students' learning experience was concerned, was increasingly irrelevant. Onsite and online learning processes and spaces became intermingled in complex ways to include online-individual and online-collaborative, as well as onsite-individual and onsite-collaborative learning components. A paper on Ireland argued that blended learning had the potential to maximize the four dimensions of learning interactions, namely transactions, outcomes, social presence, and experience (Donnelly 2010: 352). A survey in Saudi Arabia found that besides encouraging students' motivation, engagement and achievement, well-designed flipped classrooms, in which typical class and homework activities are reversed, could significantly enhance higher-order thinking skills, such as creativity, "especially in terms of fluency, flexibility and novelty, by allowing for more preparation, thinking, problem solving and relevant meaningful learning activities" (Al-Zahrani 2015: 1142).

A research project in South Africa showed that the "emerging technologies are able to promote a number of the characteristics of authentic

learning, such as collaboration across distance, sharing of results, communicating with experts and access to online research communities" (Bozalek et al. 2013: 631). A comparative investigation of Egyptian and Italian students found that wikis, an online tool for creating shared texts, enhanced individual and collective cognition by enabling "rich, flexible, empowering, collaborative learning environment. Hence participants developed knowledge management processes as they were engaged in knowledge acquisition, internalization, creation, sharing and application" (Biasutti and El-Deghaidy 2012: 870). In Croatia, it was reported that ICTs helped build academic social capital and cross-cultural learning for students and faculty by immersing them in international networks and facilitating mobility (Aleksic-Maslac and Magza 2012). Several European researchers examining data from 22 countries commended higher educational institutions for "offering remedial, bridging, preparatory or transitional courses in a blended and online format to remediate and enhance students' knowledge and skills" (Rienties et al. 2012: 563).

But the findings were not uniformly positive. Writing about learning agriculture in Iran, Talebian et al. (2014: 304) concluded, "Because of some infrastructural problem and for the nature of teaching and learning in agricultural field, acclimatizing E-learning as a teaching method is forfeited in many cases in Iran." It was reported from Romania that despite the benefits of e-learning technologies, "many Romanian universities often agree to remain in traditional teaching with no other additional support" (Benta et al. 2014: 116). A study in Nigeria noted that as a result of irregular power supplies, educational underfunding, and low ICT literacy, "the traditional lecture method and use of textbooks is still the common practice. It appears the institutions lecturers and students are not yet aware of the benefits of ICTs in enhancing teaching and learning" (Asiyai 2014: 26).

In an extensive review of literature published in several countries between 2005 and 2010 on technology-enhanced learning, Kirkwood and Price (2014: 26) stressed "the limitations of much research that has been undertaken to understand the relationship between technology and learning." Much of the literature focused on "changes in the means through which university teaching happens" and far less so on "changes in how university teachers teach and learners learn." The literature was often not clear on what was meant by enhancement. They divided it along three forms of intervention, those using technology to *replicate* existing teaching practices, to *supplement* existing teaching practices, or to *transform* the

learning experience. The two authors also divided the desired enhancements into three categories, operational improvements (in providing more flexibility and accessibility to resources), quantitative change in learning (for increasing engagement and improving grades), and qualitative change in learning (through deeper reflection, engagement, and understanding). "Most of the interventions that involved 'replicating' or 'supplementing' existing teaching considered enhancement to relate to operational improvement or quantitative change in learning. In contrast, the interventions aimed at 'transforming' the learning experience tended to conceive of enhancement in terms of qualitative changes" (Kirkwood and Price 2014: 14). For each category they found different methods were used to measure enhancement, with the first relying largely on the quantitative and the last on qualitative methods, and the second combining both.

As in any context with any technology, ICTs in higher education reflected, reproduced, and sometimes reinforced existing social divisions and inequalities of access and participation. The most obvious were inter-regional, inter- and intra-institutional, inter-generational class and gender divides. The first concerned the persistent digital divide between higher education institutions in the richer and poorer countries; in the latter basic ICT infrastructure was too underdeveloped or the knowledge management systems and competencies too inadequate to support robust e-learning as reported in some African countries (African Economic Outlook 2009; Williams et al. 2011). Inter-institutional ICT disparities between elite and non-elite, research-intensive and teaching-intensive institutions could be found in any developed or developing country. Intra-institutional divides were reflected in the different ways academic fields within institutions adopted the new technologies. The values of an academic field generally determined levels of resistance, acceptance, or indifference to ICTs as learning tools. It was suggested that because of their exposure to the productive sector that was implementing and inventing new technologies, business schools tended to be faster in incorporating web 2.0 tools in their teaching than other programs that were still wedded to traditional conceptions of maintaining control (Serrat and Rubio 2012).

The inter-generational divide was ostensibly between the so-called student digital natives and their so-called digital immigrant teachers. Surveys of student and faculty attitudes showed a more complex picture as the two groups shared more commonalities than differences in their exposure and use of technologies in everyday life, and any differences resulted largely from variations in "life stages." In the academic context, it reflected diver-

gent roles performed by the two groups. An Australian survey concluded "university teaching staff choose to integrate technologies into their teaching if and when they see educational value in doing so. Similarly, students also appear to be discerning users of new technologies in education, wanting to see clear educational or social value in using technologies, and resistant to attempts to integrate technology for technology's sake" (Waycott et al. 2010: 1203). Also, in the 2010s it made less and less sense as those who were brought up in the digital world of the 1990s and 2000s joined faculty ranks.

Class divisions were evident in contexts in which students from different socioeconomic backgrounds entered college and university with unequal levels of digital literacy. A study of students in South Africa studying the National Diploma IT at one university showed this was a huge problem and an important factor, together with other forms of forms of underpreparation such as limited proficiencies in English, behind the high failure rate among some first year students in this course (Barlow-Jones and van der Westhuizen 2011). ICT gender gaps in higher education operated at multiple levels, through the underrepresentation of women in IT education, and among IT specialists and administrators. Like most institutional contexts and cultures, underlying it was the gendered nature of IT organizations and online environments that were generally unfriendly and unwelcoming to women. In 2010, for example, in the USA, women held only 21.4 % of the approximately 26,000 executive IT positions in US higher education (Drury 2011: 97).

In 2011 and 2012, the US academy and to a lesser extent the public was seized by hype over MOOCS. Pundits proclaimed the "the end of education as we know it" to quote one writer, who went on to claim breathlessly: "The future looks like this: Access to college-level education will be free for everyone; the residential college campus will become largely obsolete; tens of thousands of professors will lose their jobs; the bachelor's degree will become increasingly irrelevant; and ten years from now Harvard will enroll ten million students" (Harden 2012). Even *The New York Times* joined the parade and dubbed 2012 "The Year of the MOOC" (Pappano 2012). The higher education media including *The Chronicle of Higher Education* and *Inside Higher Education* run countless stories on the unfolding revolution in higher education. Books with hysterical titles like *The Digital Revolution in Higher Education*: *How and Why the Internet of Everything is Changing Everything* were churned out (Shark 2015). McCluskey and Winter (2012: 3) proclaimed, "The digi-

tal university is a fundamentally different institution from the traditional university. We are seeing the birth of a new kind of institution." In so far as the digital revolution changed the way information was obtained, used, shared, and stored, universities were losing their control over the dissemination of information, and the roles of faculty, accreditation, academic freedom, and governance were being radically redefined.

University leaders were bombarded with guides on leading the e-learning transformation in higher education. Miller et al. (2014) elaborated on the Sloan Foundation's five pillars of quality online education, namely access, cost-effectiveness and institutional commitment, learning effectiveness, faculty satisfaction, and student satisfaction. They stressed the centrality of strategic institutional leadership to ensure operational excellence and sustaining innovation in e-learning. Manuals and monographs on online learning in different cultural and national contexts also proliferated. Contributors to the collection edited by Jung and Gunawardena (2014) proposed and problematized the way in which online learning constituted a complex culture in its own right. The editors argued online learning had "great potential to motivate and engage students in participating n cross-national exchanges of cultures and the creation of new cultures" (Gunawardena and Jung 2014: 8). Even sober leaders of US Ivy League colleges joined the palaver. William Bowen (2013), former president of both Princeton University and the Mellon Foundation, hoped online learning would finally slow the rising cost of higher education without compromising quality.

The frenzy about e-learning reflected the fact that online enrollments in the USA were rising faster than overall enrollments, and by 2012 there were 2.6 million students, 13 % of the total, enrolled in such programs, and another 2.8 million taking some courses online. Fueling it were anxieties and hopes that the "bubble" of increasingly overpriced, inaccessible, and poor-quality higher education was about to burst. The creation of MOOCs by consortia of prestigious private and public American universities added glow to the MOOC movement. The largest were Coursera established by Stanford and Princeton universities and the universities of Michigan and Pennsylvania, and edX founded by Harvard and MIT, both in 2012. By 2014, the two platforms offered 36 % and 16 % of MOOCs, respectively. By the end of 2015, Coursera had 140 partners in 28 countries offering 1509 courses and more than 12 million users, while edX had more than 60 members, offering more than 650 courses to 5 million learners.[13]

By 2015, the MOOC mania had fizzled. In a study based on extensive interviews with university leaders in the USA, Hollands and Tirthali (2014) identified six objectives why institutions joined the bandwagon. They included "extending the reach of the institution and access to education, building and maintaining brand, improving economies by lowering costs or increasing revenues, improving educational outcomes for both MOOC participants and on-campus students, innovation in teaching and learning, and conducting research on teaching and learning." They concluded that none of the goals were achieved as envisaged. Certainly, MOOCs did not "democratize" higher education as they appealed to those already with some education; evidence was limited that MOOCs enhanced institutional brands; they did not seem to raise much revenue and reduce institutional costs; educational outcomes were difficult to measure, and MOOCs were not necessarily more innovative than other forms of online and blended learning and in fact suffered from high dropout rates; and there were obstacles to using MOOCs for research, including regulatory issues connected to student privacy. However, the two authors believed MOOCs were there to stay perhaps becoming less "massive" and "open" and more like other online courses, and less disruptive and more of a bridge to competency-based education.

Conclusion

In this chapter, we have examined and compared the complex changes that took place in the modes and models of knowledge production in different world regions. The chapter began by outlining and analyzing the broad transformations in the processes and patterns of investments in R&D. The rising importance accorded to research and innovation for national economic development and competitiveness both reinforced the importance of academic institutions as centers of knowledge production, but also diluted their monopoly as industry, government, and other sectors became important players in generating and disseminating new knowledges.

One of the major shifts in the global landscapes of knowledge production was the relative decline of European and American dominance and the rise of Asia and other emerging economies as major players in the international intellectual division of labor. However, global disparities in knowledge producing capacities remained, and struggles continued to be waged against various forms of epistemic hegemonies by margin-

alized countries, academic communities, theoretical and methodological approaches, and groups including women. The result is that the internationalization and cross-fertilization of knowledges intensified at the same time as they became more contested and fragmented.

The second part of the chapter traced some of the key changes in the disciplinary architecture of knowledge, in which old disciplines were restructured, new ones created, and interdisciplinary fields emerged often out external social movements for more inclusive, just, equitable, and sustainable societies as well as paradigmatic changes arising out of intellectual, institutional, and ideological movements in the academy. The chapter looked at developments in the humanities, social sciences, and natural sciences, and the emergence of new interdisciplinary fields. In the humanities, they included area studies, women's studies, gender studies, environmental studies, and cultural studies, as well as the growth of subdisciplines in each of the major disciplines. The construction of inter-, multi-, and transdisciplinary formations went even much further in the hard sciences.

Finally, the chapter examined the impact of ICTs, which affected all facets of the academic enterprise from teaching, learning, and research to the restructuring of academic libraries and publishing, and scholarly communication and collaboration. Particular attention was paid to e-learning and the fierce debates it provoked, and the short-lived hype over MOOCs. Clearly, higher education institutions served as major creators, consumers, and transmitters of ICT, which transformed their knowledge production and dissemination processes and practices, and promised to continue doing so as the twenty-first century progressed. But predictions of the death of traditional universities appeared premature. Online, e-learning, or technology-enhanced learning added to, and promised to enhance, student learning if done properly. It expanded the pedagogical repertoires of the complex processes of teaching and learning.

Notes

1. The data used in the rest of this section is drawn from the relevant sections on the various countries and regions discussed UNESCO World Science Reports of 1993, 1998, 2005, 2010, and 2015. These reports are copious in their details and I have tried to be as brief as possible, but those wishing for more information are encouraged to consult the reports directly.

2. All the academic fields explored in this section are discussed in the disciplines and fields six-volume compendium, *The History of Ideas* edited by Mary Cline Horowits, for which I served as one of the associate editors.
3. See my publications on areas studies and African studies (Zeleza 1997, 2003, 2009, and 2011).
4. My two book collection deals with the ways in which Africa has been engaged in the major humanities and social science disciplines as well as various interdisciplinary fields and how African studies developed in different world regions (Zeleza 2006, 2007).
5. These issues are discussed in UNESCO (2010: Chap. 3). The suggested solutions include strengthening graduate education as Brazil did so aggressively by increasing the number of its graduate students tenfold (Gusmão 2010), networking, and strengthening diaspora networks.
6. For an exploration of consultancies in different regions, which some see as problematic for the quality of research, see, for South Africa (Richter and de Kadt 2010), the Arab states (Hanafi 2010).
7. Mouton (2010: 65) makes the critical point that the international publication data on Africa is misleading in that it ignores publications in local journals that are not indexed in international databases upon which the global comparisons are based. To quote him, "international publication in ISI journals (19,154 articles during the period 1990–2007) only constitutes about one-third of the total social science scholarship in the region."
8. Waast et al. (2010) make an interesting observation with regard to publications between 1985–2004 in the Maghreb in which on one pole more than 85 % of publications in philosophy and Islam were in Arabic and 80 % in Economics and nearly 90 % in management were in other languages.
9. $3 billion had been appropriated by Congress. See The National Human Genome Research Institute, "The Human Genome Project Completion: Frequently Asked Questions," Available at https://www.genome.gov/11006943 Accessed December 3, 2015.
10. See the report on the 'leaky pipeline' in scientific careers for women in seven European countries Europe by Dubois-Shaik and Fusulier (2015).
11. See the website of the University of South Africa at http://www.unisa.ac.za/Default.asp?Cmd=ViewContent&ContentID=18123 and the Open University at http://www.openuniversity.edu/why-the-ou/reputation
12. See the university's website at, http://www.avu.org/About-AVU/introduction.html.
13. See the websites for Coursera at, https://www.coursera.org/reset and edX at https://www.edx.org.

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CHAPTER 4

Global Village: The Competitive Challenges of Internationalization

In recent decades, internationalization has emerged as one of the defining features of higher education globally. A vast literature has grown as scholars debate the conceptualization, characteristics, and challenges of internationalization and as they seek to unravel its rationales, realities, and implications for universities and countries in various world regions.[1] As might be expected, views differ widely on the forces that drive internationalization, the activities that constitute it, the competencies it promotes, the values it creates, the processes that sustain it, the respective roles of key constituencies within and outside the universities, and its effects on the core functions of the higher education enterprise, namely, teaching, scholarship, and service.

Scholars are not agreed on the meaning of internationalization because of the diversity and complexity of its rationales, activities, stakeholders, and providers at the international, national, sectoral, and institutional levels. In a fascinating paper, Jane Knight (2012) traces the shifting terms used to describe the phenomenon of internationalization over the last 50 years. Currently, the terms used interchangeably with internationalization include transnational education, borderless education, offshore education, and cross-border education. Jane Knight (2005: 13) has provided perhaps the most succinct and nuanced definition of internationalization, which she sees as the "process of integrating an international, intercultural or

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global dimension into the purpose, functions or delivery of post-secondary education."

Equally contested are the forces that have given rise to the internationalization of higher education. Emphasis is variously placed on the labor needs of globalizing and liberalizing economies and the development of knowledge societies, the rise of new ICTs, and the massification of demand for higher education.[2] These forces have given rise to unprecedented mobility of students, academics and programs, greater diversification of providers, the privatization and marketization of institutions of higher education, and the emergence of new forms of transnational knowledge production. Complex, contradictory, and contested processes of cooperation, competition, comparison, commercialization, and commodification mark internationalization in which the global, national, and local continuously intersect (Rumbley et al. 2012; Marginson 2011a, b; Scott 2011).[3]

As noted in previous chapters, privatization developed in response to "excess demand" and "differentiated demand" and encompasses the rise of private universities, privatization of public institutions, and the exponential growth of for-profit institutions (Tilak 2008). Marketization has entailed the corporatization of university management, weakening of faculty governance, commodification of knowledge, and commercialization of learning. Many argue that this has led to the decline of academic quality and shifts from the basic disciplines to professional education and from teaching to research in measuring institutional excellence (Altbach et al. 2009).

No less controversial are the challenges and consequences of internationalization. For many, while internationalization has opened new opportunities, it has also served to reinforce and reproduce unequal divisions in the political economy of global education. Moreover, it has engendered intense pressures for institutional competition and collaboration, convergence and fragmentation, and hierarchization and homogenization within and across national higher education systems (Bleiklie 2005; Powell and Solga 2008). Cross-border education also raises serious questions about quality control, the development and enforcement of quality-assurance mechanisms, and transferability and recognition of qualifications.

Less disputed are the manifestations of internationalization. Most obvious is the exponential growth in cross-border student mobility as students seek opportunities unavailable at home, the prestige of foreign qualifications, and to gain competitive employment advantage in the increasingly

globalizing knowledge economies (Varghese 2008; Hans de Wit 2012). International students have become a critical source of income as financing of higher education shifts from state subsidies to cost-sharing and other private revenue streams (Sanyal and Martin 2008). The providers of transnational education and the range of activities are more diverse than ever. The former include traditional not-for-profit universities, new commercial for-profit providers, and virtual universities. The activities encompass internationalization abroad and internationalization at home, and the delivery methods now include e-learning from hybrid courses to fully online courses. Internationalization abroad comprised a variety of academic programs, projects, and providers (Burgess and Berquist 2012), while internationalization at home focuses on the curriculum, recruitment of international faculty, and increasing international student enrollments (Brewer and Leask 2012; Edwards and Teekens 2012).

The complexity and rapidly changing dynamics of internationalization are now such that it is difficult for individual countries, let alone institutions, even in the most developed regions to maintain control (Van der Wende 2007). This makes intra- and inter-regional cooperation imperative, especially for universities and nations in the Global South. Historically, national and transnational educational systems have been firmly tethered to the asymmetrical international division of labor in which the developed countries have dominated the provision of models, services, and knowledges. Consequently, students, faculty, institutional practices, intellectual paradigms, and ideological influences have tended to flow from the Global North to the Global South. The need for partnerships that are based on informed consent and clarity of risks and benefits, avoid exploitation, and promote quality education cannot be overstressed (Sutton et al. 2012).

This chapter seeks to provide a broad overview of higher education internationalization since World War II. It is divided into four parts. First, it examines the contemporary dynamics behind the growth of internationalization in higher education. Data will be provided on the magnitude of international flows especially of students. Second, the chapter explores the development and changes in the dominant institutional models that have characterized the development of higher education institutions within and across regions. Forms of institutional organization and their export represent a critical aspect of internationalization that is not stressed enough. Third, the chapter will outline some of the regional dimensions and implications in so far as internationalization means different things to different regions and countries. For many developing countries, internationalization

presents serious challenges of how to balance global engagements with local autonomy and relevance, especially in ensuring that the knowledges produced are empowering and transformative for their societies and not pale replicas of the Eurocentric epistemological order that was dominant in the twentieth century. The question of the hierarchies in international collaborations is discussed in the final part of the chapter.

Academic Sojourns Abroad

The growth in the scale, complexity, and demands of educational internationalization in recent decades is often attributed to the all-encompassing phenomenon of globalization. Internationalization of higher education is seen as both a consequence and a catalyst of globalization. The concept of globalization was popularized from the 1990s to capture the growing interdependence, interconnectedness, and flows of all types across the globe from capital to commodities to cultures, institutions to images to ideologies, people to plants to pollutants, and values to viruses to violence (Zeleza 2003). Some scholars seek to differentiate between globalization as a process that erases national boundaries from internationalization that recognizes and reinscribes them (Scott 2000; Kreber 2009; Altbach 2007). Distinctions are also drawn between globalization and internationalization as historical processes and globalism and internationalism as ideological projects (Turpin et al. 2002: 328).

As historians never tire of reminding us, the world has of course been globalizing for a long time and there have been previous cycles of globalization. However, the moment of globalization from the 1990s had its own distinctive features. It emerged in the contexts of a world that was simultaneously post-colonial, post-Cold War, multipolar, and neo-liberal, a world in which new ICTs compressed distances and redefined transnational mobilities. If globalization provided the overall context in which the internationalization of higher education was taking place, it was propelled by the massification of demand for higher education and the commercialization of universities examined in earlier chapters. Transnational education offered an important outlet for unmet and specialized demand in the rapidly growing developing countries with their bulging youthful populations as well as critical financial and positional resources for the increasingly underfunded universities in some of the ageing countries of the Global North. For the latter, international students also became, in the felicitous phrase of Lesleyanne (2012: 421), “designer immigrants” prized

for their contributions to nation-building, compensation for demographic decline, and competitive edge.

But the motivations for internationalization went beyond such developmental and demographic dynamics and the logics of supply and demand. They also revealed various idealistic, instrumentalist, and ideological imperatives (Stier 2004). Thus the advocates of internationalization from governments to business to the higher education institutions themselves advanced assorted economic, political, social, cultural, and academic rationales. Economically, internationalization was justified for preparing students for careers in a globalized economy, enhancing national development and competitiveness, and as a means of generating extra-institutional income. Employers placed increasing premium on graduates with internationalized education and skills (Tillman 2012). Politically, it was asserted, internationalization promoted understanding so essential for peace and security in a conflict-ridden world and the development of global citizenship. The sociocultural imperative lay in the need to cultivate interculturalism so critical for the social well-being of multicultural societies. The internationalization of teaching, research, and service activities of universities, many maintained, also enhanced the quality of higher education by compelling institutions to rise to international academic standards.

Claims abound about the benefits of internationalization for students' learning and development. Internationalized curricula was expected to provide students what is variously called intercultural sensitivity, competence, maturity or literacy, global learning, consciousness, and citizenship, or "grounded globalism" (Braskamp 2009; Gacel-Ávila 2005; Deardorff and Jones 2012; Olson and Peacock 2012). Others set their ambitions even higher and urged the creation of curricula and experiences that cultivated what Haigh (2008) calls planetary citizenship, which he regards as the only true counterweight to "Higher Ed. Inc.," by incorporating the principles of education for sustainable development and for democratic citizenship enunciated by the UN and other progressive agencies. It was argued such an education could produce cosmopolitan planetary citizens able to cope with an interdependent, multicultural, and environmentally vulnerable world.

When properly done, internationalization can indeed help develop students' cognitive skills for critical, comparative, and complex thinking, cultivate capacities for cross-cultural communication, adaptation, flexibility, tolerance, and empathy, and enhance their ability to recognize difference and deepen their understanding of themselves, their society, and learning

styles. However, intercultural competence is often not clearly defined or measured by many institutions (Deardorff 2006; Crichton and Scarino 2007; Stier 2006; Stronkhorst 2005). Designing such curricula requires academics that understand and value internationalization in their teaching, research, and service activities.

Also crucial, and often permeating the various economic, political, sociocultural, and academic rationales for internationalization was the consuming drive among a growing number of institutions for international recognition and branding. Needless to say, the articulation of these rationales shifted over time and varied across and within countries and regions at the national and institutional levels. On the whole, the economic rationale gained ascendancy. The proponents of internationalization trumpeted its benefits for countries and institutions faced with dwindling support from the neo-liberal state. Its opponents were prone to see internationalization as a vehicle for exploitation and marginalization of the poorer classes and countries. Critics in the Global South were particularly suspicious of shoddy programs set up by unscrupulous providers from the Global North and the negative implications of the regime of trade in educational services under the General Agreement of Trade in Services (GATS) undertaken in global trade negotiations, which underscores the ways in which the internationalization of higher education was part of a global policy process (Zeleza 2005).

GATS came into force in January 1995 after protracted negotiations. It laid out a comprehensive legal framework of rules and disciplines covering 161 service activities across 12 classified sectors including telecommunications, financial, maritime, energy, business, environmental, distribution, tourism, and education services. The GATS rules contained many exceptions and ambiguities in their application (Chanda 2002). Most of its supporters trumpeted the economic benefits of liberalized trade, arguing that increased competition leads to lower prices, more innovation, increased investment, technology transfer, and employment creation. Critics emphasized the dangers that liberalized trade in educational services posed for the public good, educational quality, equitable access, research capacities, public support, state sovereignty and authority, cultural autonomy, and national and regional development agendas.[4]

At the national level, internationalization was often largely justified in terms of its potential to develop domestic human resources to enhance national competitiveness, create strategic geopolitical alliances and economic relationships, promote income-generating and commercial trading

opportunities, and for nation-building. Sociocultural rationales often ranked quite low. At the institutional level, emphasis tended to be placed on the need to enhance an institution's international profile and reputation, improve the quality of its programs, raise the international and intercultural skills of students and staff, and as a means of generating badly needed income, developing energizing linkages and networks, and strengthening capacities to deal with pressing global issues and challenges.

Needless to say, emphases varied among countries and institutions depending on their histories, locations, resources, ideologies, and ambitions. It is safe to say that even when the political, cultural, and academic benefits were proclaimed such was the grip of academic capitalism that these rationales were often trumped by economic rhetoric and realities. These trends reflected the growing importation of business practices, discourses, and values into academe. In many countries, including the USA, this was translated into the exponential growth of business, vocational, and professional programs at the expense of the basic liberal arts and science disciplines (Stromquist 2007; Zeleza 2010; Olssen 2011). The decline of public funding and growth of the for-profit sector reinforced perceptions and expectations of the financial benefits of recruiting international students who in many of the developed countries were charged much higher fees than domestic students.

In reality, in the hands of higher education institutions, the economic rationale served as a blunt instrument. Claiming that internationalization served national economic interests by generating income from foreign students ignored two simple facts. First, while the numbers of international students rose, the proportion of international students among higher education students as a whole remained awfully small (less than 2 %), as will be shown below. Second, even in some of the major destination countries, international students made a tiny contribution to the national economy. For example, in the USA, the largest recipient of international students, income derived from these students in 2014 constituted 0.16 % of the country's $18 trillion economy. This is to suggest that higher education institutions might be better served by articulating more forcefully the academic, idealistic, and humanistic values of education. Unfortunately, such is the powerful hold of neo-liberal marketing ideology that many were, and still are, unable or unwilling to do so.

One measure of the internationalization of higher education is the international flow of students. Reliable comparative data on global student flows is currently only available from UNESCO for the period from 2000.

According to this data, the number of outbound tertiary students studying abroad, in UNESCO's nomenclature, as shown in Table 4.1, rose from 1.82 million in 2000 to 3.55 million in 2013, an increase of 94.62 %, which translates into an average annual growth rate of 7.28 %. Asia boasted the highest numerical increase and rate of growth, from 790,203 in 2000 to 1.97 million in 2013, or 148.70 %. This resulted in the region raising its share of global student outbound flows from 43.29 % to 55.45 %.

Thus, while the number of students from the other regions increased as well, their percentage share of outbound global student flows dropped. South America, which enjoyed the second-highest rise in percentage terms (of 91.00 %), saw its global portion dip slightly from 3.67 % to 3.60 % between 2000 and 2013. Africa enjoyed the third-highest rate of increase (56.08 %) as its number of students studying abroad rose from 239,179 to 373,303, but the continent's global proportion dropped from 13.12 % to 10.53 %. Similarly, the increase of 49.56 % for Europe (from 574,159 to 858,713 students) turned into a fall in its global stake from 31.51 % to 24.21 %. The same was true for Oceania that saw its regional portion drop from 1.21 % to 0.92 % despite increasing its numbers of study abroad students from 22,110 to 32,680.

As with gross enrollments examined in Chap. 1, regional averages only tell part of a very complex story. Not only were there considerable differences among countries within each region, global divergences can be seen, and explained, in terms of different levels of development. On that basis, as shown in Table 4.2, the largest numerical and percentage increases occurred among the middle-income and upper-middle-income countries whose expanding economies and middle classes were looking for, and could increasingly afford to take advantage of, higher educational opportunities at home and abroad. Collectively they accounted for nearly three-quarters of the increase in the number of students studying abroad. Following them were the lower-middle-income countries. The rate of growth was also considerable among the low-income countries, although from the lowest base of all. The high-income countries whose starting point in 2000 was already high, registered the lowest rate of growth. The existence of well-developed higher education systems in these countries reduced the push for education abroad as a means of accommodating domestic demand.

Altogether, detailed data extracted from UNESCO Institute for Statistics shows that during the 2000–2013 period there were 82 countries that had more 10,000 outbound students. Asia boasted the largest

Table 4.1 Outbound tertiary students studying abroad by region, 2000–2013

Year	*2000*		*2005*		*2010*		*2013*		*Change 2000–2013*
	No	%	No	%	No	%	No	%	%
Total	1,822,331	100.00	2,534,500	100.01	3,268,732	100.00*	3,546,552	100.00	94.62
Africa	239,176	13.12	326,433	12.88	392,062	11.99	373,303	10.53	56.08
Asia	790,703	43.39	1,285,904	50.74	1,752,941	53.63	1,966,513	55.45	148.70
Europe	574,159	31.51	638,699	25.20	774,857	23.71	858,713	24.21	49.56
North America	129,394	7.1	170,277	6.72	187,769	5.29	187,776	5.29	45.12
South America	66,789	3.67	87,645	3.46	130,068	3.98	127,567	3.60	91.00
Oceania	22,110	1.21	25,542	1.01	31,035	0.95	32,680	0.92	47.81

Source: Data Extracted from UNESCO Institute for Statistics (UIS/ISU), October 20, 2015.

Table 4.2 Outbound students studying abroad according to levels of development, 2000–2013

Year	*2000*	*2005*	*2010*	*2013*	*Change 2000–2013*	
Low-income countries	75,356	100,795	152,320	154,503	79,147	105.03
Lower-middle-income countries	368,212	565,100	771,246	780,993	412,781	112.10
Middle-income countries	908,651	1,492,907	2,021,125	2,198,924	1,290,273	141.99
Upper-middle-income countries	540,440	927,806	1,249,880	1,417,930	877,490	162.37
High-income countries	837,714	939,821	1,094,207	1,191,910	354,196	42.28

Source: Data Extracted from UNESCO Institute for Statistics (UIS/ISU), October 20, 2015

number (32), followed by Europe (30), Africa (9), and South America and the Caribbean (7). All three North American countries were part of the list, while Oceania had only one country, Australia.

The ten largest exporters of international students in Asia in 2013 were China (712,157), India (181,872), Republic of Korea (116,942), Saudi Arabia (73,548), Malaysia (56,260), Vietnam (53,546), Iran (50,053), Kazakhstan (48,875), Pakistan (37,579), and Turkmenistan (35,854). This represented a shift in the regional pecking order from 2000. China retained its first position, but India and the Republic of Korea had traded places since then. Japan was fourth in 2000, but no longer featured among the top ten in 2013. Saudi Arabia, which took the fourth spot, had merely 10,626 outbound students in 2000. Malaysia remained fifth, while Vietnam in sixth place was not part of this league until 2010. Iran moved from eighth to seventh place, while Kazakhstan first claimed the eighth position in 2005, and Turkmenistan was new to the group.

