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Beyond the ABCs: Higher Education and Developing Countries

By Devesh Kapur and Megan Crowley

Abstract

This paper analyzes a relatively neglected facet of the complex debate regarding human capital – higher (or tertiary) education. It addresses five broad questions examining higher education in developing countries. One, are the economic effects of higher education on developing countries different from those in industrialized countries, with its links with labor markets of lesser importance than its impact on institutional development? Two, how does the impact of higher education depend on the type of education and its beneficiaries? Three, with the state unable to meet growing demand pressures, what should be the proper role of the state to ensure not just quality but also equity and access? Four, how should countries rethink the provision of higher education in an "open economy" from seeking education abroad or encouraging foreign providers into the country or simply linking domestic institutions with foreign quality assurance mechanisms? And five, do new technologies offer developing countries a new paradigm to expand the provision of high quality but low cost higher education? The aim is not to provide categorical answers to these complex questions, but rather highlight the analytical and empirical lacuna with regard to each of these questions.

Beyond the ABCs: Higher Education and Developing Countries

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1. INTRODUCTION

If physical capital – its growth and distribution – was central to debates on economic development in the 20th Century, human capital increasingly occupies center stage. This paper analyzes a relatively neglected facet of an increasingly complex debate regarding human capital– higher (or tertiary) education. As with many development fashions, while higher education was in vogue in the 1950s and 1960s, it subsequently fell out of favor. The various development paradigms, from basic needs to rural development to structural adjustment and policy reform, had little place for higher education; and the more recent emphasis on institutions as the sine qua non of development also pays little heed to this subject. Even when human capital began to garner attention in the 1990s, the focus was on those aspects that directly affected the human capital of the poor, namely primary education and health. The overwhelming normative and positive case for primary education coupled with the fact that as a broad public good, primary education does not seem to pose zero-sum distributional issues (and is hence politically less contentious), has always been one of its most attractive features in a world with limited physical capital. Higher education, on the other hand, seems to be yet another case of misplaced priorities and scarce public expenditures devoted to it have been decried as yet another case of regressive income transfers benefiting developing country elites.

In the last few years, however, the debate has begun to shift, especially with the breathless embrace of the "knowledge economy." In this paper we argue that there are more old-fashioned robust reasons for developing countries to rethink and reform their higher education systems. Higher education is critical to build the human capital that in turn builds the very institutions that are regarded as an indispensible factor of development – the accountants, doctors, engineers, lawyers, teachers – that comprise the middle class. The emergence of a vibrant middle-class, which was neither part of the land-tied peasantry nor part of the aristocracy that drew its privileges from feudalism, was critical for the development of modern institutions of capitalism and democracy. Institutions are not merely an amalgam of abstract rules that shape the incentives of agents; they are embedded within organizations that act as the locus of collective action. The weakness of the middle-class has hobbled the organizational capabilities of

institutions in many developing countries, and that weakness is, in turn, partly the result of weak systems of higher education.[2]

The role of higher education, in both theoretical and policy terms lacks adequate empirical knowledge of what is happening *within* universities and to the students who spend a considerable part of their prime years in these institutions. While it is clear that there has been a substantial growth in higher education whether measured by the number of students or amounts spent, it is unclear just how meaningful this large growth is. Researchers have found it exceedingly difficult to get a good grip on two critical output measures – how to measure quality in higher education and how to determine the value added by higher education over and beyond the student's innate abilities. It is entirely possible that even in systems which are of good quality, the credentialing aspects of higher education benefit the few who have access to it and crowd out from labor markets others with similar ability but who lack access – the more prevalent formal educational qualifications, the more pressure to educate oneself. Just as an arms race does not lead to greater security despite much greater spending, the upward spiral in education credentialing may not yield social benefits commensurate to the expenditure (e.g. Wolf, 2004).

Yet, even if the above argument is accepted, the policy implications are not clear. In this paper we address five broad questions examining higher education in developing countries:

1. The first question is the most obvious: why higher education? Are its economic effects on developing countries different from those in industrialized countries, with its links with labor markets perhaps of lesser importance than its impact on institutional development in particular?
2. How does the impact of higher education depend on the type and beneficiaries? In a world of limited resources, how have (or should) countries distribute resources *within* higher education – between individuals and institutions, across fields and disciplines, between research and teaching?
3. With the state unable to meet growing demand pressures, how are countries responding and what should be the proper role of the state? How should its financial and regulatory

[2] For an argument linking a larger middle class to less class polarization and hence better development outcomes, see Easterly (2001).

roles change, to ensure not just quality but also equity and access so that higher education becomes a ladder rather than a barrier to social mobility?

4. How should countries rethink the provision of higher education in an "open economy"? When should countries subsidize students acquiring education abroad or instead encourage foreign providers into the country or simply link domestic institutions with foreign quality assurance mechanisms? Relatedly, when should the international community shift resources from technical assistance and instead fund higher education in poor countries?
5. Do new technologies offer developing countries a new paradigm to expand the provision of high quality but low cost higher education?

This paper does not provide categorical answers to these complex questions. Rather, it examines these issues and maps out what we know, but perhaps even more importantly, it highlights the analytical and empirical lacuna with regard to each of these questions.

2. THE EXPANSION OF HIGHER EDUCATION

Over the past half century or so, tertiary education has transformed from a preserve of elites, accessible largely by the most wealthy and privileged groups, to a global industry annually enrolling tens of millions of students. This growth, particularly in developing countries, has been especially rapid in the last decade. In 1991, the global tertiary student population was 68 million. By 2004 it had nearly doubled to 132 million (UNESCO, 2006) and is projected to reach 150 million by 2025 (Moe and Blodget, 2000). Gross enrollment ratios in Latin America rose from 1.6 percent in the 1960s to 29 percent in 2002 (Guadilla and Guadilla, 2005). Gross enrollment ratios in higher education in China have climbed from barely 2 percent in 1990 to about 16 percent in 2005 and in Vietnam the population of higher education students grew from 190,000 in 1991 to nearly 1 million in 2002. Table 1 displays the rapid growth in tertiary education across the globe.

Table 1: Gross Enrollment Ratio (%),[a] Tertiary Education

	1980	1997	2004
High Income countries	36.2	51.6	66.7
Least Developed Countries	1.8	3.2	8.7
Sub-Saharan Africa	1.7	3.9	5
Arab States	9.6	14.9	22.6
Latin America and the Caribbean	13.7	19.4	28.6
East Asia and Oceania	3.8	10.8	19.6
South Asia	4.3	7.2	9.7

Source: World Bank EduStats

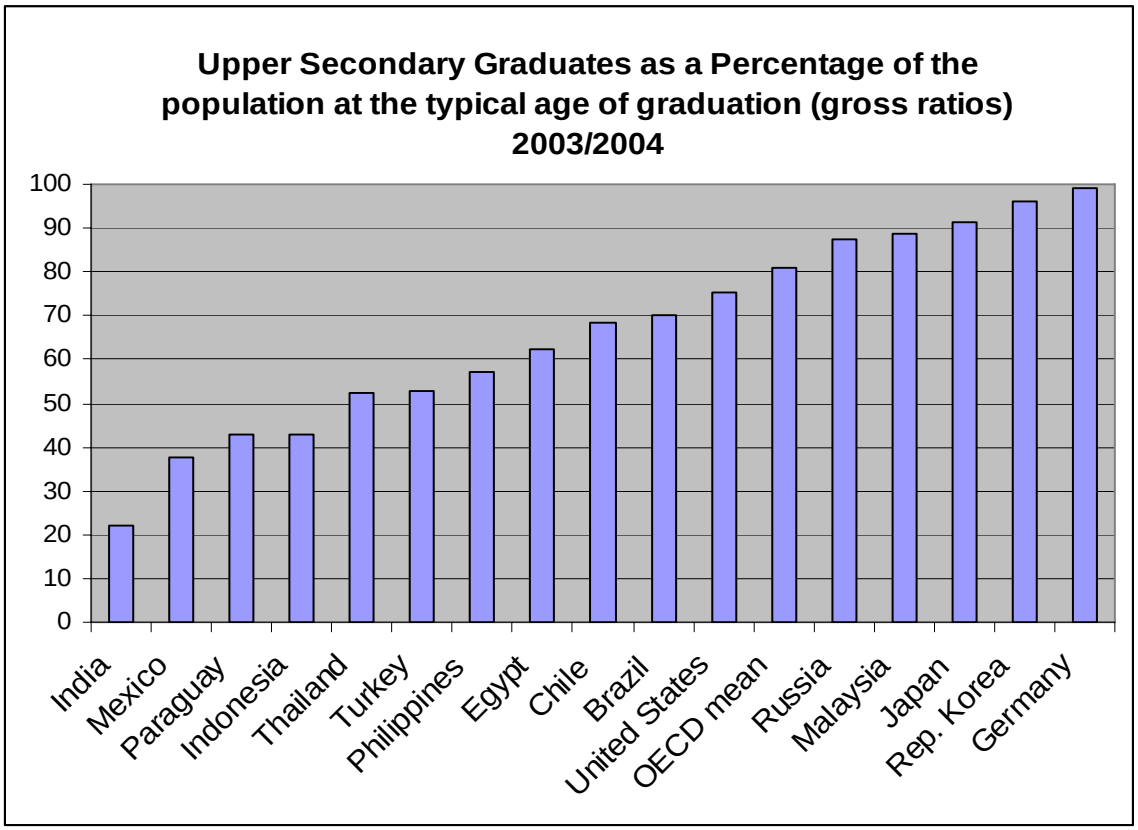
a: The gross enrollment ratio is the total enrollment at a given educational level, regardless of age, divided by the population of the age group that typically corresponds to that level of education. The specification of age groups varies by country.

2.1 Changing Demographics

The rapid growth in tertiary education enrollments reflects shifting demographics, changing economic structures and significant improvements in access to primary and secondary education. By the late 1990s, 75 developing countries had primary enrollment rates over 90 percent. Between 1965 and 1995 the secondary gross enrollment ratio increased from 16 to 47 percent in Brazil, from 2 to 32 percent in Nigeria, and from 13 to 30 percent in Pakistan (World Bank, 2000). On average, between 1995 and 2003 upper secondary enrollment grew by 39 percent in countries participating in UNESCO's World Education Indicators (WEI) program.[3] The increasing numbers of students graduating from secondary school has led to corresponding pressures in the demand for post-secondary education.

[3] These include Argentina, Brazil, Chile, China, Egypt, India, Indonesia, Jamaica, Jordan, Malaysia, Paraguay, Peru, the Philippines, the Russian Federation, Sri Lanka, Thailand, Tunisia, Uruguay and Zimbabwe.

Table 2:



Source: WEI/UNESCO, 2006

The large number of young people in developing countries is also contributing to this demand for tertiary education. In countries such as Pakistan, Malaysia, and Vietnam, close to 65 percent of the population is under the age of 30. Moreover, the rapid obsolescence in skills and changing labor market dynamics have increased demand for "life-long learning" around the globe, drawing in students outside the traditional 18-24 year old age bracket. Nearly 40 percent of undergraduate students in the United States and 30 percent in Canada are over the age of 25, and two-thirds of students enrolled in Singaporean tertiary education are over the age of 25 (IFC, 2006).

Table 3: Population Aged 15-24 (in millions)

	Africa	Asia	Europe	Latin America & Caribbean	North America	Oceania	Less Developed Regions	World
1950	42	267	95	32	26	2	325	463
1980	92	514	113	74	48	4	664	844
2000	166	663	101	101	43	5	916	1,080
2010	210	750	93	106	50	5	1,054	1,213
2025	278	710	76	108	51	6	1,087	1,228
2050	354	655	67	97	53	6	1,100	1,232

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2006 Revision* and *World Urbanization Prospects: The 2005 Revision*, http://esa.un.org/unpp,

Although gross enrollment ratios in developing countries still lag far behind those in industrialized countries, the more important gap between industrialized and developing countries lies in the *quality* of higher education. The deplorable condition of higher education in developing countries is partially due to a paucity of resources. Tertiary education in developing countries has long been poorly funded. While it may be understandable that expenditures per student are far below those in industrialized countries, even their share in GDP is far less (Table 4). A comparison of per student expenditures in a sample of leading institutions of higher education around the world highlights this wide variance (Table 5). This high variance in expenditures in leading institutions especially reflects their very different capacities for research, rather than teaching.

Table 4: Public Expenditure on Tertiary Educational Institutions per Student 2003-2004*
(Source: UNESCO Education Counts, WEI 2006, p. 72-73)

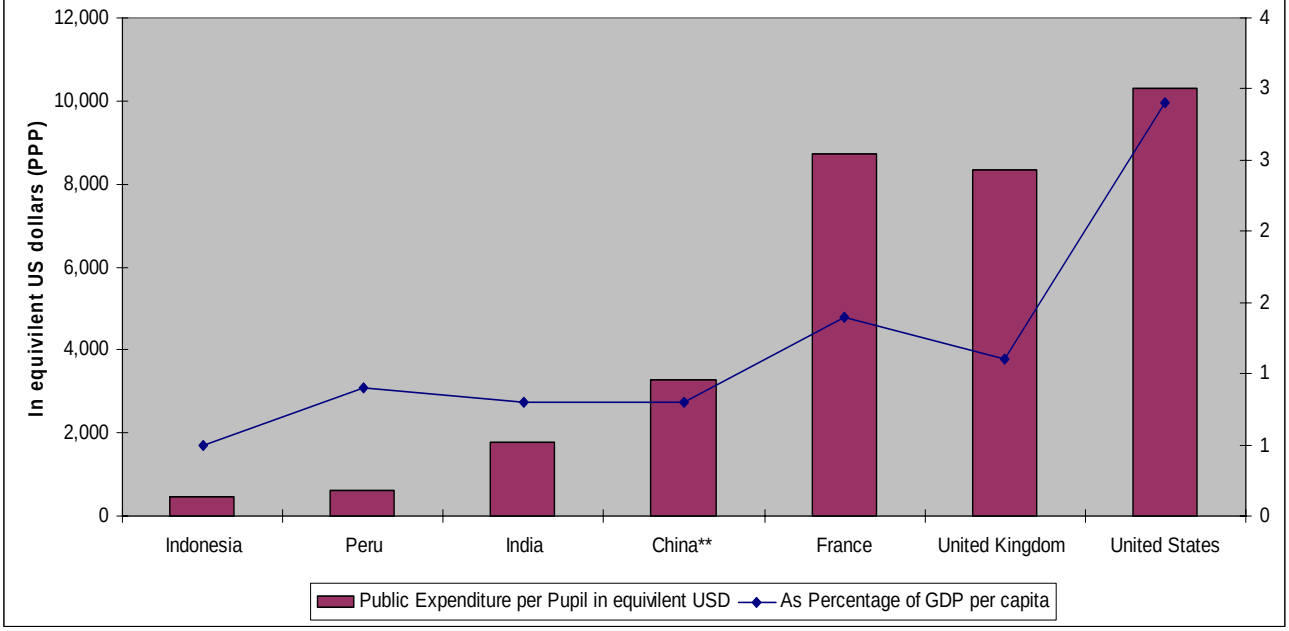


Table 5: Expenditure per Student
(in US dollars)

	Expenditure	Number of Students	Expenditure per student	Country GNI per capita [c]	Expenditure per student/ GNI per capita
Yale University [a]	1.04 billion (2005)	10,618	97,947	43,560	2.2
Harvard University [a]	2.28 billion (2005)	18,995	120,032	43,560	2.8
Princeton University	809 million (2005)	6,831	118,365	43,560	2.7
Institute of Computing Technology, China b	30 million (2005)	902	33,259	1,740	19.1
Pontificia Universidad Católica de Chile	500 million (2006)	22,671	22,054	5,870	3.8
University of Macau	59.9 million (2005)	6,175	9,700	1,740	5.6
Mahidol University, Thailand	153 million (2005)	23,196	6,596	2,720	2.4
IIT Bombay	21.32 million (2003)	4600	4,635	730	6.3
University of Dar es Salaam, Tanzania [d]	15.6 million (2005)	4,816	3,239	340[a]	9.5

a: excludes medical school expenses and medical students
b: Only offers masters and PhD programs
c: The World Bank's official estimates of the size of economies are based on GNI converted to current U.S. dollars using the Atlas method. GNI takes into account all production in the domestic economy (i.e., GDP) plus the net flows of factor income (such as rents, profits, and labor income) from abroad. The Atlas method smoothes exchange rate fluctuations by using a three year moving average, price-adjusted conversion factor.
d: Data refers to mainland Tanzania only

2.2 Why Higher Education?

Tertiary education has received short shrift in the international development community stemming from the belief that it yields lower social returns relative to other investments, especially primary and secondary education and therefore should receive fewer public resources

(Schultz, 1998). Investments in tertiary education are often considered regressive, reproducing existing social and economic inequalities.[4] An oft-cited 1986 World Bank study estimated that social rates of return for higher education in developing countries were on average 13 percent lower than the returns from basic education (Psacharopoulos, Tan, and Jimenez, 1986). A more recent review of 98 countries from 1960-1997 found that the typical estimate of the rate of return from primary schooling was 18.9 percent, while for tertiary education the return was just 10.8 percent (Psacharopoulos and Patrinos, 2002).