In Europe, the leading ten countries in 2013 in the number of outbound students studying abroad were Germany (119,123), which had

been in second place in 2000; France (84,059), rising from fourth position in 2000; the Russian Federation (50,642) moving from sixth; Italy (47,998) improving from fifth; Greece (34,029) dropping from first; Ukraine (39,670) climbing from ninth; Belarus (35,898), which debuted in 2010 in the same position; Slovakia (33,105) that joined the cluster in ninth place in 2010; Romania (31,109), a new comer; and the UK (27,377), which was ranked in eighth place in 2000. While the number of outbound students rose in most European countries from 2010 to 2013, they fell in nine including two where they dropped below the 10,000 range. One was Croatia where they plummeted from 13,405 in 2005 to 9966 in 2010 and 8617 in 2013, and Portugal where they tumbled from 13,019 in 2010 to 9525 in 2013.

Among Africa's nine countries with more than 10,000 students studying abroad in 2013, two had not reached this threshold in 2000. Senegal made it in 2005, and Egypt in 2010. Leading the pack in 2013 was Nigeria (52,066), a position it took over from Morocco that led in 2010. The latter moved into second place with 38,599, down from 42,743 in 2000 and a high of 46,004 in 2005. In third place was Algeria (20,695) down from its second position in 2000. Egypt (19,744) was fourth up from eighth in 2000. Cameroon (19,491) claimed fifth position in 2013, down from fourth in 2000. Tunisia (16,889) and Zimbabwe (15,885) switched their seventh and sixth rankings in 2000, respectively. Kenya (12,132) came near the bottom although it was positioned fifth in 2000. Senegal (11,280) was last in 2013, the same position as in 2000.

In South America and the Caribbean, Brazil kept its top position between 2000 and 2013. The number of the country's outbound international students rose from 17,274 in 2000 to 32,051 in 2013. Similarly, Colombia retained its second position with its numbers doubling from 12,034 to 25,509. Peru with 14,204 students studying abroad in 2013 jumped from fifth into the third spot, while Venezuela (11915) stayed in fourth. Ecuador (11,109) moved from sixth to fifth, while Haiti (10,125) in sixth position had plunged from third place in 2000. On the whole, in 2000, Brazil and Colombia were the only two countries in the region that had more than 10,000 students studying abroad. Haiti and Peru joined them in 2005, and three others in 2010.

The three North American countries maintained their relative standing. The USA headed the pack; the number of its students studying abroad rose from 43,482 in 2000 to 60,292 in 2013. In Canada, the number rose from 17,274 to 32,051, and in Mexico, from 14,230 to 27,118. In

Oceania, the total number of Australian students studying abroad more than doubled from 5475 to 11,650. The next two in line were New Zealand and Papua New Guinea. For the former, its number of outbound international students actually dropped from 6066 in 2000 to 5370 in 2013, while it rose for the latter from 783 to 1318.

There can be little question that Asian countries dominated international student flows. In 2000, they accounted for five of the ten countries with the largest numbers of students studying abroad, including the top two. The Asian countries' total among the ten leading countries increased to six in 2013. The top ten countries in 2000 were, in descending order, China, the Republic of Korea, Greece, India, Japan, Germany, Turkey, France, Malaysia, and the USA. In 2013, they included China, India, the Republic of Korea, Saudi Arabia, Malaysia, Germany, France, the USA, Vietnam, and Nigeria.

Despite its growth, the number of students studying abroad remained a tiny fraction of global higher education enrollments. As noted in Chap. 1, the gross enrollments in higher education globally stood at 99.6 million in 2000, rising to 181.7 million in 2010, and to 198.6 million in 2013. In comparison, during the same years, 1.82 million, 3.27 million, and 3.55 million students, respectively, studied abroad. This converts into 1.83 %, 1.80 %, and 1.79 % of the gross global enrollments, respectively.

Table 4.3 further demonstrates that by 2013, in no region had the gross outbound enrollment ratio, that is, the number of students studying abroad as a percentage of the region's population of tertiary age, reached 2 %. The ratio was highest in Europe at 1.85 %, followed by Oceania at 1.20 %. Asia came third at 0.52 %, which represent a rise from 0.25 % in

Table 4.3 Students studying abroad as a percentage of their region's enrollment, 2000–2013

Year	*2000*	*2005*	*2010*	*2013*
Region				
Africa	0.31	0.37	0.40	0.37
Asia	0.25	0.36	0.45	0.52
Europe	1.14	1.24	1.55	1.85
North America	0.34	0.42	0.44	0.43
South America	0.20	0.25	0.37	0.37
Oceania	0.97	1.02	1.129	1.20

Source: Data Extracted from UNESCO Institute for Statistics (UIS/ISU), October 20, 2015

2000. North America was fourth, and its ratio rose from 0.34 % in 2000 to 0.43 % in 2013. Africa and South America were even with an outbound enrollment ratio of 0.37 % in 2013, although they rose from different percentages in 2000, 0.31 % for Africa and 0.20 % for South America.

Similarly, despite their growth, international students still represented a small percentage of the higher education students in the host regions as shown in Table 4.4. In fact, their share actually declined worldwide from 2.08 % in 2000 to 2.04 % in 2013, as it did in Asia from 0.83 % to 0.77 % during the same period, and in Africa, from 1.52 % in 2005 to 1.46 % in 2013. The other regions witnessed a modest rise. In Europe, the inbound mobility rate, as this measurement is called, rose from 3.65 % in 2000 to 5.13 % in 2013, and in North America, from 3.10 % to 3.63 %. The lowest inbound mobility rate was in South America, where it increased from 0.15 % in 2005 to 0.16 % in 2013, while the highest was in Oceania, where it grew from 11.36 % in 2000 to 20.15 % in 2010 before dipping to 17.83 % in 2013.

The gender differences in the size and ratio of male and female flows are evident from Table 4.4 as well. The mobility index for women was lower than for men in all world regions. Globally, it remained stagnant at 1.89 % in 2000 and 2013, while it dropped slightly for men from 2.26 % to 2.20 %. The widest gender gap in 2013 was in North America, where the female ratio was 2.98 % compared to 4.45 % for men. The lowest variance was in Asia, where the female and male ratios were 0.72 % and 0.83 %, respectively. The proportions in Europe were 5.13 % for females and 5.96 % for males, in Africa, 1.09 % to 1.77 %, and in South America, 0.13 % to 0.20 %.

Unsurprisingly, the developed regions and countries dominated the destinations of the outbound international students. Although the data in Table 4.5 is incomplete, as there are no figures for the Arab states except for 2013, and for East Asia and the Pacific for 2013, it is clear that the majority of these students went to North America and Western Europe. Thus, it can safely be said that the two regions accounted for far more than half of the international student flows. Between 2000 and 2013, the percentages of international students studying in sub-Saharan Africa and South America and the Caribbean remained below 3 %, while for South and West Asia, and Central Asia, it was less than 2 %. The 2013 data shows these countries being outstripped by the Arab states. East Asia and the Pacific came second to North America and Western Europe in 2000, 2005, and 2010, while Central and Eastern Europe fell into third place.

Table 4.4 International students as percentage of total tertiary enrollment in host region by gender, 2000–2013 (Mobility Index)

Year	*2000*			*2005*			*2010*			*2013*		
	Total	Fem	Male	Total	Fem	Male	Total	Fem	Male	Total	Fem	Male
Region												
World	2.08	1.89	2.26	2.04	1.89	2.19	2.06	1.92	2.20	2.04	1.89	2.20
Africa	.	.	.	1.52	1.26	1.72	1.62	1.36	1.83	1.46	1.09	1.77
Asia	0.83	.	.	0.75	0.73	0.77	0.79	0.74	0.83	0.77	0.72	0.83
Europe	3.65	3.21	4.16	4.03	3.58	4.57	4.80	4.37	5.34	5.51	5.13	5.96
North America	3.10	2.40	3.95	3.08	2.44	3.92	3.14	2.54	3.93	3.63	2.98	4.45
South America	.	.	.	0.15	.	.	0.21	0.18	0.25	0.16	0.13	0.20
Oceania	11.36	9.88	13.16	17.25	14.45	20.68	20.15	17.29	23.82	17.83	14.93	21.63

Source: Data Extracted from UNESCO Institute for Statistics (UIS/ISU), October 20, 2015

Table 4.5 Outbound students studying abroad in various world regions, 2000–2013

Year	*2000*		*2005*		*2010*		*2013*	
	No	%	No	%	No	%	No	%
Region								
Total	1,730,109	100.00	2,431,601	100.00	3,141,115	100.00	2,919,892	100.00
Sub-Saharan Africa	45,086	2.61	64,860	2.67	88,076	2.80	67,289	2.30
Arab States	–	–	–	–	–	–	189,148	6.48
South and West Asia	8892	0.51	13,449	0.55	27,745	0.88	35,243	1.21
Central Asia	23,495	1.36	42,107	1.73	42,766	1.36	33,486	1.14
East Asia and Pacific	211,186	12.21	404,763	16.65	603,629	19.22	–	
Latin America and Caribbean	36,150	2.09	49,758	2.05	80,054	2.55	70,240	2.41
North America and Western Europe	1,255,912	72.59	1,686,353	69.35	1,970,102	62.72	2,168,249	74.26
Eastern and Central Europe	149,388	8.63	170,311	7.00	328,743	10.47	356,237	12.20

Source: Data Extracted from UNESCO Institute for Statistics (UIS/ISU), October 20, 2015

In five out of the seven regions listed in Table 4.5, the largest percentages of international students came from the continents in which the regions are located. In sub-Saharan Africa, in 2013, 90.03 % of outbound students studying in the region were from Africa, compared to 2.69 % from Asia, 4.40 % from Europe, 0.25 % from South America, and 0.13 % from Oceania. This represented a slight decline in the African proportion from 96.41 % in 2000, and a corresponding increase in the share of the other continents, especially Europe, which stood at 1.40 %. In South and West Asia, 81.33 % of the outbound students studying in the region in 2013 came from Asia, followed by Africa (13.64 %), North America (3.10 %), Europe (1.12 %), Oceania (0.77 %), and South America (0.04 %). In 2000, the proportion from Asia was smaller (67.04 %), while that from Africa was larger (27.19 %). The percentages for the other regions were little changed.

In Central Asia, the largest inflow was also from Asia (85.44 %), followed by Europe (13.16 %), and the rest barely registered. In 2000, the Asian share in the region was a little higher, (88.84 %), and for Europe, lower (10.90 %). Finally, in East Asia and the Pacific, whose data goes up to 2010, in that year, 86.22 % of the foreign students came from Asia, then Africa (3.89 %), Europe (3.25 %), Oceania (3.19 %), North America (2.73 %), and South America (0.72 %). The Asian fraction increased from 79.74 % in 2000, and Europe's dropped from 7.09 %. The Arab states, whose data is only available for 2013, derived most of their foreign students from their respective regions in Asia and Africa, 71.21 % and 23.01 %, respectively. Next came Europe with a mere 3.32 %, North America (2.04 %), South America (0.15 %), and Oceania (0.28 %).

The distribution patterns in Latin America and the Caribbean were more mixed. The majority of international students studying in the region in 2013 came from North America (41.40 %), although this represented a sharp drop from 59.30 % in 2000. The region itself provided 37.71 %, up from 27.70 % in 2000. In third place were students from Africa at 9.27 %, up from 6.80 % in 2000; next was Asia at 7.10 %, compared to 2.12 % in 2000; and Europe at 4.18 %, rising from 3.81 % in 2000. Also varied were the allocations in North America and Western Europe, which in 2013 were split between Asia (48.99 %), Europe (29.60 %), Africa (10.41 %), North America (6.11 %), South America (4.34 %), and Oceania (0.56 %). The major change from 2000 was the rise in the Asian proportion, which was then 37.76 %, and declines for all the other regions. In Central Europe, about half of the foreign students came from Europe (50.27 %),

accompanied by Asia (45.81 %), and in the far distance Africa (2.74 %). The changes from 2000 were rather minimal.

In comparing net flows of international students, that is, the number of students from abroad studying in a given country minus the number of students from the given country studying abroad, the dominant position of the USA, the major European countries, and Australia becomes abundantly clear. Altogether, out of the 144 countries for which data was available for the years 2010 or 2013, 37 enjoyed a positive net flow, led by Europe with 17 countries, then Asia with nine, Africa four, South America and the Caribbean three, while North America and Oceania had two countries each.

In 2013, the ten leading countries in Europe were the UK (389,316), France (155,285), the Russian Federation (87,854), Germany (77,496), the Netherlands (55,908), Austria (55,220), Switzerland (35,274), Belgium (32,412), Spain (27,718), and the Czech Republic (27,618). In Asia, the top five countries in the net flow of internationally mobile students were Japan (101,269), the United Arab Emirates (50,697), Singapore (26,360), Lebanon (17,193), and Jordan (11,371). The four African countries included South Africa (59,623 in 2010), Egypt (24,249), Ghana (1,951), and Cote d'Ivoire (412) in 2013. The three countries in South America and the Caribbean were, in 2010, led by Cuba (28,115), followed by Chile (5936), and Barbados (428) in 2013. In North America, Canada enjoyed a net flow of 60,144 in 2010, and the USA 724,135 in 2013. In Oceania, there was Australia that had a net flow in 2013 of 238,218 and New Zealand 35,983.

At a global level, the dozen countries boasting the largest net flows in 2013 were, in descending order, the USA, UK, Australia, Japan, the Russian Federation, Germany, South Africa, the Netherlands, Austria, the United Arab Emirates, New Zealand, and Switzerland. But a different picture emerges when the net flow of internationally mobile students is measured in percentage terms. Leading the list are the United Arab Emirates (38.20 %), China-Macao (26.01 %), Qatar (16.60 %), the UK (16.32 %), Austria (13.06 %), Switzerland (12.62 %), Singapore (10.32 %), Lebanon (8.50 %), Denmark (8.32 %), Belgium (6.64 %), France (6.64 %), and the Czech Republic (6.64 %).

The majority of countries suffered from negative net flows. The list was led by Asian countries, on top of which were China (–615,748), the Republic of Korea (–57,470), Iran (–57,470), Vietnam (–49,938), and Kazakhstan (–40,165). The next cohort consisted of an assorted mix of

countries from all regions, such as Slovakia (–22,922), Belarus (–22,357), Albania (–21,008), Palestine (–20,918), Mexico (–19,098), Sri Lanka (–15,214), Moldova (–15,081), Algeria (–13,292), Bulgaria (–13,031), Saudi Arabia (–11,405), and Tunisia (–10,653). The rest had net flows of below –10,000, including 26 that had less than –5000. In percentage terms, the outliers were Seychelles (–198.32 %) and Andorra (–182.34 %). The next group of countries consisted of those with more than –10.00 %, which included Cape Verde (–34.47 %), Swaziland (–32.83 %), Saint Lucia (–31.52 %), Congo (–20.85 %), Albania (–12.14 %), Moldova (–12.31 %), Oman (–11.85 %), Lesotho (–11.66 %), Mauritius (–11.65 %), and Slovakia (–10.94 %).

In the major student importing countries, international students brought billions of dollars to local economies (Mallea 1998). For example, in the USA, the 886,052 international students in 2013–2014 contributed $26.8 billion that created or supported 340,000 jobs (NAFSA 2015). In Australia, education became the third largest export industry earning the country about $17 billion in 2014 from 450,000 students (Australian Government 2015). Up to the end of the 1980s, Australia used to provide scholarships to foreign students. From 1990, the country moved aggressively from educational aid to trade in educational services in which foreign students including many from poor countries subsidized Australian students (Turpin et al. 2002). As part of their higher education export drive, Australian universities forcefully professionalized and commercialized the recruitment of international students (Adams et al. 2012). In Britain, in 2013–2014, there were 310,195 international students who contributed 18 % of revenues for British universities, and £2.8 billion to the British economy, and supported 70,000 jobs (PWC 2015). In Canada, the 218,200 international students in 2010 added $8 billion and maintained 86,570 jobs (Roslyn Kunin and Associates 2012).

The lucrative inflow of funds from international students fueled the appetites of universities in many countries to jump on the internationalization bandwagon. They devised strategies and plans of various levels of ambition, complexity, scale, and duration. Drawing and implementing such plans required commitment by top institutional leaders, buy-in from faculty and students and other stakeholders, the establishment of clear monitoring processes, and allocation of adequate resources. However, few countries had yet to achieve what the American Council of Education (2012) calls “comprehensive internationalization,” which entailed developing a coordinated and robust articulated institutional commitment,

administrative structure and staffing, curriculum, co-curriculum and learning outcomes, faculty policies and practices, student mobility, and collaboration and partnerships.

Unfortunately, in many countries and institutions, visionary and strategic leadership for internationalization was often lacking (Hely and Tullbane 2012). Also, academics tended to be untrained, unprepared, and uninterested in internationalization. Internationalization was commonly not sufficiently rewarded and the challenges of international research collaborations and development work were not always recognized and supported. Michael Stohl (2007) sees faculty engagement as the chief challenge for developing and sustaining internationalization. Writing about the USA, he documented how the country scored low on virtually all indicators of international knowledge, awareness, and competence. The American public and students were notorious for their ignorance of world events and geography. Foreign-language enrollments and study abroad participation rates remained abysmal and even declined in the 2000s.

Faculty could not be expected to effectively teach global literacy when they were globally illiterate themselves. By the same token, students could not be expected to become internationalized in their learning if their teachers were provincial in their personal experiences, professional interests, and intellectual horizons. Schuerholz-Lehr (2007: 181–2) was struck when writing on a professional faculty development workshop project at a Canadian university by how much faculty "struggled with concepts such as internationalization, intercultural sensitivity, international education, global awareness and the nefarious overused concept of global citizenship" (also see Schuerholz-Lehr et al. 2007). The difficulties of generating and sustaining active faculty engagement were partly attributable to institutional barriers including excessive bureaucratic red tape, limited financial support, cumbersome compliance procedures, variations in academic calendars, and faculty piety to their narrow specializations (Dewey and Duff 2009).

At the institutional level, then, the establishment of effective internationalization programs required developing productive synergies between institutional priorities and individual passion, systemic and systematic planning and coordination, and strong and strategic leadership. There was also need for more effective outcomes assessment in which attention was paid as much to the inputs and activities of internationalization as to the outcomes and impact on students' learning in terms of knowledge gained, attitudinal changes, and skills acquired (Deardorff and van Gallen

2012). The challenges and opportunities of internationalization were not entirely under the control of individual institutions. Universities operated in complex and rapidly changing national and international landscapes. One critical issue that affected flows concerned the unpredictable dynamics of international student security that required the development of multilateral approaches and standards and what Simon Marginson (2012: 219) calls "a global humanism in which every person is understood as a self-determining subject and worthy of equal respect."[5]

For universities, academics, and students in the Global South, the world system remained especially challenging due to the prevailing unequal international division of academic labor (Carpentier and Unterhalter 2011). Higher education, argues Rajani Naidoo (2011), became a critical arena of inter-hegemonic rivalries in the production of knowledge and cultural imperialism that was vigorously contested by the developing countries. In the same vein, Walter Mignolo (2012: 9, 8) maintains that the contemporary forms of internationalization represented what he calls "global coloniality," which "does not imply a global university but rather, the reproduction of coloniality on a global scale under neoliberal values and principles of education." This required for the marginalized subjects "epistemic disobedience and delinking," that is, relentless questioning, dismantling, unlearning, inventing "decolonial categories of thought that will allow building non-capitalist and imperial values and subjectivities." Part of the struggle was waged through efforts to strengthen South–South and intra-regional partnerships and diasporic knowledge networks, and promoting education for sustainable development (Koehn and Obamba 2012: 369–373; Barth et al. 2016).

Exporting Institutional Models

The internationalization of higher education is of course not new. Indeed, the ancient universities of Africa, Asia, and Europe were designed and served as regional communities of learning and scholarship. In Europe, for example, it was not until the consolidation of the nation-state in the eighteenth and nineteenth centuries that "universities became de-Europeanized and nationalized" (de Wit and Merkx 2012: 44). The bulk of the world's universities established in the twentieth century including those set up after World War II were largely national in scope and nationalist in orientation (Scott 2000). While in their "public life," to use Martin Trow's (1988) term, modern universities were confined to the

national stage; in their intellectual role or "private life," they saw themselves in internationalist terms as producers of borderless knowledges. Internationalization, some suggest, is bringing about the convergence of the private and public lives of universities. In other words, universities are recovering their "internationalist past" (Gacel-Ávila 2005).

However, the proliferation of higher education institutions whose frames of reference were largely or increasingly national or nationalist did not mean the erosion of many of these institutions' internationalist aspirations and affiliations. This remained the case even among the newly independent countries furiously fighting for the decolonization of their colonial or newly established higher education institutions. The case of these countries in fact underscores the spread of models of higher education derived from the major imperial European powers. Two other important models spread and became influential, what can be termed the Soviet Union model and the US model. They reflected the global reach of the two new postwar superpowers. Clearly, models of higher education, as much else in the organization of global affairs, reflect the prevailing geopolitical hegemonies and international division of labor.

The most influential imperial European models were those of Spain, France, and Britain. The early universities in North and South America were modeled after those of their respective European colonial powers, whose models and prestige lasted long after independence well into the twentieth century (Thelin 2011; Jones 1997; Holm-Nielsen et al. 2005). The same is true of the universities founded following decolonization after World War II in Africa, Asia, and the Caribbean. Some of the post-colonial African universities, for example, were initially set up as branch campuses of universities in the imperial metropoles. The new universities created after independence often replicated the institutional structures, instructional practices, and intellectual values of their colonial predecessors and imperial models.

As evident in the massive compendium of African universities edited by Teferra and Altbach (2003) across much of Africa, at the turn of the twenty-first century, instructional languages, practices, and materials, as well as administrative systems and nomenclature, modes of academic organization, research methodologies, paradigms, and themes remained tied to the patterns and trends in Europe. The same was true in several post-colonial Asian countries as recorded in the extensive collections by Altbach and Umakoshi (2004) and Marginson et al. (2011). To be sure, the persistence of the colonial and imperial models varied among countries, and

struggles were waged for the decolonization of higher education with varying levels of intensity and success. On the whole, as the grip of the European imperial model loosened in some of the independent African and Asian countries, the Soviet Union or US models asserted themselves.

The newest higher education model to spread out of postwar Europe was the Soviet model. This model had three key features. First, the higher education system was viewed as part of the nation's intellectual productive force and process and incorporated into the apparatus of the state. Second, it was subordinated to the needs of the economy as determined by state planning. Third, great emphasis was placed on the development of technological and technical higher education (Neave 2010: 35–40). Consequently, the model was characterized by state control of all aspects of higher education including the structure of the system, both quantitative and qualitative. The state dictated the number of institutions, their differentiation, management, enrollments, and curricula. In 1960, for example, the Soviet Union had 739 institutions of higher education that covered every economic sector. This included 40 universities charged with the specific functions of training researchers, academic staff for the university system, and secondary school teachers.

A remarkable aspect of the Soviet model was the creation of specialized mono-disciplinary universities and the delegation of fundamental research to the various disciplinary academies, which were linked to different ministries overseeing their respective areas of focus. Enrollments were determined by the manpower requirements of the economy set periodically by the central state planning process. The ideological purpose of the Soviet model was the creation of socialist man and democratization of access to higher education, so that preference was often given to students from working class and peasant backgrounds.

The Soviet model spread to the countries of the Soviet bloc in Central and Eastern Europe. It was also adopted and adapted by Soviet allies in Asia, such as China, Vietnam, and Cambodia, as well as Cuba in the Caribbean, and Angola in Africa. The model characterized the organization of higher education, notwithstanding some national variations, in Central and Eastern Europe until the demise of socialism and the Soviet Union itself following the tumultuous events of 1989–1990. During its existence in these countries, the system remained largely self-contained with little connections to higher education in the rest of Europe.

Communist China restructured its system along the Soviet model by nationalizing all higher education institutions in the 1950s. Specialized

and segmented institutions were established under different central government ministries. The Chinese Academy of Sciences sponsored and controlled hundreds of research institutes, which supplanted the research mission and capacity of Chinese universities (Min 2004: 59–61). The Soviet model reinforced the centralization, politicization, and separation of research and teaching in Chinese higher education. Although the assault against higher educational institutions during the Cultural Revolution placed Soviet revisionism together with Western bourgeois ideologies and traditional feudalism, the Soviet model survived. The model remained intact during the early years of economic market reforms introduced in the 1980s. As the country's economic growth and transformations accelerated, structural reforms in higher education were undertaken. Universities were reorganized as control by the central ministries was eliminated. Between 1993 and 2001, the number of universities was reduced from 708 to 302. Also cut were the number of specialties from more than 1400 to about 200 as curricula reform was carried out. In the process, interdisciplinary fields and liberal arts disciplines were incorporated and pedagogical reforms in teaching and learning were introduced as well.

North Vietnam also adopted the Soviet model, while South Vietnam followed the old colonial French model and the newly imposed US model. The Soviet model survived the country's reunification in 1976, in part due to the fact that the majority of the faculty was Russian or Chinese trained. As in China, the introduction of market reforms, combined with the collapse of socialism in the Soviet Union and Eastern Europe, gradually led to the restructuring of Vietnam's higher education system. The educational reforms included privatization, consolidation of links between state research institutes and universities, and the establishment of large, multidisciplinary, and comprehensive universities (Huong and Fry 2004: 306–311).

Similarly, in Cambodia, the Soviet-backed government that took over from the murderous Khmer Rouge regime, which abolished the entire higher education system between 1975 and 1979, established a system based on the Soviet model. But there, too, the shift to a market economy brought reforms to the higher education system. This included the recognition of a private sector in 1985. Schools or colleges with commercial potential in public institutions were allowed to break away and set up semiautonomous institutions known as "public administrative institutions." The public sector retained some features of the past, such as treating faculty as state civil servants and requiring ministerial approval for

senior university administrative appointments (Chamnan and Ford 2004: 338–341).

Elsewhere, allies of the Soviet Union borrowed some elements of the Soviet model, which they often grafted into existing models. In Cuba, before the 1959 Revolution, there were only three universities. The new government sought to expand the higher education system and bind it more closely to the country's economic needs by emphasizing scientific and technical programs. Ties with the Soviet Union and Eastern Europe were strengthened as thousands of students were sent for training and faculty recruited. By the mid-1980s, the higher education system had expanded to 42 institutions including universities, advanced polytechnic institutes, higher education institutes or academies that were administratively subordinated to the ministries that employed their graduates. Great importance was placed on strengthening basic training, scientific research, and encouraging workers to pursue university studies (Pérez 2005: 211–215).

In Angola, soon after independence, the MPLA (Movement for the Popular Liberation of Angola) government closed all non-state higher education institutions. Demands that higher education play a direct role in economic production led to prioritizing technical and agricultural studies and downgrading of the social sciences and humanities. But ambitions for mass access were frustrated by limited investment and shortages of faculty. The old elitist patterns of higher education persisted; this time, it was the political class rather than the settler minority that enjoyed privileged access to higher education at home and abroad. The introduction of multi-party democracy in 1992 in the context of economic and political liberalization, transformed the higher education landscape. It was marked by the establishment of private institutions, rechanneling of the huge resources previously allocated to studying abroad, and a newfound appreciation of interdisciplinary studies, the social sciences, and humanities in understanding the country's realities (Carvalho et al. 2003: 163–167).

While the Soviet model was largely confined to the socialist countries and disintegrated following the demise of the Soviet Union and socialism in Central and Eastern Europe, the US model attained even greater influence around the world. Given the sheer size and diversity of the country's higher education system, it is not easy to succinctly define what constitutes the US model. The model is variously encapsulated in the preeminence of the research university, the prominence given to liberal arts education, or the primacy of market values. In its contemporary incarnation, it is seen as

a system whose institutions have become ever more commercialized, their governance corporatized, students consumerized, knowledge production commodified, learning credentialized, and faculty casualized.

It is the very malleability of the US model, or what Kleypas and McDougall (2012) call the American-style university that allows its exporters and importers to project attributes, both real and imaginary, that they wish to highlight and embrace in branding and bracing themselves in the intensifying global competition for resources, reputations, and relevance. The model manifests itself in the establishment of American-style institutions, adoption of US-centered academic cultures, and performance of US-institutional identities. The spread of the model was fostered through the creation of US institutions abroad, development of outposts, satellites, or branches of US universities, provision of accreditation for institutions in other countries by US accrediting agencies, enactment of memorandums of understanding to promote inter-institutional partnerships and collaborations, incorporation of the name "American" by foreign institutions, the export of tens of thousands of US-educated graduates, and the seductive demonstration effects of the high global rankings of US universities.

The growth of US-style institutions abroad goes back to the late nineteenth and early twentieth centuries with the establishment of the American University of Beirut in 1866 and the American University of Cairo in 1919 as protestant colleges. Such institutions proliferated after World War II, and especially following the end of the Cold War and the spread of private higher education around the world. By 2015, there were more than two dozen universities with the name "American University of/in." They included the American Universities of/in Afghanistan, Antigua, Armenia, Barbados, Bosnia and Herzegovina, Bulgaria, Paris, Athens, Rome, Iraq, Kosovo, Kuwait, Central Asia, Nigeria, Sharjah, Dubai, and London. Many were local institutions that used the name "American" to brand themselves as Western and cosmopolitan, to signal their global excellence and competiveness.

A complimentary phenomenon was the establishment of branch campuses by US universities, both public and private. Such institutions represented, simultaneously, the internationalization of US institutions of higher education, expression of US soft power, and the globalization of the US service industry. In their host countries, the branch campuses were expected to accelerate the construction of knowledge economies and societies and enhance their ability to service global capital. These transplants, as Mary Ann Tétreault (2012) calls them, reflected the complex relationship

of interdependency, with echoes of colonial dependency, between expansionist US universities keen to spread their assets, and secure new markets of students and high financial and reputational returns, and wealthy emerging economies willing and able to acquire global knowledge capital and advanced technology (McDougall and Kleypas 2012; Lim 2012).

The importation of the US model went beyond the establishment or franchising of US-style institutions. It also involved the appropriation and performance of the institutional structures, styles, and symbols of US higher education. This included the adoption of such things as US degree and semester systems. For example, as part of their educational reforms, many former British colonies, such as India and Nigeria, shifted from annual academic years to semesters (Clark 2013; Etuk 2015). In many countries and institutions, performing Americanness was often depoliticized, which allowed for the uneasy co-existence of political anti-Americanism and valorization of American academic cultures and values. It was concretely expressed through curricula design including the fetishization of critical thinking pedagogy, appropriation of the rhetorics of diversity, difference, and multiculturalism, and in institutional mission and vision statements. This performance also included the importation of US-educated teachers and materials. But the result was usually ambiguous, sometimes parody and pastiche, even confusion and contestation (McDougall 2012; Kleypas 2012; Queen 2012; Naughton 2012).

One of the great ironies is that the US model was spreading fast at the same time as the dysfunctions of US higher education were becoming more apparent domestically through the escalating crises of access, affordability, and accountability. To offset declining public support, tuition costs were ballooning beyond the capacity of the middle classes to pay. In 2015, student loan debt reached a staggering $1.2 trillion, higher than credit card debt (Holland 2015). Educational quality was plummeting due to poor levels of high school student preparedness and the expansion of adjunct instructors hopping from campus to campus to make ends meet. Despite their high academic qualifications, the ability of adjuncts to engage students was compromised by their itinerant life. In 1969, adjuncts or contingent faculty, the term used by the Association American University Professors, comprised less than 22 % of the professoriate; by 2015, they accounted for 76 %![6] In the meantime, morale for the more privileged minority of tenure-line faculty declined as workloads increased, working conditions worsened, and shared governance deteriorated (Gappa et al. 2007).

Institutional models often reflect new combinations and reconstructions of previous models. As is well known, the US higher education model is itself a complex combination of the British Oxbridge college and the German research university. In this context, is it possible that new models are emerging out of the reconfiguration of the imperial European and US models? A case can be made that the development of education hubs, mostly concentrated in Asia, might represent new forms of organizing and internationalizing higher education in the twenty-first century.

Jane Knight (2011, 2014a, b) claims that education hubs constitute a new third generation of cross-border education activities, although she wonders whether they are a passing fad, branding exercise, or a serious initiative worthy of substantial investment and attention. According to her, the first generation involved the mobility of people, primarily students, who went for full degree or short-term study and research; the second, the movement of programs and providers that comprised the creation of twinning, franchised, articulated/validated, joint/double award, and online/distance programs, or the formation of branch campuses and independent institutions. "An education hub," she writes, "is a planned effort to build a critical mass of local and international actors strategically engaged in cross-border education, training, knowledge production and innovation initiatives" (Knight 2014a: 85).

Knight insists that the three generations of cross-border education are not mutually exclusive, nor is there a single typology of education hubs. For some countries, these hubs are created as a means of attracting foreign students to generate income and modernize and internationalize their domestic higher education systems; others see them as talent hubs essential for human resource development; and others still value them as hubs for the production and distribution of knowledge and innovation. Thus, the different types of hubs reflect different focus, objectives, policy sectors, and primary and secondary actors.

The first-generation activities have a long history, but accelerated from the 1970s; in the 1960s, the number of mobile students was only 238,000. The second-generation activities expanded from the 1990s. In 2002, there were 24 branch campuses; by 2012, there were more than 200, 69 in Asia-Pacific, 55 in the Middle East, 48 in Europe, 18 in Africa, and ten each in North America and South America. Another 37 were being planned, 31 of them in the Asia-Pacific region. The third-generation activities started in earnest in the 2000s. By 2012, they were confined to a few countries, mostly in Asia-Pacific and the Middle East, including

Hong Kong, Singapore, Malaysia, the United Arab Emirates, and Qatar. In Africa, Botswana and Mauritius were in the early stages of trying to position themselves as education hubs, so were South Korea, Bahrain, and Sri Lanka.

The most advanced education hubs were in Qatar, the United Arab Emirates, and Singapore. Qatar Education City was founded in 1998 by the Qatar Foundation and attracted nine international branch campuses (IBCs). The United Arab Emirates established Knowledge Village in 2003 and Academic City 2 in 2007, which were sponsored by Dubai Holdings and TELECOM Investments, and attracted more than 40 IBCs. Singapore launched its Global Schoolhouse in 2002 and "Singapore Education" in 2003 under the auspices of the Singapore Economic Development Board, which attracted 16 IBCs. In Malaysia, the National Ministry of Education and private investment companies created the two education cities under the country's regional education hub project in 2007 and 2009. Botswana's education hub was announced in 2008 under the sponsorship of the Business Economic Advisory Council with plans to attract international students and develop a new university of S&T. Korea introduced its ambitious Brain Korea 21 project in 1999.

However, serious questions remain as to whether these initiatives constitute a new and sustainable higher education model. The predominance of English as a medium of instruction, widespread use of pre-packaged mass-produced curricula materials, and preponderance of vocational programs, part-time faculty, and commercial values seem to suggest that these often sequestered university cities, clusters, or centers more often than not served as glorified export zones for hegemonic Western institutions that were so assiduously courted, rather than as harbingers of a brave new world of higher education innovation and transformation (Chiang 2014). While the new internationalization efforts were generally welcomed in higher education institutions in the region, there was considerable dissatisfaction among students and faculty especially about the adoption of English. Faculty concerns were also expressed about pressures to publish in international English-language Western journals (Palmer and Cho 2011; Jon and Kim 2011; Wong and Wu 2011).

The growing prevalence of English in teaching and research was a worldwide phenomenon undertaken as "a strategic decision to increase international openness, attractiveness, and competitiveness" (Rumbley et al. 2012: 15–16). In Europe, for example, "between 2002 and 2007 the number of English –taught programs more than tripled (from slightly

over 700 to almost 2000)." While the adoption of English enabled many non-English countries to internationalize their higher education systems, there were also serious setbacks. This is evident, for instance, in Ethiopia, where many "students and faculty are simply not operating effectively in English, putting them at a disadvantage for both teaching and learning."

Regional Dimensions and Actors

By the beginning of the twenty-first century, internationalization encompassed a complex web of activities. There was the increased mobility of students and faculty; integration of international content in the curriculum and scholarship; development of inter-institutional collaborations and partnerships; the provision of transborder educational services that ranged from twinning to joint-, double-, or consecutive-degree programs, franchised and validated programs, to the establishment of branch campuses and distance and online learning; and the establishment of education hubs. Each of these collaborative initiatives faced practical and substantive issues including design and operational challenges, quality assurance and accreditation, fees and financing, language of instruction, certification, recognition, and legitimacy of qualifications, and completion requirements (Knight and Lee 2012).

Increasingly the importance of both internationalization at home and internationalization abroad was recognized as complimentary (Knight 2005). The former encompasses at the curriculum level, infusing international, global, and comparative dimensions, foreign-language study, and joint or double degrees; at the teaching and learning level, actively recruiting international students and scholars and effectively using students and academics who have returned from abroad; at the extracurricular level, encouraging international and intercultural events on campus and liaising with local diaspora cultural and ethnic groups; and at the research level, promoting international exchange programs, conferences and seminars, joint research projects and publications, and building area and thematic centers. The latter includes the movement of people or providers both physically and virtually, the delivery of programs through linkage or partnership arrangements, and the establishment of international projects.

The range of actors and providers of internationalized education also expanded. They now included traditional not-for-profit public and private universities, for-profit institutions, as well as universities and educational networks established by traditional corporations and new commercial IT

and media companies, and professional associations. Besides the education sector itself, other key stakeholders included the state sector and the private sector. Each sector placed different levels of importance on the various rationales outlined earlier and the activities, competencies, ethos, and processes that defined them (Quiang 2003).

The dynamics and implications of internationalization varied quite considerably among different regions and countries depending on the history and structure of their higher education systems, national and institutional resources, and their respective geopolitical locations and aspirations. Reports by the International Association of Universities (IAU) (IAU 2003, 2005, 2010; Egron-Polak and Hudson 2014) clearly show divergent perceptions of the rationales and risks of internationalization in different world regions. A 2010 global survey by the IAU shows the leading rationales were, at a world level, to (1) "improve student preparedness" (30 %); (2) "internationalize curriculum" (17 %); (3) "enhance international profile" (15 %); (4) "enhance research and knowledge production" (15 %); and (5) "broaden and diversify source of students" (9 %). Similarly divergent were perceptions of the risks of internationalization. The top three threats worldwide were seen to be "commodification of education programs" (12 %), "brain drain" (10 %), and "increase in number of degree mills" (9 %).[7]

IAU's 2013 survey of 1336 institutions in 131 countries underscored growing commitment to internationalization. Most of the respondents had or were developing policies, and setting up the infrastructure and priorities to implement internationalization. The benefits of internationalization in improving student awareness, quality of teaching and learning, and strengthening research were largely similar to those in previous surveys, although there were notable regional differences. The most significant risk identified by 31 % of respondents was that international opportunities were only available to students with financial resources, followed by 13 % who cited the difficulty of local regulation of the quality of foreign programs. The most significant potential risk identified was commodification of education, followed by unequal sharing of the benefits of internationalization among partners, and the growing gaps between higher education institutions within countries (Egron-Polak and Hudson 2014).

The survey revealed interesting regional differences in perspectives. In terms of benefits, in Asia and Pacific and North America, the top-ranked institutional benefit was students' increased international awareness; in Europe and the Middle East, it was improved quality of teaching and

learning; for African respondents, strengthened knowledge production capacity; and in Latin America and the Caribbean, increased networking of faculty and researchers. As for risks, respondents in all regions except Europe ranked unequal international opportunities for students based on the possession of financial resources as the most important. Respondents in Africa and the Middle East considered brain drain the second most important risk; in Asia and the Pacific, both excessive competition among higher education institutions and overemphasis on internationalization at the expense of other priorities were ranked second; and in North America, it was too much focus on recruitment of international fee-paying undergraduates.

Societal risks of internationalization were also perceived differently in the various regions. Commodification and commercialization of education was the top risk in all regions save for Africa and Latin America and the Caribbean, where the unequal sharing of benefits of internationalization was ranked first. In the Middle East, the risk of brain drain was placed on top. The second most important societal risk for African respondents was the dominance of a "western" epistemological approach, while in the Middle East, it was the loss of cultural identity, and in Asia and Pacific, it was the increase in foreign "degree mills" and/or low-quality providers.

Generally, internationalization processes and activities were mediated through and involved six sets of actors, namely, international actors, bilateral actors, inter-regional actors, regional actors, sub-regional actors, and national actors.[8] Each category could be further subdivided and the composition and relative power of the various actors varied between and within regions and countries. It can be argued that the trajectory and ability to draw benefits from internationalization often reflected the density of collaboration and strategic planning within a country or a region. In this regard, regional collaboration was most advanced in Europe, while Asia, Africa, Latin America, and North America tended to play catch up, and often viewed Europe as a model.

Globally, the international actors included higher education consortia, alliances, and agencies. Denman (2014: 231–233) estimated that in 2012, there were 517 international consortial alliances and agencies. The bulk, 51 % were in North America, followed by Western Europe with 32 %, Latin America with 4 %, sub-Saharan Africa 2 %, Middle East and North Africa 1 %, South Asia and Indian Ocean 3 %, East Asia and Pacific 4 %, Australia and New Zealand 2 %, and Eastern Europe and Central Asia 1 %. In terms of their purpose, 19 % of these alliances were involved in

administering student exchange, 13 % conducting international research, 14 % internationalizing curricula, 7 % providing international development aid, 15 % facilitating faculty exchanges, 13 % offering faculty development, and 19 % sharing resources.

International actors at the global level also included such intergovernmental organizations as the International Organization for Migration, the OECD, and various agencies of the UN such as the UN Development Program, UNESCO, the World Bank, and the World Trade Organization (van der Wende 2011; Lebeau and Sall 2011; Marginson 2011a, b). There were also international NGOs from the IAU to the International Association of University Presidents; private foundations that operate internationally among them the US-based Ford, Rockefeller, Carnegie, and Gates foundations; and international programs like the International Association for the Exchange of Students for Technical Experience that operated in more than 80 countries and sponsored more than 700 student exchanges every year, and the International Economic and Commercial Sciences Students Association that worked in over 2100 universities in 110 countries and made16,000 international exchanges annually.

The bilateral actors comprised national development agencies and bilateral programs. The dominant players were from the Global North. The most important development agencies operating in the Global South included the Canadian International Development Agency, the Japan International Cooperation Agency, the Swedish International Development Agency, and the US Agency for International Development, as well the British Council, EduFrance, the German Academic Exchange Service, the Canadian International Development Research Center, IDP Australia, the Netherlands Organizations for International Cooperation in Higher Education, the US Institute for International Education that administers Fulbright and MacArthur scholarships, and the Swedish Agency for Research Cooperation.

Each region also had its own regional actors. In Europe, the leading inter-regional actors comprised both government agencies, such as the EU, and inter-regional NGOs and networks, such as the European University Association. The EU established several programs to promote collaboration with developing countries, such as the Program for High Level Scholarship for Latin America, and Inco-Dev to advance cooperation in S&T research for development. Thus, some of the inter-regional networks connected European institutions with those in their former colonies. Examples include the Association of Commonwealth Universities,

and the Association of Universities of the Francophonie, which linked British and French universities in their former colonies in Africa, Asia, and the Caribbean, respectively.

Linking Spanish, and in some cases Portuguese, institutions to their former colonies in South America were the Ibero-American University Council, Organization of the Andrés Bello Agreement on Educational, Scientific and Cultural Integration, Columbus Network, the Ibero-American Organization for Education, Science and Culture, Ibero-American Association of Postgraduate Universities, Ibero-American Network for the Evaluation and Accreditation of Higher Education, and Universia.Net (Jaramillo and Knight 2005).

Within Latin America and the Caribbean, regional intergovernmental organizations and networks included the International Institute for Higher Education in Latin America, Inter-American Development Bank, and the Organization of American States. In the non-governmental sector, there were the Latin American and Caribbean Association of University Integration, Latin American Council of Social Sciences, Latin American Macro University Network, Latin American Network of University Cooperation, and the Union of Latin-American and the Caribbean Universities. Sub-regional networks ranged from the Caribbean Association of Caribbean Universities and Research Institutes to the Association of Universities of the Amazon to the Montevideo Group of Universities to the Council of Central American Universities.

There were also a whole range of regional programs, such as the Academic Program for Student Mobility, and the Common Market of Scientific and Technological Knowledge Program, as well as inter-regional programs including the Academic Mobility and Exchange Program, and the College of the Americas. National actors comprised government ministries, agencies of international cooperation, science foundations and councils, scholarship and quality-assurance agencies, as well as university associations, and international relations networks. Linking institutions in the region with their counterparts in North America were the Inter-American Organization for Higher Education. Such inter-regional trade agreements as the Free Trade Area of the Americas also fostered inter-regional cooperation.

In Latin America, internationalization did not enjoy the same levels of national and institutional importance and support as in Asia despite the fact that Latin American universities were modeled on European universities and there was a long tradition of elites from the region going

abroad especially to Europe and later North America for their education. For a long time, the rate of student mobility from the region remained among the lowest in the world. Latin America also ranked quite low in the mobility of its largely part-time faculty, internationalization of the curriculum, and import of cross-border higher education services. These realities reflected the marginality of internationalization as a priority for governments and universities in the region, lingering nationalist resistance to American hegemony, and negative views of globalization, which was often equated with imperialism and dependency, and weak intra-regional networks of higher education collaboration and exchange despite their proliferation documented above. Consequently, there was little strategic planning and few resources were allocated to implement internationalization activities. In fact, internationalization was largely seen as an externally sponsored activity and a source of income rather than as an integrated and internally driven priority and process.

Many of the region's leading universities did not begin establishing formal international academic exchange programs until the 1980s, often in reaction to solicitations from foreign institutions. From the 1990s, the number of Latin American students studying abroad began to increase noticeably, American and European universities set up programs or branches in the region, and intra-regional exchanges grew. The lead was taken by private institutions, which expanded and accounted for 40 % of enrollments by the early 2000s, or by increasingly privatized public institutions following the deregulation and decentralization of the university sector (Holm-Nielsen et al. 2005). The regional preferences were split between Europe favored by Argentina, Brazil, Chile, Colombia, and Peru, and the USA prized by Mexico. Thousands of partnership agreements were signed but many were reportedly inactive. Intra-regional mobility remained unattractive and undeveloped. Also underdeveloped was internationalization of the curriculum.

The main rationales for internationalization included, at the national level, nation-building and repositioning in the global knowledge economy, improving national academic standards, and promoting regional connectivity and cooperation. At the institutional level, universities were primarily motivated by the need to improve academic quality and prestige. Besides the private–public divide, there were differences among countries based on their relative wealth. Altogether, internationalization increasingly came to be seen as part of the efforts to elevate the management of higher education institutions by enhancing their accountability and

incentive systems, improving their governance structures, and increasing flexibility for students, as well as a means to raise the capacity of the region's universities for research productivity and innovation. While total investment in research and development in the region doubled between 1990 and 2001, it remained low by the standards of the OECD countries. Public universities showed preference for international exchange agreements to improve research while the private mostly Catholic universities focused primarily on student mobility.

The numbers of Latin American students studying in the USA increased by 50 % between 1993 and 2002, while in 2002 alone, the number of visiting scholars from the region in the USA increased by 20 %. Growing mobility of students and faculty raised the specter of brain drain and governments in the region introduced repatriation programs, which were largely ineffective, and the region was also unable to develop successful strategies to attract foreign students beyond those coming for language study. In short, the reform programs of Latin American higher education, which led to increased enrollments, institutional diversification, and privatization, and encompassed greater focus on internationalization, did not overcome the structural challenges of low academic quality, high social inequities, institutional fragmentation, inadequate funding, and the relevance of university education for the needs of the labor market.

Above all, Latin America remained "peripheral to the international centers of knowledge production" (Gacel-Avila et al. 2005: 341). This was evident in the highly unequal flows of students from the region to the Global North and of providers and programs from the latter to Latin America. The providers included traditional universities and new commercial providers such as the Apollo Group (that owns the mammoth University of Phoenix), Sylvan International Universities, Oracle University, Advent International, and J.P. Morgan Partners that bought or sold shares in local institutions. In contrast, by 2005, the region's universities could only boast of a handful of branches and offices in the USA and Spain. Their largest intellectual export, dependency theory, had long been engulfed by the globalization paradigm.

In North America, the North American Free Trade Agreement (NAFTA) set the framework and provided much of the impetus for intra-regional collaboration from the 1990s. A series of higher education forums and initiatives were developed under its auspices or encouraged by its provisions on trade in professional and education services. Among the key agencies created were the Consortium for North American

Higher Education Collaboration, the Alliance for Higher Education and Enterprise in North America, the North American Partnership, and the North American Higher Education Mobility Program, each of which spawned a series of cooperative ventures that stimulated trilateral academic exchanges and collaborations. Intra-regional collaboration grew, but close observers cautioned that progress in developing a North American higher education market or system remained uneven and progressed much slower than anticipated in the early 1990s when NAFTA was being negotiated.

Ironically, neo-liberal market ideology and the decline of public funding reinforced rather than diminished inter-institutional competition undermining the very discourses and yearnings for increasing cooperation. Resources from the three governments were not forthcoming in a climate in which education in general and internationalization in particular were increasingly seen as a private good. Neither did the private sector step up to finance internationalization initiatives nor showed an appreciable preference for graduates with an internationalized education despite their rhetoric. Moreover, the decentralized character of the US and Canadian higher education systems, unlike Mexico's centralized one, as well as the asymmetries in the size and structure of the higher education systems in the three countries complicated trilateral cooperation. Thus, collaboration proceeded more at the institutional rather than at the national and trilateral levels (Barrow et al. 2003).

In each country, the key actors included various government departments such as those of Education, State, Defense, Commerce, and Energy in the USA. The most well-known organizations and networks in the USA were the American Council on Education, NAFSA: Association of International Educators, Institute for International Education, the Council on International Education and Exchange, Alliance for International Educational and Cultural Exchange, and the Coalition for International Education. In addition, there were the associations of universities and research councils, such as the Association of American Universities, the National Science Foundation (NSF), Social Sciences Research Council, and the American Academy of the Sciences that pursued international initiatives and science diplomacy (Smithee 2012).

In Canada and Mexico, the two national higher education associations, the Association of Universities and Colleges of Canada, and in Mexico, the National Association of Universities and Institutions of Higher Secondary Education, respectively, often took the lead. Because of the decentralized nature of its higher education system, Canada lacked a national strategy for

internationalization, although the country became a major beneficiary of global labor and academic flows (Jones and Weinrib 2011). For their part, due to the country's persistent economic and political challenges, Mexican universities, maintains Maldonaldo-Maldonado (2011: 340) were "stuck in the attempt to become 'international', but are far from taking part in the knowledge production race."

There can be little question that the internationalization of higher education accelerated in all world regions although the primary driving factors and impact varied between and within regions. The most coordinated approach and process was developed in Europe where higher education internationalization was an integral part of the European unification project. It was specifically inspired by two principal objectives: first, to promote student mobility within Europe and, second, to harmonize European higher education systems in response to globalization and increase their attractiveness and competitiveness. These goals were implemented through various programs and agreements. The Erasmus program was launched in 1987 as a student exchange program that sought to train European-minded professionals and foster common European identity and citizenship. The Bologna Process launched in 1999 pursued the creation of an open European Higher Education Area to make higher education standards compatible and comparable among the participating states. In 2000, the EU adopted the Lisbon Declaration, which aimed to "make Europe, by 2010, the most competitive and the most dynamic knowledge-based economy in the world."

Critics have argued that the impact of the Erasmus program was quite limited because of lack of agreement among the key actors on the rationales of the program, student participation rates remained low, and levels of involvement by academics and institutional support were inadequate. The program did not succeed in reaching the target of 10 % of mobile students within the time frame set; in some years, only 1 % of European students took part in Erasmus mobility schemes (Papatsiba 2006). The Bologna Process brought changes to the continental European higher educational systems from the model of pronounced state control to the more market-oriented American system.

Clearly, the Bologna reforms had mixed results. Observers have noted that on the one hand, the reforms created more product variety, flexibility for students, and greater transparency than before. On the other hand, continental European universities did not succeed in raising their global rankings because their employment markets continued to be relatively

closed to outsiders, peer review mechanisms remained weak, and funding resources and formulas were grossly insufficient to the task of fundamental restructuring often envisaged (Jacobs and van der Ploeg 2006; European University Association 2007). By 2010, Europe had certainly not achieved its ambitious goal of creating the most dynamic knowledge economy in the world and the Lisbon Declaration was revised beyond 2010. Despite the challenges, the Bologna model had a significant impact on "internationalization activities across the globe" (Huisman et al. 2012: 96). It gave Europe normative leadership in promoting the EU zone "as a role model for regional collaboration in higher education reform and challenging other dominant powers in international higher education"

The range of regional, sub-regional, and national associations, alliances, and agencies involved in the internationalization of higher education in Asia was quite remarkable. University associations included the Association of East Asian Research Universities, the Association of Pacific Rim Universities, and the Network of Asia-Pacific Research Universities. Among the most well-known intergovernmental organizations that focused on issues of regional cooperation incorporating education were the Asian Development Bank, Asian-Pacific Economic Cooperation, the Association of Southeast Asian Nations, South Asian Association for Regional Cooperation, and the Gulf Cooperation Council. Within each country, key players included government ministries especially education and finance, accrediting agencies, research councils, corporate entities, research networks, and scholarly associations.

The pressures of massification and the need to improve academic standards lay behind much of the impetus toward higher education internationalization in Asia in terms of both importing educational services into the region and exporting students abroad, although the range of motivations was quite varied among Asian countries and shifted over time. Asia is arguably the most active region in transnational education. As noted in a previous section, it boasted the largest numbers of students studying abroad and many of its universities eagerly borrowed foreign, especially USA, models of higher education (Shin and Harman 2009). Critics argued that this "not only created a new dependency culture but also reinforced the American-dominated hegemony" and they warned, "Asian states should be aware of the differences between policy learning and policy copying" (Mok 2007: 438).

Among the policies and strategies that were copied were the corporatization and marketization of universities and international benchmarking

and stratification of universities. There were of course differences in the processes and patterns of internationalization in Asia. Futao Huang (2007) identifies three types, what he calls the import-oriented type, an import and export type, and transitional type. The first included countries like Vietnam and Indonesia that imported educational programs and institutions from other countries mostly in the West. The second applied to Singapore and Hong Kong that imported higher education activities from Western countries and at the same time exported their higher education activities to other Asian countries. The final type referred to countries such as China and Japan that tended to import more educational services than they exported, but were keen to export their own higher education services.

In some countries, foreign higher educational services were incorporated into national systems of higher educational provision and subjected to national regulation but regarded as separate. They tended to provide preparatory education for local students for entry into national or foreign institutions. The variations in the forms of imported educational services ranged from branch campuses to joint programs. This resulted in greater competition among universities and efforts to focus resources on creating a handful of world-class universities. Internationalization of the curriculum and student learning were pursued through the expansion of student exchange programs, introduction of English as a medium of instruction, and adoption of curricula and importation of textbooks from the USA and other developed English-speaking countries (Huang 2003, 2006).

The point was made earlier that Asian countries led in the establishment of education hubs. It is instructive that the education hub initiatives were initially dominated by the region's global cities and relatively small resource-rich states anxious to diversify their economies and reposition themselves as globally competitive knowledge economies. Besides aggressively attracting multinationals and renowned research institutions, Singapore announced its intention to become the "Boston of the East" and turn higher education into a major export industry. It established a scholarship scheme, and liberalized its immigration laws to attract foreign students and scholars (Ho and Ge 2014). Following its unification with China and the Asian crisis of 1997, Hong Kong became anxious to find new growth areas and revive its economy. But according to Lai and Maclean (2014: 52) the efforts were not "yet adequately focused, clear or consistent." Comparing the two city-states, it is quite apparent the state in Singapore took a more strategic and proactive role to reshape

the internationalization of its higher education than the more laissez faire approach pursued in Hong Kong (Chan 2011).

South Korea invested massively in its education hub projects, and heavily promoted the use of English as the language of instruction. It tried to entice top institutions and used the largess of the World Class University Project and Global Korea Scholarships to attract international faculty and students, respectively. But Terri Kim (2011: 286) argues that because of its subordination to the state and large conglomerates, the *chaebol*, the country's higher education system remained "poised between ethnocentric internationalization and global commercialization." For its part, Malaysia introduced policies for the registration of foreign universities as Malaysian companies, created a new regulatory framework to improve the quality of higher education, and aggressively marketed itself as a leading educational hub among emerging economies (Mok and Yu 2014; Mok et al. 2014: 3–6). Japan also ratcheted up its efforts to attract international faculty and students, and restructure and internationalize its higher education institutions by launching "Global 30," "Global 30+", and "Reinventing Japan Project" (Mok et al. 2014: 14–15; Yonezawa et al. 2014).

Similarly, from the early 2000s, Taiwan set its eyes on establishing world-class universities by adopting instructional paradigms from the USA, encouraging the use of English, and introducing a ruthless culture of publish or perish in English-medium international journals (Roberts and Ching 2011). Nevertheless, its internationalization efforts remained largely focused on China where it set up offshore vocational programs to service the needs of Taiwanese investors. Later, these programs were expanded to Southeast Asia also to meet the needs of Taiwanese industry. From 2011, more effort was made to advance the interests of Taiwanese higher education institutions facing demographic pressures and increasing competition from regional and other educational providers including China itself and Australia (Chen 2014).

In China, before the promulgation of the policy known as the "Provisional Stipulation on Chinese-Foreign Cooperation" (CFCRS) in 1995, there was little regulation of the burgeoning foreign higher education programs, which were welcomed as part of economic reform and to achieve the four modernizations in industry, agriculture, defense, and S&T. The new policy sought to bring greater standardization, to facilitate the internationalization of Chinese universities and their ambitions to achieve world-class status, and to build human capital for the country's roaring economy. By 2012, there were 40 CFCRS institutions, 580

undergraduate programs, and 151 graduate programs from 25 countries. Unlike other Asian countries, Chinese private institutions were largely excluded. Also, in practice, these institutions enjoyed varying levels of quality and Chinese regulatory control (Ong and Chan 2014).

China was determined to catapult a few of its universities into the top ranks of world universities as enunciated in the country's 211 Project, 985 Project, and World Class Universities Project (Li and Chen 2011). Chinese universities also worked hard to build international networks, degree programs, and internationalize the curriculum. Moreover, they sought to attract foreign students to China whose numbers rose from 44,711 from 164 countries in 2000 to 265,090 from 194 countries in 2010. Several established branch campuses abroad and many more provided Chinese language and medicine and increasingly professional programs. Confucius Institutes proliferated around the world, including Africa on the trails of the massive growth of China's trade and investment in the continent (Braütigam, 2009; Shinn and Eisenman 2012; Zeleza 2014).

In Africa, the organization and networks promoting internationalization resembled the patterns in Latin America and the Caribbean, and Asia. They ranged from intergovernmental bodies such as the African Development Bank and the African Union to regional NGOs like the Association of African Universities, and the Association for the Development of Education in Africa. There was a proliferation of research networks in a wide range of interdisciplinary areas. The most well known were the Council for the Development of Social Science Research in Africa, Regional Universities Forum for Capacity Building in Agriculture, International Center of Insect Physiology and Ecology, and the African Economic Research Consortium.

There were also transnational agencies and university associations, such as the African Quality Assurance Network established in 2007, Pan African University formed in 2008 comprised of five thematic institutes and ten centers located in all five regions of the continent, and the African Universities Research Alliance formed in 2015 to promote inter-institutional collaborations among the continent's leading research universities. Several external agencies played a key role in funding or augmenting these initiatives. The most notable was the Partnership for African Higher Education spearheaded by seven major US foundations, which spent $400 million supporting 638 partnership projects between 2000 and 2010 (Lewis et al. 2010). In 2014, the World Bank launched a

project to strengthen 19 centers of excellence in selected higher education institutions.

The sub-regional actors included organizations such as the Southern African Regional Universities Association, the Inter-University Council of East Africa, Association of West African Universities, and various regional programs such as the Universities, Science, Humanities, Law and Engineering Partnerships in Africa involving four universities in South Africa, Tanzania, Uganda, and Zambia. At the national level, the most important actors comprised government departments and agencies including ministries of education, international cooperation agencies, science foundations and councils, national export agencies, scholarship agencies, and quality-assurance and accreditation agencies as well as NGOs from university associations to international relations networks.

The trends in Africa mirrored those in parts of Latin America and Asia. From the nineteenth century, the region's universities were largely modeled on European universities and African elites trekked to Europe and later the USA for undergraduate and increasingly graduate education. While the vast majority of African universities were established after colonial rule as locomotives of national development and intellectual decolonization, they continued to display strong tendencies of extraversion in their practices, programs, and paradigms. They remained trapped in the institutional and epistemic economies of Euroamerican models and Eurocentricism. Ironically, decolonization and the proliferation of national universities led to the dismantling of the colonial regional universities and undermined intra-regional connections and collaborations, while reinforcing linkages to the Global North.

The ideological and financial assaults against African universities under structural adjustment programs in the 1980s and 1990s further weakened their intellectual and institutional capacities as academic infrastructures deteriorated and academic staff migrated to greener pastures at home and abroad and many abandoned scholarship in favor of consultancies. At the same time, demand for higher education exploded, and the processes of privatization of higher education accelerated with the rapid growth of private universities and privatization of public universities. Thus, from the late 1990s, African universities, scholars, external donors, and even governments agonized over the challenges facing African higher education and the need for renewal if the continent was to achieve higher rates of growth and development and compete in an increasingly knowledge-intensive global economy (Zeleza and Olukoshi 2004a, b).

The reform agenda centered on five broad sets of issues, in which internationalization did not feature high. First, there were vigorous debates concerning the philosophical foundations of African universities in terms of the principles underpinning public higher education in an era of privatization; the conception, content, and consequences of the reforms being undertaken across the continent; and the public–private interface in African higher education systems. The second set of issues centered on management, how African universities were grappling with the challenges of quality control, funding, governance, and management in response to the establishment of new regulatory regimes; growing pressures for alternative sources of funding, changing demographics and massification; increasing demands for access and equity for underrepresented groups including women; and the emergence of new forms of student and faculty politics in the face of democratization in the wider society.

Third, there were pedagogical and paradigmatic issues ranging from the languages of instruction in African universities and educational systems to the dynamics of knowledge production—the societal relevance of the knowledges produced in African higher education systems and how those knowledges were disseminated and consumed by students, scholarly communities, and the wider public. Fourth, the role of universities in the pursuit of the historic project of African nationalism (decolonization, development, democratization, nation-building, and regional integration) was scrutinized. Included in this regard were questions of the uneven and changing relations between universities and the state, civil society and industry, as well as the role of universities in helping to manage and resolve the various crises that confront the African continent from civil conflicts to disease epidemics to environmental threats. Also, the part universities had played and could play in future to promote the project of Pan-Africanism.