While there are some concerns as to whether these calculations reflect marginal or average rates of return, there are also more serious conceptual misgivings. Earnings reflect not just additional education only but other characteristics as well (e.g. innate ability). Wages may not reflect marginal product given the degree to which they depend on a host of institutional factors and the nature and structure of labor markets. While the returns to investment in basic education are visible and nearly immediate, the returns to higher education are far more elusive and difficult to measure.[5] Re-evaluations of the data suggest that standard estimates of social returns to tertiary education do not accurately reflect the positive public externalities, as they are based on the private returns measured by wage differentials and the social costs associated with education (Birdsall, 1996). A growing body of literature suggests that the conventional estimates of the returns to education do not accurately reflect the social value added by tertiary education,[6]

[4] See, for example: Bowles and Gintis, 1976; Bourdieu 1996; Brown and Scase, 1994. Brennan (2002) argues, "there has been a continuous thread in the literature which has emphasized higher education's contribution to society as primarily one of social reproduction rather than social transformation" (77).

[5] Studies in the US suggest that the standard rate-of-return calculations may capture only about three-fifths of overall (including public) gains (Baum and Payea, 2004).

[6] For example, a study in Taiwan found that a 1 percent rise in higher education stock (as defined as those who had completed higher education, including junior college, college, university, or graduate school) led to a 0.35 per cent rise in industrial output, while a 1 percent rise in the number of graduates from engineering or natural sciences led to a 0.15 percent increase in agricultural output (Lin, 2004).

including job creation, good economic and political governance,[7] increased entrepreneurship,[8] and increased intergenerational mobility (Bloom, Canning, and Chan, 2006).[9]

In the context of development, the economic benefits of universities naturally receive the most attention. These range from their role in developing a country's skill base to their role in creating codifiable public knowledge, such as publications, journals, books, patents, and prototypes. In recent years, the benefits of more direct university-industry partnerships, including contract research, cooperative research, technology licensing, faculty consulting, and access to specialized equipment and incubation services, have been noted.[10] Universities also provide public space important to facilitate the exchange of tacit knowledge and resources between industries and institutions, through various methods such as meetings and conferences, centers and mentoring programs, alumni networks, personnel exchanges, and visiting committees (Lester, 2006).

But reducing the benefits of tertiary education simply to measurable economic payoffs would appear to be a rather impoverished vision. An early articulation of the broader implications of a country's higher education system was espoused by James Conant, president of Harvard University in the mid-20th Century. Conant argued that a strong system of higher education was crucial to the success of American democracy, contributing to greater social mobility and egalitarianism.[11] Conant asserted that the absence of an egalitarian system of education in interwar Germany made possible "the submissions on which authoritarian leadership has thrived" (Hershberg, 1993, 403), and that a strong higher education system was critical to the maintenance of American global economic and political leadership. His views found political favor as the links between technology and national defense grew increasingly pronounced in the post-war era, resulting in an explosion in tertiary education in the post war

[7] Bloom et al. (2006) found a positive and statistically significant correlation between higher education enrollment rates and governance indicators, including corruption, rule of law, ethnic tensions, and bureaucratic quality.
[8] Bloom, Hartley, and Rosovsky (2006) found that individuals with higher education levels were more likely to engage in entrepreneurial activity, and more educated entrepreneurs created larger numbers of jobs than less-educated entrepreneurs.
[9] Research in the United States indicates that the social return to higher education includes increased tax revenues, increased intergenerational mobility, lower welfare costs and increased income for non-college graduates (Rizzo, 2006).
[10] For a discussion of the organizational challenge of such linkages across three leading research universities – MIT, Cambridge and University of Tokyo - see Hatakenaka (2004).
[11] In recent decades there have growing concerns about the decline in the earlier commitment to more egalitarian values (at least based on family incomes of households) in elite American universities. See Bowen, Kurzweil and Tobin (2005).

years, buoyed by extensive public funding.[12] Universities facilitated national development by promoting democratic ideals, as well as intellectual and industrial competitiveness (Nemec, 2006).

The broader rationale for higher education as articulated by Conant was well-recognized in newly emerging developing countries as well. Many of their leaders had been educated abroad (mainly in the colonial power, often as lawyers) and were aware of the socialization effects of higher education in producing new nationalist elites. They also recognized that technological weaknesses had contributed to colonization in the first place and they believed that building higher education institutions was important to foster the technological capabilities that would hedge against history repeating itself.[13] Higher education was considered essential for developing the capabilities for "self reliance" (a much maligned term in later years, mainly because of the often self-defeating trade regime that was erected). Since most newly-independent developing countries were largely agrarian, nowhere was the need for domestic technical capabilities more apparent than in agriculture.

Economic historians have long recognized that increasing agricultural productivity is vital to improve living standards in almost any poor country. An important reason why the Green Revolution was far more successful in Asia than in Africa was the greater domestic technological capabilities in the former, developed through local agriculture universities and research centers that could adapt the new green revolution technologies (developed by the system of international agriculture research centers, part of what became the CGIAR system) to local conditions. Thus, in the absence of domestic skills, even global public goods (embodied in this case in the green revolution technologies) have very limited payoffs. Today, poor developing countries face even worse odds.

In the past, investment in agricultural research in rich countries of the world had considerable technological spillovers effects. However, for several reasons these spillovers are in decline. First, the types of technologies being developed in rich countries are less appropriate to developing country agriculture because of a shift in research priorities. With the research focus

[12] The American federal government did not begin to provide funding for private educational institutions during peacetime until the 1930s. It began providing grants to individuals to attend institutions of higher education as part of the New Deal starting in 1935, though this program was intended as a temporary measure. Following World War II, the federal government became the largest single source of support for institutions of higher education in the United States through the GI Bill, which provided scholarships to millions of returning veterans and research grants to universities (Brubacher, 1997).

[13] Adas, *Machines as the Measure of Men* (1989), provides a compelling argument on this point.

in rich countries shifting from yield improvements in major crops to other agricultural and nonagricultural concerns like crop appearance and environmental effects, its relevance to the needs of poor countries declines. Second, applicable technologies developed in richer countries may not be as readily accessible because of intellectual property protection of privately owned technologies: many biotech companies have little or no interest in developing technologies for applications in less-developed countries, and even where they have such technologies available, they are often not interested in pursuing potential markets in less-developed countries. Third, technologies that are applicable and available are likely to require more substantial local development and adaptation than in the past to tailor the more advanced skills to local production environments. Consequently, developing countries will have to extend their own R&D efforts upstream to more fundamental areas of the science and hence will need to develop greater domestic agricultural research human capital (Pardey, Beintema, Dehmer, and Wood, 2006). Thus, the importance of tertiary education for developing countries extends well beyond the current cliché of the emerging "knowledge economy."[14] Its value also lies in its role in building domestic capabilities, for which technical assistance is at best a costly and imperfect substitute.

All of this does not mean that researchers in developing countries must go at it alone. There have been a number of successful partnerships which have allowed researchers in poor countries to utilize resources available in better-equipped foreign facilities.[15] But partnerships by

[14] Smith (2002) argues that the term "knowledge economy" has been used superficially and in an uncritical manner. Although he concedes that ICT plays a new role in knowledge production, its importance does not "justify talking about a new mode of economic or social functioning." Other authors, such as Peters and Besley (2006) concur that the concept of a "knowledge economy" is not yet clearly defined. Edwards and Ogilvie (2002) also dispute the assertion that the global economy is now "knowledge-based." They argue that the term conflates four very different sets of arguments about the nature of the global economy, several of which have little or no empirical knowledge to substantiate them. However, many analysts agree that the knowledge economy is different from traditional industrial economy because knowledge is different from traditional commodities and therefore requires different organization and modes of distribution. Primarily, knowledge shares many properties of a global public good and is not bound by the law of scarcity that affects other commodities (Stiglitz, 1999).

[15] For example, the Cooperative of Cane, Sugar and Ethanol Producers of the State of Sao Paolo (COPERSUCAR) developed transgenic, virus-resistant sugarcane varieties by paying faculty at the University of Minnesota and Texas A&M (as well as Brazilian faculty at the University of Sao Paolo at Campinas) to do specific areas of the research that they could not perform in their facilities (Pray, 2001). Similarly, the Fogarty Center, a branch of the United States National Institute of Health (NIH), provides training grants for US researchers to train or collaborate with students or scientists in developing countries on health and environmental research. Other examples include the International Service for the Acquisition of Agri-biotech Applications (ISAAA), which acts as an intermediary in transferring proprietary technologies to developing countries and also seeks to strengthen links between Southern and Northern research; the Consultative Group on International Agricultural Research (CGIAR), a nonprofit consortium of countries, international agencies, and foundations that provides funding for agricultural research and development conducted by 16 international research centers, with poor people in developing countries being the intended beneficiaries (Binenbaum, Pardey, Wright, 2001); and the International Network for the Genetic

definition require some degree of expertise within the developing country. Moreover, while such international partnerships can fill in the gaps for advanced research which facilities in poor countries may not be able to support, increasing restrictions on sharing intellectual property pose a steep barrier to knowledge spillovers and cooperation. With increasing fears of foreign competition, industrialized countries are less willing to share research which may cede any competitive edge. As these intellectual property restrictions further curtail the technology-transfers from industrialized to developing countries and as agricultural research becomes increasingly location-specific due to the technology and resource gap for implementation of advanced technology, relying on the trickle-down effects of research developed in industrialized countries is not sustainable. With the growing threat of climate change looming, tertiary education systems producing skills that can conduct location-specific research in poor countries becomes even more important.

At the same time, it is important not to reduce higher education to simple minded economic instrumentality. While it is one thing to subject higher education investments to rigorous scrutiny, it is quite another to simply reduce the role of higher education to these functions alone, overlooking its broader benefits to society. Former LSE Director I.G. Patel, argued that:

> higher education is necessary to satisfy some of the higher aspirations of a society. Historians, archaeologists and men of letters chronicle the past and present in a way which shapes the future and nurtures the roots that bind communities together. Universities- students as well as teachers- everywhere are uniquely motivates to keep alive the values of freedom and universality - of individual dignity as well as the brotherhood of man…. Universities are, in general, also the greatest source of change - not just technological change but social and cultural as well (Patel, 2003, p, 139).

The difficulty is that while we may genuinely believe that tertiary education has considerable positive non-pecuniary externalities to society, "externalities" have often masked weak analysis and justified all manners of interventions, often with severe adverse long-term consequences. And as we shall note, while the benefits of higher education touted by international organizations such as UNESCO may well be true, firm evidence is severely lacking. For a sector whose main purpose is to train people with strong analytical skills, it is

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Evaluation of Rice (INGER), which disseminates research from a range of agro-ecological environments in approximately 800 locations to LDCs, without intellectual property rights restrictions.

ironical that its own self-analysis is replete with homilies and platitudes, rather than strong evidence.

3. SUPPLY RESPONSES TO RISING DEMAND

Tertiary education is a rapidly growing service sector. In 2002, the global market in higher education represented over 3 percent of the total services market (UNESCO, 2005). There are more than 80 million students worldwide, and 3.5 million people are employed to teach or otherwise service them. The global market in educational services is currently estimated at more than $2 trillion, including public and private spending on all forms of education.

As countries and university systems strain under the pressure of increasing demand, new supply responses are rapidly changing the higher education landscape in many developing countries. The simplest response to the demand is increasing enrollment in public universities, leading to the creation of "mega-universities" like the National University of Mexico and the University of Buenos Aires, which each enroll more than 200,000 students (World Bank, 2000). Calcutta University with 200 affiliated colleges allegedly "sits of the fate of some 700,000 students."[16] However, in most cases these institutions can absorb but a small fraction of the students seeking admission. For example, in 2000 Dhaka University in Bangladesh was able to enroll only 10,000 of 80,000 applicants (Quddus and Rashid, 2000). In Kenya, over 40,000 students academically qualify for university admission each year, but the public university system can enroll only about 9,000 (Oketch, 2003). At the National Autonomous University, Mexico's largest and most prestigious public university, 134,000 students competed for 33,000 first-year spots in 2003, up from 88,000 applicants for the same number of seats in 2001 (Lloyd, 2005). By one estimate approximately 100 million qualified students will not be able to find places in conventional universities by the year 2010, even assuming a 40 percent growth in those universities (Universitas 21, 2002). It should be emphasized that universities serve an important screening function, and in that sense a high application/acceptance ratio can be good thing. But, if there are a growing number of students "above the bar", that latent demand will seek one way or the other to get access to higher education, posing a major political challenge.

[16] Rudrangshu Mukherjee, "Why Autonomy? The size of Calcutta University makes decentralization urgent," *The Telegraph*, July 22, 2007.

3.1 Growth of the Private Sector

With public universities unable to absorb the growing number of students, numerous alternatives have emerged. Perhaps the most striking feature of tertiary education in the new millennium has been the explosion in private provision. Table 6 details the relative size of the domestic private sector in tertiary education in a sample of countries across the globe.

Table 6: The Role of the Private Sector in Tertiary Education

Private Share of Enrollment	Countries
Large (over 50 percent)	Bangladesh, Bermuda, Botswana, Brazil, Cape Verde, Chile, Colombia, Cyprus, El Salvador, Estonia, Holy See, India, Indonesia, Islamic Republic of Iran, Israel, Japan, Latvia, Luxembourg, Namibia, Netherlands, Netherlands Antilles, Paluau, Palestinian Autonomous Territories, Paraguay, Philippines, Republic of Korea, Slovenia, Tonga, Turks and Caicos Islands, United Kingdom
Medium (between 25 and 50 percent)	Angola, Armenia, Burundi, Ivory Coast, Ecuador, Jamaica, Jordan, Kenya, Lao People's Democratic Republic, Lebanon, Malaysia, Mexico, Mongolia, Nepal, Nicaragua, Peru, Poland, Portugal, Rwanda, Saint Lucia, United States of America, Venezuela
Small (between 10 and 25 percent)	Argentina, Aruba, Azerbaijan, Belarus, Bolivia, Bulgaria, Ethiopia, Finland, France, Georgia, Honduras, Hungary,, Iceland, Iraq, Libyan Arab Jamahiriya, Mauritius, Norway, Panama, Papua New Guinea, Republic of Moldova, Senegal, Spain, Switzerland, Thailand, Uruguay
Negligible or non-existent (less than 10 percent)	Australia, Austria, Cameroon, Chad, Congo, Costa Rica, Croatia, Cuba, Czech republic, Denmark, Germany, Ghana, Hong Kong SAR of China, Ireland, Kyrgystan, Madagascar, Morocco, New Zealand, Pakistan, Russian Federation, Saudi Arabia, Serbia and Montenegro, Slovakia, Sweden, the former Yugoslav Republic of Macedonia, Trinidad and Tobago, Tunisia, Turkey, Uganda, United Republic of Tanzania, Vietnam, Yemen

Source: UIS Education database, May 2005

There is no comprehensive database of private institutions of higher education and many countries do not have regulatory bodies that monitor the number of private institutions operating in their countries; therefore the global growth in private higher education institutions is difficult

to measure. However, a selective country-by-country analysis for which we could obtain data suggests significant growth in the number of private institutions in recent years (See Table 7).

Table 7: Growth in Number of Private Institutions

	Number of Private Tertiary Education Institutions		***Percent of Total Tertiary Enrollment in Private Institutions***
	1980	**2005**	**2004**
Korea	0	298	80.5
Kenya	2	13[a]	13[a]
Indonesia	x	1,634	65.2
Romania	0	70	21.3
Uruguay	0	17	9.7 [a]
Vietnam	0	23[a]	12 [a]
Poland	6	280	28.5
Thailand	1	54	16.9
Nicaragua	6	44	57
Chile	0	70	75.3
Turkey	0	19	3.9
Mexico	374 (1987)	1500	33
Jordan	0	22	24.7
Bangladesh	0	54	29.8
South Korea	x		80
India	x		75
Brazil	x		75

Sources: EdStats, World Bank, 2004; IFC staff assessments and statistics, 2004 &2005; OECD 2002; Government Statistics; Chile includes 7 publicly funded Private Catholic Universities
a: Data refers to 2003
x: Data unavailable

These private institutions are helping to meet the growing demand that the public sector cannot. Private institutions are less subject to political instabilities and day-to-day political pressures that often bedevil public universities in developing countries. When educational provision is reliant upon the state, disturbances to the state apparatus, such as financial and political crises, can severely undermine educational provision. Yet despite these positives, as we shall note later, these institutions are of highly variable – and often dubious – quality. They are at best teaching shops, and very rarely knowledge-producing institutions. Although most private

provision occurs domestically, there is a small but growing trend towards international private provision, through the movement of institutions and individuals across national borders.[17]

3.1.1 Corporate Universities

Corporate universities— company in-house training and development initiatives – have been around since the 19th Century, when large companies such as DuPont, General Electric and Edison introduced "corporate classrooms" to provide additional training for employees. In the 1980s the term entered into mainstream business vocabulary and in recent years these programs have expanded in scope and size, augmenting educational systems in countries throughout the world (Observatory on Borderless Higher Education, 2004).

There is surprisingly little data on the number and size of these programs, though their visibility has been on the rise since the late 1990s.[18] In 2000, direct and indirect training costs in the US private sector totaled between 284 and 387 billion dollars annually, making the private sector the largest provider of professional training in the country (Observatory on Borderless Higher Education, 2004). The extent of the "education" provided by these operations varies greatly. At one end of the spectrum is McDonalds' Hamburger University- a classic company school, training "students" in skills required for core operations for their job. At the other end of the spectrum is the Ruschilon Facility in Switzerland (owned by Swiss Re and Boeing's Leadership Development Center) which acts as a "corporate think tank" where executives can analyze current trends and craft corporate strategy. In-between are thousands of initiatives training employees in technical skills, language proficiency, and critical thinking skills.