Finally, and more tangentially, there was the question of globalization, the impact of trends associated with the new ICTs, the expansion of transborder or transnational provision of higher education, and trade in educational services under the GATS regime. Critical in this context for Africa was the changing role of external donors from the philanthropic foundations to the World Bank and other international financial institutions and multilateral agencies; the role and possibilities of South–South linkages; and the African academic diasporas as possible interlocutors of internationalization for African higher education systems, as critical mediators in the globalization of African knowledges and Africanization of global knowledges.

On the whole, the flows of students and academics to—and the borrowing of institutional and intellectual models from—the Global North dominated the historic patterns of internationalization for African higher education institutions. The growth of transborder education through the establishment of European and American branch campuses, joint degrees, and collaborative programs reinforced these trends. The providers included traditional Western universities, professional associations, global and multilateral agencies, international financial institutions, philanthropic foundations, and increasingly commercial companies scouting for profitable prospects in African higher education. As elsewhere in the world, the processes and prospects of internationalization across the continent were increasingly facilitated and structured by the new ICTs.

There was vigorous debate on the impact of internationalization. In general, the growth of regional collaboration was seen more positively than the intensifying patterns of internationalization with, or driven by the Global North. As argued in most of the essays in the collection by Sehoole and Knight (2013), the proponents of internationalization welcomed it for its contribution to enhancing African research and institutional capacities including the prospects of improving the gender dimensions of higher education and the sector's contribution to the realization of some of the millennium development goals. Similar to other regions, the patterns of internationalization among African countries and institutions varied according to history, resources, geopolitical positioning, and leadership at national and institutional levels.

While the number of foreign providers from 2000 grew in many African countries, it declined in South Africa because of stringent regulations and accreditation processes for quality control. On the flip side, in 2008, Egypt's ancient university, Al-Azhar, founded in 970, became one of the very few African universities to open an overseas branch campus in Malaysia and it announced plans to open branches in Thailand and China (Altbach and Knight 2007; Singh 2008). The two countries were the leading continental destinations of foreign students. The numbers of international students in South Africa more than quadrupled from about 12,600 in 1994 to 64,784 in 2010 equal to 7.25 % of the total South African student body (Kishun 2007; IESA 2011). The majority, 46,496 (77.8 % of the foreign students in 2010), came from other Southern African Development Community (SADC) countries. This highlights the fact noted earlier that "intra-regional flows are stronger than inter-regional flows" (Varghese 2008: 15).

The Seductions and Sanctions of Rankings

International academic mobility, collaborations, and cross-border provision remained decidedly unequal. In fact, in many ways, internationalization reinforced historic inequalities. It stands to reason that since individual countries were positioned differently in the global system, their understanding of what internationalization meant and its implications varied. The flows of people and programs, institutions and infrastructures, languages and literacies, models and methodologies between the Global North and the Global South remained unequal and uneven. Students from the Global South tended to flock to the Global North in much larger numbers and stayed longer than students in the opposite direction. Similarly, there were far more programs and providers from the Global North in the Global South than the other way round. Also, internationalization gave English, followed by a few other European languages, global supremacy as the languages of instruction and scholarship in a way no language in the Global South could ever aspire to.

For a country like the USA, internationalization did not require any fundamental restructuring of the institutional and intellectual foundations of its higher education system. Nor did the USA have to be concerned about the imposition of inappropriate foreign models that could hamper its development as it saw it or fear the loss of its highly educated people through the brain drain. Surveys showed that most white American students, faculty, and administrators believed in the cultural superiority of the USA so that others, not they, had much to learn from internationalization, which led to foreign students facing the intolerance of what Lee and Rice (2007) call neo-racism. In contrast, for developing countries, the dangers of internationalization were real.

Thus, although more American universities than ever claimed to value the importance of internationalization, this was not matched by levels of support for activities that were central to internationalization. As shown in *Mapping Internationalization on U.S. Campuses* (American Council of Education 2012), a comprehensive report on internationalization in US universities based on a survey of 3357 accredited, degree-granting institutions, half of these institutions included internationalization in their mission statements or among their top priorities. Overall, by 2011, 27 % had established international partnerships and collaborations, including 153 institutions that operated degree or certificate programs abroad (or both), up from 101 in 2006; 43 institutions ran branch campuses; and fewer

institutions than in 2006 (when a similar survey was conducted) required their students to take a foreign language. The number of institutions with an undergraduate foreign-language requirement declined from 53 % in 2001 to 45 % in 2006 to 37 % in 2011.

Similarly, despite more institutions requiring undergraduate students to take courses that featured global issues and trends, the percentage of institutions that required courses that presented perspectives, issues, or events from countries outside the USA declined. Institutional support for faculty international travel also waned, while greater value came to be placed on recruiting faculty with international experience, such experience still accounted for little when it came to tenure and promotion. Only 8 % of institutions in 2011, the same as in 2006, had specific guidelines on international experience in promotion and tenure decisions. In short, while the US higher education systems was widely envied and emulated and American universities dominated global rankings, most American institutions had a long way to go to achieve "comprehensive internationalization." Hudzik and Stohl (2012: 76) bemoaned the lack of comprehensive and strategic internationalization and warned that the country's universities needed to move internationalization "from campus periphery to campus core" if "U.S. higher education is not to be marginalized in the rapidly changing domestic and global environments that now provide the wider arena of higher education."

The inequalities and challenges for countries in the South were exacerbated by the explosion of higher education providers, both domestic and international, which raised serious questions about quality assurance. Stella (2006) argues that in many countries, national frameworks for quality assurance for cross-border higher education were not well developed, and international cooperation among quality-assurance agencies was limited. Except for the larger emerging economies such as South Africa, China, India, and Brazil, regulatory systems in many developing countries were not sufficiently developed to ensure robust evaluation standards. For their part, regulatory agencies in the Global North often ignored the activities of their universities when operating outside their national purview, which sometimes led reputable institutions to provide second-rate education abroad, or rogue institutions to establish degree-mill operations.

In fact, academic fraud seemed to be on the rise (Hallak and Poisson 2005), aided by internationalization and the Internet. It was particularly difficult to regulate the new providers of higher education services that were not subject to existing quality-assurance schemes. The rise of international and commercialized accreditation agencies posed its own

risks. The UNESCO *Guidelines for Quality Provision in Cross-border Higher Education* sought to assist providers and recipients to overcome these challenges. UNESCO joined the World Bank to create the Global Initiative for Quality Assurance Capacity (Altbach et al. 2009: xii). The subject of quality assurance is examined in greater detail in the next chapter.

One of the outcomes and instruments of internationalization was the rise of what Deem et al. (2008) call the emerging global model (EGM) of the research university. "World-class university," a term used interchangeably with "global research university" or "flagship universities" invariably referred to comprehensive research-intensive universities. Mohrman et al. (2008) elaborate that this model has eight characteristics: they have a global mission; they are characterized by increased intensity of knowledge production; their professors work in team-orientated, cross-disciplinary, and international partnerships; they have diversified funding beyond government subventions and student tuition; they adopt worldwide recruitment strategies for faculty and students; they require greater internal complexity and infrastructure to promote research activity; they forge new relationships and partnerships with government and industry; and they collaborate with international NGOs and multi-government organizations to support their activities. The development of the EGM contributed to the decline of faculty involvement in governance, state control over universities, and the power of national educational systems as arbiters of quality and even viability.

Wang et al. (2013: 2) offer a simpler definition. World-class universities "are academic institutions committed to creating and disseminating knowledge in a range of disciplines and fields, delivering of elite education at all levels, serving national needs and furthering the international public good." To achieve this status, "three main and common strategic foci can be recognized, these being competitive funding schemes, internationalization and governance reform at both governmental and institutional levels." Countries ranging from Germany (Centers of Excellence) to Russia (National Research University Program) to Saudi Arabia (University and City Projects) to Taiwan (Five Year-50 Billion Excellence Initiative) set up strategic funding programs to catapult a select number of their universities into this hallowed ranks of world-class universities. They also aggressively embarked on internationalization involving curriculum reform, faculty recruitment, and the establishment of productive partnerships especially with prestigious Western universities that lead the international ranking tables. As for governance, this often entailed benchmarking against what are perceived to be best practices and values prevalent at the leading global universities.

Various countries pursued these strategies differently according to their specific cultural and institutional histories and contexts. Simon Marginson (2013: 20) maintained that there were different roads to the world-class university. He hypothesized

> that these different roads to the world-class university can be found to be distinctive to the higher education systems in the US; the Westminster systems (UK, Australia, New Zealand); the Post-Confucian forms of East Asia and Singapore; the Nordic systems; the Central European or Germanic systems; the Francophone systems and in Saudi Arabia and the Gulf States. There might also be other roads: for example a Latin American variant (a 'Bolivarian Model'?) partly shaped by the Bonapartist model in France and Italy; emerging approaches in higher education systems in South Asia and Central Asia, etc.

He contended that the Post-Confucian model would become increasingly influential.[9]

As evident in the collection by Wang et al. (2013), the pursuit for World Class University status took divergent paths between and within countries. International competition was sanctified and reproduced through increasingly influential global ranking and league tables. The Shanghai Jiao Tong University (SJTU) and *Times Higher Education* (THE) produced the most influential global rankings. They issued their first reports in 2003 and 2004, respectively. The SJTU focused largely on research performance, while THE placed high value on institutional reputation and levels of "internationalization." Teaching and learning were largely ignored (Marginson and Wende 2007). The rankings immediately achieved prominence and set the terms of global competitiveness despite their limitations. Thus, what started as "a consumer-oriented guide for students and parents has been transformed into a rapidly expanding global intelligence information business" with profound impact on higher education institutions, academics, student recruitment, and government policy (Hazelkorn 2011b: 497; Portnoi et al. 2010).

Critics of the rankings, some from institutions in the Global North, raised technical and methodological concerns, questioned the veracity of the rankings as consumer information on higher education, and the difficulties of comparing higher education institutions across the world given the diversities in their goals, sizes, and missions. The criticisms led to some improvements, but it was the cord the rankings struck with parents, students, and the general public that sealed their popularity. Others

started their own ranking systems. In France, the Ecole des Mines produced the Professional Rankings of World Universities based on, as *The Economist* (March 2015) cynically put it, "the number of graduates an institution who are running *Fortune* 500 companies—in which the French do nearly as well as the Americans and better than the British" who dominated the influential rankings. The EU joined the bandwagon and set up U-Multirank. Such was the rankings fever that by 2015, the number of national rankings around the world were estimated at 150, although the national rankings increasingly paled in significance compared to the regional and global rankings in an ever more fiercely competitive world for higher education institutions.

For their supporters and customers, rankings came to be seen as an instrument of accountability. The chase for higher rankings became particularly evident in Europe and Asia as the EU and major Asian countries such as China and Japan scrambled to create world-class universities, and even to devise alternative ranking schemes.[10] They sought to reposition themselves by improving research infrastructures, performance, and assessment; promoting international research linkages and benchmarking; and restructuring along the models of the American and British "world-class universities" that dominated the top rankings.

The power of rankings lay in their material impact in influencing flows of students, faculty, and resources. Their effects on different institutions within and between countries were complex and contradictory. Rankings became an equal opportunity weapon: institutions used them to justify change, governments to demand change, and parents and students to expect change. They encouraged institutions to reorientate their behavior, sometimes to change their mission and priorities, and even to manipulate data to raise their scores. Moreover, the valorization of research came at the expense of quality teaching, even as student tuitions rose to support the reputational aspirations of the universities. But this was more than compensated by the power of branding that rankings conferred on institutions, which is what consumerized students were primarily interested in buying in an increasingly crowded, competitive, and interconnected national, regional, and global higher education market.

As Ellen Hazelkorn (2011a) has theorized, the normalization of rankings in institutional, national, and global discourses and expectations about higher education reflected three interlocking processes and projects.[11] First, rankings were a product of globalization and the transformation of higher education into a strategic knowledge-intensive industry for

the knowledge economy and society. Second, rankings served to establish hegemonic norms of excellence to influence, incentivize, and change institutional behavior, which enabled the production and reproduction of surveillance, performance, and conformity. Third, rankings reflected and reinforced inter-institutional competition in an endless "reputational" and "positional" race that was unwinnable for all but the already top-tier global institutions. In that sense, they helped reinscribe the hierarchies between elite and ordinary institutions in the era of mass education, which was deemed critical by the elite institutions themselves and the ruling and cosmopolitan classes they primarily served.

In the race for rankings, humanities and social science disciplines lost out to the more prestigious natural sciences and marketable professions such as business and engineering. National segmentation and hierarchies were reinforced as resources were channeled to a handful of institutions with potential for repositioning for the all-coveted world-class status. The favored universities ended up adopting the management and governance systems and styles of the much-envied marketized, privatized, and corporatized US research universities. This forced the middling universities to follow suit in the mad rush to neo-liberal homogeneity in the name of globalization, masking Americanization wrapped in Westernization.

Thus, the globalization of higher education was evident in the rise of an increasingly integrated complex and contested worldwide system, which was simultaneously hierarchical, fragmented, and unstable. The global system of higher education became characterized by both cooperation and competition. At the same time, inter-institutional engagements and regional flows of educational activities remained uneven and unequal even as new patterns emerged. The unequal distribution of research capacity, the dominance of the USA and the supremacy of English structured the system. This explains why within the USA the impact of global competition was minimal, while American competition at the top levels defined global competition. It also accounted for the fact that universities around the world generally seemed to prefer linkages with American universities than with universities in their own regions to boost their prestige, while for elite American universities, international linkages did little to raise their status. In short, many outside the USA, and certainly most within the country itself, saw the USA as the global standard of higher education. Regardless of what models of internationalization American institutions used, whether planned or opportunistic, US hegemony in global higher

education remained unrivalled in the second decade of the twenty-first century (Edwards 2007).

World-class universities competed for and attracted top faculty and graduate students from around the world. Graduate students were indispensable for establishing and sustaining vibrant research programs and profiles of universities and faculty (Horta 2009). In the great brain race, to use the title of Ben Wildasky's book (2010), global universities were indeed reshaping the world, but not always for the good. Competition among universities as producers of positional goods trapped many in a zero-sum game. To quote Marginson (2006: 4): "Given the absolute limit on the number of high value positional goods, there is an absolute limit on the number of high value institutions, and on the size of individual institutions within the prestige grouping." Data from SJTU's Academic Ranking of World Universities (ARWU) covering 2003–2013 showed little change in the rankings that were dominated by US universities, although their total number in the ARWU500 fell, and those of China rose (Le and Tang 2015).[12]

The winner-take-all market of positional competition, which spread from the USA, undermined the educational enterprise as a whole as wealth came to define prestige and quality, the unequal distribution of social opportunities intensified, and holistic education was compromised as resources were diverted to select programs with the greatest competitive potential in the international academic market. The danger for countries in the Global South was that focusing their energies and resources excessively on global rankings might end up sacrificing their role as catalysts of national development and intellectual leadership in their respective societies and regions, thereby foreclosing any possibilities of restructuring the global system of knowledge production itself.

Geographies and Hierarchies of Knowledge Collaboration

A key feature of the internationalization of global higher education in the post-World War II was the expansion and strategic value placed on international research collaboration. It involved a complex interplay of three categories of knowledge, namely, the export of nationally generated knowledges, knowledges generated through inter-institutional collaborations, and the global generation of knowledge (Archibugi and

Filippetti 2015). National capacities to participate were determined by the relative development of national innovation systems (Castellacci and Natera 2015).[13] Patterns of collaboration were partly structured by geography. According to Plotnikova and Rake (2014), geographical distance tended to undermine the intensity of international collaboration, but cognitive proximity, institutional proximity, and cultural proximity had a more positive correlation. Universities were key players alongside industry and governments. Collaboration encompassed multinational, mid-range, and simple projects involving large teams or just a couple of academics. The expansion of international collaboration was facilitated by, and led to, greater international mobility of academics, and the emergence of new global epistemic communities (Flanagan 2015; Hennemann and Liefner 2015).

The motivations for international collaboration ranged from the desire to advance knowledge, to work with admired colleagues, or with those pursuing similar specializations, as well as the need to access expensive equipment, the imperatives of specific research problems, not to mention a sense of global citizenship, search for prestige, income, and other more unsavory reasons (Handley 2011; Anderson 2011a, b). For many scientific communities, Shrum et al. (2007: 20) argue, a major reason was that individual institutions could not "command the money, facilities, and expertise needed to acquire the kinds of data their scientists find meaningful." Several contexts, the interpersonal, funding, sectoral, and the nature of participating organizations determined the formation of international collaborations, which took various forms. The collection by Anderson and Steneck (2011) identifies four main dimensions affecting cross-national research collaboration, namely, differences in the organization and funding of research, differences in legal and normative environments, differences in regulation and public oversight, and differences in graduate education and postdoctoral training.

The trend toward international collaboration was reinforced by the centrality accorded to research in rankings, in which the international impact and visibility of publications mattered greatly. Bibliometric studies showed that publications with authors from multiple countries had far higher rates of citation than domestic or single-country ones. One indicator of the growing practice of international collaboration was the increase in international co-authorship. The percentage of co-authored articles doubled between the early 1970s and early 1990s, and increased from 17 % in 1981 to 29 % in 1995 (Shrum et al. 2007: 7).

The US NSF (2012) reported, "Collaborative research is becoming the norm, and collaboration across national boundaries is generally increasing, as reflected in international co-authorship on research articles. In 1988, only 8% of the world's S&E articles had international coauthors; by 2009, this share had grown to 23%. For the world's major S&T regions, the 2009 rate ranged from about 27% to 42%." Consequently, citations to international work increased as well and international co-authorship was "found to have positive effects on the citation rate of scientific publications" (Inzelt et al. 2009 : 37). While international co-authorship increased markedly for US scientists from the mid-1990s, "the U.S. share of world S&E articles declined from 32% to 28% across all fields" between the periods 1996–1998 and 2006–2008, while "China's share of total world S&E articles and citations increased over the same period" (NSF 2012). A study of articles published in 2008 showed that, "a paper with authors from one country was cited on average four times per year, while papers with authors from five different countries averaged 12 citations per year" (Knobel et al. 2013: 406).

Further reinforcing international collaboration was the growing importance accorded to interdisciplinary scholarship and learning. It was also facilitated by the increased opportunities for interaction provided by the new ITs. All this led to what some have termed the emergence of "global science," a new geography of collaborative scientific knowledge production, which reflected "new global agencies, new global problems and an enhanced global network of science communicating practice," Michael Peters (2006: 226) remarked in the mid-2000s. "Today, big science projects require massive state and intergovernmental funding support in an era of intense international competition for knowledge assets, which has forced governments and institutions to collaborate with one another on certain issues." Among the big global issues that attracted international collaboration were HIV/AIDS and other global epidemics and disease outbreaks, ecological issues including global warming, and vast scientific projects from building particle collider to mapping the genome to the brain project to international space exploration.

Peters (2006, 2009) argued that "global science" underwent three phases, what he called classical science that emerged in the mid-seventeenth century, colonial science in whose bosom modern science was reared, and the "big" science of the post-World War II era, a periodization based on scientific practices rather than specific scientific innovations. Big science encompassed not only higher education institutions but also multinational

corporations, governments and regional organizations, and international agencies. Global science was characterized by both non-competitive and market collaborations, proprietary and non-proprietary arrangements, as well as openness and exclusions, standardization and structuration (King 2011).

In Europe, the creation of multinational research facilities in the 1950s and 1960s was part of the efforts to strengthen regional cooperation. In the 2010s, many of these agencies began to open their membership to non-European countries as part of efforts not only to strengthen global European science, but also to meet budgetary challenges as some recession-ridden European states cut their research and education budgets. In 2012, for example, India joined the facility for Antiproton and Ion Research, and in 2012, Israel was welcomed to the council of the European Organization for Nuclear Research as an associate member, and Brazil became a member of the European Southern Observatory. The German government included the incorporation of third countries among the four guidelines to enrich the European Research Area. It explicitly mentioned China, India, South Korea, and Brazil (German Federal Government: 5).

Similar integrationist impulses were evident in the creation of the Pan African University by the African Union in 2008 to promote advanced graduate training and post-graduate research in key areas essential for Africa's sustainable and inclusive development. The university consisted of five institutes located in each of the continent's five regions, namely, the Institute for Basic Sciences, Technology and Innovation, the Institute for Life and Earth Sciences, the Institute for Governance, Humanities and Social Sciences, the Institute of Water and Energy Sciences, and the Institute of Space Sciences. Also, an ambitious initiative was the adoption of the Africa's Science and Technology Consolidated Plan of Action (CPA) in 2005. It sought to promote the integration of Africa into the global economy and the eradication of poverty through five priority clusters: biodiversity, biotechnology, and indigenous knowledge; energy, water, and desertification; materials sciences, manufacturing, laser, and post-harvest technologies; ICTs; and mathematical sciences. Despite all the fanfare that greeted the adoption of CPA, progress in implementing its programs proved slow.

International research collaboration reproduced the uneven patterns of access to education and knowledge production evident in domestic settings. It reflected and reinforced differences among disciplines in so far as research collaborations were more highly valued and less sensitive

to undertake in the STEM fields as compared to many of the social science and humanities disciplines, although there were differences among the STEM fields themselves. In the five typologies of international collaboration identified by Betty Rambur (2009) that signify a trajectory of rising complexity, risk, and interactive costs, much of the social science and humanities research would seem to fall into the last category that is most challenging. The five are what she calls "parallel facility sharing" (in which people share equipment), data sharing, "bridging peers" (in which researchers on a particular issue in different countries pool their ideas together), research characterized by "diverse scientific languages and cultures," and research "collaboratives with human subjects of politically/culturally sensitive themes." However, the disciplinary divisions could be porous. Anatoly Oleksiyenko (2013) offers the intriguing example of medical research collaborations in the Middle East, in which scholarly, patient-oriented, and cultural and political dynamics were messily intermingled.

Equally pervasive and persistent were gender disparities in international research collaborations despite the massive changes in women's higher education enrollments in the post-World War II era. Women's lower level of participation was attributed to various factors including unequal gendered patterns of family obligations. Uhly et al. (2015: 2) coined the term "glass fences" to capture this phenomenon. Examining a dataset covering 19 countries in every continent, they argued "glass fences are apparent in the access to international research collaboration, as women are significantly less likely than men to participate in this elite activity." Their findings suggested "that while the family constitutes a glass fence, partner's employment status is a key factor in career advancement." Female academics that had an academic partner were more likely to engage in international research collaboration than those with non-academic partners. The glass ceiling was also embedded in institutional cultures in which teaching and service assignments, disciplinary orientations, and research resources and expectations were gendered as well. Clearly, "glass fences" impacted women's "access to the most cutting-edge international knowledge production. With the increasing emphasis on international experience for academic careers and the formation of international scholarly networks, addressing questions of gender equality in the access to international research collaboration is ever more important" (Uhly et al. 2015: 16).

No less critical were the patterns of international collaboration between scholars from different regions, especially those located in the Global North and the Global South, as well as within the intra-regional hier-

archies of national power and institutional prestige. By the mid-2010s, the position of many regions, sub-regions, and countries in the Global South as centers of knowledge production remained precarious in the international division of intellectual labor. Nevertheless, changes were taking place in the global knowledge economy. While the USA and Europe continued to be dominant, Asia rose to become a major player and other major emerging economies increased investment in their knowledge systems. To quote one report,

> In 1973, about two-thirds of the nearly 400,000 research publications indexed by Thomson Reuters Web of Know had an author in one of the G7 countries. Today, this has changed dramatically. Four times as many documents—more than 1.75 million journal publications—are being indexed, and barely half will have a G7 author. The volume of publications with at least one G7 author may have trebled over that period, but the volume on which no G7 country is represented has gone up six-fold (Adams et al. 2013: 4).

"With the rapid increase of Chinese publications," one study stated, "the United States lost world share by 4.7% from 2003 to 2012" (Zhou and Li 2015). The biggest loser was Japan (lost about 2 % of its world share).

More often than not, for academics in the Global South, the flow of international collaboration was vertical toward the Global North rather than horizontal in enhanced intra-regional or South–South engagements. As shown in Table 4.6, the USA was the leading collaborator for all but two of the 23 other countries listed. The UK, Germany, and France were often among the top five collaborators, although it is clear China was emerging as a global force. China became the principal collaborator for the USA, and among the top five in several Asian and African countries and Australia. Altogether, the OECD average for publications with international co-authors between 2008 and 2014 was 29.4 %, while the G20 average was 24.6 %. Most countries surpassed these percentages. Out of 44 countries in Europe, 40 registered rates of more than 50 %, among them 19 with more than 60 %. In Asia, 34 out of 46 countries had collaboration rates of more than 60 %, including 22 with more than 70 %, and eight with more than 90 %. The rates were even higher in Latin America and the Caribbean. Out of the 33 countries for which there was data, collaboration exceeded 80 % in 21 countries; in 18 of them it was over 90 %. In Oceania's 16 countries, collaborations surpassed 70 % in 14, out which it was over 90 % in nine. The highest rates of international collaborations

Table 4.6 Trends in scientific publications for select countries, 2008–2014

Country	*Share with FA*	*1st Collaborator and Number of Papers*	*2nd Collaborator and Number of Papers*	*3rd Collaborator and Number of Papers*	*4th Collaborator and Number of Papers*	*5th Collaborator and Number of Papers*
North America						
Canada	50.4	USA 85,069	UK 25,879	China 19,522	Germany 19,244	France 18,956
United States	34.8	China 119,594	UK 100,537	Germany 94,332	Canada 85,069	France 62,636
Mexico	44.9	USA 12,873	Spain 6793	France 3818	UK 3525	Germany 33,345
South America						
Argentina	46.1	USA 8000	Spain 5246	Brazil 4237	Germany 3285	France 3093
Brazil	28.4	USA 24,964	France 8938	UK 8784	Germany 8054	Spain 7268
Chile	61.3	USA 7850	Spain 4475	Germany 3879	France 3562	UK 3443
Columbia	60.9	USA 4386	Spain 3220	Brazil 2555	UK 1943	France 1854
Venezuela	56.1	USA 1417	Spain 1093	France 525	Mexico 519	Brazil 506
Europe						
France	54.3	USA 62,636	Germany 42,178	UK 40,595	Italy 32,099	Spain 25,977
Germany	52.6	USA 94,322	UK 54,779	France 42,178	Switzerl 34,164	Italy 33,279
Italy	46.0	USA 53,913	UK 34,639	Germany 33,279	France 32,099	Spain 24,571
Russian Fed.	33.0	Germany 17,797	USA 17,189	France 10,475	UK 8575	Italy 6888
UK	55.9	USA 100,537	Germany 54,779	France 40,595	Italy 34,639	Netherl 29,606
Africa						
Egypt	51.0	S. Arabia 7803	USA 4725	Germany 2762	UK 2162	Japan 1755
Kenya	86.8	USA 2856	UK 1821	S. Africa 750	Germany 665	Netherl. 540
Morocco	62.8	France 3465	Spain 1338	USA 833	Italy 777	Germany 752

(*continued*)

Table 4.6 (continued)

Country	*Share with FA*	*1st Collaborator and Number of Papers*	*2nd Collaborator and Number of Papers*	*3rd Collaborator and Number of Papers*	*4th Collaborator and Number of Papers*	*5th Collaborator and Number of Papers*
Nigeria	37.1	USA 1309	S. Africa 953	UK 914	Germany 434	China 329
South Africa	56.5	USA 9920	UK 7160	Germany 4089	Australia 3448	France 3445
Asia						
India	21.3	USA 21,684	Germany 8540	UK 7847	S. Korea 6477	France 5859
Iran	22.3	USA 6377	Canada 3433	UK 3318	Germany 2761	Malaysia 2402
China	24.4	USA 119,594	Japan 26,053	UK 25,151	Australia 21,058	Canada 19,522
Japan	27.1	USA 50,506	China 26,053	Germany 15,943	UK 14,796	S. Korea 12,108
South Korea	27.6	USA 42,004	Japan 12,108	China 11,993	India 6477	Germany 6341
Oceania						
Australia	51.6	USA 43,225	UK 29,324	China 21,058	Germany 15,493	Canada 12,964

Source: UNESCO Science Report Towards 2030 (Paris: Unesco 2015: 114, 150, 191, 260, 349, 372, 391, 446, 485, 515, 545, 627, 669, 786–792).

were in Africa. Out of the 54 countries, 47 had rates of more than 70 %, including 30 with more than 90 %.

Clearly, in many countries of the Global South, international collaborations were exceptionally high and dominated by countries in the Global North. A study of collaborative research in the field of economics in the ASEAN (Association of South East Asian Nations) between 1979 and 2010 showed international collaboration increased significantly during this period to encompass 69 countries. But several imbalances were evident. The collaborating countries were dominated by the USA, followed by Australia, China, and the UK, thus replicating the core-periphery model of the international division of labor. To quote Kumar et al. (2014: 863), "over half of the articles had some foreign collaboration. Overall, international collaboration has grown in percentage, as local collaboration has declined… Internationally collaborated papers are cited twice as much as locally co-authored papers." Levels of intra-regional collaboration

remained abysmal, accounting for only 4 % of total international collaboration. These patterns were observed in analyses of specific countries such as Malaysia (Tan 2015). Similarly, Brazil's ambitious "Science without Borders" program and FAPESP (São Paulo Research Foundation) scheme seemed largely focused on the Global North. From 2011, the 12,000 FAPESP fellowship recipients could "spend from four months to one year in a research laboratory or institution abroad, doing work related to their project in Brazil" (Knobel 2013: 421).

Grave concerns were especially expressed about African academics' rising levels of international collaborations and its impact on domestic and regional research capacities and collaborations. In a review of publications from Africa's 54 countries from 2007 to 2011, Pouris and Ho (2014: 2177) found that internationally collaborated publications increased from 52 % to 54 %. This was a much higher rate than among the BRICS members, not to mention the G7 countries. The main collaborating countries were the USA, France, and the UK, which as noted earlier also ranked as the most collaborative countries in the world. The two authors wondered whether Africa's science and development would "be better served by the creation of regional research and innovation systems," and by reduced "high dependencies on non-Africa-collaboration" (Pouris and Ho 2014: 2177). In response, Barnard et al. (2015) insisted, using South Africa as a case study that, "the concern about middle-income countries participating in global science networks is misplaced. International training and research within the international community is paying investment for becoming a nationally as well as an internationally renowned scientist." That seemed to miss the point about the need to develop robust and sustainable domestic and regional knowledge production systems.

Besides the asymmetries of resources and power in the organization and structure of international research, its expansion raised ethical issues for governments, research institutions, and the researchers themselves (Steneck 2011; Glattke 2007; Rumbley et al. 2012). While advances were made in some countries, most governments lacked mechanisms to regulate the research conduct of their nationals abroad, so were research institutions that seemed reluctant to set policies for fear of limiting scholarly creativity and imposing financial and administrative burdens. In fact, publication and funding pressures created conducive contexts for misconduct for the estimated 10–20 % of researchers that in the case of the USA are deemed to engage in practices of less-than-expected integrity standards. Particularly challenging were ethical standards in biomedical research.

Examples include research on HIV/AIDS in Africa and embryonic stem cell research in Europe.

In addition to ethical integrity, intercultural competency was increasingly deemed important. As international collaborations intensified, and reports of misunderstandings and complaints about research misconduct grew, universities, professional associations, and governments recognized the need to take culture more seriously in all academic fields and at all stages of the research enterprise from project design to implementation to dissemination of outcomes. In 2013, for example, various US national academies and institutes together with the Government-University-Industry Research Roundtable convened a wide-ranging conference on the subject (Sloan and Alper 2014).