Corporations often use their training facilities as selling points to potential employees and host governments. The latter are often eager for companies to establish these skill-training facilities in their countries hoping that will help raise the stock of human capital. Corporations often have greater access to resources than do public universities and offer training in functional skills and new technologies that may not be otherwise available. Although most of these

[17] In an empirical study of offshore courses offered by British, Australian and American universities in developing and transitional economies, Bennell and Pearce (2003) found that 75 percent of overseas collaboration in Asia, the Middle East, and Africa were with private higher education institutions.

[18] The *Financial Times* sponsors an annual corporate university award, corporate promotional literature frequently highlights such initiatives, and consulting firms such as PriceWaterhouseCoopers now offer services to organizations running corporate universities.

institutions serve only company employees, some corporate universities are opening their programs to fee-paying students[19] or launching subsidiary for-profit universities.[20]

Motorola University (MU) exemplifies a large corporate university in a conventional MNC. Founded 1989 by the Motorola Corporation, MU is a $100 million global service business, managing 99 sites in 21 countries on 6 continents.[21] In addition to job training, MU offers language training to employees, as well as their spouses and family members (Densford, 1999). Human resource strategies are critical for the new breed of MNCs from emerging markets which have to compensate for the weakness of their domestic higher education systems by developing ambitious in-house programs. The example of Infosys Technologies, an Indian IT company with 72,000 employees in 2006, exemplifies this phenomenon. In 2006, approximately one million college graduates in India applied online to Infosys. The company used a computer program to winnow this pool to 160,000 applicants, who then took a test to measure their analytical and problem-solving ability. 80,000 applicants were then asked for an interview, after which one in five candidates were offered a job. Following this rigorous selection process, new employees are then sent to an 18-week residential training program in a well-heeled company campus. Due to the poor quality of university graduates in India, companies such as Infosys are left to fill the gap between the skills required for employment and those produced by traditional universities (Johnson, 2007).

In principle there are many benefits when firms organize and pay for the labor market skills they need. Indeed all firms do that to some extent – in most cases relying on some variant of an apprenticeship system. However, developing countries have few large firms that can internalize the costs of these training universities. Moreover, as labor markets become more flexible, the greater turnover of employees reduces the incentives for in-house universities since the benefits of such training are not fully internalized.

3.2 Internationalization of Higher Education

[19] Examples of this trend include ABN-Amro in the Netherlands and the Tennessee Valley Authority in the US.
[20] The Arthur D. Little School of Management in the US is an example of this trend. The school started in 1964 as the training facility of the Arthur D. Little Consulting Firm, but in 1997 became an independent not-for-profit organization with an open recruitment policy.
[21] MU has a large presence in developing countries with sites in South Africa, Russia, Mexico, Brazil, China, India and Malaysia.

3.2.1 International Student Flows

Higher education and learning has always been had a strong international flavor. The ancient Indian university of Nalanda which flourished in the first millennium had students from South East and East Asia as well as the Middle-East and Tibet. In the early 17th century, more than half the enrollment (of 11,000 students) at the University of Leiden, then one of the world's leading universities, was non-Dutch. Since the late 1990s, there has been a dramatic increase in the number of students crossing borders to receive education. In 2006, more than 2.5 million tertiary students studied outside of their home countries, compared to 1.75 million in 1999 (Observatory on Borderless Higher Education). In 2006, researchers from IDP Education Australia estimated that the number of students from developing countries that will go abroad to receive higher education will double before 2015 and double again by 2025.

Table 8: International Student Enrollment in the Top Six Host Countries: 1999 and 2004 (in thousands)

	1999	2004	% Change from 1999 to 2004
World total	**1,680**	**2,453**	**46.0**
US	**491**	**573**	**16.6**
UK	**233**	**300**	**29.0**
Germany	**178**	**241**	**46.1**
France	**131**	**238**	**81.4**
Australia	**117**	**167**	**42.1**
Japan	**57**	**118**	**108.5**

Source: Adapted from ACE 2006

Table 9 displays the top countries of origin for international students. In 2004, China was the largest country of origin for international students, with nearly 350 thousand students studying abroad, representing 14 percent of the total worldwide international student population (UNESCO, 2006) more than the US and India combined (which have the 2nd and 3rd largest number of international students).

Table 9: Top Sending Countries, 2004

Country of Origin	Total number of students studying abroad	Percent Tertiary Students studying abroad	Destination Countries and number of students

China	349,506	1.8 %	United States: 87,943 Japan: 76,130 United Kingdom: 47,738 Australia: 28,309 Germany: 25,284
United States	195,928	1.4%	United Kingdom: 32,237 Italy: 21,922 Spain: 20,080 France: 13,718 Australia: 11,418
India	123,559	1.2 %	United States: 79,736 Australia: 15,742 United Kingdom: 14,625 Germany: 4,237 New Zealand: 1,345
Republic of Korea	96,703	3 %	United States: 52,484 Japan: 23,280 Germany: 5,488 Australia: 3,915 United Kingdom: 3,482
Japan	60,474	1.5 %	United States: 40,835 United Kingdom: 6,395 Australia: 3,172 Germany: 2,547 France: 2,337

Source: Atlas of Student Mobility, IIE

Unsurprisingly, OECD countries have long dominated the market for international students. In 2003, OECD countries hosted 93 percent of tertiary education students studying outside their home country (OECD, 2005a). The US is particularly dominant, hosting more than a quarter of the world's international students (about 600,000 visiting students) – more than the next three largest competitors (UK, Germany, France) combined (UNESCO, 2005).[22]

[22] The top sending countries to the United States are India and China. In 2005/06 India accounted for 13.5 percent of total foreign students in the US. There were 80,466 Indian tertiary students in the US in 2006, 72 percent of whom were enrolled in graduate programs. China accounted for 11.1 percent of total foreign students in the US, 76 percent of whom were enrolled in graduate programs (IIE).

Table 10: Top Destination Countries for International Students, 2006 (estimated total 2.5 million students)

United States	550,000	22%
United Kingdom	300,000	12%
Germany	250,000	10%
France	250,000	10%
Australia	175,000	7%
China	150,000	6%
Japan	125,000	5%
Canada	75,000	3%

Source: Atlas of Student Mobility, IIE

Table 11: Fields of Study, International Students in US

Field of Study	2005/06	Percent of total
Business and Management	100,881	17.9
Engineering	88,460	15.7
Other [a]	59,404	10.5
Mathematics and Computer Science	45,518	8.1
Physical and Life Sciences	50,168	8.9
Social Sciences	46,132	8.2

a: Other includes mainly Liberal/General Studies, communications and Journalism, Multidisciplinary Studies and Law

Table 12: Level of Program, International Students in the US

Academic Level	2005/2006	2006/06 Percent of Total
Associate's	63,598	11.3
Bachelor's	172,744	30.6
Graduate	259,717	46.0
Other [a]	68,707	12.2

a: Includes mainly intensive English programs and technical training programs

Rosenzweig (2006) finds that international student outflows from low-income countries are more the result of low payoffs to skill rather than underinvestment in higher education capacity. However, given the rapid rise in skill premiums in many developing countries (Goldberg and Pavcnik, 2007), we believe these results reflect past trends rather than current and future trends. Students' decisions of where to study abroad are affected by a number of factors - cultural, linguistic, historical and economic. English-speaking countries are clearly attractive to

international students, as English has become the dominant language in international business and academia. Cultural and geographical proximity also impact students' choices, as do perceived quality of life in the host country, networks of present and former students, the reputation of the school both in the home country and internationally, and the host-country's polices on student immigration.[23] Although still dominant, according to some estimates the United States has been losing its market share among international students since 1997 due to the growing level of competition for mobile students and the relatively high cost of attending an American university (*Economist*, 2005).

Table 13: Total Median Cost of Bachelor Degree, 2004 (in USD)

Country	In Engineering	In Business
China	32,812	31,731
Hong Kong	38,202	38,192
Singapore	77,962	54,938
New Zealand	88,699	59,331
Australia	90,019	60,464
Canada	81,037	71,039
UK	91,670	77,890
US Public	119,882	119,882
US Private	167,828	167,828

Source: http://www.lindentours.com/univ_officials/linden_letters/IDP%20Comparative%20Costs.pdf

Notwithstanding the noble rhetoric that surrounds international higher education, it must also be seen as a large and attractive business. The US earns over $13 billion annually from foreign student enrollments alone, not considering the money these students bring into the country in living expenses and trips home (IIE, 2004). And as overseas education becomes a valued part of the undergraduate student experience in rich countries, it offers lucrative business opportunities – and scandals.[24] The vast majority of international students fund their own education (for data on the US, see Table 14), and thus international education is still largely an option for the privileged.

[23] EduWorld analyzed responses from over 1000 undergraduate internationals in the UK, US, and Australia who came from 10 major Asian countries. In considering where to study, the main factors that they said influenced their decisions were country (54 percent), academic course (18 percent), institution (17 percent), and city (10 percent). Three-quarters of these polled students had friends or relatives living in the country of study prior to their decision to enroll.

[24] Diana Schemo, "In Study Abroad, Gifts and Money for Universities," *New York Times*, August 13, 2007.

Table 14: Primary Source of Funding for International students in the US, 2003-2004

Source of Funds	% undergraduates	% graduate
Personal and Family	81.8	51.6
US college or university	10.1	40.4
Home government or university	2.0	2.2
US government	0.3	0.7
Private US sponsor	2.6	1.7
Current employment	0.3	0.4
International Organization	0.2	1.4
Total	100	100

Source: Sidhu, 2006, p. 20

Higher education is the United States' fifth largest service export. International students also help lower academic research costs and help maintain enrollment levels in programs such as science and engineering where domestic interest is not strong (Sidhu 2006).[25] International students also bring intellectual capital and can raise the level of competition in a country. In 1998-2001, about two-thirds of foreigners who earned doctorates in science and engineering from American universities said they had "firm plans" to stay, up from 57 percent in 1994-97.[26] These numbers are even higher (between 80-90 percent) for students from developing countries, although this might be declining.

Recognizing these benefits, governments and institutions have been intensifying efforts to make their universities more attractive to foreign applicants. Institutions from both industrialized and developing countries often advertise overseas, hosting educational fairs in cities with large potentially mobile student populations, sending their representatives abroad to court elite families, or employing the services of agencies specifically designed to market their institution.

The growing global market for students from developing countries has resulted in "going down the staircase" both with regards to the destination of students as well as the level of education. With respect to the former, developing countries are themselves trying to attract students from other countries. Examples include China (from Africa), Malaysia (Southeast Asia), Argentina and Chile (Latin America). Botswana, Mauritius and South Africa are attempting to

[25] However, causation is not clear. The influx of foreign students in S&E, who then remain in the US, can also put downward pressure on wages in this sector, making it less attractive for domestic students.
[26] *The Economist*, "The Best is Yet to Come." 9/10/2005. Vol. 376, Issue 8443, p. 20-22.

become higher education hubs for Sub-Saharan Africa. The most notable efforts in this direction are Dubai and Singapore which have been attempting to position themselves as higher education hubs for international students, which we later examine in greater detail. This "going down the staircase" trend is also evident within educational levels – from graduate to undergraduate and now even to high school education. The prospect of going abroad for a bachelor's degree has raised demand for high-school level global certification programs, with the rapid growth of schools offering International Baccalaureate Organization (IBO) programs attesting to the demand.[27] Although the countries with the most IBO programs are the US, Canada, the UK, and Australia, the desire of elites in Mexico, Argentina, India, and China to send their children abroad for higher education place these countries in the top ten countries with IBO schools.

Table 15: Growth in IBO Programs Worldwide

Program	May 2002	May 2007	Increase
Primary Years Program (students age 3-12)	83	364	338.55%
Secondary Years Program (students age 11-16)	272	539	98.16%
Diploma Program (students age 16-19)	1,020	1,573	54.22%
Total	1,375	2,476	80.07%

Source: www.ibo.org

3.2.2 Internationally Mobile Higher Education Institutions

Although the number of self-financing internationally mobile students from developing countries seeking education in Western universities has sharply increased in recent years, the phenomenon itself is not new. What is more new, however, is the reverse: Western higher education institutions, establishing programs in developing countries. Both phenomena are driven by revenue considerations as well as the desire to increase access to a larger pool of talent.

In recent years government funding for universities in industrialized countries has become less generous. Between 1991 and 2001, the share of public investment in research and development diminished by 6 percent in the EU and by 11 percent in the US (UNESCO 2005).

[27] In 2006 the IBO was used at 2,051 schools in 125 countries, reaching approximately 538,000 students.

In the last three decades, the share of US state tax dollars directed towards higher education has fallen by over 25 percent (Rizzo, 2006).[28] For a variety of reasons, it has not been easy to cut costs – indeed observers have termed escalating rounds of capital expenditures and funding to attract "star faculty" and students akin to arms races. Hence there is little option but to increase revenues, either by raising tuition[29] or increasing a variety of student fees for specific services.[30] In this environment, attracting higher-paying foreign students or seeking out commercial arrangements abroad becomes more attractive.

The Australian higher education system (a largely publicly and federally funded system) illustrates these trends. Between 1986 and 1997 the proportion of total university costs funded by the government declined from 87 percent to 57 percent. Between 1995 and 2000 there was a 30 percent reduction in public funding per student, and between 1996 and 2004, operating budgets for Australian public universities were cut by 40 percent (OECD, 2004). To manage these financial challenges, universities have reduced the number of faculty per student, placed greater financial burden on students,[31] and sought to diversify their sources of revenue by expanding their presence overseas, attracting students to come to Australian universities and establishing branch campuses abroad.

In 1990, 29,000 international students were enrolled in Australian universities; in 2002 this number had jumped to 185,000, representing 21 percent of total enrollment in Australian universities. One-third of these students were enrolled in offshore programs. While they accounted for 12.5 percent of the total revenue (about US$1.1 billion), their share of total revenue from student fees was more than half. Australian offshore programs grew from just 25 in 1991 to almost 1,600 in 2003. Over 70 percent of these overseas partnerships are with private institutions in developing countries, primarily in Asia (IFC, 2006).

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[28] Kane and Orszag (2003) note that in recent years, many public colleges and universities in the United States have faced budgetary crises. States have had to close a cumulative $200 billion deficit between fiscal years 2002 and 2004, leading to sharp reduction in funding for higher education. However, there has also been a longer-term shift in state financing of higher education which began more than a decade ago. As states have struggled to respond to fiscal pressures, budgets for public universities have suffered; this trend is likely to continue due to projected increases in Medicaid costs.

[29] In the decade between 1997-98 and 2007-08, total charges rose at an average rate of 2.6 percent above the rate of inflation in private universities and 3.5 percent above the rate of inflation in public universities in the US. http://www.collegeboard.com/prod_downloads/about/news_info/trends/trends_pricing_07.pdf

[30] Jonathan D. Glater, "As Support From States Lags, Colleges Tack On Student Fees," *New York Times*, September 4, 2007. Section A, page 1.

[31] In 1995 state funding and student contributions accounted for 68 percent and 13 percent of resources, respectively; in 2002 these proportions were 56 percent and 25 percent (OECD 2004).

Australia is not alone in its aggressive expansion of overseas operations. In 2003, the British Council estimated that in 2003 there were over 200,000 students enrolled in UK-based programs overseas, including distance learning and study on foreign campuses. In the UK, export revenue from program and institutional mobility under cross-border franchised agreements, twinning agreements, joint programs, validation, subcontracting and distance learning activities increased by 50 percent between 1997 and 2002 (British Council, 2003).

It is difficult to obtain reliable data on the extent of program and institutional mobility because it often falls outside government data-gathering systems. There is no central registry for international branch campuses, and Australia and the UK are the only OECD countries currently collecting data on international students enrolled in their institutions abroad (OECD, 2004). However, press reports and promotional materials point to this trend.[32] In addition to establishing branch campuses, a number of institutions have forged partnerships with universities in developing countries. There are two broad forms that these programs generally take: twinning and franchising. Under twinning arrangements, after initial training in their home country, students relocate overseas to receive their final training and degree from the foreign university. Under franchising programs, the entire program takes place in the home country, with the foreign institution providing curricula and assessment, and certifying the program with the university crest on the degree.

Offshore programs generate additional revenue for universities and can enhance their international reputation. Branch campuses also can give the institution an edge in bidding for local government projects, and can provide links between the institution and industry in the foreign country. However, there are a host of financial and legal risks involved. The investment in land and other physical assets can be costly and risky. Universities must deal with the regulatory framework of the host country and often face criticism from the international community for exploitation of educational markets in developing countries. Moreover, quality may be harder to maintain overseas than domestically.[33]

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[32] Examples include Cornell's Medical School and Georgetown's School of Foreign Service in Qatar, Britain's Nottingham University branch near Shanghai, Rochester Institute of Technology's campus in Croatia, and Australia's Monash University's campus in Malaysia.

[33] The well-publicized closure of the University of La Verne's Athens campus and the withdrawal of Australia's University of Southern Queensland from Dubai due to quality concerns illustrate the risks associated with international operations.

Developing country governments must also consider the costs of allowing foreign providers access to educational markets in their countries. Questions surrounding the licensing of foreign providers, the accreditation of foreign educational services providers, recognition of foreign qualifications, and funding concerns all pose challenges to policymakers. Foreign providers often bring with them pedagogical innovation, as well as testing services and administrative systems. They can help the local economy, providing jobs (both academic and staffing) and expanding infrastructure (such as classrooms, libraries, labs, and IT facilities). They also foster competition and put pressure on local providers to improve their own quality, and can increase the educational opportunities available to citizens in the country. Yet there is no dearth of critics who fear the entry effects of foreign providers of higher education. Some fear that foreign providers – by importing curricula with little consideration of local traditions and culture– might prove to be Trojan horses of cultural imperialism. Others argue that foreign providers arguably undermine the sovereignty of the state, especially in its capacity to regulate education and its nation-building functions. A third concern is that since transnational education is aimed primarily at upper socio-economic groups, foreign providers may simply engage in "cream-skimming," exacerbating inequities in access to tertiary education. A fourth concern is of an internal "brain-drain" - wage differentials between faculty at public and private (foreign) institutions would result in public universities stripped of their most talented teachers (Smallwood, 2001).

At the heart of these concerns is the belief that higher education has broad socio-political implications, well beyond its training functions for labor markets. Bourdieu has been an articulate exponent of this view, arguing that educational systems are the principal institutions controlling the allocation of status and privilege in contemporary societies and forming the production, transmission and accumulation of cultural capital (Shwartz, 1997). For those who believe that higher education has significant influence over societal structures and dynamics, the dangers in ceding too much power to foreign providers or for-profit enterprises are all too apparent. However, the salience of Bourdieu's arguments about the role of education is more likely at younger ages and lower levels of education (primary and secondary). And these concerns must be juxtaposed against a reasonable counterfactual. It is not as if under a "closed" system higher education systems in developing countries have either sharply reduced social inequality or brought about exemplary "nation-building." Finally, if the choice is between

students going overseas and spending money there or spending it mainly at home, the latter might be (minimally) a less-worse option, provided of course that the education is reasonably comparable.

3.2.2.1 Education Hubs: Singapore and Dubai

Even as policy circles debate the role of international education providers, several countries have been rapidly moving ahead and seeking to establish themselves as global education hubs. With Silicon Valley as the archetypal model, government efforts to set up education hubs that seek to attract international students and leading educational institutions to their country – and thereby businesses – is emerging as a new form of industrial policy.

One of the countries most aggressively marketing itself as a location for off-shore operations is Singapore. In the late 1990s, recognizing the growing market for tertiary education in Asia, the government launched an aggressive program to establish partnerships between universities in Singapore and top foreign institutions. Aiming to transform itself into the primary educational hub in Asia (the "Boston of the East"), in 1997 the government announced its goal to attract ten world-class universities to Singapore within a decade; by November 2005, it had attracted sixteen foreign universities engaged in degree-granting programs in the city-state.[34] International student enrollment in Singapore has grown significantly in recent years, from less than 50,000 in 2002, to 72,000 in 2005. In 2004 the education sector's contribution to GDP was 1.9 percent; in 2005 it had jumped to 3.6 percent. As per the Singapore government's projections, the country is well on track to reach the government's goal of 150,000 foreign students by 2015, which would raise the education sector's contribution to 5 percent of GDP.

The Singaporean government has offered financial incentives to attract a number of foreign universities. For example, the government is paying Duke University US$310 million over seven years to establish a medical school in the country. Students will receive their degrees from the National University of Singapore (NUS), but Duke will oversee the program and will receive a licensing fee for its curriculum. In many of these international partnerships, the government offers start-up assistance but does not finance the costs of developing the curriculum.

[34] These included the University of Chicago Business School, The French business school INSEAD, the DigiPen Institute of Technology (based in the US) and the University of New South Wales (based in Australia).

Despite the increasing internationalization of the Singaporean university system, not all educational partnerships have been successful. In 2005 the biomedical research facility established by NUS and Johns Hopkins University announced that it would close, due to failures to meet research goals, despite receiving US$52 million in funding since 1998. In 2005 Warwick University in the UK abandoned plans for its Singapore campus, citing as its primary concerns the level of academic freedom in the country, as well as bans on homosexuality and certain religious practices. However, this might also have been due to growing doubts about the financial viability of the project and the strains which it would place on Warwick's management.

These setbacks notwithstanding, there are still many incentives for foreign higher education institutions to operate in Singapore including its advanced infrastructure, quality of governance, strict regulation of intellectual property laws, and a strong system of basic education that prepares students well in math, science and English. Moreover, its proximity to a vast pool of underserved talented students from India, China and South-East Asia, gives it a strong strategic advantage to attract foreign institutions.

While Singapore is pursuing a model based primarily on partnerships between foreign and domestic universities, the United Arab Emeritus is focusing on attracting elite foreign institutions to build branch campuses in their "Knowledge Village" in Dubai. Coupled with the newly created "Healthcare City" and "Internet City," the government hopes to become the focal point of the knowledge economy in the Middle East.[35]

In April 2007, the Dubai International Academic City (DIAC) was launched as the first dedicated tertiary education cluster development in the world.[36] By mid-2007, almost twenty universities from Australia, India, Pakistan, Iran, Russia, Belgium, UK and Ireland had established campuses in DIAC, including the University of Wollongong from Australia.[37] In 2004 Harvard Medical International (HMI), a nonprofit subsidiary of Harvard Medical School, announced that it would build a campus in Dubai, its first overseas bricks-and-mortar branch

[35] For many decades Lebanon was the higher education hub of the Middle East, but has steadily lost its advantage due to its political travails. Instead Dubai is facing competition from nearby Qatar which has launched a project to build an "education hub" in Doha, with programs from (mainly US universities), including Carnegie Mellon, Cornell, Texas A&M, and Virginia Commonwealth Universities (Zoepf, 2006).

[36] Eight million square feet will be used as an international higher education zone, three million square feet will be used for research and development centers and another three million square feet will be allocated for sports facilities, student union buildings, and student and faculty housing.

[37] These include Middlesex University from the UK, S.P Jain Centre of Management from India, France's Sorbonne (it's first such expansion in its 750-year history).

since the closure of its Shanghai campus in 1915. Dubai has raised $100 million to support this project, which HMI estimates will eventually generate $4 to 5 million annual revenues. Other institutions are engaged in similar cost-benefit analyses, weighing potential profit against the risks involved in operations overseas. Some, like the University of Southern Queensland of Australia, closed after barely a year in operation while others, such as the University of Connecticut, suspended discussion over the construction of a campus in Dubai (paid for by the government of Dubai) due to concerns over human rights concerns (specifically the use of poorly paid migrant workers from South Asia in construction projects for the program).

The "Knowledge Village" is part of Dubai's Technology and Media Free Zone, launched by the government in 2000 as a self-funded, autonomous organization. As planned, the Knowledge Village will train the workforce for the Free Trade Zone's other two clusters, Dubai Internet City and Dubai Media City. The state is offering financial incentives to businesses operating in the free zone, such as 100 percent ownership, full repatriation of capital and profits, and exemptions from corporate, customs and personal tax. Easier access to the burgeoning market in the region, massive government investment in supporting infrastructure (including security systems) and relatively modest rents, have led many leading global corporations to set-up shop. The synergy between leading global firms and higher education institutions in a spatially concentrated zone has emerged as an important pillar of industrial policy in today's world. Dubai and Singapore's higher education strategies exemplify that trend.

3.3 Virtual Education

A third mechanism of availing of higher education from overseas is through virtual education. Although distance education program have been around for decades, advancements in technology have the potential to radically transform educational provision. A survey of more than 2000 colleges and universities in the United States in 2005 found that more than 3.2 million students took one or more courses online, up from 2.3 million a year earlier. In the same survey, 62 percent of university chief academic officers agreed that the learning outcomes in online education are now often as good as or superior to traditional classroom face-to-face instruction, while 57 percent said that online education was critical to their institution's long-term strategy (BizEd 2007). By 2006, online courses accounted for about one-fifth of all continuing and

professional-education enrollments at the typical American college or university,[38] and tertiary distance education accounted for 15 percent of all tertiary enrollments around the globe (IFC, 2006).

Table 16: Number of US Tertiary Students in the US Who Enroll Only Online

2000	194,580
2001	315,219
2002	483,113
2003	701,295
2004	936,727
2005	1,214,000
2006	1,518,750

Source: Foster and Carnevale, 2007. URL: http://chronicle.com/weekly/v53/i34/34a04901.htm

Despite this growth, online education continues to face skepticism on numerous fronts. While some experts argue that students can learn as much using a virtual medium as they can in a traditional classroom setting,[39] critics find substantial methodological flaws in the existing research on e-learning. Although no one denies that virtual education has expanded access to tertiary education, there is no consensus as to the relative quality of the education provided.

One of the most frequently cited research studies on distance education reviewed 355 studies on distance education from 1928 to 1998, the majority of which compared instruction via distance education technology (including videotape, interactive video, telecourses, and television) to traditional classroom courses and measured student outcomes primarily through test scores, grades, and student satisfaction (Russell, 1999). Statistical tests indicated "no significant difference" between the distance education groups and the classroom groups in the majority of the studies (Meyer, 2002). Yet there is still substantial resistance to distance education, particularly within the education community. (It is difficult to say whether to some extent these concerns reflect the apprehensions of an interest group whose incomes could be threatened by the new distance learning technology). Critics contend that virtual education, though perhaps good at transmitting information, cannot provide key components of quality education – discussion, collaboration, and reasoning skills. The informal interactions involved in

[38] Allen, E. and Seaman, J. 2005. Growing by degrees: Online education in the United States, 20005. Retrieved March 25, 2007 from http://www.sloan-c.org/publications/survey/survey05.asp

[39] For example, Phillips and Meristotis, 1999.

face-to-face instruction augment the official learning that occurs in the classroom and form an important part of the educational process. Online distance education frequently lacks peer network and interaction with faculty, both cited as important factors for student motivation (Ninnes and Helsten, 2005). To address this concern, many online programs now include communities of academic support, with face-to-face tutoring and feedback discussions.

Many advocates of virtual education see great potential for online education to provide quality education to students who otherwise may not be able to engage in classroom-based learning; however, they argue that "a new medium requires a new model." Virtual education requires a course specifically tailored to the needs and challenges posed by virtual education- simply using the structure and pedagogy of a classroom-based program in an online environment will not lead to successful learning outcomes (Melnick, 2002). There is broad consensus in the education community that distance education requires greater participation, discipline and autonomy of individual students. While some observers argue that the self-guided nature of distance education will lead to greater student ownership of the material, heightening interest in the subject matter and facilitating student comprehension (Wilmoth and Wybraniew, 1998), critics fear that multimedia education may increase student passivity (Pippert and Moore, 1999).[40] Success of distance programs also varies by discipline. Selwyn (1999) found that the practices, content and pedagogy of certain subjects- namely math, science and technology- are more amenable to employment of ICT than others. John and La Velle (2004) found that educators in overtly empirical subject areas such as math and science are more open to employing ICT in their classrooms than educators in humanities and music, with language training being a notable exception. However, distance programs rarely provide quality science or vocational studies, due to the difficulty of incorporating scientific experimentation or lab-time into the programs.[41]

[40] In a study of the use of online education in an introductory microeconomics course at Michigan State University, Brown and Liedholm (2002) found that students in the virtual classes preformed significantly worse on examinations than on-campus students. The difference was most significant when students needed to apply basic concepts in sophisticated ways, while the questions that tested basic learning tasks (such as providing definitions) resulted in less significant differences.

[41] With the notable exception of the University of Sri Lanka, few distance learning universities in Asia offer science or engineering majors or even technical training. In 2001 Thailand's Sukhothai Thammathirat Open University (STOU) had an enrollment of 220,000 in its distance education programs but offered no majors in science or engineering (Normile, 2001).

Although virtual education has lower marginal costs, it has substantial fixed costs.[42] A 2006 survey found that online continuing education courses are typically more expensive to develop than traditional face-to-face courses (Ashburn, 2006). In addition to the high start-up costs of communication systems, web platforms, and support staff of technicians, writers, instructors, and administrators, IT infrastructure requires significant resources to maintain. Recurrent expenditures on infrastructure maintenance, training and technical support can cost as much as 75 percent of the life cycle costs of initial technological investment (Salim, 2002).

The early hype of virtual education proved disappointing. In the US, a number of institutions faced low enrollments and budgetary shortfalls, and many were forced to close due to financial constraints. In 2000, the higher education division of publisher Harcourt predicted 20,000 students would be enrolled in its virtual university by 2005; in 2001 it closed after spending US$10 million dollars but enrolling only 24 students, while Temple University closed Virtual Temple without offering a single course.

Table 17: The Virtual Promise of Virtual Learning

Institution	**Program**	**Year Started**	**Investment Capital**	***Status***
New York University	NYU Online	1998	US$21.5 million	Closed 2001
Columbia University (in collaboration with 14 universities, libraries and museums)	Fathom	2000	US$40 million	Closed 2003
UK E-University		2000	Pounds 62 million	Closed 2004
Harcourt Publishers	Harcourt e-Learning	2000	US$10 million	Closed 2001
Temple University	Virtual Temple	1999	unknown	Closed 2001
Sylvan Learning (along with Wharton School of Business, University of Pennsylvania)	Caliber	1996	$10 million	Filed for bankruptcy in 2001
Oxford, Yale and Stanford	AllLearn	2001	*universities declined to say how much they had invested and how much they had lost on the	Closed 2006

[42] Derek Bok estimates that the development of "quality internet instruction" can cost up to $1 million for a single course; however, he offers no breakdown of these costs or explanation of this estimate (Bok, 2003, p. 92).

			venture. However, by June 2005, AllLearn had generated $2.5 m in revenue, but faced $3.28 m in expenses.	

Following these failures, in the early 2000s virtual education in the US emerged as the domain of the for-profit education industry.[43] The largest provider of online education has been the University of Phoenix which began offering distance education courses in 1989 in business, technology, education, and health care. Aggressive recruiting practices[44] and extremely high enrollment ratios (99 percent of applicants eventually enroll) have harmed Phoenix's reputation, yet by 2005 it was enrolling more than a quarter-million students, making it the largest private university in the US. Phoenix tailors its courses to an online audience. Faculty members deliver a weekly lecture, distributed to students with discussion questions based on readings available from an electronic library. Students participate in faculty-led class discussions online and work in small groups using group-collaboration software (Ninnes and Helsten, 2005).

Despite the controversy surrounding Phoenix,[45] its model of online education is spreading. In early 2007 two large public research institutions, the University of North Carolina and the University of Illinois, began to develop their own distance-education programs. In 2004 for-profit institutions enrolled only 5.1 percent of students at degree-granting institutions but 37 percent of all online students; their share is expected to decline to 32 percent in 2008, partially

[43] One reason why public universities in the US have only recently introduced online programs was the "50-Percent" Rule, which mandated that colleges and universities deliver at least 50 percent of their courses in person to qualify for federal student aid. The rule was overturned by the US Congress in February 2006. Although it is highly unlikely that major research universities will offer 50 percent of their courses online, the elimination of the rule points to the growing acceptance of online education.

[44] Phoenix employed more than 4,000 recruiters and spent $383 million on marketing in 2004 alone. Few universities spend more than $10 million annually.

[45] In 2004, the U.S. Department of Education fined Phoenix's parent company, the Apollo Group, $9.8 million for over-aggressive recruiting practices, and the company faces federal charges for allegedly obtaining federal funds under false pretenses. The specific charge is that Apollo Group pays recruiters on the basis on how many students they enroll, which violates the Department of Education's mandate that institutions cannot give "any commission, bonus, or other incentive payment based directly or indirectly on success in securing enrollments."

due to the expansion of online programs by traditional not-for-profit universities (Foster and Carnevale, 2007).[46]

Distance learning is not a new phenomenon in developing countries- students have enrolled in correspondence courses for decades, especially in teacher training programs.[47] But these classes had little interaction between faculty and students and were plagued by high dropout rates (Saint, 1998). However, significant improvements in technology in the past decade have transformed these programs, drastically increasing their size and scope.

Box 1: African Virtual University

The first major tertiary education program offered online in the developing world was African Virtual University (AVU), launched in 1997 by the World Bank. In its original form, foreign universities provided course content to AVU, which then distributed materials (including broadcast lectures, prerecorded tapes, textbooks, and a talk-back session via email) to partner institutions. Local university lecturers graded examinations but the degrees were from the foreign university. Due to financial difficulties in 2007 AVU drastically restructured the program.[1] Under the new model, AVU will focus its efforts on helping African universities develop their own distance-learning curriculum, avoiding the high costs of courseware fees to foreign universities while also fostering the development of a local academic and research culture.[1]

In particular there has been a dramatic expansion of resources available online, specifically through the use of "open courseware," in which high quality "open knowledge" materials, including course content, library collections, and research data is being made available online.[48] MIT pioneered this movement in 2001 when it announced plans to put material for almost all of its courses online. By early 2007, MIT had materials available online for more than

[46] For instance online classes will initially cost UNC more than its traditional classes -- about $1,300 to teach a student online compared to an average of $892 in a regular classroom but is expected to reverse after initial startup costs.

[47] In 1996, all of the five largest distance-learning programs were based in lower or middle-income countries (World Bank, 2000). These include: Anadolu University in Turkey, founded 1982; China TV University, founded 1979; Universitas Terbuka, Indonesia, founded 1984; Indira Gandhi National Open University (IGNOU), India, founded 1985; Sukhothai Thammathirat Open University, Thailand, founded 1978.

[48] In many developing countries, computers run on free-of-charge "open software," which does not have any intellectual property restrictions. For more details, see www.gnu.org

1,550 courses, including 26 courses with full lecture videos and more than 350 translated courses.[49] In 2006, there were 8.5 million visits to the MIT OpenCourseWare site, representing a 56 percent increase from the previous year, with more than 70 mirror sites in countries including Iraq, Kenya, Sudan, Uganda, Vietnam and Zambia.