Undoubtedly, international collaboration became a complex enterprise whose benefits and opportunities were sometimes compromised by the asymmetries of resources, power, and legitimacy. It required institutions and individuals to navigate a treacherous terrain of different educational systems and academic cultures, participants' motivations, expectations and ethics, funding sources and constraints, communication modalities and styles, and policy and regulatory environments. Miscommunication and misunderstandings were fomented by cultural and language barriers, unrealistic expectations, bureaucratic, and management hurdles. Academics involved in international research were urged to develop "reflexive deliberation" (Brew, et al. 2013) and other attributes. They were advised to be clear about their motivations, the desired characteristics of and communication with their collaborators, the type of collaboration, goals and expected outcomes, to agree in advance on the dissemination of research outcomes and intellectual property rights, being aware of cultural, language, legal, regulatory, and ethical issues, and to avoid conflicts of interests, plan for the unpredictable, and work out realistic finances and logistics (de Grijs 2015; Lyman 2011; Anderson and Steneck 2011).

Often missing in the analyses of international collaboration is the question of academic mobility and how it changed. There is of course a large literature on student mobility covered earlier in the chapter. The study by Kieron Flanagan (2015) points to some of the dimensions of scientific mobility (at the macro-level, meso-level, and micro-level).[14] Both job and non-job mobility grew. Job-related mobility included the emergence of "an elite global scientific labor market, in which star scientists [moved] between elite institutions." There was also increasingly the mobility of Western academics to the mushrooming transnational universities in the

emerging economies as the academic labor market in their countries contracted. Moreover, the age-old phenomenon of academics from the Global South migrating to the Global North or students staying after graduation persisted. The non-job mobility included sabbaticals, and conference and research trips, which also seem to have grown. These movements oiled the flows of international research collaborations.

An often neglected aspect of academic mobility concerns the role played by the academic diaspora. Academic diasporas, like other diasporas, constituted part of transitional communities involved directly and indirectly in both home and host countries, in ways that impacted "economic and political processes in the sending and receiving countries and relations between them which may reinforce or challenge existing relations of power within and between countries" (Hamilton and Chinchilla 1996: 198). As noted by the American Association for the Advancement of Science, "The emigration of scientists has historically paid off for host countries, but as networks of diaspora scientists become stronger, the benefits are flowing back to scientists' homelands and enhancing cooperation in both directions" (Wren 2014). The USA remained "the number-one destination for expatriate scientists from almost every nation. Proportionally, however, Switzerland, Canada and Australia all housed more foreign researchers than the United States" (Noorden 2012). The USA was the preferred destination of science diasporas from other world regions because of its vast and highly dynamic, flexible and competitive systems of higher education, research funding, and advancement.

Diaspora knowledge networks were increasingly recognized as powerful instruments of "brain circulation" that enabled diaspora scientists to organize scientific and educational exchanges, networking and entrepreneurial opportunities. Diaspora connections enhanced international research collaborations and science diplomacy, which helped build capacity and promote innovation in both the scientists' home and host countries (Burns 2013). From the 1990s, the formation of diaspora knowledge networks skyrocketed, jumping from a handful in the early 1990s, to 41 in the late 1990s tied to 30 different countries, to 155 by 2005, of which 51 were African covering ten countries, 80 for Asia, and 24 for Latin America and the Caribbean (Mahroum 2006; Meyer and Wattiaux 2006: 19–24). The number of these networks subsequently increased, and higher education institutions, governments, development agencies, and philanthropic foundations acknowledged their role in promoting and mediating transnational intellectual exchanges.

This paralleled growing recognition of the role of diasporas in development by governments and development agencies more generally. Diaspora contributions involved a variety of economic, political, social, and cultural contributions channeled through formal and informal networks in the homeland, hostland, and the international system. Diasporas operated through a series of organizations and networks, including diaspora associations and institutions in which they worked. The reasons for the growing interest in diaspora contributions related to the 5Rs: remittances, return, resources, recognition, and reputation (Zeleza 2007, 2012). The volume of diaspora remittances often exceeded official development and foreign investment in many countries. In 2013, for example, African diasporas sent $65 billion to the continent more than all official development assistance combined (World Bank 2014). Return migration whether temporary, permanent, or circulatory assisted in human capital capacity building. Diasporas possessed reservoirs of social and cultural capital that could be mobilized to raise the recognition of issues of mutual interest to their multiple countries of affiliation, and their activities, positive or negative, often affected the respective reputations of their countries of origin and residence.

Mobilizing and engaging the academic diaspora faced many challenges on both sides. Five in particular are worth mentioning: the lack of or inadequate administrative and financial support; professional rank and gender imbalances in accessing resources and opportunities for diaspora engagements; attitudinal obstacles that militated against fruitful interactions engendered by conflicting expectations, complexes of superiority, arrogance, and development-aid mentality on the part of the diaspora, and resentment, jealousy and antagonism on the part of homeland academics toward the diaspora for having abandoned the homeland and for any preferential treatment that might be accorded to them; hurdles arising out of differences in academic systems; and questions of diaspora citizenship and residence status in the hostland and diaspora policies including visa regulations in the homeland.

China boasted one of the largest diasporas in the world, numbering according to some estimates 35 million people. Among them were highly trained professionals and academics placed in leading institutions in Western Europe and North America. The diaspora was seen as an increasingly important source of talent needed for China's continued rapid economic growth and the competitiveness of its higher education institutions. A series of schemes were set up to recruit China's diaspora talent. According to Welch and Hao (2014: 94),

> returnees already dominate the academic leadership of Chinese higher education. Seventy eight percent of presidents of universities… 63 percent of PhD supervisors, and 72 percent of the directors of the national and provincial key labs are returnees… In addition, returned overseas-trained Chinese talents account for 81 percent of academicians of Chinese Academy of Sciences, 54 percent of Chinese Academy of Engineers, and 72 percent of chief scientists for the 863 Program, China's government-sponsored high tech project.

Africa had a vast global diaspora, both the historic diaspora created over the centuries, and the new diaspora dispersed from their countries of origin after independence. The interest in the diaspora by African governments, development agencies, and institutions as a developmental asset grew in the 1990s and 2000s. In 2004, the African Union went so far as to declare the diaspora as the continent's sixth region. The potential of the academic diaspora to contribute to the revitalization and internationalization of African higher education institutions became widely accepted. This led to the development of various initiatives and schemes to mobilize the academic diaspora. One example was the creation of the Carnegie African Diaspora Fellowship Program in 2013 that provided fellowships for the African-born academic diaspora in Canada and the USA to engage with higher education institutions in six African countries. At the 1st African Higher Education Summit in March 2015, a plan was unveiled to launch what was called the 10/10 program, to sponsor up to 1000 African diaspora academics from anywhere in the world each year for ten years to any country on the continent (MacGregor 2015).

Clearly, the academic diaspora had much to contribute in mediating most productively the internationalization of higher education in both the Global South and Global North, and in realizing the decolonization of global knowledges. Together with interregional cooperation in the Global South and greater collaboration between them, it seemed possible to change the global terms of engagement in knowledge production, to help wean institutions in the Global North from age-old Eurocentric epistemic conceits, and to strengthen the research capacities of higher education institutions in the Global South, to raise their quality and profile, and to bolster their contributions to the global stock of knowledge that was truly productive and progressive for the world at large. The migrants to the Global North who were once condemned in much of the Global South as part of the brain drain were now widely seen as purveyors of brain circulation, notwithstanding the various challenges, complexities, and contradic-

tions inherent in the processes and practices of transnational engagement in a deeply divided and an unequal world.

Conclusion

This chapter has examined the different dimensions of higher education internationalization after World War II. It analyzed the development of international student flows and the changes in the models of institutional organization that followed the shifts in the configurations of geopolitical power. The chapter also looked at the internationalization processes and policies in different world regions and their challenges especially for countries in the Global South. Finally, the chapter explored the dynamics and disparities in the development of international collaborations especially in the realm of research and knowledge production.

Into the second decade of the twenty-first century, it had become abundantly clear that the pressures and imperatives of internationalization could not be wished away. The question for higher education institutions especially those in the Global South, therefore, was not whether to internationalize but how to internationalize most effectively, to pursue internationalization strategies that strengthened their internal institutional and intellectual capacities, qualities, reputations, and competitiveness, as well as their potential to contribute to the historic and humanistic agendas of the nationalist projects in many parts of the Global South. To pursue this multi-layered agenda most effectively entailed developing internationalization strategies that were simultaneously realistic and ambitious; realistic in so far as they had to be anchored in concrete prevailing conditions, and ambitious in recognizing and seizing opportunities in the rapidly changing landscapes of the global political economy and international education.

Notes

1. For a succinct overview of the trends in research on internationalization in higher education, see Kehm and Teichler (2007). They identify the seven dominant topics that have dominated research, namely, mobility of students and academic staff; mutual influences of higher education systems on each other; internationalization of the substance of teaching, learning, and research; institutional strategies of internationalization; knowledge transfer; cooperation and competition; national and supranational policies as regarding the international dimension of higher education. New trends

include the mobility of programs, the role of supranational organizations, the entry of international consortia and networks as new actors, and the geographical canvas now encompasses all world regions.

2. The growth of higher education enrollments is very uneven around the world (Altbach et al. 2009; Kotecha 2011). While the percentage of the age cohort enrolled in tertiary education worldwide rose from 19 % in 2000 to 26 % in 2007 and reached 30 % in 2010; in low-income countries, it rose from a low of 5 % to 7 % between 2000 and 2007. Africa has the lowest participation rates in the world. For Southern Africa, the enrollment rate in 2010 was a mere 6.3 %, up from 4.2 % in 1990, despite expenditures that exceed averages for the developing countries. Clearly, Africa needs to massively raise its participation rates by providing more access that is equitable. This will require increasing the size and quality of the academic staff and improving their conditions of service, as well as increasing and improving higher education funding. In actual numbers, African tertiary enrollments rose from 2.7 million in 1991 to 9.3 million in 2006, and are projected to reach 20 million in 2015.
3. Marginson calls this the "glonnacal" era, a rather ugly word!
4. For a brief and vigorous defense of the advantages of GATS for higher education, see J.R. Shackleton (2003). He accuses academics of behaving like producer groups by being afraid of competition and bemoans the fact that despite its possibilities, GATS has so far had little impact in higher education. Chanda argues that some of the concerns of the anti-GATS critics are genuine and others less so. There is real concern about the ambiguity of several key clauses of GATS including the exclusion clause for governmental services and the coexistence of public and private service providers, which future negotiations need to clarify. The notion that GATS will force the opening up of all service sectors to foreign competition is a misapprehension, which she believes is not likely to happen because of the voluntary and flexible nature of the system. Equally incorrect, she insists, are contentions that GATS prohibits the use of government subsidies, and that it primarily represents the export interests of the developed countries. Chanda may be correct in theory, but in practice, developing countries have been subjected to pressures that undermined their economies and societies—such as structural adjustment programs—that did not even have the imprimatur of a negotiated global agreement.
5. For a discussion of other legal, health, and safety issues involved in international education, see Rhodes and Ludeman (2012).

6. See the AAUP 2013, 2014; Baker 2014; The Delphi Project on the Changing Faculty and Student Success at http://www.uscrossier.org/pullias/changing-faculty-student-success/; The New Faculty majority Website at http://www.newfacultymajority.info
7. For Africa, the two leading rationales are 4 and 1 (24 %, 19 %); for Asia and Pacific, 1 and 2 (31 %, 17 %), for Europe, 1 and 3 (27 %, 20 %); for Latin America and Caribbean, 1 and 2 (39 %, 18 %); for the Middle East, 1 and 4 (22 %, 22 %); and for North America, 1, 2, and 5 (39 %, 17 %, 17 %). For Africa, the top three are "brain drain" (16 %), "overemphasis on internationalization" (14 %), and "loss of cultural identity" (11 %); for Asia and Pacific, "commodification of education programs" (16 %), "increase in number of degree mills" (11 %), and "greater competition among HEIs" (11 %); for Europe, "brain drain" (10 %), "commodification of education programs" (9 %), "overemphasis on internationalization" (8 %), and "greater competition among HEIs" (8 %); for Latin America and the Caribbean, "brain drain" (17 %), "commodification of education programs" (12 %), "increase in number of degree mills" (12 %), and "elitism in access to international educational opportunities" (11 %); for the Middle East, "loss of cultural identify" (17 %), "overemphasis on internationalization" (15 %), and "brain drain" (12 %); for North America, "commodification of education programs" (13 %), "too much focus on recruitment of fee paying international students" (13 %), and "none" (11 %). Also see, Eva Egron-Polak (2012a, b).
8. This schema is derived from Jaramillo and Knight (2005), who offered a detailed analysis of these actors and programs for Latin American higher education.
9. He sees the educational culture of the Post-Confucian model as being characterized by "Comprehensive, central, delegates to provinces. Politics in command of economy and civil society. State draws best graduates," as compared to the US system's "Limited, division of powers, separate from civil society and economy. Anti-statism common. Federal," and the Westminster's "Limited, division of powers, separate from civil society and economy. Some anti-statism. Unitary" (29). He also believes there are also differences in the character of the nation-state, state role in higher education, and the financing of higher education. The analysis is not entirely convincing.
10. Sall and Ndjaye (2007) report a proposed African-ranking scheme based on student and teacher mobility, coordinated teaching and

research initiatives, communication in foreign languages, and usefulness to the community, which does not seem to have had any takers.

11. She makes the interesting observation that when she was doing research for her book, there were already more than 1000 publications on rankings (Hazelkorn 2011a: 10). A Google search by the author in February 2016 of "global university rankings" yielded 48,000 results; a Google Scholar search yielded 1300 results.
12. The two authors make an interesting observation that a different picture emerges when the aggregate scores from the rankings are weighted by population. "The United States and other G7 countries no longer dominated the top most places." In fact, the USA drops to ninth place. When the rankings are deflated by GDP, the USA doesn't even make it in the top ten, let alone China. In both instances, the list is dominated by countries from Northern Europe, Israel, and Canada.
13. The two authors identify six dimensions of national innovation systems: innovation and technological capabilities; openness; infrastructures; education and human capital; and political institutions; social cohesion. They identified a convergence paradox in that on three dimensions defining the socio-institutional system (education and human capital, political institutions, and social cohesion) "less developed economies have on average improved these factors at a faster rate than more advanced countries," while on the three dimensions related to the techno-economic system (innovation and technological capabilities, openness, and infrastructures) "have experienced a marked divergent dynamics."
14. The growth in high-skilled migration was quite remarkable. The OECD countries were the major destinations. In 2010–2011, Asia accounted for 35 % of highly educated migrants in the OECD, followed by Europe (34 %), Latin America and the Caribbean (16 %), Africa (10 %), Northern America (4 %), and Oceania (1 %) (Terzi 2015).

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CHAPTER 5

Quality Control: Struggles for Accountability and Value

Introduction

The trends examined in the previous chapters had extensive implications for the quality of higher education. In fact, a common complaint heard almost everywhere was that higher education was declining in quality. These concerns reflected several interrelated anxieties, about the apparent diminishing "return on investment" of university degrees, the mismatch between the quality of graduates and needs of employers, the downward slide from elitism to massification, and the transferability of qualifications in a highly mobile world. Some of the harshest critics were troubled that students did not seem to be learning much and making significant cognitive and intellectual advances promised by liberal arts education and developing the kinds of international, intercultural, and interdisciplinary values, and professional skills and competencies that would best serve them and their increasingly knowledge-intensive and globalized societies.

The growing distress and demands for quality engendered pressures for accountability, which found articulation in the development of new regulatory regimes and the quality assurance movement. At the end of World War II, in many parts of the world, higher education institutions were largely left alone on quality matters, and the quality of their graduates were rarely matters of much public concern as these were relatively small, elitist, and homogeneous institutions. Massification meant that

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higher education institutions were not only much larger in size and range of programs, but they were also more institutionally diverse and catered to students of varied backgrounds. Above all, there was huge investment by the students themselves, their families, governments, employers, and society at large in what higher education offered and produced.

It was in this context that quality assurance developed as "a systematic process of assessing and verifying inputs, outputs and outcomes against standardized benchmarks of quality, to maintain and enhance quality, ensure greater accountability and facilitate harmonization of standards across academic programs, institutions and systems" (UNESCO 2013: 2). It took "many forms, ranging from simple self-assessment to more comprehensive inspection, accreditation, review or audit(s) meeting international standards," which required "significant investment in technical assistance, training, knowledge sharing, analysis and coordination, which are costly and time-consuming." In many world regions, the quality assurance movement grew rapidly from the 1990s, in part fostered by globalization as manifested by the General Agreement for Trade and Services. National, regional, and international quality assurance mechanisms emerged.

Besides the development of the culture of internal and external assessment, higher education institutions responded to growing pressures for accountability and value by trying to be more responsive to the demands of the economy and labor market. This entailed "vocational" creep for universities as they incorporated more professionally or occupationally oriented programs and undertook market research and engaged employers in making curricula changes. There was also the exponential growth of vocational higher education. In addition, competency-based education emerged as a mechanism to bridge the two higher education sectors, and higher education and the labor market. In the USA, it became "increasingly popular as the country searches for ways to improve college affordability and more accurately measure student learning" (Mendenhall 2012). Unlike traditional models of education based on seat time, in the competency-based model students' progress was based on demonstrating the competencies they acquired regardless of how long it took.

The quality assurance and accountability movements had a profound impact on the organization, management, and cultures of higher education. Assessment became a feature of institutional life that was welcomed by some, and dreaded, even derided by others. However, the demand for quality education and the capacity of institutions to deliver it were

increasingly posed in conflict in the context of diminishing public support and the strained ability of students and parents to meet the escalating requests for cost sharing. In countries with well-developed higher education systems, some institutions resorted to cost cutting or containment measures that targeted instructional expenditures. This led to the casualization of academic labor, which was reflected in the expansion of part-time and contingent faculty. In countries with less developed systems, casualization emanated largely from the yawning gap between the rapid expansion of higher education and the availability of qualified faculty.

These issues are the focus of this chapter, which is divided into three parts. First, it examines the development of quality assurance systems and regulatory regimes in different world regions and at the international level and the challenges encountered. Second, it looks at the multiple responses by higher education institutions to pressures for them to demonstrate accountability and value. Third, it explores the implications and impact of these forces on institutional governance and the academic profession.

The Invasion of Assessment Culture

In much of the world, quality assurance emerged in the 1980s, and accelerated in the 1990s into a global phenomenon. The creation of national systems and international regulatory arrangements were fueled by concerns among key stakeholders, namely, employers, governments, and students' families that massification, privatization, and internationalization were leading to declining standards and outpacing the ability of higher education institutions to maintain quality on their own and the capacities of existing mechanisms to validate and improve quality. Of particular concern was the rapid growth of for-profit and online distance education. Part of the problem was that the new e-learning modes of delivery were not well covered in traditional accreditation frameworks. For some countries, developing national quality assurance systems was seen as an indispensable part of enhancing their international competitiveness and raising the position of their universities in global rankings.

Internationalization brought greater student mobility, need for credit transfer, and recognition of qualifications that became part of the quality assurance imperative. The quality assurance and accreditation debates also reflected growing inter-institutional competition and public pressures for accountability and transparency. In the context of declining state support, the development of quality assurance was fundamentally "an exchange

between deregulation and institutional autonomy on the one hand and quality assurance, accountability and output control on the other hand," which was seen as advantageous by both the state and higher education institutions (van Damme 2002: 8).

The growth of quality assurance and accreditation systems encompassed four models. The first entailed strengthening national systems and promoting greater cooperation among them. The second involved the development of agreements for credit transfer and mutual recognition of qualifications. The third model aimed "at the development of validation or meta-accreditation of quality assurance systems and agencies," while the fourth model sought "the development of real international quality assurance and accreditation arrangements" (van Damme 2002: 7). The ways in which these models evolved and intersected varied quite considerably, leading to a complex, and even confusing, global landscape of quality assurance and accreditation.

Four major types of agencies emerged, namely, national, regional, international, and professional. The international directory of the US consortium of accreditation agencies, the Council for Higher Education Accreditation (CHEA), contained "about 467 quality assurance bodies, accreditation bodies and Ministries of Education in 175 countries" that were "authorized to operate by their respective governments either as agencies of the government or as private (nongovernmental) organizations." Most of the national and regional assurance and accreditation bodies were created in the 2000s and 2010s. Altogether, Europe had the largest number (39), followed by Asia (25), Africa (16), Latin America and the Caribbean (15), Oceania (4), and North America (3).[1]

National quality assurance systems were the most dominant. The quality assurance and accreditation agencies of the major countries, such as the USA and UK, had influence far beyond their borders. The USA boasted the world's oldest tradition of accreditation based on autonomous regional and institutional voluntary associations. Because of its long evolution, quality assurance in the country developed some unique characteristics; there was no integrated national system, limited federal role, institutional autonomy, and sensitivity to market forces. It was voluntary as it was not compulsory for institutions and the work was largely done by volunteers. It encompassed six regional and numerous professional associations that oversaw institution-wide and program-specific accreditation, respectively. Accreditation served multiple core, mandated, and collateral missions (Ewell 2008; Eaton 2009; Gaston 2014).[2] State boards of higher

education under whose jurisdiction higher education institutions were registered and provided funding for public institutions offered an added layer of accountability.

Changing state and federal policies on institutional accessibility, equity, performance, effectiveness, transparency, affordability, and accountability were gradually incorporated into the agenda of quality assurance. The state and federal government were keen to ensure that students were getting value for money for what was becoming an increasingly costly enterprise for them, their families, and public exchequer. Efforts to bring greater coordination to the quality assurance and accreditation system intensified from the 1970s with the formation of the Council on Postsecondary Accreditation in 1975 and the US Department of Education in 1979. In addition, the system acquired two other powerful players. The media exerted considerable influence, especially following the launch of rankings by *U.S. News and World Report* in 1983 that spawned the rankings frenzy and attracted great public interest. The market proved influential through its signals that affected student choices and post-graduation placement opportunities and its growing ideological sway in US society and political culture from the 1980s.

The Council on Postsecondary Accreditation was ineffective, and the CHEA was created in 1996 as "a national advocate and institution voice for promoting academic quality through accreditation" representing "3000 degree-granting colleges and universities" and "60 institutional and programmatic accrediting organizations."[3] The rapidly changing higher education landscape restructured standards as they "moved from quantitative to qualitative, from prescriptive to mission centered, and from minimal to aspirational" (Brittingham 2009: 15). Rising tuition costs, coupled with declining public funding, and the changing composition of students and institutions fueled shifts in the accountability agenda from the universities' conventional preoccupation with reputational inputs and accreditations agencies' interest in institutional effectiveness to public concerns with learning outcomes and later government demands for concrete performance measures. The changing dynamics and mandates of the accreditation and quality assurance processes generated tensions among the key constituencies (Jackson et al. 2010; Gaston 2014).

The accrediting agencies, which also went through external review recognition by CHEA and the US Department of Education, came under increasing pressure from various constituencies for greater cost effectiveness, efficiency, transparency, accountability, and responsiveness

to public needs. Some even called for the establishment of an alternative accreditation system, an idea that seemed to get traction when the Obama Administration began exploring a new higher education ranking system. This culminated in the unveiling of a college scorecard by the Obama Administration in September 2015. The scorecard provided "measurements of students' earnings six and 10 years after they started at a college and data showing the proportion of the college's students who are repaying their student loans" Blumenstyk (2015). But there was little question that the accreditation and quality assurance system in the USA, whatever its global reputation, was facing significant challenges from multiple sources and forces. Critics from the academy worried about threats of accreditors' oversight on institutional autonomy and the apparent limited benefits of accreditation, while within the accreditation community itself there were concerns about transparency and accountability, competing priorities, and the growing attractions of internationalization (Gaston 2014: 49–83).

In the UK, it was not until 1997 that a national quality assurance agency was created. In the past when universities were few in number and small in size, they shared a common understanding of academic standards buttressed by the system of external examining. For professional fields, professional associations added regulatory oversight for quality. By the 1990s, the changes higher education had experienced required a new framework to ensure academic quality. In 1990–1991, the Vice Chancellors and Principals' Council established the Academic Audit Unit, which was later incorporated into the Higher Education Quality Council. State oversight arose with the formation of the Council for National Academic Awards. The universities and state sought to advance their mutual interests through a new body, the Higher Education Council, which continued the work of the Audit Unit, while the higher education Funding Councils were given more say over the quality of the institutions they funded. In addition, the state introduced national standards frameworks for qualifications and academics, and in 1993 came the introduction of the Teaching Quality Assessment.

Out of these initiatives, and the various critiques that greeted them, it was decided in 1997 to create a single agency, the Quality Assurance Agency (QAA) as an independent entity. QAA was set up to ensure "that the three million students working towards a UK qualification get the higher education experience they are entitled to and expect"[4] As elsewhere, the process that led to the formation of QAA was driven by the mass expansion of universities and deepening financial constraints, which fueled

concerns about quality. Rising tuition fees and the consumerization of students it engendered added to the demands for "a greater understanding of higher education qualifications and access to more information about programs and courses…. After 1997, the newly established QAA started work on the development of more explicit standards and quality frameworks so that both those within higher education and its stakeholders could better understand higher education qualifications" (Jackson and Bohrer 2010: 79). In fact, in 2001, the Higher Education Funding Council for England declared "In contrast to previous statements, which had emphasized quality enhancement as the first aim… that 'meeting public information needs' was now the 'first principle' of quality assurance" (Brown 2012: 428).

Financed by the universities and the Funding Councils, QAA undertook institutional reviews and audits conducted by teams of peer reviewers. Between 2002 and 2005, all institutions of higher education in England were audited, and another cycle was undertaken in the 2006–2011 period. While its funding model gave it considerable autonomy, QAA still had to perform a balancing act between the government, public, and universities, particularly in view of continuing apprehension about student learning as manifest in student contact hours and problems of academic malpractice. By 2010, the influence of the state and market had increased following the introduction of reforms to strengthen skills training and quality of information provided to students from courses and the curriculum, to institutional contexts, to post-graduation placement and salary data. Student centeredness and public information were elevated in importance for QAA (McClaran 2010). The funding formula was also changed as block grants were reduced and tuition fees that the students could access directly through loans became the main source of covering teaching costs, and the position of the Funding Councils over the QAA was also enhanced. Quality assurance was expected to incorporate diversity with the growing diversity of students, higher education providers, and contexts.

But, Roger Brown (2012: 421) contends, quality assurance remained "essentially a collaboration between self-regulation, the state and the market," and while both the state and the market began "playing a larger part than previously, self-regulation remains the dominant mode of control." By 2015, there was greater "emphasis on tightening standards and more robust quality assurance processes. At the beginning of 2015, the government's Department for Business, Innovation & Skills also announced the establishment of a multi-agency rapid response investigatory team, as part of a number of steps to improve standards amongst alternative

providers" (Halford et al. 2015: 11). Befitting a major higher education exporter, the UK also "developed the first and world's most comprehensive international qualifications comparisons system" based on "datasets on 183 countries including over 3000 titles worldwide" that was constantly updated (Bai-Yun 2008: 3, 13).

Another major higher education exporter was Australia, where the quality assurance movement gathered momentum in the 1990s. A series of initiatives were undertaken including the creation of the Australian Qualifications Framework in 1995 and the Institutional Assessment Framework. In 2000 came the formation of the Australian Universities Quality Agency (AUQA). For the next few years, the quality assurance framework "consisted of five key elements including State and Territory responsibility for the registration, reregistration and accreditation of higher education providers other than universities, the role of AUQA in undertaking five yearly cyclical audits, Commonwealth monitoring of universities performance via IAF and other data submissions, the onus on universities to ensure the development and enhancement of quality and standards, and finally, compliance to various laws, regulations and guidelines such as national protocols and national code" (Shah et al. 2010: 476).

The system allowed for the self-accreditation of higher education institutions subject to recognition by the Australian Vice-Chancellors Committee and auditing by AUQA. Institutions were audited both against their own goals and objectives and with reference to those the higher education community had committed itself to. The audits were made public and institutions were expected to implement the recommendations and provide progress reports on improvements. For non-self-accrediting institutions mostly private, they required accreditation from the appropriate agency in the state or territory they were located. Quality was one of four principles that undergirded the system, the other three being equity, sustainability, and diversity.

Equity was driven by the need to promote access and inclusion for underrepresented groups including indigenous peoples, women, and people from non-English backgrounds, with disabilities, and rural and isolated areas. Several studies suggested that AUQA audits were beneficial and helped many institutions make improvements, promote quality culture, strengthen institutional planning, and quality assurance for offshore operations (Stella 2010; Stella and Bushan 2011). But the system suffered from failure to "generate quantifiable results on an annual basis,"

adequately incorporate the student experience, properly reward quality, monitor against complacency in quality management, was more focused on process rather than outcomes, and there were inconsistencies in state and territorial policies (Shah et al. 2011: 480).

In order to overcome these deficiencies, the Tertiary Education Quality Standards Agency (TEQSA) was formed to replace AUQA (Shah and Nair 2011). TEQSA's mandate was to regulate and assure the quality of Australia's education system that "comprises both public and private universities, Australian branches of overseas universities, and other higher education providers with and without self-accrediting authority."[5] It was given the power and authority to monitor academic standards and outcomes and impose sanctions and penalties on institutions. TEQSA's quality and regulatory framework was "heavily compliance based," which was "significantly different to the previous improvement-led, fitness-for-purpose quality assurance framework.… Unlike the peer reviewed quality assurance process of the past, TEQSA's audit and review methodology is based on compliance with externally set threshold standards, institutional performance monitoring based on risk analysis using a regulatory and risk framework and thematic quality assessments" (Shah and Jarzabkowski 2013: 98).

TEQSA was also given power to conduct risk assessment, provide institutions case managers, and undertake non-scheduled reviews. Critics contended that while it overcame some of the problems of the old system, the new system introduced new ones including undermining self-assessment for improvement, institutional autonomy through excessive regulation, and the imposition of uniform and traditional modes of instruction that reduced pedagogical innovation. Also, the new compliance-driven system failed to engage students consistently or regularly, or enable and incentivize institutions to build internal quality capacity.

Other influential models or important developments took place among the major regional powers and emerging economies, such as the BRICS. As a European country, Russia was directly affected by the regime of quality assurance emerging in the rest of Europe, especially after the country "officially joined the European education reform process in 2003.… The period 2003–2005 was marked by great pressure from the state authorities and an active law-making process to initiate the Bologna reforms in Russia. By 2007, several amendments to the Federal Law on Education had been adopted and attempts had been made to adjust the reforms to the purposes of the Bologna Process" (Motova and Pykkö 2012: 25). The

reform process of the previously highly centralized Russian higher education system began in the 1980s as institutions were granted more autonomy and depoliticized. In return, and as the number of private institutions increased, a new system of regulation, licensing, attestation, and accreditation was instituted under the Department of Licensing, Accreditation and Attestation in the Ministry of Education, to the chagrin of public institutions that regarded it as unnecessary.

There was indeed growing public concern about the non-state sector in which "universities-by-night appear and vanish without trace, selling diplomas indiscriminately, unconcerned about the future professional careers of their graduates. Often such universities open branches in small provincial towns and regional centers, unable to assure full-time education of quality, and limited by local facilities" (Geroimenko et al. 2012: 80). The quality assurance system was ratcheted up and hundreds of weak institutions were closed. "By 2008, more than 90% of HEIs had been through at least one cycle of state accreditation" (Motova and Pykkö 2012: 27). Russia borrowed accreditation models from elsewhere including the USA. For example, the Accreditation Center of the Russian Association for Engineering Education adopted the indicators and procedures used by the Accreditation Board for Engineering and Technology (ABET). But it was the quality assurance system emerging in the EU that influenced Russia the most. The European Standards and Guidelines were gradually introduced into the Russian education system some through legislation.