Table 18: Visit Distribution by Region

Region	Estimated Visit %
North America	42.9%
Western Europe	21.2%
East Asia	15.1%
South Asia	6.1%
Latin America	5.0%
Eastern Europe	3.9%
MENA	2.9%
Pacific	1.3%
Sub-Saharan Africa	0.8%
Central Asia	0.6%
Caribbean	0.2%

Source: www.WebTrends.com

Table 19: Course Materials Available on MIT OCW Site 2005 (of total 216 classes available)

Material	Percent
Readings	98%
Lectures	82%
Recitations [a]	47%
Assignments	93%
Assignment Solutions	39%
Labs	82%
Exams	60%
Exam Solutions	33%
Projects	88%

a: Recitations refer to a question and answer session between students and instructor

[49] Since 2002, course materials have been translated into Spanish, Portuguese, Chinese, Thai, French, German, Vietnamese, and Ukrainian.

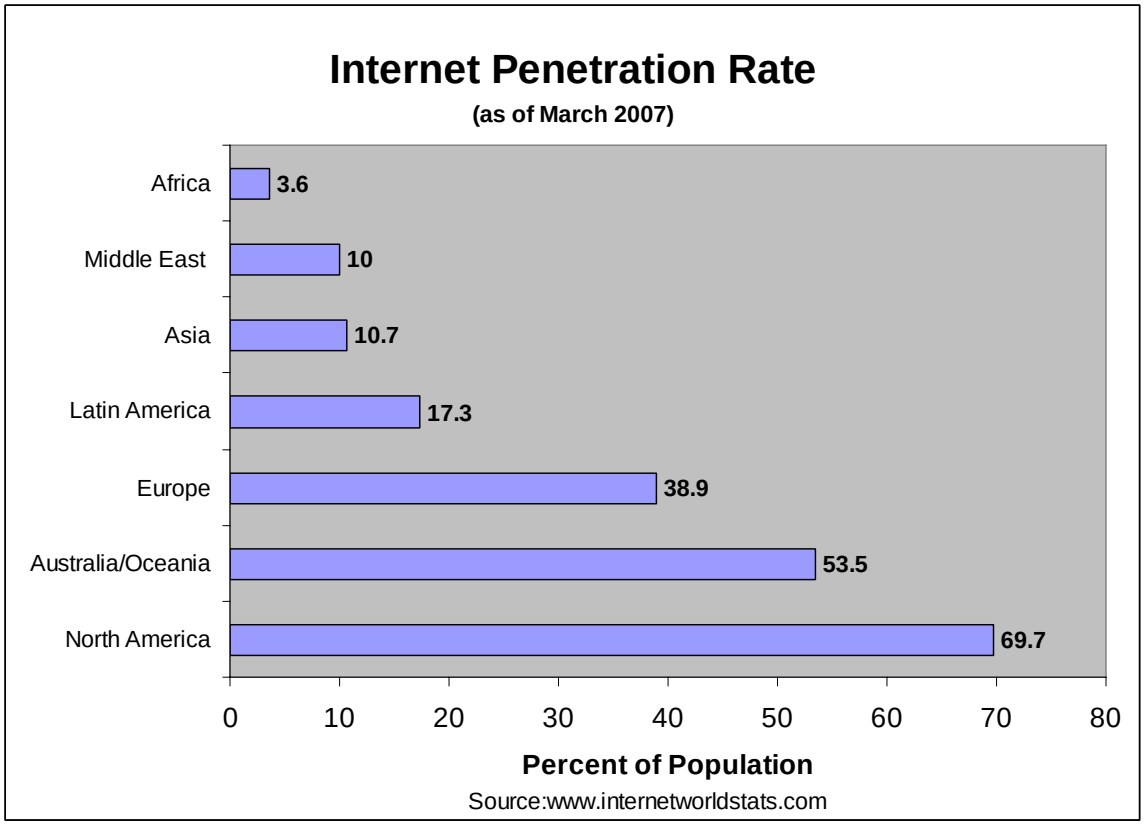
In 2006 more than 100 higher education institutions and associated organizations from around the world launched the Open Courseware Consortium, each pledging to place course materials for at least 10 courses online for free (Young, 2006). The OCW website provides planning materials (syllabi, pedagogical statements, faculty instructing), subject matter content (reading lists, lecture notes, video and/or audio lecture) and learning activities (such as problem sets, essay assignments, exams, labs and/or projects).

In addition to offering course material and lecture videos, many universities are digitizing their libraries, providing to universities in developing countries an essential but extremely expensive part of higher education. In 2005 Microsoft's MSN search division partnered with Yahoo and about twenty American universities in the Open Content Alliance, pledging to scan millions of public-domain books into online content. Google's Library project offers books online free of charge, but has faced numerous lawsuits for copyright infringement (Young, 2005). There are many other initiatives underway to make scientific knowledge a free global public commodity.[50]

Nonetheless, making these resources available online does not solve the problem of access in the developing world due to the prohibitively high cost of internet access (although some are available on CDs or Local Area Networks). Between 1995 and 2005 internet access grew from 3 percent of the world's population to more than 11 percent (UNESCO, 2005). Yet only 3.6 percent of the population in Africa use the Internet, while in the Middle East and Asia only 10 percent do. There is also a significant urban bias- in India, 80 percent of the country's Internet connections are in the country's 12 largest cities (which account for about one-tenth of the population).

Table 20:

[50] Examples include the Directory of Open Access Journals covering more than 390 journals that are searchable at the article level; the Public Library of Science (PloS), a non-profit where scientists and physicians have come together to make the world's scientific and medical literature a public resource; TEEAL (The Essential Electronic Agricultural Library) led by the Rockefeller Foundation with the support of Cornell University; AGORA (Access to Global Online Research in Agriculture) led by the FAO; and HINARI (Health Internet work Access to Research Initiative) led by the WHO.



Internet technology is still prohibitively expensive in many developing countries, both in absolute terms and in terms of disposable income. For example, in Bangladesh, the annual cost of connection to the Internet is sufficient to feed a family for a whole year (Unesco, 2005). In more than half of the countries in Africa, the annual cost of Internet access exceeds the per capita income. Only in Egypt, Libya and Mauritius is the annual cost for an internet connection less than 10 percent of the average income.[51] Indeed, 2 billion people in the world are not even connected to an electricity grid.

Bandwidth is a major expense for universities in developing countries, with service generally provided by a patchwork of providers. According to a report by the Bandwidth Consortium of the Partnership for Higher Education in Africa, in 2005 African universities paid on average $10,000 per month for the same amount of bandwidth that individuals in Western Europe and North America receive at $100 per month. At the University of Iowa in the United States, the 28,000 students have access to two 150M bits/second connections to the internet. In

[51] "Internet penetration in Africa reached 4% in 2006, up from 2.6% on the previous year." in M2PressWIRE; 05/05/2006.

comparison, at the University of Jos, one of the better-connected universities in Nigeria, 13,000 students share a single satellite connection with 1/2344 of the bandwidth of the University of Iowa (Miner and Missen, 2005).

Recognizing the poor quality of internet connectivity in African universities, a number of organizations have launched broadband initiatives. In November 2005 the UN World Summit on the Information Society adopted the Tunis Agenda for the Information Society, asking multilateral institutions and bilateral public donors to provide more financial support for ICT projects in Africa. The Bandwidth Consortium was launched in 2000, with initial investments of more than $150 million by American foundations including Ford, MacArthur, Rockefeller, and Carnegie Corporation of New York.[52] The consortium involves AFU and eleven other African universities, six of which are located in Nigeria. The Consortium is working to increase access to ICT in African universities, primarily focusing on the use of wireless technologies and mobile networks as substitute for poor or non-existent fixed-line infrastructure.[53] Other prominent international initiatives to increase internet access in African countries are the Eastern Africa Submarine Cable System (funded by the IFC and the Development Bank of South Africa) and the terrestrial Regional Communications Infrastructure Programme for East and Southern Africa which are expected to bring down bandwith costs by more than ten-fold.[54] Rwanda is currently pursing plans to provide a fibre-optic backbone covering the entire country by 2008. Although high population densities make this more feasible for Rwanda, nonetheless given the low levels of income in that country, such an achievement would make a dramatic example for the continent.

Virtual education has many potential benefits for the developing world, particularly by reducing constraints on access. Institutions are now able to offer services to many more students without the high overhead costs of campus-based education (Salim, 2002). Virtual distance education programs are also partially shielded from disturbances that plague higher education in

[52] Over the next five years the foundations, along with the William and Flora Hewlett Foundation, the Andrew W. Mellon Foundation, and the Kresge Foundation will invest an additional $200 million.
[53] For example, a British wireless company, Briteyellow is providing two Nigerian cities (Lagos and Abuja) with wireless technology that will support wireless desktop and laptop PC use, wireless phones and voice-over-IP calls ("Wireless enables a bright future in Nigeria," in M2PressWIRE; 06/06/2006). In 2005 the satellite service provider, Intelsat, entered into an agreement with the member institutions of the Bandwidth Consortium to expand the Internet bandwidth at universities in Africa part of the Consortium, at approximately one-third the cost.
[54] In 2004, the cost of international data transfer via satellite was approximately US$5,000 per megabit, compared with US$500 per megabit on a cable link (Collaboration on International ICT Policy for East and Southern Africa).

many developing countries, such as class cancellations due to faculty absenteeism and shocks (natural or otherwise). It can also help to alleviate two of the significant problems that bedevil educational provision in developing countries – location and quality. E-learning allows far greater flexibility for individuals who otherwise cannot accommodate the schedule of the traditional classroom-based curriculum, whether due to work or familial obligations, or transportation to and from the university. And for many, the limitations of distance education notwithstanding, the often abysmal quality of local alternatives, will make it attractive. It is not a panacea and will have very limited effects on research, but may yet prove an important part of educational provision in developing countries.

4. NEW CHALLENGES TO HIGHER EDUCATION

4.1 The Changing Role of the State

Over the past quarter century governments have scaled back their role in the economy, and higher education is no exception. This trend is seen in the introduction and increase of student fees,[55] increased competition for students, increased autonomy granted to universities, and the introduction of financial incentives for institutions that introduce incentive-based policies (Kim and Kim 2004).[56] In many cases the reduced role of the state as the direct provider of public education has been more by default than design and the growing role of the private sector in tertiary education in many developing countries has raised difficult questions regarding the proper role of the state.

Higher education is characterized by a range of market failures that justify state intervention, from failures in credit markets (the difficulties faced by a poor person in borrowing against future human capital), to concerns over income distribution and static and dynamic externalities. Historically civil society (especially religious orders) played a major role in the development of universities. Indeed most of the oldest (and best) universities were initially founded as seminaries. The separation of church and state led to a growing role of the latter (and

[55] In 1997, the UK became the first European country to impose more than a nominal tuition fee; in the US tuition at public universities rose by 84 percent in the 1990s (Texiera, 40). Various developing countries introduced tuition fees in the 1990s for the majority of students, including Kenya, Cambodia and Mexico. In 2001, Makerere University in Uganda had virtually no fee-paying students; by 2005, 60 percent of all students paid fees. However, in June 2005 the Ugandan Parliament reversed Makerere University's tuition increase and later that year students went on strike to protest the increase of examinations fees from about US$2.00 to US$75.00.

[56] Examples include the introduction of a probationary period and tenure evaluation of faculty, salary raises based upon merit not just length of service, and granting students greater latitude in choosing courses and majors.

secular private initiatives) in higher education. Consequently governments have an important role in the regulation, organization, funding, oversight and overall development of higher education systems. Few would contest that the state has an important role in creating an environment supportive of quality higher education. The normal rules of the market place are highly unlikely to protect academic freedom without the state providing the necessary legal framework.

But principle and practice are two entirely different things. While institutional autonomy is essential for higher education to flourish, it can be severely compromised by the political economy of the state. And when that occurs, high levels of state involvement in education stifle innovation and lead to rent seeking and politicization of the system.[57] With growing competition for talent and resources from the private sector, public higher education systems are stymied due to inflexible systems that do not allow them to compete for resources, faculty and students. Competition for students can lead to higher quality institutions and investment in better facilities and faculty while that for state and private funding of research opportunities is likely to encourage more innovation and higher standards of work. Rules where university faculty and staff are little different from civil servants, with automatic raises based on years of service and where it is impossible to fire anyone for poor performance, and where incessant political interference corrodes institutional autonomy, is a recipe for academic mediocrity. For instance, Venezuelan law mandates that if one faculty member in one institution receives a raise, all faculty members of equal rank in all institutions must receive the same raise – hardly an incentive for hard work and excellence.

The sheer expansion in demand for higher education has meant that traditional state funded higher education systems simply cannot cope. This is leading to severe pressures to modify traditional state support for higher education, moving beyond public expenditure to tax incentives to encourage private philanthropy directed towards higher education and research. The American tax system, which provides for tax-free donations to non-profit institutions like

[57] In many developing countries, the state takes an active role in academic appointments. For example, in China, the presidents of two leading universities (Beijing and Tsinghua) are directly appointed by the State Council, which acts on the recommendation of the Communist Party (World Bank, 2000, p. 62-63). In India the Cabinet Committee on Personnel approves appointments of the Directors of India's elite Indian Institutes of Technology and Indian Institutes of Management.

universities,[58] is frequently cited as a major factor in the growth of world-class private universities.[59] In late 2006, Russia introduced new legislation to make charity donations tax-deductible. In Britain, under new legislation introduced in January 2007, home owners may be offered tax incentives to donate their homes to universities. The legislation also includes a government matching program for donations made to universities by individuals (Winnett, 2007). There is little systematic work in developing countries on the subject, despite the growing importance of non-state funded higher education.

Despite the merits of competition, the other extreme – subjecting higher education to simple minded bottom-line calculations – can have equally egregious consequences. Leaving university design entirely up to the market may distort research towards areas with the largest short term financial payoff, thus leaving important areas of learning and knowledge under-funded.[60] It is fashionable today to argue that by strengthening intellectual property rights, the state can encourage academic innovation and institutional growth. For example, the Bayh-Dole Act, passed by the US Congress in 1980, made it much easier for universities to own and license patents on discoveries made through publicly funded research, thereby encouraging universities to support this research. But this also meant that the line between corporate and university research narrowed. When activists were clamoring for MNC drug companies to back off from enforcing their IPR claims on AIDS drug cocktails in poor countries, several universities that held some of the patents licensed to drug companies (which had been developed from public funds) were reluctant to let go of what had become a lucrative cash cow.[61] While they later relented under public pressure, this raises questions as to the difference between a non-profit university and a for-profit corporation. Indeed recently the retiring head of research of IBM remarked that if once universities were reluctant to collaborate with corporations because of the latter's IPR concerns, the situation seems to be reversing. Even as corporations such as IBM are

[58] Enacted in the United States in 1917, the charitable donation tax deduction was designed to encourage charitable giving in the United States, which people feared was threatened by the introduction of an income tax.

[59] Tax-deductible donations, particularly from alumni, now are an important source of revenue for colleges and universities in the United States. Alumni donations are consistently the highest-ranking source of charitable support for higher education and climbed from about a quarter of all donations to colleges and universities in the early 1970s and 1980s to 30 percent in 1998 (Cunningham and Cochi-Ficano, 2002).

[60] For example, due to cuts in governmental funding and increasing levels of competition, public universities in Thailand have needed to cancel or combine non-market-driven programs, leading to less specialization in certain areas (Savatsomboon 2005).

[61] Examples include the anti-AIDS drug d4T licensed by Yale to Bristol Meyers Squibb and key patents on Ziagen licensed by the University of Minnesota to GlaxoSmithKline.

moving towards more open systems, universities are dragging their feet because of fears they might lose control over possible lucrative IPR.

4.1.1 The Brain Drain

A critical goal of improving higher education in developing countries is to increase the supply of human capital. But this goal can be stymied if this human capital leaves – the so-called "brain drain." The consequences of the brain rain have been much debated with the earlier pessimism giving way to more positive assessments.[62] While this is not the place to discuss the normative and positive consequences of the brain drain, prima facie it would appear to have implications for the structure and financing of higher education systems in poor countries.

To take one example: in recent years the out-migration of health workers from poor countries to OECD countries has received considerable attention. In 2006, the WHO estimated a shortage of more than 4 million health workers across the globe (The World Health Report 2006a). 57 countries were identified as having a critical shortage, with the largest increases in the health workforce required to meet the shortages in Africa and South East Asia (see Table 21). Philippine nurses (110,000) and Indian doctors (56,000) account for the bulk of the immigrant health workforce in the OECD, each representing roughly 15 percent of the total stock. Although both countries also produce large numbers of nurses and doctors and the expatriation rates are less than 10 percent, these are most likely from the upper tail of the "quality" distribution.

Table 21: Estimated critical shortages of doctors and nurses and midwives, by WHO region

	Number of countries		In countries with shortages			Foreign-born doctors and nurses in OECD countries by region of origin	
WHO region	**Total**	**With shortages**	**Total stock**	**Estimated shortage**	**Percentage increase required**	**Number**	**Percentage of the estimated shortage**
Africa	**46**	**36**	590198	817992	*139%*	98329	*12%*
Americas	**35**	**5**	93603	37886	*40%*	199314	*526%*
South-East Asia	**11**	**6**	2332054	1164001	*50%*	101460	*9%*
Eastern Europe	**52**	**0**	-	-	-	-	-
Mediterranean	**21**	**7**	312613	306031	*98%*	71551	*23%*
Western Pacific	**27**	**3**	27260	32560	*119%*	212280	*652%*
World	**192**	**57**	3355728	2358470	*70%*		

[62] For a recent overview and analysis of the evidence see Kapur and McHale (2005).

Sources: World Health Report -WHO 2006 (see endnote 22 for details on how "critical shortages" are estimated) and Sopemi 2007 calculations for emigration data. URL: http://dx.doi.org/10.1787/022687473573

A comparison of the number of expatriated health workers to the number of health workers in the home country reveals that African and Caribbean countries are disproportionably affected by emigration. The expatriation rate is generally lower for nurses than for doctors, though a number of countries, particularly in the Caribbean, are exceptions to this trend. French and Portuguese-speaking African countries have some of the highest expatriation rates of doctors to OECD countries, while roughly 90 percent of the nurses born in Haiti or in Jamaica are working in the OECD.

Table 22: Expatriation Rates for Doctors and Nurses from Low-Income Countries, Circa 2000

Rate	Country	
	Nurses	*Doctors*
<10 %	Bangladesh, Benin, Bolivia, Burkina Faso, Burundi, Central African Republic, Dem. Rep. Congo, Côte d'Ivoire, Ethiopia, Gambia, Guinea, India, Kenya, Mali, Mauritania, Myanmar, Nepal, Niger, Nigeria, Pakistan, Senegal, Sudan, Timor-Leste, Togo, Uganda, Yemen, Zambia	Bangladesh, Burkina Faso, Dem. Rep. Congo, Guinea, India, Mongolia, Myanmar, Nepal, Niger, Pakistan, Rwanda, Sudan, Yemen
10-25 %	Cambodia, Comoros, Eritrea, Ghana, Guinea-Bissau, Laos, Madagascar, Mozambique, Papua New Guinea, Rwanda, Solomon Islands, Somalia, Vietnam	Afghanistan, Cambodia, Central African Republic, Chad, Comoros, Côte d'Ivoire, Ethiopia, Gambia, Laos, Madagascar, Mali, Mauritania, Nigeria, Solomon Islands, Vietnam
25-50 %	Sao Tome and Principe, Zimbabwe	Benin, Burundi, Eritrea, Ghana, Guinea-Bissau, Kenya, Malawi, Papua New Guinea, Sao Tome and Principe, Senegal, Somalia, Timor-Leste, Togo, Uganda, Zambia, Zimbabwe
>50 %	Haiti, Liberia, Sierra Leone	Haiti, Liberia, Mozambique, Sierra Leone

Note: Countries for which expatriates are under 10 for nurses (5 for doctors) or resident in the origin country are below 50 for nurses (10 for doctors) are not reported.
Source: International Migration Outlook: SOPEMI, 2007

Although the focus of health care worker migration has been on nurses and doctors, lab technicians and pharmacists are often in even shorter supply. Needless to say, these large flows of healthcare personnel from poor to rich countries have generated serious concerns. In addition

to improving the health status of the population, health workers are perceived to play a critical role in a country's economic and social development (Gyimah-Brempong and Wilson, 2004; WHO, 2001). Even limited emigration of certain specialists, associate professionals (such as laboratory technicians) or support staff may seriously cripple a country's health care system, with potentially disastrous consequences.

However, notwithstanding the worrisome numbers, it would be erroneous to put the onus of the health crisis in Africa on emigration of health professionals from the continent. Clemens (2007) argues that Africa's low health staffing levels and poor public health conditions are less the result of emigration of health professionals and more the result of the segmentation of health workforce labor markets in sending countries. This argument does not prove that emigration of health case professionals has not adversely impacted health care in Africa, but rather that given the multitude of factors that affect health, the brain drain may not be the principal culprit, even with the high expatriation rates of many poor African countries.

This argument is congruent with one advanced by Pritchett (2001) that contrary to expectations, the rise of the educational attainment of the labor force around the world has little association with aggregate growth – and therefore if some leave, its impact on output would be marginal. Pritchett argues that this could be for three reasons. One, schooling may not actually raise cognitive skills or productivity but simply raise private wages, because it signals to employers a positive characteristic like ambition or innate ability. Two, in many cases the supply of educated labor has expanded even as demand has been stagnant, leading to a rapid decline in the marginal returns to education. And, three even if education does raise productivity and there is demand for this more productive educated labor, if the demand for educated labor comes from individually remunerative but socially wasteful or counterproductive activities (e.g. a bloated bureaucracy or overmanned state enterprises in countries where the government is the employer of last resort), individuals' wages could increase with education even as output stagnates or falls.

The above observations are not surprising in that there are likely to be common underlying factors that explain a weak higher education system, higher expatriation rates (or brain drain) and low economic growth. Such growth traps cannot be overcome by simply focusing on the most visible or emotional issue such as the brain drain. Yet, it is important to realize that higher education also creates the very professionals that build and staff "institutions" – a critical underlying variable for long-term economic development. Consequently, their exit is

the loss of the middle-class, of critical institution builders some of who also shape the quality of training of future generations in these countries.

The first and foremost priority to stem the brain drain is restoring security and political stability as evident from countries ranging from Afghanistan to Zimbabwe. Where that is not a major issue, reforming higher education is crucial to retaining talent.[63] As we argue later, this task is exceedingly difficult, but there is no alternative. In addition, however, there are other policies specific to the international mobility of talent that developing countries can address to improve their higher education institutions. For instance, LDCs inflict self-imposed costs by making skilled *immigration* harder than even developed countries. Many countries such as East Africa in the 1960s, threw out their talented ethnic minorities. Even as many poor countries wring their hands at the cost of producing a medical graduate, they do little to encourage the entry of skilled immigrants who may want to work, on the grounds that it will take away local jobs. They continue to believe that importing a foreigner means putting a local out of work; instead of seeing skilled labor as a complementary input, they view it as a substitute. Many LDCs prompted by a false sense of nationalism do not recognize foreign degrees of countries that do not engage in a reciprocal recognition. This is especially true as regards professional degrees like law, medicine and accounting.

There are valid concerns in developing countries that scarce public expenditures on higher education may be lost through emigration. There is no reason why developing countries should not attempt to recapture these public expenditures through an appropriately administered exit tax that could potentially raise considerable revenue with a limited administrative burden. Such an exit tax on human capital could take several forms. The most simple (and justifiable) one would be to repay the institution of higher education a sum commensurate to the cost of education. Doctors and engineers would pay substantially more than liberal arts graduates, and those from more elite institutions more than their humbler counterparts. Such exit taxes could also be considered the equivalent of headhunter fees and, assuming the deductibility of such payments, would translate into a modest after-tax cost to the hiring firm. This is similar in concept to the fees paid by firms sponsoring people for temporary work visas and used for scholarships for low-income individuals and workforce training. A potential exit tax paid by a sponsoring firm to the source country would have the same distributional rationale.

[63] The next few paragraphs draw heavily from Kapur and McHale (2005).

A politically more palatable alternative would be to replace existing state funding of tertiary education with a system of forgivable loans. The loans would be forgiven on the condition that the individual works in the domestic economy after graduation, but would become payable upon the individual's emigration. To increase compliance, the issuance and renewal of a passport could be made conditional on loans being in good standing. To increase flexibility, such loans could be indexed to the duration of stay for graduates of institutions of higher learning so that graduates leaving immediately after graduation would pay the full amount, while the loan would defease as recent graduates spent more time working in their home countries. Alternatively, more elaborate defeasance schemes could be designed to spur temporary stays abroad and encourage graduates to return, thereby maximizing the gains to the source country of work experience abroad.

While politically appealing, the implementation problems of such a loan forgiveness scheme may be formidable. The tracking of individuals for repayment of loans to educational institutions could be cumbersome and such conditional charges may be circumvented through political connections. Additionally, human capital flows often are associated with education and not employment, so taxing these flows at the initial exit stage could jeopardize a critical mechanism to augment human capital. While a seemingly daunting process, the recent experience in the US with student loan default rates suggests that greater efforts and an increased use of information technology can significantly improve repayment rates.

4.1.2 Political Economy of Reform

Higher education is arguably one of the most difficult sectors to reform – and not just in developing countries. The sector's high political salience with well-organized, vocal, urban, upper-income interest groups makes it much harder to bring about change. On the one hand, faculty with life-time job protection are extremely loath to change. On the other, university students are the perfect age group for protest, both vocal and sometimes violent. But the most severe handicap is the overall structure of higher education in developing countries, plagued by misguided attempts at equity, poor administration and bureaucratization. The lack of institutional autonomy and poor academic governance make it unlikely that higher education will attract talent, especially if that talent has alternatives. In many cases, talent out has been driven

out and as individuals at the upper end of human capital distribution leave, the remaining pool is of poorer quality. This not only prompts the more talented to also consider leaving, but also discourages those who left earlier from returning, ensuring that mediocrity becomes entrenched in these institutions. While low salaries are an issue, in many cases a poor overall academic environment is perhaps more important. In most government institutions, the focus is on process rather than performance, appointments are politicized, and autonomy in administration, financial and academic content is minimal. Resources are an undoubted constraint, but more flexible rules, access to modest research resources and a work environment that encourages innovative practices and research – all within the capacity of many middle-income LDCs – can achieve much. The difficulty in achieving these goals reflects domestic political-economy constraints. A country like Pakistan, where former army officers run universities, is unlikely to create an environment conducive to pedagogical innovation.

These problems have been compounded in recent years as higher education is emerging as a major arena of distributional conflicts in developing countries. The main reason is rising skill premia. While this is a global phenomenon – the last two decades have seen a significant increase in the skill premium in both industrialized and developing countries – it is more puzzling in developing countries. Despite numerous problems that afflict the measurement of skill premia, Goldberg and Pavcnik (2007) argue that since virtually all country studies show large skill premium increases, "it is unlikely that they are all a figment of the measurement problems," although the exact magnitudes may be affected by these measurement problems. The skill premium increases have been largest in Mexico, where the return to university education (relative to primary education) increased by 68 percent between 1987 and 1993 (Cragg and Epelbaum, 1996). In Latin America, a worker with six years of education earns on average 50 percent more than someone who has not attended school, a high school graduate earns 120 percent more and someone with a university diploma earns on average 200 percent more (World Bank, 2000). In other countries the skill premium (as measured by the return to a university degree) has increased as well.

- Colombia by 16 percent (relative to primary education) between 1986 and 1998 (Attanasio et al., 2004)
- Argentina by over 20 percent (relative to no complete education) between 1992 and 1998 (Gasparini, 2004)

- India by 13 percent (relative to primary education) between 1987 and 1999 (Kijima, 2006), and 25 percent between 1998 and 2004 (Dutta, 2006; OECD, 2007)
- Brazil by 10 percent among men (relative to no complete education) (Gasparini, 2003; Arbache et al., 2004).

Table 23: Changes in Skill Premium

	1980s	1990s
Mexico	Increased	Increased until mid 1990's Stable/declined after mid 1990's Increased between 2000-1990
Colombia	Slightly declined	Increased
Argentina	Declined	Increased
Brazil	Stable/Slight Increase	Increased
Chile	Increased	Declined early 1990's Overall increased 1990-2000 (national data)
India	Relatively Stable	Increased
Hong Kong	Increased	Increased

Source: Goldberg and Pavcnik, 2006

Hemmed in by fiscal constraints, the ability of governments to respond has been further constrained by a stark political reality: university employees (especially faculty) and students are among the most vocal and well-organized political groups in any country. Even as unions have weakened in virtually all aspects of economic activity, education remains a rare exception. Direct exit options – such as closing down poor performing departments or colleges – sharply increases the risks of an immediate political reaction. Visible strategies such as increasing fees are also fiercely resisted even when they could raise quality or lead to a less regressive income transfer to elites.

Consequently, governments have largely chosen to reform by stealth. In some cases "reforms" have occurred simply when public institutions deteriorate to such an extent as to force students to seek private sector alternatives. In other cases, governments have limited public sector led supply increases resulting in increasing rationing as demand escalates, thereby forcing excess demand to spill over to a burgeoning private sector. In both cases the result is the same – a massive increase in the share of the private sector in higher education. However, as the

Japanese experience demonstrates, private universities being more subject to market forces can contract as well – in this case the result of declining college-age population, poor management, weak endowments and poor teaching quality. Poorly designed and intrusive regulatory systems (which in Japan is manifest in state-mandated numerical quotas) and relatively well-run public university alternatives further ensure an emasculated private sector (Hideo, 2006).

In other cases, governments have sought to loosen the regulatory noose by increasing autonomy and decentralization. In Brazil the national Ministry of Education determined staffing levels, salaries, and promotion criteria. However, when it sought to give greater autonomy to individual institutions, it met considerable opposition from faculty, staff and students who feared that greater autonomy would reduce the entitlements they had come to expect from the national government (Plank and Verhine, 2002). Faculty have generous salaries and light teaching loads; staff have job security in a heavily overstaffed system; and students have an almost-free higher education. And those left out of the system have little political clout. Why change?

In Mexico, the government has tried to decentralize responsibilities to the state level, but "most state governments lacked the capacity (political, technical, administrative, and financial) to tackle these new tasks." (Álvarez-Mendiola and de Vries, 2005). Where political constraints make any change unfeasible and the supply of higher education institutions with any signaling effect is severely limited, there is an increasing tendency to purchase higher education overseas. In India, where higher education has become deeply politicized, total higher education spending by the central state governments is about $4.5 billion while Indians are already spending nearly $3.5 billion overseas (Kapur and Mehta, 2008).

4.2 Equity and Access

A key issue confronting governments in managing the political economy of educational is how to address issues of equity and greater access to higher education. Higher education appears to be a less a ladder for social mobility than a wall protecting and reinforcing existing privileges.[64] These barriers are not just of income, but of race, ethnicity and gender. In Latin America, the children of the technical and professional strata account for more than half of total

[64] A recent study of 146 selective colleges and universities in the United States found that "students from the top quartile of the socioeconomic hierarchy (based on parental income, education and occupation) are 25 times more likely to attend a "top tier" college than students from the bottom quartile." Jerome Karabe, "The New College Try," *New York Times,* September 24, 2007.

enrollment in higher education, even though they account for 15 percent of the total population. Gender disparities in tertiary education are particularly significant in the Arab world, certain sub-Saharan African countries, and in South Asia. In Yemen, female enrollment in tertiary education is only 1 percent of the eligible age group, as compared with 7 percent for men. In Bangladesh female students represent 24 percent of the student population in public universities, and 17 percent in private institutions (World Bank, 2002).

Higher education systems have attempted to address issues of access in two principal ways: financial aid schemes to address the large opportunity costs and liquidity constraints faced by students from lower socio-economic groups; and selection criteria (or admissions policies) that take into account a student's socio-economic background. Yet, if many of the underlying handicaps faced by students from lower socio-economic groups occur much earlier in the life cycle – at the primary and secondary school level – policies to overcome these handicaps in higher education even if not too little may just be too late.

4.2.1 Financial Aid Schemes

The escalating demand for tertiary education has placed a significant strain on the budgets of many public universities in countries which historically had free or low-cost higher education. This has led many countries to shift some of the financial burden for funding higher education to the beneficiaries - students and their families.

The primary argument in support of student fees is that higher education leads to significantly greater earnings, and so the ones who gain (the students) should be the ones who pay. User fees also arguably increase incentives for students to make careful decisions about their educational choices—if they or their families are paying, as the argument goes, student motivation will be higher (Banya, 2005). However, countries that historically have offered low-cost or free public tertiary education have faced significant resistance when they have tried to implement or increase student fees.[65]

[65] In 2002 Germany amended its Higher Education Framework Law to prohibit tuition fees for undergraduate programs at public universities. However, in January 2005 the Constitutional Court declared this prohibition unconstitutional and granted states autonomy over their higher education budgets. The majority of states are now introducing tuition fees for both undergraduate and graduate education (Kehm, 2006). Similar debates are being fought in other European countries, including France and the UK.

In order to provide access for academically-qualified, lower-income students, countries have adopted a variety of financial aid programs— some grant-based, others relying upon loans. In some systems funding is provided to the student who then chooses which institution in which to enroll, while in others the funding is provided to individual institutions, which then have the power to disburse the funds to needy students. Considering the large income differentials between college graduates and non-graduates, the high cost of tertiary education, and the substantial demand for higher education in most countries, there is a growing trend towards the use of loans rather than grants, in financial aid programs (Banya 2005). Yet loan programs have faced many challenges in implementation, due to student default, high administrative costs and difficulties in assessing student need. Although these issues confront all higher education systems, in developing countries weak infrastructure exacerbate the challenges.

China, Russia, and India have all attempted to introduce loan programs since 2000, but these programs have been bedeviled by mismanagement and low funding. In some countries, administrative costs account for as much as one-quarter of available fund in the program, while in others low interest rates bankrupt the programs (Bollag 2002). High rates of default also cripple these programs. In the 1980s, Brazil, Venezuela, and Kenya all operated student loan programs with approximately 90 percent default rates. In Ghana, out of the $27.5 million loaned to more than 400,000 college students since 1988, only $1.1 million had been paid back as of 2002. Some countries have attempted to address these high default rates through "shaming campaigns." For example, in Jamaica the state publishes the names and photographs of former students with outstanding debts, framing the repayment of student loans as a civic duty. Although there are a few loan programs that function reasonably well in developing countries, such as CONAPE in Costa Rica and FUNDAPEC in the Dominican Republic, these programs are relatively small in scope.