In 2005, the National Accreditation Agency (NAA) was created, replacing the State Accreditation Center, and became the conduit through which the national accreditation system and its linkages to the rest of Europe were both strengthened. In 2009, the NAA joined the European Association for Quality Assurance in Higher Education (ENQA), which reinforced the incorporation of European standards and gave it much-needed external recognition. In subsequent years, greater attention was paid to promoting quality culture in Russian higher education institutions beyond the formal processes of accreditation.

The incorporation of European assurance quality mechanisms (management, monitoring, and assessment) and ideals (mobility, standardization, credits transfer, and transparency) was welcomed by some, and met with resistance by others (Esyutina et al. 2013). Russia lagged behind Ukraine, for example, in the implementation of Bologna aims and objectives, which can be attributed to the significance of "the political orientation towards Europe and the EU" in the two countries and how it framed "the differences in the attitudes of high-level political actors towards the BP

[Bologna Process]" (Luchinskaya and Ovchynnikova 2011: 31). Thus, the development of the national quality system in Russia exhibited some contradictions. It was

> still dominated by an external state evaluation of educational process quality that constrains the rise of a quality culture in specific Russian institutions. Even so, one can already observe an active development of a new QA system in Russia: hundreds of HEIs have created such models, including the certification of quality systems and the accreditation of academic programs by foreign QA agencies…. The provision of a unified educational area in Russia through the state educational standards, systems of licensing and accreditation (institutes, academic programs) has appeared, nonetheless, to be quite effective (Gazizova 2012: 202).

Quality assurance in Chinese higher education was embraced from the mid-1980s as part of the sweeping market reforms and the extraordinary expansion of the economy, which was accompanied by the massification, decentralization, deregulation, and internationalization of higher education, which "prompted debates about its efficiency, efficacy and equity," at the center of which was the question of quality (Salik et al. 2014: 285). Particular concerns were expressed about the poor administrative, academic, and relationship quality of the mushrooming lower tier private higher education institutions, many of which were forced to close or merge in the face of new government quality assurance regulations (Ozturgut 2011; Cao and Li 2014).

Experimental evaluation programs were set up in the late 1980s. In 1990, the "Draft Regulation of Higher Education Institution Evaluation" was issued that led four years later to the introduction of systematic reviews of undergraduate programs, a policy that was institutionalized in 2002. Between 1994 and 2001, 179 institutions were evaluated. In 2004, the Higher Education Evaluation Center was established to promote and implement a comprehensive national quality assurance system. Undergraduate reviews were placed on a five-year review cycle and graduate programs on a six-year cycle under the oversight of the Academic Degree Committee of the State Council.

According to Li Wang (2014: 256), the evaluation exercises focused "entirely on the outcome of teaching and research, such as test scores and thesis quality, rather than the actual learning process and experience. Performance based funding is another useful tool for quality control in HE. Due to the scarcity of available public resources, resource allocation

to HEIs is becoming more and more reliant on performance indicators." Performance based funding was also adopted as part of the strategy to create world-class universities. Opinion among academics was divided over research evaluations, with some contending it "enhanced the quality of research while others worried about academic freedom and collegiality," and that it favored those trained overseas (Wang 2014: 258).

Academics also expressed serious misgivings about internal evaluation of teaching and learning, which was adopted in many institutions. During the first five-year undergraduate cycle covering the period 2003–2008, 589 institutions were assessed. The evident lack of subsequent improvements triggered criticisms. Follow-up studies showed that, as elsewhere, the impact of quality assessment was greatest in contexts where quality assessment as an "external force is integrated with the evaluated universities' internal motivation and capacity to implement change" (Liu 2013: 405). Another common trend observable in the Chinese quality assurance system was the extent to which internal evaluations were stronger on "their organizational quality to the external world than reflecting on the internal teaching and learning quality" (Zou et al. 2013: 169).

India's higher education system was often compared to its neighbor China, but not always favorably (Yeravdekar and Tiwari 2014a). Like China, India experienced pressures to improve quality following massification. In 1994, the government responded to the quality challenge by creating, under the auspices of the University Grants Commission (UGC), the National Assessment and Accreditation Council (NAAC) to oversee the assessment and accreditation of traditional colleges and universities, and the All India Council for Technical Education (AICTE) for technical and professional institutions. NAAC was mandated to evaluate institutions and their programs, encourage them to improve quality, and undertake reforms, self-evaluation and accountability. NAAC and AICTE used similar evaluation approaches including the issuing of graded and qualitative assessments. In addition, there were a series of professional councils for the recognition of courses and qualifications in their respective occupations. According to Gupta and Patil (2010: 147), the NAAC "constructed a quality model and a quality assessment process" that was "applied to numerous higher education institutions. By 2008, the NAAC had accredited 3591 colleges (about 20 per cent) and 140 universities (about 35 per cent)."

As in two of the other BRICS, Brazil and South Africa, Indian higher education faced serious equity challenges resulting from disparities based

on caste, ethnicity, religion, region, and gender, which it sought to address through reservations or affirmative action policies. NAAC incorporated the issues and values of equity and social justice in its quality framework and indicators, which made notable difference in promoting inclusion. NAAC instituted five-year review cycles and publicly disclosed assessment outcomes. Although some states made it mandatory, the NAAC process was "by and large voluntary, with no direct consequences for having no or low accreditation status" (Gupta and Patil 2010: 173).

But NAAC derived considerable power from the fact that an institution that failed to "submit to re-accreditation, it will lose UGC support and all the financial assistance and grants are automatically stopped" (Dey 2011: 276). Critics found NAAC and AICTE regulations were "often punitive in nature, work to clamp down on private institutions' autonomy and self-determination," and sought to forge "homogeny and symmetry by drawing up a centralized schema," which led to over-regulation that went "into the brass tacks of curriculum, examination, evaluation, teacher–student ratio and such" (Yeravdekar, and Tiwari 2014b: 332).

Quality assurance in Brazil, Latin America's largest country and economy reflected patterns among the other BRICS, but contextualized by Brazil's complex racial history and composition. The 1988 constitutional provisions on education included privatization, increasing access, and ensuring quality. The National Education Council was created in 1995 and charged with the responsibility of educational policy formulation, accreditation of higher education institutions, and quality assurance. The 2001 Education Master Plan sought to promote expansion with quality. The rapidly expanding private institutions were placed under the highly centralized regulatory and evaluation processes.

In 2004, the National System for Higher Education Evaluation (SINAES) was created to undertake peer institutional, program, and student proficiency evaluations. To verify student learning the Undergraduate Program Examination (ENADE) was introduced for first and final year students, containing general education and subject area components. "Due to the sheer size of the populations involved and the enormous variety of programs assessed, the whole system operates on a three-year rotating cycle: all programs are grouped into three broad areas, each group of programs assessed every three years. A full assessment cycle is completed every three years, when all programs at every institution have gone through the whole assessment system" (Pedrosa et al. 2013: 60). ENADE was subject to familiar critiques against measuring student-learning outcomes that it

could not measure college education properly and the system imposed curricula content and thereby violated academic freedom.

Institutions were expected by the government to address any deficiencies noted in evaluation results, which were made public. In extreme cases, they were asked to reduce or close their programs as happened in 2008 to more than 80 law programs whose enrollments were cut in half, and two institutions and about 1330 distance education sites that were forced to shut. In 2011 alone, 514 vacancies in medical school programs were cut. Most of the affected programs were for-profit institutions that by 2010 enrolled two-thirds of students in the private sector, a reversal of the situation in 1994. Given the wide racial and social disparities in Brazilian society and higher education, the quality assurance system incorporated equity considerations in all its instruments, although that integration attracted vehement opposition from "professional associations, segments of society at large, and the academy itself. These adversaries, in different ways, tend to regard expansion, diversification and inclusion as natural enemies of quality, as destabilizing forces that need to be contained. Their intervention in the media is oftentimes vehement and relentless; their outcry on campuses frequently noisy and hostile; and their lobby in parliament and in governmental offices quite obvious and presumptuous" (Ristoff 2010: 97–8).

The Higher Education Personnel Improvement Coordination Foundation (CAPES), established in 1976, continued to evaluate graduate programs. CAPES redefined its paradigm by linking "funding to levels of productivity (basically the students' and professors' intellectual production), institutional performance and the international quality standards achieved at each institution" (Hostins 2015: 407). It has been argued that the inclusion of international consultants in the work of CAPES reinforced the institutionalization of hegemonic neo-liberal quality assurance ideology, with its instrumentalization of education and emphases on competitiveness, performance, and performativity for positional status.

Post-apartheid South Africa imported and domesticated the new globally hegemonic ideology of quality assurance as part of its transformative agenda (Dickhaus 2010). The country established several national bodies to steer and oversee the development of higher education. Among them were the CHE and the Higher Education Quality Committee (HEQC). The latter was established in 1997 to provide an integrated national quality system to promote the accountability and transformation of the higher education system in a country determined to transcend the apartheid

legacies of institutional fragmentation and racial stratification. HEQC combined in its mandate the responsibilities of institutional audits, program accreditation, national reviews, and quality promotion and capacity development.

It was also expected to "take issues of equity into systematic account. This was both in relation to defining the full measure of quality in South African higher education and in creating a new dispensation for quality assurance that would use quality assurance regulation to advance equity objectives. Such an approach would require a broadening of the conception of quality by linking it to equity and transformation issues" (Lange and Singh 2010: 54). In HEQC's framework education, quality, and transformation were linked and accountability was conceived at the individual, institutional, and societal levels. It established a comprehensive capacity development program targeted at each level to ensure an equal playing field.

According to several scholars, HEQC made considerable achievements in promoting transparency, accountability, and the development of internal quality assurance systems among South African higher education institutions. However, the old institutional hierarchies persisted, as the better-resourced institutions were able to meet HEQC requirements and reconfirm their privileged status. Even the peer review process could not escape the epistemic, structural, and historical shadows of South African society and higher education. "Against the legacy of apartheid," Cross and Naidoo (2011: 519) write, "peer review in program accreditation in SA takes place within a highly politicized academic environment, where political concerns very often prevail over professional concerns." The South African case underscores the fact that assessment teams and exercises were arenas of political, policy, and epistemological contestation.

Thus, quality assurance was not a panacea but part of the challenge of transformation and providing quality education. Certainly, "if the graduation rate of African South African students is accepted as an empirical-level indicator of transformation, then research suggests that little progress has been made" (Luckett 2010: 73). Dropout rates remained quite high, up to 56 % for the cohort of 2000 expected to graduate in 2004. The racial breakdown was heavily biased against black students, only 21 % to 35 % of them, depending on the program, graduated in five years. While the quality assurance system did not engender the structural conditions that reproduced disparities, it reified them by imposing uniform standards that prioritized the situational logic of research-intensive institutions. Thereby

it became part of the institutionalization and deradicalization of transformation as a political concept and social project (Lange 2014).

It can be seen, quality assurance quickly developed into a hegemonic ideology and practice in higher education around the world. As demonstrated above, the discourse and enterprise of quality assurance and accountability originated in the Global North and quickly diffused to the Global South. In this process, the accreditation systems of the USA, and the other major higher education exporting region, the EU, assumed supremacy. For some the spread of northern quality assurance models was an integral part of contemporary imperialism. There was overwhelming participation by organizations and institutions from the global North in international quality assurance forums and policy making. Also, notwithstanding the rhetoric of collaboration and mutual learning, the Global South was represented as underdeveloped in need of guidance and assistance for capacity development from the Global North (Ramirez 2014). But it is important to stress that hegemonic ideologies still have to be translated into national and regional contexts that eschews unadulterated notions of imperialism and dependency.

The international quality assurance movement primarily involved issues of mutual recognition, establishment of supranational agencies, and institutional accreditation by international agencies. The leading players in efforts to establish supranational quality assurance systems were UNESCO and the OECD, and various regional communities. Significant developments took place in the 2000s and 2010s in the development of regional and international quality assurance collaboration, which promoted greater convergence. But national interests proved stubborn on a matter as sensitive as education that generated resistance against attempts to impose uniform standards. Writing in the early 2000s, Dick van Damme (2002: 10) observed growing concerns

> in the higher education and quality assurance communities for cultural diversity in quality assurance systems and also some anxiety that globalization would result in the imposition of a uniform model of accreditation. These fears are cultivated by some recent experiences. The recent rapid spread of the Anglo-Saxon accreditation model in the developing world and Eastern Europe for example carries the risk of being no more than mere imitation without much consideration of the historical-cultural embedding of a model.

These fears were generated by the recognition and persistence of national and regional disparities in higher education capacities and

influences including quality assurance. The anxieties were not confined to dealings between the developed and developing countries. In Europe, several quality assurance organizations were created, reflecting different sub-regional interests. They included the ENQA in 2000, the European Consortium for Accreditation in 2003, the Central and Eastern European Quality Assurance Network in 2000, and the Nordic Quality Assurance Network in Higher Education in 2003. The proliferation of agencies and networks showed that both convergence and diversity continued to unfold in European regional quality assurance systems. Nevertheless, with its Bologna Process and extensive student mobility and credit-transfer programs, Europe built the most robust system of intra-regional recognition of academic qualifications.

The Bologna process emerged out of a complex deliberative governance process to harmonize different quality assurance and degree frameworks and create "a cohesive and coherent European Higher Education Area by 2010."[6] The process revealed the disparities and hierarchies in European higher education, and the divergent interests of stakeholders among and within universities, academic and professional associations, governments, and business (Hoareau 2012; Mills 2004). Ministers of higher education from Germany, France, Italy, and the UK initiated the process in 1998 when they issued the Sorbonne Declaration. They committed themselves "to encouraging a common frame of reference, aimed at improving external recognition and facilitating student mobility as well as employability." In 1999, the four ministers were joined by higher education ministers from 29 other European countries and issued the Bologna Declaration.

The Bologna Declaration initially identified six objectives that were later expanded, namely, the adoption of a system of easily readable and comparable degrees; adoption of a system essentially based on two main cycles, undergraduate and graduate; establishment of a system of credits; promotion of mobility for students and teachers; promotion of European cooperation in quality assurance; promotion of the necessary European dimensions in higher education, particularly with regards to curricular development, inter-institutional cooperation, mobility schemes and integrated programs of study, training and research. In the 2001 Prague Communiqué, the number of signatories increased to 33 countries, and three new objectives were added, integration of lifelong learning strategies; involvement of universities and other higher education institutions; and promoting the attractiveness of the European Higher Education Area. The 2003 Berlin Communiqué added the establishment of a European Research Area as a new objective to complement the creation of the

European Higher Education Area. It also reviewed progress on each of the previous commitments.

The number of member countries under the Bologna Process increased to 46 by 2007.[7] Taking stock of the implementation of the Bologna Process, the Bucharest Communiqué of 2012 celebrated the fact that

> the Bologna reforms have changed the face of higher education across Europe, thanks to the involvement and dedication of higher education institutions, staff and students. Higher education structures in Europe are now more compatible and comparable. Quality assurance systems contribute to building trust, higher education qualifications are more recognizable across borders and participation in higher education has widened. Students today benefit from a wider variety of educational opportunities and are increasingly mobile. The vision of an integrated EHEA is within reach.

But it recognized that there was unevenness in the implementation of the various objectives in different countries, which necessitated making "further efforts to consolidate and build on progress. We will strive for more coherence between our policies, especially in completing the transition to the three-cycle system, the use of ECTS credits, the issuing of Diploma Supplements, the enhancement of quality assurance and the implementation of qualifications frameworks, including the definition and evaluation of learning outcomes."

A new strategy was adopted, Mobility Strategy 2020, to increase student mobility to 20 % by 2020 and dismantle existing obstacles to mobility. Undoubtedly, the Bologna Process transformed the structure, values, and coordination of European higher education from degree structures to various forms of disciplinary and especially professional education from medicine to engineering to business (Heitmann 2000; Edan et al. 2008; Hensen 2010; Jurše and Mulej 2011). The implementation of the Bologna objectives required not only the cooperation and investment of different stakeholders in the process, but also passing new legislation especially with regard to recognition of degrees and qualifications and the quality assurance of higher education institutions. The first was handled by the Council of Europe through the Lisbon Recognition Convention, while the second proved challenging because of inconsistencies in national laws and the propensity of states and universities to preserve national traditions and interests at the expense of supranational processes. The ignorance of the legal instruments of the Bologna process in national legal circles also played a role (Cippitani and Gatt 2009).

The Bologna Process had ambitions beyond Europe. In the London Communiqué of 2007, a new international strategy was adopted. It was termed "The European Higher Education Area in a Global Setting," and intended to focus on several "core policy areas: improving information on, and promoting the attractiveness and competitiveness of the EHEA; strengthening cooperation based on partnership; intensifying policy dialogue; and improving recognition." In the work program adopted for 2015–2018, an advisory group for international cooperation was established. But before the Bologna Process extended its tentacles to other parts of the world, its impact was felt in the former socialist countries of Central and Eastern Europe. Many of these countries joined the process and the EU. In the immediate post-1989 period, US models of higher education and quality assurance had enamored them. From the mid-1990s, they retreated from the utopianism of the earlier "liberal absolutism" as Jan Kohoutek (2009a: 16) calls it. This was followed by a more pragmatic period when issues of civic and market accountability, and institutional governance and management, assumed prominence.

Beginning with Poland in 1992, the Central and Eastern European countries started creating quality state-funded assurance agencies that were focused more on accreditation and external accountability than internal quality improvements. They received a lot of assistance from UNESCO, OECD, and the EU. In 2002, the region's quality assurance agencies formed the Network of Central and Eastern European Quality Assurance Agencies in Higher Education (CEEN) to promote information exchange, cooperation, and the harmonization of intra-regional activities and approaches within the European Higher Education Area. There was a noticeable shift to conceptualizing quality assurance as a combined process of external accreditation and internal evaluation, articulated in the rationales of accountability and improvement, and between summative and formative approaches. But national practices continued to vary widely reflecting the different ways in which the USA and Western European influences were combined and grafted into national systems (Kohoutek 2009b).

Elsewhere, sub-regional quality assurance organizations also emerged. As in Europe, these organizations were often sponsored by, or developed under the aegis of regional economic communities. In Asia, there was the Central Asian Network for Quality Assurance and Accreditation formed in 2003, the Asia-Pacific Quality Network founded in 2005, and the ASEAN Quality Assurance Network established in 2008. As enunciated in their

mission statements, all of them sought to share information, best practices, collaborate in building capacities, and develop a regional quality assurance framework that would facilitate the mutual recognition of qualifications.

Spanning Asia and Africa was the Arab Network for Quality Assurance in Higher Education (ANQAHE) created in 2007, and the Association of Quality Assurance Agencies of the Islamic World in 2011, which focused their attention on promoting cooperation among quality assurance organizations in their respective sub-regional and faith-defined communities. Quality assurance in the Middle East and North Africa had made considerable progress by 2013. Fourteen out of the 20 countries had "established national commission or committees for accreditation and quality assurance and others are underway in their efforts to create such structures. Furthermore, some universities have started a self-assessment process, while others have sought accreditation by international accreditation agencies" (El Hassan 2013: 77).

But many of these agencies were more attuned to issues of controlling private universities than quality improvements. Curricula and student assessment practices remained weak, while teaching was largely "didactic with no emphasis on students becoming independent learners and critical thinkers," and governments had "not embraced issues of quality…. The centralized education systems are organized to facilitate quantitative expansion rather than performance-oriented systems with emphasis on quality and continuous improvement" (El Hassan 2013: 81).

In addition to the agencies straddling Africa and Asia, the creation of national quality assurance agencies accelerated across Africa. The number of national quality assurance agencies grew from 9 in 1990 to 21 in 2012 to 32 in 2015, and were expected to reach 50 by 2020. The trigger in many cases was the rapid growth of private institutions and expansion of public institutions and concerns about declining academic quality. The old forms of quality including external examinations system were stretched to the limit. In addition to national quality assurance agencies, professional associations were keenly engaged. According to Peter Materu (2007: xv–xvi), there was a "convergence in methodology across countries…. Evidence from country case studies shows that all QA agencies follow the same basic approach—which is similar to that followed by QA agencies in developed countries."

But the standards used were "mainly input-based with little attention being paid to process, outputs and outcomes." Despite being set up as autonomous bodies, the national agencies were government-dependent in

terms of funding and management appointments. In many countries, the focus was directed at private rather than public institutions, from which staff and peer reviewers for the agencies were often drawn. Quality assurance for distance learning and e-learning was rather feeble. Many of the agencies suffered from weak technical capacities and human capital constraints, which made regional collaboration even more imperative.

The first regional accreditation agency was the African and Malagasy CHE established in 1968 for the harmonization and recognition of awards. It had 17 member countries. Besides ANQAHE, the Higher Education Quality Management Initiative for Southern Africa was established, and in 2012, the East African Higher Education Quality Assurance Network was created. At the continental level, the Association of African Universities began actively supporting quality assurance in the late 1990s and in 2009 set up the African Quality Assurance Network.

In a presentation to CHEA, Peter Okebukola (2012) outlined the various quality assurance initiatives on the continent. They included the creation of the African Quality Assurance Framework to promote an integrated system and break linguistic and other barriers to ensure the production of skilled graduates for sustainable development; the African Higher Education and Research Space to build research capacities and centers of excellence; the Credit Transfer System to enhance student mobility; the Pan African University to strengthen quality of research, mobility of researchers, and skills capacity building and retention; the Guide to Quality Assurance in Higher Education in Africa to provide stakeholders with techniques to run effective quality assurance at various levels including open and distance learning; the Guide to Effective Teaching and Learning in Higher Education in Africa to enhance pedagogical skills and innovation; the Licence-Master-Doctorate reforms; the African Quality Rating Mechanism to offset the perceived challenges of existing global rankings and provide rankings based on metrics most appropriate to African institutions and contexts; and the African Quality Assurance Peer Review Mechanism to promote the sharing of experiences, best practices, and partnerships and collaboration. In 2013, the African Union announced its intention to establish a continental quality assurance body that would "have the power to enhance quality in all private, state and federal higher education institutions, including open and distance universities across the continent" (Kigotho 2013).

In Latin America and the Caribbean, the sub-regional organizations included the Ibero-American Network for Quality Assurance in Higher

Education launched in 2003, and the Caribbean Area Network for Quality Assurance in Tertiary Education founded in 2004. Under the free trade agreement of six South American states, MERCOSUR, established in 1991, harmonization of educational systems was listed as an objective. The strength of national public universities and professional associations delayed progress, but the MERCUSOR Experimental Mechanism for Career Accreditation for the reciprocal accreditation of undergraduate courses was implemented from 2003, five years after it was agreed on. The number of accredited courses gradually increased, reaching 55 undergraduate degree and diploma programs by 2006 mostly in engineering, medicine, and agronomy. The program was made permanent and renamed the Regional Accreditation System of University Degrees (ARCU-SUR). By 2012, 109 degrees had qualified and included additional fields such as dentistry, veterinary, nursing, and architecture (Perrotta 2013).

In North America, the creation of the NAFTA boosted quality assurance cooperation between Mexico, the USA and Canada to facilitate professional mobility. NAFTA recognized three occupations (engineering, accounting, and architecture) for trinational mutual recognition, which helped Mexico in particular to raise its standards in these professions. The educational provisions of NAFTA reinforced a long-standing practice, going back to 1950, of Mexican institutions along the US border seeking accreditation from the Southern Association of Colleges and Schools Commission on Colleges.

At the global level, the establishment of the International Network for Quality Assurance (INQAAHE) in 1991 marked a watershed, although in its first years of existence the network did not have professional standards and rigorous criteria for membership evident in some national like CHEA and seen by some as essential for meta-accreditation. The network grew quickly from eight members at its formation to more than 250 in 2015. For its part, UNESCO stepped up its efforts to promote global quality assurance standards by issuing a series of guidelines and essential principles for "cross-border higher education providers that do not fall under the purview of nation-states" to ensure that the academic quality of transnational programs was comparable to that offered in the home countries of the suppliers (UNESCO/OECD 2005: 3; Vlăsceunu et al. 2007).[8]

The attempts to construct a global regime of quality assurance complemented, and spurred governments and accrediting agencies in several developed countries to extend national standards to foreign branches of domestic institutions. The USA was among the first to do so. A survey conducted by CHEA in 1999 showed that 17 of its member organizations

> accredited 178 US institutions operating outside the US and that 24 of them accredited 175 non-US institutions abroad… In 2001 CHEA approved a document, *'Principles for United States accreditors working internationally: accreditation of non-United States institutions and programs'*. Such principles include the assurance of organizational capacity to engage in such activities, the provision of clear information on the scope and the value of US accreditation, but also consultation and cooperation with quality assurance agencies in the countries where reviews are undertaken (van Damme 2002: 26).

By the 2000s, many European, Canadian, and Australian accrediting agencies had established their own codes of conduct for cross-border programs and activities.

These moves were often undertaken in response to mounting complaints from the developing countries of educational exploitation by non-profit and for-profit and even public institutions. It was not unusual for non-profit institutions to incorporate themselves as for-profit subsidiaries in foreign markets, and for public institutions to operate as private institutions more interested in tuition revenues than providing quality education. This led many governments to pass legislation requiring foreign providers to register with national accreditation agencies. "Well-known examples of such legislation can be found in Australia, Hong Kong, Malaysia, some Canadian provinces and many Eastern-European countries," and countries such as Israel and South Africa "introduced rather harsh measures to stop the development of private and foreign provision on their territory," while in many European countries "where degrees delivered by other than state recognized institutions have no legal value" (van Damme 2002: 19).

Quality assurance problems were particularly acute for small states when it came to cross-border providers, who were larger and stronger. Short on resources and capacity for quality assurance it was quite challenging for them to monitor academic fraud including the operators of degree mills. Regional cooperation became imperative to pool resources and build capacities. The problems of multinational quality assurance also reflected the expansion of transnational higher education institutions. The absence of binding international quality assurance mechanisms, and the enormous hurdles for national systems to cross international boundaries compounded the problems. The interests of the exporting and importing countries differed. As Kevin Kinser (2011: 55), puts it, "For exporting nations, external quality assurance seeks to protect the domestic institution

from reputational, academic, or financial damages caused by inappropriate activity outside the country. For importing countries, the quality assurance regime is designed to guard against low standards, financial impropriety, or competition detrimental to the domestic system of higher education."

On the flip side, there was a growing trend among foreign institutions to seek accreditation especially in the USA. For them US accreditation was a marker of quality, while for the US accrediting agencies it signified their international scope and competitiveness. By 2011, 32 institutions in 15 countries on five continents were recognized by five of the six regional accrediting agencies in the USA. In 2002, the US accrediting agencies convened a taskforce to coordinate their approaches, but the effort failed. In an intriguing paper using discourse analysis, Gerardo Ramírez (2014: 131) argues that the accrediting agencies represented the foreign institutions as possessing limited resources and capacity, so that international accreditation by US agencies was portrayed in the familiar language of foreign aid "intended to 'strengthen the capacity of developing countries to improve accessibility to quality higher education.'"

The growth of the national, regional, and international networks and agencies pointed to the rising importance attached to the harmonization of quality assurance and accreditation for an increasingly globalized higher education sector. A similar trend developed among professional organizations and international associations for their respective occupations or areas of expertise. An example was schools and associations in engineering that established "international exchange and collaboration programs, the quality of which is monitored by professional associations in the field" (van Damme 2002: 15). The Association to Advance Collegiate Schools of Business replicated the role played by the Accreditation Board of Engineering and Technology in accrediting programs around the world. Growing internationalization of the professions and mobility of professionals drove the issue of professional recognition. In 1989, for example, the Washington Accord was adopted allowing for the mutual recognition of engineering degrees among its members that by 2014 included 17 countries in North America, Europe, Asia, Africa, and Oceania.[9]

On the whole, however, national differences in the structure of professions made professional recognition more difficult to navigate than academic recognition. While in some countries academic degrees doubled as professional qualifications, the growing tendency among professional associations to impose additional training requirements in countries like "the UK, Ireland, Australia and the US" widened an already "great gap

between academic qualification and professional qualification, gained after specific training or examinations by professional bodies. Professional associations often have developed their own 'accreditation' procedures for recognizing academic programs and degrees as eligible for professional qualifications" (van Damme 2002: 29).

The question remained on the extent to which the proliferation of quality assurance systems at national, regional, and global levels led to improvements in the quality of higher education. The continuous efforts to improve the mechanisms of quality assurance almost everywhere underscored the fact that serious concerns persisted. Negative public perceptions about the poor quality of higher education actually became more widespread in most countries including the USA, the so-called gold standard of quality assurance and accreditation. The literature bemoaning the declining quality and value of US higher education exploded. Examples included such best sellers as *Academically Adrift: Limited Learning on College Campuses* (Arum and Roksa 2010) and *Excellent Sheep: The Miseducation of the American Elite* (Deresiewicz 2014) whose provocative titles summarized their disquieting analyses.[10]

Clearly, as shown in the preceding discussion quality assurance as a systematic process of evaluating the inputs, processes, and outcomes of a higher education system, institution, or program rested on the complex concept of quality, which was difficult to measure in a service sector like higher education. At best, quality was understood as a multifaceted phenomenon. Many researchers and organizations used the schema developed by Harvey and Green (1993) to identify the key aspects of quality in higher education: being exceptional, transformative, providing value for money, ensuring fitness of purpose, and striving for perfection. Quality assurance was also seen both as a mechanism of monitoring and enhancing quality and as a culture of shared values about quality. Quality monitoring involved many dimensions and instruments from accreditation and quality audits to rankings and benchmarking to standards and guidelines undertaken for the purposes of accountability, improvement, and transparency.

Quality assurance systems varied between and within countries in their typologies, challenges, and effectiveness (Kis 2005). Different approaches, levels, scope, organization, and methods developed over time and came to characterize quality. In most countries, three approaches emerged involving accreditation, assessment, and audit. Accreditation entailed periodic comprehensive reviews of higher education institutions and programs in terms of their mission, resources, procedures, and outcomes. Assessment

exercises often went beyond accreditation and made graded judgments about institutional and program quality. In quality audits, institutions were evaluated on the extent to which they were achieving their own stated objectives. In practice, quality assessment exercises combined all three approaches.

There were also variations in terms of levels focus (whether they were conducted at the program or institution level or both), and scope (territorial and institutional focus). As for scope, agencies operated at a provincial, state, sub-regional level in federal systems such as Canada and the USA, or at the national level. With regard to institutional type, agencies covered both university and non-university institutions; alternatively, the two subsectors were covered by separate agencies and further distinctions were sometimes drawn between public and private institutions. There were also organizational differences in terms of the role of government and the relative autonomy of quality assurance agencies. In some countries, accrediting agencies were autonomous of both the state and higher education institutions but required recognition by the ministry or department of education. In certain contexts, the universities themselves created quality assurance agencies, but more often than not they were state-sponsored, or were divisions in education ministries. In addition, accreditation from professional associations played a critical role. Typically, the review process entailed self-review, peer review, and external reviews that might include non-academics or people from other countries. The major sources of data often included self-review reports, site visits, surveys, and quantitative performance indicators that increasingly included job placement data in some countries.