A number of countries have attempted to introduce means-tested programs to determine eligibility for financial aid. However, these programs are hindered by the poor quality of public records and the weakness of national tax systems. In countries where records of family income are not widely available, universities have turned to other indicators to assess student need. For example, at the Pedagogical University in Mozambique, students must complete a financial aid application that details family income as well as the occupation of the student's parents, whether the student's home has electricity and running water, and whether the student relies primarily on

public transportation. Makerere University in Uganda determines need primarily by the number of years of schooling that the student's father received and whether the student's family owns a vehicle. At the University of the Philippines, officials from the financial aid office conduct home visits to verify financial information, and students who provide inaccurate information face expulsion (Wolanin, 2002).

Columbia's new student aid program ACCES (Acceso Con Calidad a la Educacion Superior), is a notable example of an effective student aid program, contributing to the increase in tertiary enrollment by 30 percent between 2003 and 2006. In 2002, Columbia's tertiary enrollment rate was less than 20 percent among low-income populations (compared to nearly 60 percent among high-income populations), and only 30 percent of student loans were assigned to low-income students. Under the program launched in 2002, students from the poorest backgrounds receive a mix of grants (25 percent) and non-subsidized loans (75 percent) to fund their tertiary education, with eligibility confirmed through home visits. It also provides loans for middle-income students and students are no longer required to present assets as collateral on the loan.[66] Since 2002, the program has supported more than 80,000 students, 69 percent of whom are from the lowest income group.[67] Dropout rates are 30 percent lower for funded students than for non-funded students with the same observable characteristics. The program's success is largely attribute to the targeting of low-income populations, the use of a mix of subsidized loans and grants, and the reduction of administrative costs by operating through universities' financial aid offices (Cerdán-Infantes and Bloom, 2007).

A number of countries have begun to modeled their programs after Australia's Higher Education Contribution Scheme, under which repayment is determined by a graduate's income, with repayment starting when a graduate earns at least $12,000 a year, and pegged at 3 to 6 percent of income after that (Ziderman, 2006).[68] While some countries have switched to an income-determined, sliding scale of loan repayment, other countries have moved to give greater weight to "merit" in financial aid. Since the collapse of the USSR, many former Soviet states

[66] The project focuses not only on undergraduate programs, but also provides funding for short cycle courses (such as technical training), as well as national doctoral programs. The program finances eligible doctoral students to study at a foreign institution for a semester, and assists the student's thesis director to participate in international research groups.
[67] In Columbia low-income students are defined as income levels in strata 1 and 2 out of 6 socio-economic strata.
[68] For example, in April 2004, the Thai cabinet introduced a new loan program for the country which is closely modeled on Australia's scheme, including a post graduation income-contingent repayment plan (Ziderman, 2006).

have increased the number of state scholarships based on academic performance, while deemphasizing the weight of family income (Siemienska, 2005).

As private provision and international education grow, tertiary educational funding that improves equity while being reasonably cost effective is an increasingly complex task. There are many contentious debates regarding the effectiveness of voucher systems (in which the funding follows the student) rather than the normal pattern of state institutional funding. The former might appear more attractive at the conceptual level but administrative realities may well make the latter more effective in many settings. This is even more so when one takes into account the difficulties of handling (and enforcing) loan defaults. And if one moves away from simple means-test to additional identity-based criteria, the complexity spirals.

4.2.2 Affirmative Action Programs

In recent years identity politics has emerged as a core issue at the heart of normative debates about the substance of democracy. It is hardly surprising therefore, that it has also become a contentious issue in higher education (elbowing out old-fashioned class politics) with its ramifications most manifest in affirmative action programs. In China the state gives minority students additional points on their national entrance exams with hopes of increasing the share of minority students in national universities. [69] Many governments in sub-Saharan Africa (where only one in four college students is female) give female students extra points on their national university entrance-exams and offer remedial courses in science and math to female candidates. But the countries with the most aggressive programs seeking to address educational inequalities between different social groups have been Brazil, South Africa, Malaysia and India.

In Brazil, where over 45 percent of the population is of African descent, the average white person has eight years of education, while the average black person has only five. The average black person is also two and a half times poorer than the average white person (Davies, 2003). Public universities in Brazil (which have strong reputations) do not charge student fees and admittance is determined by competitive national entrance exams. These exams have been widely criticized, as they are only administered in urban areas and tend to favor white affluent students who enroll in expensive test-prep classes (Almeida, 2001). In 2000, 65 percent of the

[69] There are 55 officially recognized minority groups in the country.

student body at public universities was educated at private secondary schools, and 66 percent came from the wealthiest 20 percent of the population (Lloyd, 2004).

In order to address these stark racial inequalities, Brazilian universities have implemented a number of affirmative policies.[70] In 2003, the state of Rio de Janeiro instituted preferential admissions policies for black and mixed-race students at public universities, reserving 40 percent of spots for black students (McMurtrie, 2004). Similarly, the University of Brasilia reserves 20 percent of spaces for black students, while both fill 50 percent of the student body with public school students. In 2004, Brazilian president Lula da Silva issued a presidential decree requiring private universities (which account for 70 percent of total student enrollment) to allocate a share of seats for black students if they wish to receive tax breaks (Lloyd, 2004).

South Africa is also seeking to address racial inequality through affirmative action programs.[71] South Africa's population of 44 million is 70 percent black Africans, 16 percent white, 10 percent "coloured" (a distinct ethnic group descended from black Africans and whites), and 4 percent of Indian origin. The higher education sector in South Africa comprises of public institutions (including universities, technical colleges, colleges of education and agricultural and nursing colleges) and numerous small private providers.[72] The 1984 constitution mandated strict segregation in higher education institutions, with separate schools for the four racial groups (Bunting, 2006). The historically black schools were characterized by low levels of funding, insufficient infrastructure and poor management (Badat, 2004). With the dismantling of the apartheid regime South Africa began to re-structure its higher education system.[73] Following the 1997 Higher Education Act, all South African universities were required to comply with "appropriate measures for the redress of past inequalities" in their admissions policies, but "may

[70] In 2004 the Zumbi dos Palmares University of Citizenship in Brazil became the first "black" university in Latin America, offering four-year degrees in business administration. The university reserves 50 percent of its seats for black applicants, but its inaugural class in 2004 was comprised of 90 percent black students. It is one of the only institutions in Sao Paulo accessible to most black students, due to its subsidized tuition of $80 per month- half that of the least expensive private colleges. It is run by the local non-profit Afrobras, and receives financial support from major corporations in Brazil. The school's annual $275,000 budget comes from grants from other private colleges in Brazil. In 2004, the school enrolled only 177 students, but plans to enroll up to 10,000 students on campuses throughout Sao Paulo (Lloyd, 2004).

[71] Affirmative action in higher education is part of a larger strategy of affirmative action, called Black Economic Empowerment (BEE). The primary affirmative-action legislation in South Africa is the Employment Equity Act (EEA), which came into effect at the end of 1999. Through a complex scoring system, companies are required to meet minimum requirements in terms of representation by previously disadvantaged groups.

[72] The 1996 Constitution allows for private institutions to operate, as long as they register with the state, maintain standards equal to those at comparable public educational institutions and do not racially discriminate.

[73] These were underpinned by new legislation including the Labour Relations Act of 1995, the South African Schools Act of 1996, the Higher Education Act of 1997, and the Employment Equity Act of 1998.

not unfairly discriminate in any way." Due to this ambiguous language, the use of racial preference in admission policy varies by institution. The University of Cape Town uses a point system to determine admittance: for example, black and colored students must receive 34 points to be considered for admittance to a bachelor program in physiotherapy, while Indian applicants need 41 points and "open" applicants need 43 points. The University of KwaZulu-Natal also considers race in their admission policies, while universities in Witwatersrand, Free State and Pretoria do not (Sumaya, 2006). Many universities have also established outreach programs to help improve science and mathematics education for black students in secondary school. The government also runs a scholarship programs to fund the education of lower-income students, called the National Student Financial Aid Scheme. In 2005 the NSFAS distributed loans and scholarships to approximately 110,000 students. Under the program, students who receive top grades in university can convert their loans into scholarships.

While Brazil and South Africa have introduced affirmative action programs in recent years, in 2003 Malaysia dismantled its 31-year old system of "positive discrimination" at the country's 17 public universities. Under the old affirmative action program, Malaysian universities were required to set aside a "reasonable proportion" of spots in the student body and faculty for ethnically Malay students, though the exact number was not specifically defined.[74] This system was implemented in the early 1970s, when roughly 70 percent of undergraduates in Malaysian universities were Chinese, and less than 10 percent were Malay. In 2003 when the program was dismantled, these percentages were reversed (Cohen, 2004).

In 2000 the Ministry of Education stated that relatively few Malay students were meeting the minimum academic standards for university admission, while hundreds of top-performing Chinese Malaysians were excluded, thereby hindering the country's academic development.[75] The Malaysian case is a rare example of clear sunset criteria. Like the infant-industry argument, affirmative action programs can take on a life of their own, as more and more groups press their claims to avail of its benefits. Nowhere has this been most evident than in the country with the most far reaching program: India.

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[74] Roughly 60 percent of the country's population is Malay, 25 percent is ethnically Chinese, 8 percent is Indian, and the remaining 7 percent is comprised of a mixture of 70 other groups (McMurtrie, 2004).

[75] Approximately 30,000 Malaysians (nearly 10 percent of the country's total number of undergraduates), most of Chinese descent, travel outside Malaysia each year to obtain higher education. One official study estimates that the economic loss to Malaysia (both in tuition costs and in future income of those who stay abroad), could be as much as US$1 billion.

While the framers of India's constitution were deeply concerned with the ideals of social justice and equality, these progressive ideas ran contrary to the pervasive and deep rooted social hierarchy and severe discrimination deeply imbedded in India's caste system. In order to redress centuries of discrimination against India's lowest castes (so-called untouchables or Dalits as they are now know) and indigenous peoples, the Indian constitution enshrined the most comprehensive system of compensatory discrimination for these groups know as "reservations." Seats in federal and state legislatures and jobs in civil services and state-owned enterprises were reserved in proportion to their share in the population. The same was the case in public higher education institutions (except in those run by minorities).[76]

However, the constitution also contains a clause allowing the federal and state governments to make "any special provision for the advancement of any socially and educationally backward classes of citizens or for the Scheduled Castes and Scheduled Tribes." Over time the expansiveness and ambiguity of the clause "any socially and educationally backward classes of citizens" opened up a Pandora's Box and became a favorite hunting ground for political populism. While affirmative action has had some success (albeit modest) in reducing inter-group inequality, it has tended to amplify intra-group inequalities. Broad social categories like "Scheduled Castes", "Scheduled Tribes" and "Other Backward Castes" tend to gloss over the fact that these are themselves extremely heterogenous categories with hierarchies within them. Consequently the benefits of reservations are disproportionately garnered by some sub-groups – those who were better off to begin with. Moreover, while the creation of educated elites from these social groups is indicative of some success, their children benefit much more than the vast majority in the group who, given the limited number of seats, are crowded out. This points to one chronic weakness in these programs – the absence of non-discretionary sunset clauses that allows the benefits of these policies to spread to other households *within* the group. Finally, perhaps the most inimical impact is that these policies have resulted in a political economy akin to that of rent-seeking. Enormous political energy and effort is spent by politicians promising ever more benefits to more and more social groups rather than improving and expanding the quality of supply by focusing on primary and secondary education. The Indian Supreme Court has ruled that reservations cannot exceed 50% (that would be violative of equality guaranteed by

[76] Article 15 of the Indian Constitution prohibits discrimination, based on religion, race, caste, sex, and place of birth.

the constitution), but this has been flouted by several states setting the stage for a possible constitutional crisis.

In 2006, in an attempt to bolster its electoral base among India's largest social group, reservation benefits were extended to the "Other backward Castes" (OBCs) in educational institutions run by the federal government. There are ongoing disputes about statistical data used by Government of India and Indian states for offering reservation benefits to so called lower castes. The possibility of entitlements has led to more and more social groups to claim they are more backward than the others.[77] Sundaram (2006) argues that representation of a social group can only be judged by a comparison of its share in enrollments in a given level of education with its share in the population eligible for entry into that level of education rather than the population as a whole. By this criteria India's OBCs (and especially for over 70 percent of them who are above the poverty line), the extent of under-representation of the OBCs in enrollments in Indian universities is less than 5 percent. Affirmative action programs that are based on identity rather than income or poverty, for a social group such as India's OBCs whose social and economic conditions reflect the average in the country, risk the better off within the group monopolizing all the privileges, with little benefit to the vast majority in that group.

Affirmative action programs are invariably contentious and raise a number of complex questions. What are the goals of such programs—redress for past injury to a group, compensation for ongoing disadvantage, or increased diversity in a learning environment? How should an institution weigh different forms of disadvantage? Is race merely a proxy for a deeper form of inequality such as socioeconomic status? What weights should be assigned to different aspects of deprivation? Should these programs be class-based, rather than identity-based? How are group rights balanced against individual rights? Advocates highlight the important "role-modeling" effect of such programs for disadvantaged groups. How important are these role

[77] As India's Supreme Court has observed, "The paradox of the system of reservation is that it has engendered a spirit of self denigration among the people. Nowhere else in the world do castes, classes or communities queue up for the sake of gaining the backward status. Nowhere else in the world is there competition to assert backwardness and to claim 'we are more backward than you'. This is an unhappy and disquieting situation, but it is stark reality. Whatever gloss one may like to put upon it, it is clear from the rival claims in these appeals and writ petitions that the real contest here is between certain members of two premier (population-wise) caste community classes . . . each claiming that the other is not a socially and educationally backward class and each keen to be included in the list of socially and educationally backward classes." Justice O.Chinnappa Reddy in *K.C.Vasanth Kumar v.State of Karnataka* (1985) [Supp. SCC 714, para 23].

models to a student's vision of what is possible for him or herself? Do these programs perpetuate racial stereotypes? How valuable is diversity in an educational environment? And what exactly is "diversity"? What criteria (or sunset clauses) should be used to phase out these programs? There is little agreement on even the most basic question. Under what conditions do such programs entrench identity politics or instead gradually erode them? Then there are practical questions of how to implement these programs. To what extent should governments use control or incentive mechanisms to oversee such programs? What should be the policy at private institutions given their growing importance? And how should design of such programs reflect not just the normative aspects but the realty of how political considerations will impact on implementation?

4.3 Accreditation and Regulation

With the explosion of tertiary enrollment, quality assurance and recognition – and their regulatory underpinnings – have become pressing concerns. Broadly speaking, quality assurance is the review of educational programs involving the creation and implementation of acceptable standards of education, scholarship and infrastructure. Recognition is the international comparability and acceptance of a foreign certificate, diploma or degree of higher education as a valid credential. Two decades ago, there were very few external quality review agencies outside the United States. However, the increase in tertiary education provision- particularly by private providers- and the movement of people and educational institutions across national borders have led to a growing demand for quality assurance mechanisms. National governments and international bodies are hard pressed to find some internationally comparable standards by which to judge programs and degrees in order to assure quality education and increase the international recognition of credentials.

Historically the very recognition of an institution as a "university" conferred on it the right (and obligation) to regulate and enforce quality. How it organized itself to discharge this function – departments, faculty, admissions, and pedagogy – was its business. Its main incentive was the reputational value of its certification. But the sheer expansion of higher education has led to a great diversity in the structure and scale of accreditation and quality assurance agencies. These systems operate at the institutional and programmatic level, run by both domestic and international organizations. Some national agencies cover all providers of higher education,

while others deal only with universities; some regulate only private higher education institutions, while others regulate only public. Other regulatory bodies only cover a single discipline or regulated profession (Middlehurst and Campbell, 2004). Some countries, such as Hong Kong, require governmental approval of private providers. In Mexico, accreditation of educational providers is not mandatory, but external accreditation influences funding decisions at public institutions.[78] In 1996 the Brazilian government mandated that in order for an institution to use the title of university, at least one-third of the faculty must be employed full-time and hold advanced degrees (Sidhu and Torres, 2006).

While industrialized countries have a number of quality-assurance bodies, both independent agencies and those under the aegis of the state, these regulatory bodies have largely been absent in developing countries. However, in the past few years many middle and low-income countries have established accreditation and quality assurance agencies. In 1999 Jordan was the only Middle Eastern country with a quality assurance agency in operation; by 2006 initiatives to establish national accreditation agencies were underway in Algeria, Egypt, Lebanon, Morocco, Oman, Saudi Arabia, the UAE, Yemen and the Palestinian Authority; and in 1999 Kuwait, Bahrain, Qatar, Oman, the United Arab Emirates, and the Saudi Arabia began formal consideration of the establishment of a regional accrediting agency (Lezberg, 2003). In 2001, Cambodia received a major grant from the World Bank to develop a new higher education framework with a national accreditation and quality assurance program (Ford, 2003). The government of El Salvador established a new system of accreditation in 1995 under which institutions had 24 months to satisfy specific requirements; by 1998, the Ministry of Education had closed 11 universities that did not meet the standards. The Ministry also trained 120 volunteer reviewers as part of a system of self-study and peer review.