Typically, following the review process the quality assurance agency would issue a formal report. As accountability pressures mounted such reports were published, and follow-up procedures entailed making institutional improvements and could include sanctions or even withdrawal of institutional accreditation. The question of linking evaluation to public funding became an issue in many countries. Debate also grew about the summative and formative purposes of quality assurance, and forging an appropriate balance in quality assurance mechanisms to promote both accountability and improvement. Further, questions were raised in the literature about the relative benefits of external and internal reviews and other elements of the review process. At stake was how best to ensure that external reviews served as a catalyst for internal improvements and innovation, and minimized the risks of inefficient use of resources, "game playing," and "impression management." Internal reviews raised issues of candor between self-evaluations for internal use and for external use, and the extent to which institutions

were invested in making improvements. Peer reviews raised other issues of legitimacy and transparency, how to safeguard both expertise and fairness among the reviewers and not allow biases based on whether or not they were friends or competitors of the institution.

For performance indicators, the challenge was maximizing their utility in providing objective and comparable measurements to leverage improvements without turning them into reductionist and burdensome exercises that encouraged institutions to manipulate data in contexts where performance affected funding and reputational status. "A major problem highlighted by several authors," Victoria Kis (2005: 19) notes, "is the difficulty in measuring the quality of both research and teaching. For example, is the total number of publications a true measure of quality in research? Or is a high success rate in education a sign of quality, or does it reflect the reduction of standards? …. However, measuring and comparing research performance still seems to be less problematical than that of teaching and learning." Thus, although linking quality to funding was generally understood to be important for accountability and as an incentive for improvement, this was more acceptable for research than for teaching and learning, which were invariably far more difficult to measure. Some scholars pointed out the use of such proxy measures as retention and graduation rates could actually encourage the lowering of instructional standards, while labor markets indicators including salary rates in different fields for graduates reinforced the "occupationalization" of university education.

The main instruments used by institutions and quality assurance organizations for evaluating quality in teaching included learning outcomes, student portfolio assessment, and performance indicators. A portfolio assessment referred to

> the systematic, longitudinal collection of students' work created in response to specific, known instruction and objectives, and afterwards evaluated in relation to the same criteria…. Portfolio creation is the responsibility of the learner, with teacher guidance and support, and often with the involvement of peers and parents. The audience can participate in the assessment of the portfolio. Academics have developed portfolio instruction and assessment criteria, and gained appropriate administrative support (Krcal et al. 2014: 28).

But some criticized student portfolios because they were "not standardized, not feasible for large-scale assessment due to administration and scoring problems, and evaluation methods are potentially biased."

Overall, outcomes assessment combined

> two concepts, which focus on impacts, and assessment, which is a subset of evaluation. When the term is applied to higher education, it refers to student learning outcome, the extent to which students achieve and are able to apply pre-determine learning goals, and students achieve and are able to apply pre-determined learning goals, and student outcome, metrics that enable stakeholders to assess and compare institutions with respect to student attendance and completion rates (Hernon 2013: 3).

At stake was how to foster quality teaching, which entailed providing faculty opportunities to continuously improve their pedagogical skills through training, providing instructional innovation funds, celebrating teaching improvements and awarding excellence in teaching, making teaching matter in faculty evaluations, encouraging and supporting teaching and learning development centers and communities, and the benchmarking against best teaching practices.

The compliance culture engendered by the expansion of assessment for quality assurance evolved and was perceived differently not only in various national educational systems, but also between and within higher education institutions. Generally, there was greater resistance in the humanities and social science programs than in the sciences and professional programs used to quantitative measures and the external accreditation of professional bodies for their degree holders. The variety of interests and conceptions of quality among higher education's diverse internal and external constituencies made it exceedingly difficult to implement the objectives and aspirations of quality assurance. To begin with, external stakeholders such as governments veered more toward the summative purposes of quality assurance, while internal institutional constituencies tended to be on the formative end of the spectrum. This often led to an "implementation gap," in which institutional policy commitments driven more by compliance obligations than desires for self-improvement were diluted, contested, compromised, or ignored further down the institutional hierarchy and especially at the level of individual faculty.

Under such circumstances, procedural compliance did not always translate into quality improvements. Rather, it was perceived as part of the loss of academic autonomy and increased workload by many faculty, which contributed to declining morale. In the UK, they were apparently seen as "disciplining technologies" to regulate and subjugate the academic workforce, in the service of "neo-liberal logics" (Lucas 2014: 215).

In response to strong faculty resistance the subject reviews of the Higher Education Quality Council, QAA's predecessor, were abandoned in 2001 replaced by an institutional audit, which in turn was replaced by institutional review from 2011 to 2013, followed by yet another process called higher education review. The new assessment culture began with the launch of the Research Assessment Exercise in 1986, later changed to the Research Excellence Framework that determined the distribution of funding for UK universities. It received mixed, mostly negative reviews from academics for its inequities and negative impact on academic work. However, this resistance challenged particular forms of quality audits, forms of authority, processes used, and consequences of the audits rather than "the key principle of having these quality audits in the first place" (Lucas 2014: 223).

In a review of the literature, Houston and Paewai (2013: 262) forcefully argue that,

> Studies of academic staff perceptions about the impact of quality assurance in universities indicate that it has had little or no impact on curriculum, teaching quality or student learning. At worst, quality assurance has served only to increase the time and cost associated with bureaucratic requirements within universities and diverted attention away from the core processes of teaching and learning.

Despite these criticisms, little changed in quality assurance systems that were increasingly geared toward "external accountability" at the expense of internal stakeholders, a manifestation of the universities' and faculty's loss of power, and valorization of quantifiable outcomes and administrative authority over actual processes and providers of teaching, learning, and research.

The problems of measuring the quality of teaching and learning reinforced the attention paid to organizational change and quantifiable indicators and measures of quality. Compliance requirements buttressed tendencies toward bureaucratization, centralization, or "managerialism" within higher education institutions and the expansion of administrative staff at the expense of instructional staff. At the same time, the culture of assessment promoted greater institutional transparency. But it also encouraged well-resourced, ambitious, or corrupt institutions to learn the art of quality management and manipulation. Nevertheless, the literature on the OECD reviewed by Kis (2005) shows that in many countries, quality assurance systems helped raise the importance of teaching and students'

learning among institutions and faculty for whom those were previously not priorities, as reflected in improvements in curricula reform processes, instruments for student assessment, faculty hiring, review and promotion procedures.

Positive outcomes were associated with quality assurance systems that had clarity of purposes for different stakeholders, enjoyed legitimacy among academics, were based on dynamic interactive, collaborative, and empowering linkages between internal and external processes, maintained a productive balance between formative and summative objectives, and performance and consequences, and were periodically reviewed and revised to reflect changes in higher education. New trends in quality assurance in Europe and elsewhere included "moving from a program-focused to an institution-wide approach," and the growing importance of "internationalization of quality assurance," in which European countries "started to open their higher education systems to non-national quality assurance agencies for program or institutional evaluations, although with some restrictions, especially after a first national accreditation" (Krcal et al. 2014: 25).

The Curriculum Goes to Market

At the heart of the quest for quality education was the curriculum, over which different conceptions and expectations of higher education had always been fought. Curricula contestations reflected the growing challenges of reconciling the traditions of an instructor's autonomy in curriculum design and institutional goals for quality control, the imperatives of curriculum-as-process and curriculum-as-product, and the domains of knowing (knowledge), acting (acquisition of skills), and being (development of self). The composition of the curriculum both defined and reflected the changing structure of higher education in local, regional, and international contexts (Coate 2009). In the immediate aftermath of World War II, broad distinctions were often made between universities that offered theoretical aspects of knowledge and institutions that provided practical, technical, or vocational knowledges. The spectacular growth and restructuring of disciplines and fields of knowledge examined in Chap. 3 entailed curricula expansion, while the explosion of privatization examined in Chap. 2 broadened definitions of higher education beyond traditional models of elite university institutions.

In the decades after 1945, the old boundaries within higher education increasingly became blurred as universities diversified their curriculum and incorporated technical subjects and professional fields, and specialized

vocational institutions fought for recognition as universities or as an integral and crucial part of the higher education system. This gave rise to a multiplicity of structures through which the curriculum was designed and delivered. Traditional universities essentially became multivarsities that were grouped into faculties, colleges, or schools, which were further subdivided into disciplinary or subject departments or institutes. The organization of these units, and their respective specialties, disciplines and areas of instruction became so varied among and within countries and institutions that "by the 1990s there no longer existed an absolutely single type of university curricular structure" (Rothblatt 2011: 243).

For example, in some countries and institutions law stood as a separate entity, in others it was paired with political science; sociology could be an independent department or joined with social work; mathematics was incorporated in the basic sciences or engineering or both; chemistry stood alone or partnered with chemical engineering; architecture, agriculture, the biological sciences, health sciences, and information technology, to name a few, found different homes in various institutional settings. The proliferation of interdisciplinary fields, allowed for endless curricular permutations. In many countries and institutions, the jostling for internal and external resources, rewards, and reputations became fiercer between disciplinary departments and interdisciplinary units, which sought to acquire each other's attributes, as the disciplines strived to become more interdisciplinary and the interdisciplinary fields sought departmentalization.

Curricular expansion was accompanied by the development of diverse teaching formats, practices, and ideals. The lecture method remained dominant in many countries. Massification reinforced it as well as passive learning. Teaching ratios rose in most countries. For example, in European universities from the 1950s teacher–student ratios on average oscillated between 1:20 and 1:27 depending on the field. In Britain, the hallowed tutorial system became unsustainable; for the redbrick universities it was eroded by growing student numbers, for the elite institutions by increasing emphasis on research. Also, increasingly unmanageable was the external examining system. Increased curricular choices were not uniformly beneficial for students some of whom were overwhelmed and ended up suffering from the intellectual malnutrition of selecting easy courses, which prolonged college education and induced anxieties about their post-graduation futures.

Simultaneously, more value was placed on active student learning, which took various forms including problem-based learning (PBL). PBL originated at a Canadian university in 1965 as a way of improving medical

education. As it developed, PBL found anchoring in theories of situated learning, cognitive and social constructivism, information processing, metacognition, self-directed learning, and cooperative learning. Teachers turned into facilitators and co-learners under PBL. It became popular in professional education in the medical and health sciences, business studies, social work, legal studies, and was applied in some social science disciplines such as political science, sociology, and economics, although some criticized it on the grounds of its efficiency and effectiveness (Kwan 2009). In more elite institutions team teaching, interactive teaching technologies, and undergraduate student research also assumed greater prominence.

These developments were influenced by the huge advances that were made in research on the complexity of teaching and learning processes in higher education (Case and Marshall 2009; Haggis 2009; Ashwin 2009). Rigid systems of terminal examinations gave way to more mixed forms of continuous assessment especially as the US-style credit-unit and modular system of courses, semesterization, and informality of teaching were adopted in various countries. Modules were initially unpopular in many European countries "because they encouraged the proliferation of unrelated courses, inhibited specialization, at least early specialization, and did not guarantee quality, since each module was autonomous. Furthermore, modules weakened the general quality of an institution's degree-granting capacity because the transfer student may have taken as much as half of his or her coursework in another institution" (Rothblatt 2011: 270).

The internationalization of higher education contributed to greater standardization of degree cycles. It also promoted student transfer and mobility where this was not common before. International student mobility simultaneously reinforced and challenged beliefs about the learning and study habits of foreign students. A particularly pernicious misconception was the notion that Asian students had a greater propensity toward rote learning than western students who were attuned to active forms of learning, notwithstanding the fact that they often outperformed the latter (Kember 2009). As previously noted, the Bologna Process played a crucial role in the process of standardization in Europe. The quality assurance movement in other regions did the same with varying degrees of intensity and success. But the inertia of national traditions, resistance, range of practices, and differences in quality and standards often frustrated internationalization.

Student life changed as well. Demographic shifts played an important role especially as the proportion of women and other underrepresented populations increased, which introduced new forms of division and even conflict. It also brought into sharp relief the significance of social

integration and academic integration in raising the performance levels of underrepresented students (Severiens and Wolff 2009). Diversity challenged faculty to improve their teaching strategies and skills to enhance the learning process of students of different learning styles, needs, and backgrounds in terms of race, class, gender, and ability (Gusman and Vultaggio 2009). Privatization raised students' sense of entitlement and expectations, while massification strained the capacity of many non-elite institutions to provide high quality amenities and education. With massification the much-mythologized student campus life of elite postwar institutions applied to a smaller and smaller proportion of students in most countries. The growth of part-time and older students reinforced the fragmentation of the student body and collective experience.

While massification reflected growing demand for higher education, it was not always matched by outcomes. The difficulties of maintaining the equation between access and quality were reflected in dropout rates as levels of student preparedness fell in many countries. In the 1980s, "dropout rates in France were dismaying. About 40 percent of science entrants, 45 percent in law and economics, left in the first year of the first cycle" (Rothblatt 2011: 258–9). In the US, the proverbial four-year undergraduate degree stretched to six years. Among the students who enrolled for an undergraduate degree in fall 2007, only 59 % graduated by 2013.[11] In South Africa, it was reported in 2015 that "around 50 to 60 percent of students at higher learning institutions dropout during their first year."[12] All this raised the importance of remedial education.

From the 1980s, massification at the undergraduate level was accompanied by the expansion of post-graduate education. According to Coralie McCormack (2009: 181–2), "In Canada the number of doctoral candidates rose by 106% during the decade 1991 to 2001. In Finland, there was a 50% increase in enrolments in the 1980s and a 120% increase in the 1990s. In China, the number of doctoral candidates increased from 18 in 1983 to 188,000 in 2003." The graduate student population also became more diverse in terms of gender, age, and ethnicity. By the late 2000s, the proportion of men remained "well above that of women in some countries (e.g. France, Germany, Japan, South)," while women equaled men in "many countries (including Australia, Canada, Poland, UK, USA)," and "in a few countries such as Brazil women constitute more than half of the doctoral student population." As for age, most graduate students started under 30 years old, and completed at the average ages of 32 in the UK, 33 years in Germany, 36 years in Canada, 36 in Australia, and 37–38 in

the Nordic countries. Ethnic and racial minorities continued to be underrepresented in the USA, Australia, and much of Europe.

Graduate student experiences varied quite noticeably within countries, institutions, and programs. They were largely determined by the quality of the student–supervisor relationship, and conditions of graduate life, work, and prospects. In the face of the challenges of graduate education some began to wonder, "Will the PhD continue to be primarily a site of knowledge discovery or will the PhD of the twenty-first century be a site for preparation of knowledge workers rather than knowledge creators? While this tension is not necessarily new to doctoral educators or students in industrial economies, such as Australia, Europe, USA and the UK, its resolution will become a topic of more urgent debate for all economies" (McCormack 2009: 189).

The USA epitomized some of the problems of graduate education. In response to soaring tuition, limited compensation as cheap academic labor, and rising debt levels graduate students gravitated to unionization. Between 2004 and 2012, according to a study by the New American Foundation,

> average debt for master's students at the 75th percentile of indebtedness increased from $54,000 to $85,000, adjusting for inflation. The study found that while many undergraduate students have 'manageable' degrees of debt, those who pursue further postsecondary education are often crippled by massive piles of unpaid loans. Law students in the 50th percentile of indebtedness owe roughly $128,000 on average when they graduate, according to the report. For med students, that figure jumps to $200,000 in the 75th percentile and $250,000 for those in the 90th…. while graduate students nationally account for 14 percent of university enrollment, they procure roughly 40 percent of the overall student debt (Ludwig 2015).[13]

On the whole, students' influence on the curriculum grew steadily after 1945. This was effected in two major ways. First, through student activism and protests against prevailing institutional practices including teaching and learning as reflected in the curriculum. The issue of student activism was examined in Chap. 2. Chapter 3 showed that the development of academic fields such as women's and gender studies, area and ethnic studies, environmental studies, and cultural studies was influenced by student protests. Second, students exerted influence through their course choices that increased with the expansion of the curriculum and number of institutions. Privatization was partly driven by student demand for marketable skills. Many of the private higher education institutions that emerged from

the 1980s and 1990s offered limited occupation-specific programs in such fields as business, information technology, and communications.

However, the impact of student activism in effecting curricular changes should not be exaggerated. "Overall," to quote Sheldon Rothblatt (2011: 267), "of the major determinants of curricula—the state, the academic profession, the examination system, the employment market—students historically have had a lesser role in the shaping of curricula." Also, while the demands of the market were influential, they were most significant at "the lowest entry points into the economy, since research universities continued to exercise considerable influence over curricula required for professional qualification" (Rothblatt 2011: 273). Thus, the curriculum went to the market as market ideology and neoliberalism permeated many aspects of society in most countries, but the impact on higher education was as differentiated as the institutions themselves were.

The poorer countries and weaker institutions were more susceptible to the demands and pressures of the market unlike the richer and elite institutions that through their positioning and products influenced the constitution of market needs, signals, and operations. By and large, the liberal educational ideal of the pre-World War II and immediate postwar university endured mostly in elite institutions (Harland 2009). These institutions continued to produce liberally educated professionals and professionally prepared liberal arts students, to cultivate graduates with the international, interdisciplinary, and intercultural skills and sensibilities to navigate an ever more complex, connected, and competitive world. The rest produced vulnerable vocational functionaries of the rapidly changing and unstable economic order of the twenty-first century.

The Unbundling of Faculty Life

The quality assurance system ultimately rested on the shoulders of faculty, who constituted the most important and potentially only appreciable asset of higher education institutions. The activities of academics as producers and transmitters of knowledge were profoundly affected by the transformations of higher education in terms of massification, privatization, globalization, corporatization of management, consumerization of students, and rising pressures for accountability. Higher education institutions were increasingly expected to demonstrate their relevance and value proposition in market terms. The need for relevance was invoked for all aspects of the academic enterprise, namely, teaching and learning,

research and scholarship, and service and engagement. Academics were increasingly "expected to be more professional in teaching, more productive in research and more entrepreneurial in everything" (Cummings and Teichler 2015: 11). But college and university leaders, academics, governments, and the general public often understood the question of higher education's relevance to society quite differently.

In response to some of the changing expectations and demands important shifts took place in the relative influence among the state, academic professional, and market models of governance, which reflected performance based, collegiality in decision-making, and top-down management styles, respectively. According to an international survey, the state model included Korea, Japan, China, and Malaysia, the academic profession model characterized Germany, Italy, Finland, Norway, Argentina, and Mexico, and the market model was dominant in the USA, UK, Australia, and Hong Kong. Congeniality and job satisfaction among academics was "highest in professional model systems such as Mexico and Norway, while academics in state models such as Japan and China have the highest stress levels" (Postiglione and Jung 2015: 117).[14]

On the whole, there was a progressive shift toward more top-down institutional governance, and the ranks of professional managers and even presidents, rectors, or vice chancellors without academic backgrounds swelled. The edicts of managerialism and accountability (as manifested in increasing demands for performance reviews for an expanding range of faculty activities) undermined academic autonomy and freedom. Students expected to be treated as paying customers, which changed the student–teacher relationship to one of commodity exchange. Globalization brought added workload for previously parochial academics to internationalize their curricula, perspectives, and intercultural skills. Clearly, these dynamics transformed the processes of knowledge production and dissemination and consequently the nature of academic work.

Both academics and academic work became more fragmented. The fragmentation of academic life reflected the institutional, professional, and instructional unbundling of faculty roles. With regard to institutional unbundling, "faculty were once responsible for many higher education tasks (e.g., students' development and advising) that are now performed by other institutional professionals in student affairs, academic advising, or auxiliary services" (American Council on Education 2013: 2). As for professional unbundling, "instead of a 'complete' scholar who is responsible for teaching, research, and service, for example, this work may be spread

among academic professionals who each specialize in just one of these roles. Non-tenure-track faculty who hold teaching-only appointments are a common example." Instructional unbundling "refers to dispersing—often with technology's help—the different roles associated with teaching, including course design, delivery, assessment, and advising. As faculty had less expertise in technology and instructional design of online courses, some providers began to unbundle certain roles that could be better conducted by other professionals with specific expertise."

The multiplicity of factors restructuring the dynamics of academic life led to multi-directional trends within and among higher education systems and countries. The academic profession grew to encompass different sets of institutions (public, private non-profit, private-for-profit; elite and mass institutions; universities, colleges, and vocational schools; on campus and distance and online programs) for it to enjoy the cohesion and corporate identity of earlier times. There was a growing literature that identified and examined the factors at the international, national, institutional, and disciplinary levels that led to the restructuring of academic roles and identities. The most comprehensive studies included the two projects on the Academic Profession in Europe (Kehm and Teichler 2013; Teichler and Höhle 2013a; Fumasoli et al. 2015) and the international comparative project on the Changing Academic Profession (CAP) (Cummings and Teichler 2015), as well as a series of book chapters and articles (Krause 2009; Currie and Vidovich 2009).

These studies offer fascinating portraits of the changing condition of academic work and the academic profession. Teichler and Höhle (2013: 2) observe two paradoxical developments in the position of academics worth noting. First, with the expansion of higher education from the 1960s, the importance of the academic profession grew at the same time as academics "experienced a loss of status, increasing workload and a gradual diminution of professional self-regulation." Second, there were tensions in the relevance of academic work and academic power. Academics were "increasingly expected to be relevant through serving the 'knowledge society'; yet they were viewed to serve innovation best, if they do not strive to fulfill the expectations to create useful knowledge." Also, "their organizational setting was rearranged to increase the power of those coordinating their work; yet they were still expected to exert a strong influence on their institutional environment through the creation of essential academic work."

Other paradoxes can be added. As expectations of accountability and relevance for higher education were growing from the 1990s, higher education was perceived less as public good, as had been the case from World War II to the end of the 1970s, and more as a private good. The value of higher education for national economic development and competitiveness was acknowledged as never before, yet the role and purpose of higher education was increasingly questioned. In many parts of the world, the academic profession was increasingly recognized as such at the same time as its internal diversity increased and its cohesion became severely fractured (Clarke et al. 2015). The fracturing of the academic workforce encompassed the growth of "higher education professionals" as part of the emergence of managerial governance. There were ambiguities as well as tensions between the various "groups of academics, higher education professionals, and representatives of management" (Kehm 2015: 190). The academic professionals relieved faculty of administrative burdens, which was appreciated, but also sometimes assumed control and monitoring functions of academic work, which generated conflict (Witchurch 2015; Schneijderberg 2015).

Massification, marketization, globalization, and developments in IT changed the conditions of work and expectations of academics by students, governments, business, and the general public. With massification, students of diverse ethnic, cultural, socioeconomic, and racial and national backgrounds forced academics to change their teaching styles. Marketization and global competiveness raised the stakes for performativity, for academic productivity to be tailored to the constantly shifting demands of the market and rankings. In many countries, teaching and research were treated separately in national assessment policies and funding practices, which produced fractures between the two in academic work, recognition, and reward.

Changes in the composition of academics significantly affected the restructuring of academic work and identities. The academic workforce became more casualized and stratified as institutions sought to cut costs by reducing the number of permanent faculty and expanded the ranks of part-time, adjunct, or contingent faculty. In many countries such as the USA, the academic community increasingly became segmented into unequal fractions of elite faculty on permanent contracts enjoying all the privileges and the "lumpen-professoriate" toiling in the undervalued teaching dungeons of academia.

The functional and structural differentiation of the academic profession, and emergence of academic entrepreneurism, reflected the infusion in higher education of the New Public Management ideology of efficiency and effectiveness over traditional academic values. Governments and universities pressed "for more and better teaching, more and better research outputs as well as knowledge commercialization" (Leisyte 2015: 61). As entrepreneurs, academics were increasingly "asked to consult, and conduct the application of patents, which are beyond their traditional duties such as teaching, journal publication and participation in conferences" (Lee 2015: 121). This reflected the erosion of the dichotomy between pure and applied research, of the university as haven of the former and industry of the latter.

Also, the assessment and accountability movements imposed new demands on higher education institutions, which they responded to by expanding their missions and activities beyond the traditional core functions of knowledge creation and transmission. The ideologies and expectations of both knowledge economies and neo-liberal developmentalism were for closer intersections between the academy and the economy, for strengthening the circuits of knowledge transfer and community engagement. This led to the emergence of what some have called the "third mission" of the university. In teaching, engagement found articulation in the valorization of experiential learning, and in research in renewed premium for "public scholarship."

The nexus between teaching and research became more complicated, contradictory, and contested than ever. In a 1992 international survey, three academic tendencies were identified, a research orientation, a teaching orientation, and a mixed teaching and research orientation. The first (designated the German model) was prevalent in the Germany, Netherlands, Japan, Sweden, and South Korea; the second (Latin American model) in Argentina, Chile, and Brazil; and the third (Anglo-Saxon model) in the UK, USA, Australia, and Hong Kong. Over the next 15 years, the three "types were transformed mainly to research orientation.… the German model has extended to a number of countries, while conformity to the Latin American model has declined. The Anglo-Saxon model, which was thought to approximate the ideal, has also declined to a considerable extent" (Arimoto 2015: 99). The increased "differentiation between research and teaching can be attributed to factors such as the institutionalization of the graduate school; establishment of academic associations; identification of centers of learning; assessment of productivity and cita-

tions of papers; the status of the research university; the reward system; and the institutionalization of ranking" (Arimoto 2015: 101).

On the one hand, teaching and learning were boosted by the regulatory demands of quality assurance and accreditation. On the other, the assessment procedures and performance indicators antagonized faculty, and often undermined effective teaching and learning. Moreover, research, which continued to be easier to measure, became even more privileged than teaching for institutions hoping to rise in national and international rankings. This was reinforced by the growing affiliation of academics to their disciplinary networks, often at the expense of institutional identification and engagement.

Four broad forces facilitated this. First, there was the fragmentation of academic communities at individual institutions as they expanded, became more diverse, fractured among full-timers and part-timers, and the ethos of managerialism eclipsed the culture of collegiality, and internal shared governance was compromised at the altar of external regulatory compliance. Second, mobility increased both physically and virtually. Inter-institutional faculty mobility was well developed in the ruthless academic capitalism of the USA, where "going on the market" was the major recourse for individual bargaining for better remuneration. The proliferation of institutions and processes of regional and international harmonization helped reinforced inter-institutional mobility. The international market both for elite scholars and the lumpen-professoriate expanded.

Third, the new information technologies facilitated networking across institutions and countries, further diluting institution loyalties, although the impetus for such networking was sometimes to raise individual and departmental status and rankings. The new technologies further blurred the already porous boundaries between work and home, work time and leisure time, thereby intensifying work in academic life. Technology also escalated faculty workloads in so far as academics undertook routine tasks that previously received secretarial support. Fourth, in earlier eras academics "could teach the students from the homogeneous elite social class about their future, because they could fairly accurately predict the near future," but in the era of massification and the knowledge economy academics could "no longer teach students about their future… uncertainty increases both in society and in the prospects for students" (Arimoto 2015: 93).

There was a growing perception in many countries that academic freedom was being compromised, less through direct government repression, and more by the diktats of the market and society. The market through

the instrumentalization of research and teaching, and society through the unresolved tensions and chauvinisms of difference, both of which invaded the ivory towers of academe from the penetration of neoliberalism and the challenges of managing diversity and promoting inclusion. Notions of academic freedom of course differed widely. Those steeped in the liberal tradition viewed academic freedom in terms of freedom from interference and constraints, while others believed academic freedom and social responsibility were intertwined. The 1940 Statement of Principles on Academic Freedom in the USA represented the first tradition, and the 1990 Charter on Academic Freedom and Social Responsibility by the Council for the Development of Social Science Research in Africa represented the second.[15]

The growing perception among academics of decreasing influence on institutional decision-making combined with deteriorating conditions of work led to declining institutional loyalty. As William Cummings (2015: 35–37) observes, "One of the most striking findings of the CAP survey is the strong sense of commitment that academics express towards their academic disciplines both in 1992 and 2007. But they express a sharp decline in their loyalty to their employing institutions over this same 15 year period." This was particularly pronounced among the "advanced countries" and less so among the "emerging countries." Previously the "norm of shared governance was widely accepted." But "since that time conditions have deteriorated in many of the advanced countries (as well as in many poor countries, especially in Africa)," as "faculty power is down and managers are perceived as less communicative." Moreover, students "are not as well prepared as they used to be, but they are more demanding—in several systems their demands are linked to the fact that they now pay tuition. So work is tougher and less satisfying. And these internal realities contribute to a decline in loyalty."

As with all other phenomena and processes examined in this book, the changes in the academic profession showed predictable variations among countries, institutions, and fields. It is possible to make broad comparisons for the regions and countries on which data is available, such as Europe, USA, and the BRICS. The three comprehensive studies on the Academic Profession in Europe mentioned earlier offer the most comprehensive portrait of the academic profession in these countries. The first collection reviews the literature (Kehm and Teichler 2013), while the last two (Teichler and Höhle 2013a; and Fumasoli et al. 2015) use survey data to examine several dimensions of the academic profession including working

conditions, career paths, the reconfiguration of teaching, research, and service functions, changes in gender composition and governance, and the impact of internationalization.

On academic working conditions and job satisfaction, European academics generally assessed their facilities and resources positively, "with the least positive scores for research funding.… Overall, the academic profession in Europe in the countries studied reveals relatively high levels of job satisfaction—notably in Switzerland, the Netherlands and Italy" (Kwiek and Antonowics 2013: 37–38). Subsequent research showed a drop in job satisfaction to between 47 % and 77 %, and "fewer than 20% of academics in most countries perceived improvement" (Aarrevaara et al. 2015: 95). Dissatisfaction with working conditions was connected to changes in employment contracts with the growth of fixed-term contracts and the shift from permanent civil service contracts. The civil service status of academics changed to permanent contracts in Austria, remained in the Netherlands, and in Germany a mixed system co-existed.

Other issues that caused growing concern among European academics were raising expectations for promotion, proliferation of performance-based salary reviews that encouraged a culture of mass production, and external controls of academic work. There was declining support services, and institutional autonomy and academic freedom. Academics' influence on institutional governance declined and collegiality was undermined by increased specialization and competition. As for income, the highest levels for both junior and senior academics were in Switzerland, followed by the Netherlands and the UK and were lowest in Portugal. There were changes in the structure of the teaching, research, and service functions of universities (Teichler and Höhle 2013b; Drennan et al. 2013; Ćulum et al. 2013).

On the issue of career paths, the stabilities and securities of the past disappeared as entry qualifications and employment trajectories shifted, employment prospects became less certain, and competition for academic jobs and status intensified (Kwiek and Antonowicz 2013). The harmonization of the Bologna Process contributed to the regionalization of the academic labor market. Research-oriented doctorates increasingly became essential for entry into an academic career. In some countries such as the UK, extra training in the form of a postdoctoral phase became common, while in Austria and Germany the trend was toward reduction in training period required by the *Habilitation*, although the latter remained an important step for career advancement. In the highly competitive academic labor market, access to research funding, mentorships, networking,

and other marginal differences in performance became critical assets. In fact, the intensification of competition began to apply to all levels as the culture of assessment and expectations of increased productivity spread. Recruitment procedures and promotion processes became more formalized and complex as they involved the interaction of disciplinary, institutional, national, and global models. The varied logics of the legal framework, the recruitment procedures for different academic ranks and disciplines, and pressures to balance university mission, social competencies, and personal attributes generated practices that were both similar and divergent (Fumasoli and Goastellec 2015).

Career trajectories became less straightforward than before with the growth of fixed-term employment. Various forces including the decline in public funding and increasing reliance on private and business sources engendered this phenomenon. Fixed-term appointments gave universities greater flexibility as well as liability protection (Ates and Brechelmacher 2013). Academics on such appointments generally experienced "their personal employment situation mostly negatively and voiced their dissatisfaction in the interviews," sentiments that were shared with their senior colleagues hired under more generous conditions of the past of permanent employment (Brechelmacher et al. 2015: 20). The roles of university assistants also changed as their teaching burdens increased.

Tenure-track systems were also introduced where they did not exist before. In Germany, for example, the new "junior professorships" were a bridge between fixed-term assistant positions and permanent full-professorship. The phenomenon that came be called "cross-employment," or "moonlighting" grew for the "lumpen-professoriate" seeking to make ends meet. The changes in employment conditions led both to the reinforcement of inter-generational rivalries and hierarchies between junior and senior academics, and among status groups, and the flattening of relationship among junior faculty brought up to value collaboration and subjected to constant evaluations.

The teaching function remained critical for most academics, but growing demands for research and service, as well as changes in the composition and preparedness of students, imposition of student assessment and accountability measures, and development of new pedagogies and technologies, affected the dynamics of teaching (Clarke et al. 2015). From the 1980s, interest grew "in the research productivity of academics. Indicators of research productivity, such as publication rates and conference presentations, are a determining factor in decisions elated to promotion, tenure

and the granting of research funding. Research outputs also impact on the reputation of universities and other institutes of higher education as well as affect the career trajectories of academics" (Drennan et al. 2013: 109). The high stakes of research for institutional rankings and reputation for quality increased management pressures on academics to increase research productivity. On the whole, academics in Switzerland, Norway, Germany, and Austria spent a substantial amount of time on research as those in Portugal, the Netherland, Poland, and Ireland did on teaching.

Demands for internal services also increased as reporting requirements and administrative workload mounted. So did expectations for civic activities in response to the "mission overload" of universities. Academics' community engagement encompassed service learning and student placements, community-based outreach, volunteering, service organized by the institution, and political engagement. The importance placed on these activities differed depending on the position of the stakeholders in society and the institutional value placed on these engagements. The changes in teaching and research expectations made it necessary for academics to acquire new skills that were welcomed by some and resented by others. The emergence of the scholarship of service signaled efforts to incorporate service activities into research in addition to teaching. In a 2010 European survey, it was found that 42 % incorporated service in their teaching and 63 % in their research, although there were pronounced variations among countries and junior and senior academics (Ćulum et al. 2013 ; Ćulum et al. 2015; Ćulum 2015).

The gender dimension showed that women academics increasingly caught up with men quantitatively as shown in two international surveys, undertaken in1992 and 2007. The number of female academics in the USA rose from 36 % to 42 % and in Japan, which had had the lowest proportion of the countries surveyed from 8 % to 17 %. The ratio of female academics was higher than for males by 2007 in Argentina (59 %), and Australia (57 %). But men and women were "still unequally distributed in the academic hierarchy: many research endeavors underline differences in terms of access to full-time positions in prestigious higher education institutions, access to specific fields, obtaining higher ranks and salaries, having high publications rates and being satisfied with teaching loads and advancement but also in the probability of being married with children" (Goastellec and Pekari 2013a: 55). Gender differences in accessing research funding, research networks, opportunities for collaboration, and international mobility persisted (Jung 2015).

The academic profession in Europe was also impacted by changes in governance and internationalization. Pressures from governments for accountability and from within to raise institutional relevance and reputations expanded the number of stakeholders in university affairs, which affected governance systems, often resulting in the diminution of the role and influence of internal stakeholders including academics. Levels of external interventions, and attitudes to them, varied among academics based on their own ideological proclivities and fields. In general, the humanities and social sciences received less policy attention and private funding than their counterparts in the STEM fields, but attracted more public controversy (Aarrevaara and Dobson 2013).

Traditionally, the academic profession in Europe

> had a strong influence on the decision-making process in the university (steering via collegial bodies in the often cumbersome procedures), reforms introduced stronger management structures and top-down leadership (strategic steering from the top), transforming academic faculty into staff with limited institutional say. The 'donnish dominion' of university professors over their institutions is declining, and the power of the 'academic oligarch' is encroached upon by university managers in corporate models of governance (Park 2013: 182–3).

The changes in governance received their theoretical and ideological imprimatur from the New Public Management paradigm (Campbell 2013).

European institutions became more internationalized regionally and globally as major exporters of educational services and models. But the internationalization of the academic profession proved much slower process. The survey of 12 European countries showed that 84 % of academics were

> born in the country in which they worked at the time of the survey. However, the situation differs substantially by country. Switzerland is by far the most international in this respect: about half the academics at universities and about three-tenths at other higher education institutions are foreign-born. Altogether, more than three-tenth of academics in Ireland and more than one fifth in Norway, the United Kingdom and Australia are also foreign born. The respective ratio is lowest (about 2% each) in Italy and Poland (Goastellec and Pekari 2013b: 230).

Variations in the internationalization of the academic workforce had implications for the composition, cohesion, culture, and cosmopolitanism of the academic profession.

The case of the USA was particularly intriguing given its global standing. Over time, forms of academic employment changed significantly in several ways, four of which stand out. First, hiring practices shifted from the old sponsorship model to more transparent and competitive searches. In first model, faculty wishing to hire new faculty contacted colleagues at other institutions for their PhD students. The new model emerged in the context of civil rights struggles and non-discrimination legislation. While the operation of informal collegial networks persisted, from the 1970s open national academic searches became the norm. For the Ivy League and other prestigious institutions, the searches were sometimes even conducted internationally. The changes in hiring practices, undergirded by affirmative action laws, and the ideology of diversity that higher education institutions embraced, led to the gradual recomposition of faculty as more women and racial minorities entered the previously segregated corridors of academia.

Second, faculty responsibilities became increasingly disaggregated. The tradition of the prewar and immediate postwar years was that faculty, who were predominantly full-time, performed the triad of academic functions, namely, teaching, research, and service. The growth of contingent faculty, the term used by the American Association of University Professors (AAUP), from the 1970s began the process of unbundling, as the latter were often hired for one specialized function usually teaching. The numbers of contingent faculty accelerated in the 1980s and 1990s, and tipped over half in the 2000s, and by 2015, they had become the overwhelming majority accounting for three quarters of the academic workforce (Hoeller 2014). This radically altered the intensity of student–faculty engagement and the quality of learning as the interactions between students and contingent faculty were necessarily limited regardless of the latter's skills or passion for teaching. In the meantime, service obligations for the remaining full-time tenure-line faculty increased to the detriment of their interactions with students as well.

Third, the system and values of shared governance gradually eroded, as universities became more centralized, bureaucratized, and driven by the compliance demands of external accountability. The growth of contingent faculty contributed to the erosion, for they were often excluded from both service obligations and participation in governance structures. The AAUP became sufficiently alarmed that in 2003 it issued an official statement on *Contingent Appointment and the Academic Profession*. The 2014 update makes sobering reading. It noted that since its original report, "faculty work has become more fragmented, unsupported, and

destabilized" (AAUP 2014). The growth of contingent faculty into the new faculty majority not only undermined the quality of student learning, equity among academic colleagues, integrity of faculty work, but also academic freedom and shared governance. Another AAUP's report, *Contingent Faculty in Governance*, called for the inclusion of contingent faculty in shared governance (AAUP 2013).

Fourth, faculty salaries changed. Before 1945, academic salaries were low because the academic profession was seen as a calling, much like the priesthood. In the 1950s and 1960s, they rose at an annual average of 3.6 %, but the gains were eroded by inflation in the 1970s. It was not until 1997–1998 that salaries recovered to the levels of the early 1970s, in constant dollars. In the 2000s, they rose modestly by a total of 6 %, and stagnated following the financial crisis of 2008–2009. There were of course great disparities across institutional types and fields, and by academic rank and gender. Compared to other professions there were also variations by field, but were generally lower by a quarter in 2003 for the academic workforce as a whole.

Academic salaries were also complemented by fringe benefits, such as health care and employer pension contributions from which contingent faculty were often excluded. Supplementary employment was also part of the package usually from summer teaching, which half the faculty performed in 2004; consulting and freelance work, which a third of the faculty did; and eighth of the faculty reported receiving income from another institution. Globally, academic salaries in the USA were among the highest, which attracted academics from around the world. But trends did not seem to bode well for the future. "Within the context of the last half century," Finkelstein and Iglesias (2013: 194) concluded their survey of the US academic profession, "current developments signal a clear decline in the collective fortunes of American academic professions…. At the same time—as the key point—the fortunes of the academic professions in other rapidly developing economies, especially the BRIC countries, are on the rise."

One of the major differences between the academic profession in the emerging and developed countries was the bifurcation between "elite scholars" connected to the international system and "local" academics lacking such connections. In the early 2010s, it was estimated that the elite group represented 29 % of academics in the developed countries, and a much lower percentages in the emerging countries, such as Mexico (18.8 %), Argentina (17.9 %), China (14.6 %), Brazil (14.5 %), South Africa (12.3 %), and Malaysia (6.2 %). The elite academics enjoyed

the same attributes in terms of higher levels of research, satisfaction, and internationalization than the rest. “In almost all respects,” Marquina and Ferreiro (2015: 184–5) noted, “the differences between the ‘elite groups’ and the ‘rest’ are more substantial in emerging countries than in mature countries. Only concerning their assessment of the improvement of working conditions is the difference between the two groups of countries not evident.”

The situation among the BRICS varied. For China and Russia, the changes in the academic profession were far more dramatic than in the other BRICS because they transitioned from the centralized Soviet model. The transition was particularly difficult in Russia. Under the Soviet system, academics were regarded as civil servants and were well paid; professors’ earned three times the average wage. They could earn additional income through “economic contracts,” which were essentially commissioned research projects. There were opportunities for faculty development, which included retraining every five years to improve teaching skills. It was a highly regulated system in which there was limited academic freedom and hardly any inter-institutional mobility among academics. The working conditions and position of academics reflected their location within the three-tiered hierarchy of academies (concentrated on research), institutes, and universities (concentrated on teaching). Academics in the research academies enjoyed much higher status than their colleagues in the teaching universities.

The collapse of the Soviet Union and transition to a market economy led to profound disruptions for the higher education system and academic profession. In the 1990s, budgets fell by three to four times at the same time that as enrollments more than doubled. The development of private institutions brought a new organizational structure into Russian higher education that introduced an added layer of segmentation among academics. The first casualty of the transition was remuneration. Academic wages fell below subsistence levels, and the gap with other occupations widened. As a result, up to half of academics left for better opportunities in other sectors at home or universities abroad. “As most of the best professionals left,” writes Gregory Androushchak (2013: 67–8), “the system was replenished with younger scholars or people from other sectors, who were usually academically weak.” The much-vaunted Soviet higher education system declined precipitously in quality. Due to reforms, by 2009, “the gap between earnings in academia and the rest of the economy only averaged at about 10 percent…. Today, in contrast to the Soviet period,

considerable variations in wages exist between academic fields." Academics supplemented their incomes through extra teaching at "for-profit" entities in their own institutions or at private institutions. Moonlighting prevailed especially among the lower paid academics in private institutions. Additional income sources included private tutoring and even corruption involving informal payments by students in exchange for entrance into programs or good grades.

Expectations and workloads for academics in the public universities also changed. In the post-Soviet system, they were expected to do research in addition to teaching, but "teaching loads remained heavy and the old emphasis on teaching in evaluations persisted. Consequently, for most teachers, research output either diminishes to a mere formality or is not done at all…. Also, research performance does not serve as a significant factor when it comes to extending academic contracts," and in situations where research did count some resorted to "purchasing papers or articles, written by other people and passing them off as one's own; or compiling manuscripts that are not really research papers" Androushchak (2013: 74, 82).

Despite the opening up of the higher education system, mobility remained low both nationally and in terms of attracting international faculty. This engendered inbreeding, which fostered narrow academic networks and weakened research excellence. Moreover, the processes of internal assessment and shared governance were quite limited. For example, it was the chairs of research areas that made employment decisions rather than the departments. The reforms of the mid-2000s intended to revitalize the higher education system, led to greater differentiation and more resources poured into institutions designated as research universities. Division and disparities widened among academics in terms of salaries, working conditions, and status, which affected their relative performance as teachers and productivity as researchers.

The academic profession fared a lot better in China. After the 1949 Revolution, academics were considered state employees, and their terms of employment were similar to those of civil servants. They were assured lifelong employment, and it was not uncommon for their children to follow in their footsteps. But during the Cultural Revolution academics suffered more than most, which also meant that they were among the beneficiaries of the reforms introduced from the late 1970s. The reforms included the adoption in 1981 of a US-style degree system of bachelor's, master's, and PhDs, as well as "a more Western-style, human-resource

management system with contracts. All faculty and staff were required to sign a contract at the turn of the century, which thus established the contract system. However, it is still hard for a university to fire faculty members if they are not considered qualified" (Wanhua and Jiambo 2013: 133). In 2004, Peking University, one of the country's most prestigious, introduced a system in which only full professors were granted tenure, and all the other ranks were on contract. Despite some resistance, other leading universities adopted Peking University's personnel system.

The introduction of the contract system led to greater standardization in the processes of faculty hiring in which transparency and meritocratic appointments were valorized. But preferences based on gender and age considerations, and the influence of senior professors on hiring decisions survived. Also, inbreeding persisted despite the opening up of the academic labor market. The leading universities sought to overcome inbreeding and raise their status and national and international rankings by aggressively recruiting international faculty including from the Chinese academic diaspora. To facilitate this, the government established several ambitious and competitive programs. Provisions in labor law protected academic employment as it allowed university employees to unionize, although the activities of unions remained circumscribed.

The changes in faculty hiring processes, together with the exponential growth in its size, led to greater differentiation of the academic workforce. The division between public and private institutions became salient in terms of remuneration, working conditions, expectations, and status. By 2009, higher education employed 2,233,722 faculty and staff, of whom 2,195,647 were in the public institutions and the rest in private ones. Full-time faculty comprised 61.04 %, among who 98.69 % were in public institutions. The part-time faculty were mostly concentrated in the private institutions. The salary structure reflected these divisions. Academic salaries rose substantially after the mid-1990s from the extremely low levels of the pre-reform period. On the whole, salaries varied according to institution, degree, rank, age, and gender (Shen and Xiong 2015).

Public institutions were given more autonomy to raise funds to recompense their employees beyond the basic salaries set by central, provincial, and local governments. They did this with an elaborate system of bonuses and subsidies that were tied to performance according to rank. Selection to the prestigious research academies brought great rewards. Academics in the tuition-dependent private universities did not enjoy the same salary advantages. As elsewhere, and unlike before the reforms, gaps emerged

and widened between academics in the humanities and social sciences and their more highly paid counterparts in the favored sciences and engineering fields. Chinese academics also supplemented their salaries through moonlighting, consultancies, and research grants.

The changes in the academic profession in India were more gradual than the ruptures in Russia and China. For decades after independence in 1947, the academic profession was characterized by British colonial structures, practices, and norms. The rapid expansion and differentiation of the higher education system into public and private both non-profit and for-profit strained the composition of academic staff and organization of academic work thus making reform imperative. The reform of the higher education sector from the turn of the 1990s was part of wider economic and social reforms. The new system was marked by the growth of non-permanent and part-time positions that dominated the rapidly expanding private institutions. N. Jayaram (2013: 100) noted, "State universities also depend on part-time teachers, while central universities rarely do." The salaries and working conditions of this group of faculty were not as good as those of the permanent faculty in the public and especially central universities.

The reforms also included standardizing the academic hierarchy into three tiers on the US pattern, assistant professor, associate professor, and professor. The UGC laid out the qualifications required for appointment at the various levels. Appointments were also increasingly guided by meritocratic principles and transparent processes defined by the UGC, although the reservation of 49.5 % for underrepresented groups as designated in the Constitution, namely, castes, scheduled "tribes," and "backward" classes continued. The guidelines applied to the public institutions, but were not binding on private institutions.

The recruitment procedures in private institutions tended to lack transparency. Despite elaborate recruitment guidelines for the public institutions, "In actual practice rules are bent and appointments are often manipulated ad fixed…. Often, the drama of recruitment is enacted only to legitimize the appointment of internal candidates to higher positions" (Nayaram 2013: 106). Thus although the scope of recruitment became formally national, mobility and inbreeding continued to be challenges. Some institutions including the Indian Institutes of Management tried to resolve that by creating a pool system that allowed applications for advertised positions to be submitted all year round until the right candidate was found.

Academics in the various types of institutions faced different expectations in terms of workload. Institutions dependent on government funding were supposed to strictly follow official workload norms. Such standardized approaches did not apply to the private institutions that were more exploitative. Research expectations also applied largely to the public, not private, institutions. Further, comprehensive performance review procedures and career advancement support schemes were mostly confined to the public universities and colleges. Not surprisingly, there were salary disparities between academics in public and private institutions.

For much of the period after World War II, salaries for Indian academics were quite low compared to other professions and countries. The gap narrowed considerably following the 2006 reforms by the UGC, the body responsible for fixing salary and service conditions for the academic workforce in the public institutions. The UGC raised salaries quite significantly, in exchange for improved quality and faculty productivity, so that "academics in public-funded universities and colleges now lead a comfortable middle-class lifestyle based on the salaries they are paid" (Jayaram 2013: 117). Unlike many countries, there were no salary differences by field, and consultancies were a negligible source of additional income. Also relatively limited was moonlighting. Yet, the academic profession was not immune to corruption and misconduct, sometimes generated by efforts to circumvent the wide-ranging and rigid regulatory mechanisms.

Developments in Brazil shared some similarities with those in the other BRICS countries. Compared to the other Latin American countries, including Mexico, Brazil developed the region's most extensive and dominant higher education system because of the government's longtime interest in building an elite public system and longtime research support "as part of a broader goal of achieving technological self-sufficiency, while leaving most tertiary enrollment in the hands of private institutions of often dubious quality. Mexico, in contrast, has paid lip service to the importance of science and technology, while in practice prioritizing access to professional education at public institutions" (Stack et al. 2014: 193).

Not surprisingly, a larger proportion of Brazilian academics in public institutions expressed greater preference for research and satisfaction with research support than their Mexican counterparts, although in both countries a majority of academics saw teaching and research as compatible. The former also believed they enjoyed more institutional influence and autonomy than the latter, owing to "the university reform of 1968 and the 1988 federal Constitution, both of which sought to remake Brazilian higher

education largely in the U.S. model" (Stack et al. 2014: 210). But Mexican academics on average expressed higher satisfaction with their jobs than Brazilian academics.

The academic profession in Brazil expanded rapidly and grew into a markedly heterogeneous and hierarchical system (Balbachevsky and Schwartzman 2013). As in other Latin American countries, it became "a layered profession, where different professional profiles are superimposed, each of them with roots in different phases of Latin America's higher education history.… all these profiles have their own ways to reproduce themselves, and, in doing so, these processes perpetuate the shattered profile of the academic profession" (Balbachevsky 2015: 243). By 2008, the academic workforce totaled 338,890, the majority were hourly employees (40.52 %), followed by full-time employees (39.06 %), and the rest were part-time employees (20.42 %).

The bulk of the hourly employees were in private institutions (93.44 %), so were the part-time faculty (72.89 %). In contrast, most of the full-time faculty were in public institutions (69.20%) (Schwartzman 2013: 36–7). As in Russia, China, and India academics in the public institutions enjoyed much higher salaries and better conditions of work than their counterparts in the private institutions. The former were part of the civil service whose hiring was subject to bureaucratic procedures similar to the recruitment of other civil servants. This practically gave them security of tenure from the moment they were hired. The recruitment of the mostly part-time and hourly employees of the private institutions did not adhere to formal procedures.

Another distinction between the public and private institutions was that the former had a clear career ladder and the latter did not. The career trajectory comprised five ranks, auxiliary, assistant, adjunct, associate, and full professor. Each of the first four ranks was divided into four levels, and specific qualifications, not performance assessments, were required for promotion. As in other countries, part-time faculty in the private sector were more mobile than full-time faculty in the public sector. In Brazil, this was also facilitated by the fact that mobility did not entail the loss of benefits according to labor law. Salaries across all federal universities were the same for each rank. Overall, "higher education teachers, particularly those working in the public sector, are part of the country's upper middle-class—that is, likely to live in upper-middle class neighborhoods, own a house or an apartment, have a car, and send their children to private schools" (Schwartzman 2013: 46). As for working conditions, the heaviest teaching

loads were in the private institutions, while those in the public institutions were expected to split their time evenly between teaching and research, but in reality most spent only a quarter of their time on research.

Many of these issues were also prevalent in South Africa. But the primary challenge for South Africa during and after apartheid centered on race. During the apartheid era, which came into being in 1948, clear divisions were drawn between white and black universities, and within each group. The white universities were split into English-speaking and Afrikaans-speaking institutions, while among blacks there were separate institutions for the Colored, Indian, and African populations; the latter were further subdivided into ethnic institutions. Each set of institutions was expected to cater primarily to its constituent group and provide the kind of education befitting its group in the country's racialized capitalism. The white institutions were far better resourced than the black ones, while among the latter the African institutions were at the bottom. The hierarchical structure was reflected and reproduced in terms of the varied emphases placed on research, teaching, and service for the different categories of institutions.

White academics dominated all the universities despite the ethnic divide. Predictably, white academics controlled knowledge production in all its facets from research to publishing. The agenda for change in post-apartheid South Africa from 1994 called for the recomposition of academic staff and the student body to reflect the country's demographic realities. Higher education became both the terrain and instrument of transformation. To this effect, the Higher Education Act of 1997 was promulgated to promote democratization, equity, desegregation, and multiculturalism. This was followed in 2001 by the adoption of the National Plan for Higher Education as the mechanism to promote employment equity and fundamentally transform the profile of the academic workforce. As in other societies seeking redress from past and persistent inequalities, affirmative action policies were adopted

In practical terms this meant integrating equity policy in faculty recruitment processes, in which centrally managed and faculty managed practices competed, clashed, or complemented each other. In a survey of several universities, Beverly Thaver (2006) found that Black and white members of search or selection teams often brought different perspectives. The latter tended to enunciate universalistic notions of quality and standards and view white appointments as meritocratic and black candidates as beneficiaries of the tokenism of "equity" appointments. Black and white academics also enjoyed different levels of peer support for research activities.

Moreover, there were contestations on what constituted research and how to measure it. Many black academics were quite critical of Western and Eurocentric epistemological underpinnings and the white normativity of South Africa's research culture.

Post-apartheid South Africa joined a world in which higher education was driven by neo-liberal imperatives. This complicated the implementation of the transformation agenda. The disparities between black and white students persisted, as did those between white and black faculty, although there were significant differences between academics recruited before and after 1994 (Wolhuter 2013). According to a CAP survey conducted in 2008, the faculty male–female ratio among faculty was 60:40 for the pre-1994 recruits and 47:53 for the post-1994 recruits. It has been argued that while

> the reduction of male dominance is in line with international patterns, the fading attractiveness of the academic profession in South Africa, in terms of remuneration falling behind those of other occupations and declining working conditions, mainly increasing workloads and managerialism, might well account for talented males increasingly shunning the academic profession, rather than the implementation of affirmative-action appointment policies (Wolhuter 2015: 1381).

In terms of language groups, the percentage of those whose first language was Afrikaans declined from 70 % to 60 % for the two groups, while it rose slightly for English-language speakers from 17 % to 18 %, and much more noticeably for African-language speakers from 9 % to 15 %, although that was still marginal compared to the 80 % of African-language speakers in the South African population. Speakers of other languages "increased marginally from 6% to 7%, indicating a very low level of internationalization of the South African academic profession" (Wolhuter 2015: 1382). South African academics boasted higher levels of PhD holders (64 %) than other emerging economies in the CAP surveys, such as Brazil (40 %) and Mexico (23 %), and compared favorably with some European countries like Portugal (32 %) and Italy (65 %).

Both the pre-1994 and post-994 faculty cohorts spent a considerable amount of time teaching, 21.35 hours and 21.02 hours, respectively, which was higher than other countries in the CAP surveys. South African academics were expected to be both active teachers and researchers, although they spent less time on research than teaching. The pre-1994 cohort on average devoted 16.55 hours on research compared to 14.63 hours for

the post-1994 cohort. Service received little time from both cohorts, although it went up slightly for the latter to 3.83 hours compared to 2.91 hours for the former. The research productivity of the pre-1994 cohort was higher than for the post-1994 cohort, although both groups scored lower than the average for countries surveyed by CAP. Levels of internationalization were also relatively low. The post-1994 group reported less strained relations with institutional management and slightly higher levels of job satisfaction. South African academic salaries were higher than in most developing countries. This allowed academics a comfortable middle-class lifestyle. However, in the CAP survey a third had considered searching for prospects outside the academy, an indication of the stifling impact of managerialism, which hit previously isolated South Africa with unusual urgency and intensity.

Conclusion

This chapter examined the growing challenges facing the world's increasingly massified, privatized, and internationalized higher education systems to provide and maintain quality education. This gave rise to the development of the quality assurance movement at national, regional, and global levels whose dynamics, demands, and diversities were examined in the first section. Clearly, despite global hierarchies and disparities, by 2015 no system was immune from criticisms and concerns about the quality of its inputs, processes, and products. Thus, questions about the value proposition of higher education became global. This was unsettling to many in the academy, but it also opened up spaces for institutional, intellectual, and instructional experimentation.

The second part of the chapter looked at curricula transformations in terms of curricula expansion, changes in pedagogical practices, values, and ideals. It was noted that traditional teaching methods remained dominant in many parts of the world as represented by the lecture in which an instructor dispensed information and knowledge to students exhibiting varying degrees of participation. But more active forms of learning gained support as epitomized by PBL and interactive technology-enhanced learning. The chapter also interrogated the changes in the lives and conditions of undergraduate and graduate students, and their role in curriculum development and reform. It was argued that at the beginning of the twenty-first century, both undergraduate and graduate education faced serious challenges, which again, underscored the growing instabilities and

vulnerabilities of higher education worldwide. Elite institutions retained their ability to provide comprehensive, integrated, and transformative education, while the rest offered more specialized and functional forms of education that served to widen the inter-institutional gaps and the prospects of their respective outputs.

Finally, the chapter investigated the changing conditions of the academic profession with the unbundling of faculty roles, the growth of managerialism, and marketization of institutional practices and values in many parts of the world. Comparative studies showed the diversity of working conditions in different national and institutional settings, but also increasing converges characterized by the erosion of faculty power in institutional decision-making, and greater differentiation and fragmentation among faculty. The latter was most graphically captured in the rise of part-time and contingent faculty. Also faculty workloads generally increased as expectations for research and service rose, while at the same time massification and growth in the proportion of underprepared students raised demands for teaching and student advising.

The progressive disempowerment of faculty, as well as casualization of the academic profession, it can be argued, was a key factor in declining educational quality at many colleges and universities across the world. Faculty remained the heart and soul of the educational enterprise. Their skills, motivation, commitment, and passion were indispensable for realizing academic excellence, for maintaining and enhancing the value proposition of higher education. Unfortunately, in many parts of the world they were increasingly disempowered and marginalized as the educational enterprise danced to the drums of neo-liberal imperatives and external accountability.

Notes

1. See International Directory on CHEA's website, http://www.cheainternational.org/intdb/list.asp?key=c
2. Paul Gaston (2014) includes among the core mission the following: defining and authenticating colleges, affirming credibility, facilitating transfer, auditing sustainability, promoting institutional strengthening, and sustaining oversight; mandated missions include supporting state recognition, and defining eligibility for government support; and collateral missions include ensuring effective governance, creating a platform for the dissemination of best practice, enabling evaluation of colleges by the public, edu-

cating members of the academy, sponsoring discussion, facilitating changes in disciplines, encouraging social justice, offering advocacy on behalf of disciplines, and promoting affordability.

3. See CHEA's website http://www.chea.org.
4. See QAA's website http://www.qaa.ac.uk/en.
5. See TEQSA's website http://www.teqsa.gov.au
6. See Berlin Communiqué at http://www.ehea.info/Uploads/Declarations/Berlin_Communique1.pdf; the other declarations and communiqués are the Sorbonne Joint Declaration at http://www.ehea.info/Uploads/Declarations/SORBONNE_DECLARATION1.pdf; and the Bologna Declaration at http://www.ehea.info/Uploads/Declarations/BOLOGNA_DECLARATION1.pdf; Prague Communiqué at http://www.ehea.info/article-details.aspx?ArticleId=3
7. See London Communiqué of 2007 http://www.ehea.info/Uploads/Declarations/London_Communique18May2007.pdf; the other communiqués after the Berlin Communiqué included the Bergen Communiqué of 2005 http://www.ehea.info/Uploads/Declarations/Bergen_Communique1.pdf; the 2009 Leuven and Louvain-la-Neuve Communiqué http://www.ehea.info/Uploads/Declarations/Leuven_Louvain-la-Neuve_Communiqué_April_2009.pdf; the 2012 Bucharest Communiqué http://www.ehea.info/Uploads/%281%29/Bucharest%20Communique%202012%281%29.pdf; Mobility Strategy 2020 for the European Higher Education Area http://www.ehea.info/Uploads/%281%29/2012%20EHEA%20Mobility%20Strategy.pdf;
8. See the website of these organizations: ENQA http://www.enqa.eu; ECA http://ecahe.eu; EENQA http://www.ceenetwork.hu; NOQA http://www.nokut.no/en/noqa/; AQAN http://www.aqan.org/aqanv2/index.cfm; APQN http://www.apqn.org; ANQAHE http://www.anqahe.org; AQAAIW http://www.mqa.gov.my/aqaaiw/index_01.cfm; CAMES http://www.lecames.org/index.php; AfriQAN http://afriqan.aau.org; ACDE ; EAQAN http://www.iucea.org/index.php?option=com_content&view=article&id=110; INQAAHE http://www.inqaahe.org/index.php.
9. The countries were Canada, the USA, Ireland, the UK, Russia, Turkey, Hong Kong, India, Japan, Korea, Malaysia, Singapore, Sri Lanka, Taiwan, South Africa, Australia, and New Zealand.
10. A vast literature emerged on the practices essential to promote academic rigor in student recruitment (foregrounding academic values), orientation (promoting social and academic integration), curriculum design (developing innovative pedagogies), assessment of teaching and learning (constructing comprehensive, informative, and formative evaluations), utilizing technology and data mining (to improve engagement of students). Recommended best practices emphasized the normative dimension (stress-

ing the primacy of academic values), structural dimension (enhancing academic engagement), and the accountability dimension (strengthening culture of assessment).

11. See the National Center for Education Statistics at https://nces.ed.gov/fastfacts/display.asp?id=40
12. See Africa News Agency, 19 May 2015 http://www.enca.com/south-africa/student-dropout-rate-high
13. see the website for the Coalition of Graduate Employee Unions http://www.thecgeu.org/wiki/United_States
14. The researchers investigated the relationship between congeniality and research and found that, "congeniality is highest in the professional model, but research productivity is lowest. On the other hand, in market systems, research productivity is high, but congeniality is low. We can assume that the stronger the performance-focused competition and regulation in market and state models, the higher their productivity becomes; however, congeniality in such institutions is low" (Postiglione and Jung 2015: 118).
15. See the AAUP Statement, http://www.aaup.org/file/1940%20Statement.pdf and CODESRIA's Declaration, http://www.codesria.org/spip.php?article350. For an interesting empirical analysis on perceptions on academic freedom in Australia, see Åkerlind and Kayrooz (2009), which examined five qualitatively different ways of understanding academic freedom in terms of constraints: an absence of constraints on academics' activities; an absence of constraints, within certain self-regulated limits; an absence of constraints, within certain eternally regulated limits; an absence of constraints, combined with active institutional support; and an absence of constraints, combined with responsibilities on the part of academics.

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