A number of countries have turned to international institutions such as the International Organization for Standardization (ISO) and the European Foundation for Quality Management (EFQM) for quality assurance operations (Middlehurst and Campbell, 2004). Universitas21– a consortium of 20 universities from 12 countries (both industrialized and developing) – has

[78] Funding decisions are based upon proposals for improvement, not on performance (Alvarez-Mendiola and de Vries, 2005). Mexico introduced a system of evaluating university programs in the early 1990s, but only recently began tightening licensing requirements for new degree programs. In 1994 the federal education department turned down 13 percent of applications for degree programs; in 2004, it turned down 35 percent. In the mid-1990s, the government began offering financial incentives to existing degree programs working toward accreditation (Lloyd, 2005).

established an independently operational accreditation body called U21 Pedagogica and has plans to market its quality assurance services to non-member countries. In the US, the Council for Higher Education Accreditation (CHEA) surveyed 78 institutional and programmatic accreditation services to evaluate their international activity. Of the 53 organizations that responded, 29 were engaged in international operations, accrediting 461 institutions and programs in 65 countries outside the US.

Foreign accreditation also occurs at the programmatic level. For example, both the Royal Institute of British Architects and the Royal Institute of Chartered Surveyors in the UK accredit foreign programs. The Association to Advance Collegiate Schools of Business is a US accreditation firm that accredits business administration and accounting programs at the bachelors, masters and doctoral levels. In addition to the 406 institutions it has accredited in the US, since 2001 it has accredited more than 40 institutions in 19 foreign countries. The UK-based Association of MBAs accredits programs in 18 countries outside the UK.

The rise of "pseudo universities" and "diploma mills" in the 1990s prompted many governments and international bodies to regulate cross-border education more strictly.[79] In 2005, UNESCO and the OECD published joint guidelines for quality provision in cross border higher education.[80] Other efforts at international regulation of cross-border education include the International Network for Quality Assurance Agencies in Higher Education, the Global Alliance for Transnational Education (GATE), and the International Quality Review Process (IQRP-undertaken by the Program on Institutional Management in Higher Education of the OCED). The Quality Assurance Agency for Higher Education in the UK performs quality audits of the overseas partnerships through which British degrees are granted, with the same qualifications as for national institutions. Since 1997, the agency has published their findings from more than 100 audits. Australia's AUQA is also taking steps to regulate the quality of degrees granted from Australian universities operating overseas.

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[79] For example, the World Association of Colleges and Universities (WACU) has been widely criticized as a "bogus institution" that will accredit anyone willing to pay the membership fee, including ``a litany of dreadful schools worldwide." American education officials told a number of American-based institutions which cater largely to Asian students via distance programs and franchising arrangements, that they must stop advertising their accreditation from WACU. However, despite this censure a number of institutions, such as the American International University of Management and Technology (AIUMT), which offers correspondence degree programs to largely Asian populations, continue to advertise their accreditation from WACU on their website (Sunday times, 2001; AIUMT's website is accessible at: http://www.aiumt-edu.com).

[80] The Guidelines are available at: www.oecd.org/dataoecd/27/51/35779480.pdf

This regulation is increasing on the receiving end as well. Foreign institutions operating in Singapore in partnership with local providers must apply for governmental approval, submitting information on the course content, division of responsibilities between the local and foreign provider, and information on the status of the foreign provider in its home country. Hong Kong requires non-local providers to register and meet certain qualifications and the local quality assurance agency lists recognized and exempted programs. South Africa is developing a registration process for both local and foreign private providers, requiring the provider to submit an annual report to the Registrar detailing the number of students, financial operations, faculty qualifications and programs offered. Between January 2000 and July 2002 the total number of registered private providers in South Africa dropped from 202 to less than 100 and the number of foreign university-level providers dropped from 38 percent to 4 percent of all registered providers (King, 2004).

This push to systematize quality assurance is part of a larger trend to internationalize credentials, a movement also manifest in the creation of regional accreditation blocks. In June 1999, 29 European countries signed the Bologna Declaration which outlined a plan to increase the quality and competitiveness of the European higher education sector through the creation of a single European Higher Education Area by 2010 with open borders for academic staff and students as well as universal recognition of qualifications based on generic subject-level competencies (called the Dublin descriptors).[81] Similar efforts have been underway in Latin America, led by the Central American Accreditation Council which coordinates the accreditation program for each country in the region and sets standards for evaluating all degree programs, both public and private (Lloyd, 2005). In 2005 a number of African countries formed the Southern African Universities Regional Association (SARUA), which aims to increase collaboration among its member countries to improve ICT infrastructure, develop specialized graduate programs, and introduce management training. The eventual goal is to standardize the regions' higher education systems to increase student mobility and improve quality (Materu,

[81] The EU has been a leader in the trend towards universal educational qualifications and cooperation among national systems. Programs such as Erasmus and Tempus are transforming the national character of higher education. In 1997 the Council of Europe and UNESCO developed the Lisbon Convention, which was ratified by 27 countries and signed by 14 others. The convention outlined goals for higher education in Europe, aiming to increase the cooperation among higher education systems in member countries. The convention holds that each member country must recognise qualifications and study credits as similar to the corresponding qualifications in its own system unless it can be shown that there are substantial differences.

2006). There are also a number of bilateral initiatives underway, such as the Comprehensive Economic Co-operation Agreement (CECA) between India and Singapore under which the two countries recognize degrees issued by specified universities and technical education boards for the purpose of issuing visas.[82]

International rankings also play an important role in facilitating recognition. The two most prominent rankings are the Times Higher Education Supplement, and the rankings by Institute of Education at Jiao Tong University (SJTU) in Shanghai, China. Although rankings have received criticism in recent years due to their distortionary impact on research agendas, they serve a signaling function. There clearly needs to be some sort of rating mechanism to prevent developing countries from becoming the dumping ground of low-quality "diploma mills" but that also allows foreign providers to help meet demand. However, most developing countries have minimal capacity to screen foreign providers to determine quality. For these countries with limited screening capacity, the top 500 university rankings on the Times Higher Education Supplement and the Shanghai Jiaotong University rankings (both well-researched rankings) could be used as external rating mechanisms. These rankings are an easily-measured proxy that governments that lack screening capacity could adopt to determine entrance of foreign providers.[83]

The increasing demand for quality assurance providers is leading to the emergence of higher education ratings services. A number of corporations offer credentialing services to help interpret the educational backgrounds of people who have studied overseas, though these companies generally do not have licensing or accreditation power. These services are utilized by

[82] This agreement covers degrees in IT, medicine and pharmacy, engineering, metallurgy, surveying, botany, zoology, accounting, finance and advertising. The text of the agreement is available at: http://commerce.nic.in/ceca/toc.htm

[83] If the same mechanism is not a condition for entry by domestic providers, then the rule may be inconsistent with national treatment (NT) under GATS- the requirement that prohibits less favorable treatment of foreign services and service providers. Fortunately, GATS is a very flexible agreement, and NT is not a general obligation. It only applies to sectors that a country chooses to include in its schedule of commitments and also can be subject to limitations that a country lists. Countries have listed this exact kind of limitation in financial services. For example, until 1998 Korea allowed only foreign banks ranked among the world's top 500 in asset size to open a branch in Korea. Thus, if a country was to make a commitment to higher education providers under GATS, it could list this limitation in its agreement, using the external ranking mechanism to substitute for a domestic screening capacity of its own. We wish to acknowledge Aaditya Mattoo for his help with this section.

colleges and universities, professional organizations, state licensing boards, U.S. government agencies, attorneys, and individuals.[84]

In certain industries, professional organizations recognize foreign educational qualifications, allowing applicants to bypass academic requirements. The 1989 Washington Accord is an early example of this trend. The Accord asserted that engineering qualifications were similar enough in member countries,[85] such that graduates of an accredited program in any of the signatory countries would be recognized by the other countries as having met the academic requirements to practice engineering.[86] In 2007, for the first time more Asians took the Chartered Financial Analyst exam (the qualification exam for financial market literacy), than American or Canadians, reflecting the shift towards internationalization of finance and market investment qualifications. The exam was created in 1953 in the United States to teach investment principles to securities industry professionals; however it now is considered a "passport for people in emerging markets to work in financial services anywhere in the world" (Tett and Tassell, 2007).

4.3.1 The Composition of Higher Education: What programs?

The multiple goals of higher education, and the uncertain links between these goals and social and individual benefits and inter-temporal trade-offs, all make the composition of higher education an exceedingly difficult quest. Even if the goal is clear - such as improving health outcomes – the question is not just how many doctors and nurses but between the different sub-specialties in each; and even if that can be figured out, it might well be that health outcomes are poor because of other weak links in the health supply chain: para-medics, mid-wives, pharmacists, lab technicians and civil engineers. Agencies like the WHO regularly come up with

[84] Prominent examples include the International Education Research Foundation, World Education Services, International Education Research Foundation Inc. and Educational Credential Evaluators, Inc., among others.
[85] Signatories include Australia, Canada, Hong Kong, Ireland, Japan, Korea, New Zealand, Singapore, South Africa, Taiwan, the UK and the US; countries with provisional status include Germany, India, Malaysia, Russia and Sri Lanka.
[86] Another example is the American-based Commission on Dietetic Registration (CDR) which has registration eligibility reciprocity agreements with several foreign dietetic associations and regulatory boards which grant registration as a Registered Dietitian or Dietetic Technician. Individuals who are accredited by organizations in partner countries are eligible to take the examination to become accredited in the United States. The CDR has agreements with counterparts in Canada, Holland, Ireland, Philippines and United Kingdom.

figures on the number of doctors and nurses needed in developing countries, but these are mechanical rules of thumb rather than based on analytical frameworks.

Clearly, the optimal disciplinary and sub-disciplinary composition of higher education is not something that government planners can easily foresee. The development of skills with clear demand links to labor markets is essential, but is not without its own problems. It may tend to push a higher education system to train narrow job-specific skills indistinguishable from glorified trade-schools. While in many developing countries even the latter would be an achievement, it raises the question of the value of (and the costs of providing) broad based liberal-arts education, still the bread and butter of most colleges and universities around the world.

Liberal arts have long been considered a luxury rather than a necessity, for both individuals and societies (Bloom and Henry Rosovsky, 2001). In 1780, John Adams wrote, "I must study politics and war that my sons may have liberty to study mathematics and philosophy. My sons ought to study mathematics and philosophy… in order to give their children a right to study painting, poetry, music [and] architecture." Individuals from lower-income backgrounds often chose degrees that lead to clear employment opportunities, for obvious reasons. While vocational training has clear ties to labor markets, liberal arts degrees endow graduates with a more amorphous skill set.[87] Under a pure human capital model of development, education should be focused on relevance and utility- outer growth, not inner development (Symes, Boud, McIntyre, Solomon, Tenant, 2000). Vocational and scientific training directly translates into jobs and income, whereas the benefits of liberal arts education are more amorphous and difficult to measure.

Partisans of liberal arts education have long espoused its value to individuals and societies, arguing that liberal arts education produces students who are more open to diversity, have stronger humanitarian values, and have more adaptable critical thinking and communication skills. In the United States, it is estimated that 30 percent of current college students will eventually work in a job that does not yet exist (Fong, 2004). Rather than training for a specific career, there is a growing emphasis on the need for creativity, adaptability and the skills of

[87] Perhaps for this reason, students from developing countries focus more on professional degrees such as business and management, engineering, physical and life sciences, mathematics and computer sciences and health professions (Open Doors IIE Fast Facts, 2006).

critical thinking, cooperation and communication (Bereiter, 2002). Many educational experts and policymakers argue that these cross-disciplinary and creative skills are best developed through liberal arts education.

Liberal arts education is also allegedly critical in shaping the morals and values of the students (Astin, 1993; Bowen, 1977; Chickering, 1969; Ikenberry, 1997; Holloway, 2005). Numerous studies in the United States indicate (but do not causally prove) that experiences in liberal arts colleges can increase interest in social issues and political involvement (Alwin, Cohen and Newcomb, 1991); aspirations, beliefs and cultural awareness (Astin, 1993); knowledge acquisition, academic skills and habits, self-awareness, altruism, and understanding of people from diverse cultures and backgrounds (Kuh, 1993).

Bloom and Rosovsky (2003) highlight six channels through which liberal education can positively impact society, producing benefits that extend beyond the advantages gained by individuals.

1. *Economic impact*: Liberal arts education can increase innovation and economic fluidity, leading to more creative and knowledge-based economies with a more adaptable workforce.
2. *Policymaking impact*: Development and policy making requires people with generalized as well as specialized knowledge, and critical thinking and communication skills. A liberal arts education may develop these competencies in a country's leaders and citizens.
3. *Political participation*: By spreading knowledge and increasing debate, liberal education may extend participatory citizenship to more members of society, thus improving the quality of democracy in a society.
4. *Societal cohesion*: Liberal education may promote tolerance and understanding of others, leading to a more peaceful and cohesive society.
5. *Possibility of reducing brain drain*: Students may be less likely to go overseas for their education, and more likely to return to a society in which liberal education fosters an engaging and vibrant intellectual culture and educated population.
6. *Greater international understanding*: Liberal education may increase cross-cultural understanding and lead to more peaceful interaction between nations.

Despite the rhetoric, there is surprisingly little empirical evidence to substantiate these claims, with much of the research inconclusive due to poor experimental design. The non-monetary effects of liberal arts education remain difficult to measure (Behrman and Stacey, 1997), and there is sparse data to support the argument that liberal arts education equips students with skills to survive in the global economy. Edwards and Ogilvie (2002) argue that the value of liberal arts education in producing students with skills adaptable to the knowledge economy:

> sounds so plausible that it has entered the working vocabulary of businessmen, politicians, planners, journalists, and ordinary people. It has almost become part of common sense. But viewed from the point of view of economics, the 'futuristic business literature' is, to put it bluntly, all but worthless: it amounts to little more than a collection of slogans, with next to nothing by way of theoretical or empirical basis.

Some critics argue that liberal education may not only fail to produce more open-minded citizens, it may even increase political and societal divisions. Stephen Balch (2001), President of the National Association for Scholars, has argued that liberal arts can be extremely divisive:

> The very humanness of their disciplines is at the root of the problem. They wrestle with questions too entangled in the world's strife- and too inherently complex- to accumulate reliable knowledge and avoid intellectual debasement in the manner of the natural sciences. Causes more than curiosity recruit their acolytes, rivalries too quickly slip into enmities, disagreements superheat over value conflicts, and before disputes can get into substance they're apt to spin off into fierce quarrels over rival modes of verification… it is the passionate intensity of the worst practitioners that commonly prevails. As a result, the simple modes of majority-rule academic decisions-making, entirely serviceable in the sphere of hard science, often lead in the humanities and social sciences to the exclusion of the most reasonable perspectives through ideologically motivated hiring, tenure, promotion, publication and curriculum decision.

The number of liberal arts degrees conferred has been steadily falling throughout the world since the 1970s, supplanted by a growing demand for technical degrees and vocational education (Kerr, 2001). In 1971, 13.6 percent of the bachelor degrees in the United States were in business, in 2002 they accounted for 22 percent of degrees. In 1971, English accounted for 8 percent of bachelor degrees, in 2002 the share was 4 percent. Foreign languages and history have seen similar declines (Goldstein, 2005), while between 1995 and 2000, the computer science and technology fields grew by 74 percent in the United States (Digest of Education Statistics, 2002).

At the same time, however, the American model of liberal arts higher education has been spreading around the globe in the past decade, particularly following the fall of the Soviet Union

(Woodard, 2002). Yet in reality, there is little data on what students in developing countries are actually studying. As Brennan argue, "much of the debate about the role of universities, in both policy and theoretical terms, lacks adequate reference to sound empirical knowledge of what is happening to the universities and to the people who pass through them" (Brennan, 2002, p. 74). Moreover, perhaps the real debate should not be whether or not students should have a liberal arts education, but rather whether or not this education makes possible the acquisition of skills (language, for example, or technical literacy), and how these skills can be utilized in the local economy.

While linking higher education training to labor markets is a fundamental component of ensuring that educational inputs have the greatest possible payoffs for both societies and individuals, it might well be the case that even more than the composition of education, it's the quality that really matters. Under such a system of priorities, university degrees become meaningless in the labor market, paper credentials with no signaling ability of skills or capabilities. Thus indicators like the Gross Enrolment Ratio (GER) or number of engineering graduates can be very misleading. The Philippines has made large investments in higher education and has a large private higher education sector, but has a significant mismatch between graduates and the employment opportunities available. The majority of tertiary graduates in the Philippines are trained in administrative and professional jobs—skills not in demand in the local economy. According to a recent Asian Development Bank survey, "The Philippines may be suffering from having too many colleges and universities" (Pazzibugan, 2005).

Saudi Arabia is another example of an educational system training students in subjects not relevant to the needs of the economy- only 18 percent of university students study science, math, or engineering, while more than 40 percent are enrolled in Islamic studies. With growing population rates and approximately half of the population of 26 million under the age of 30, demand for tertiary education is expected to grow significantly in the next decade. In 2004 the government allocated $1 billion to 20 technical colleges and 36 technical training for vocational education (Bosbait and Wilson, 2005). It has also been actively encouraging the expansion of the private sector, granting licenses to approximately 60 private colleges, and in 2006 the government announced that foreign universities would for the first time be allowed to establish

campuses.[88] These efforts may reflect the awareness that higher education can keep a volatile population off the streets – but may simply postpone the problem if it does not do its job well.

5. RESPONSES OF DEVELOPING COUNTRIES

5.1 China and India

China and India face similar trends and challenges in their higher education systems, both working to meet increasing demand and raise academic standards under a situation of rapid expansion.

China has both the largest and the fastest growing system of higher education in the world. In the 1980s China's gross enrollment ratio for tertiary education hovered around 2-3 percent; in 2005, it was 16 percent. In September 1999, China increased first-year enrollments by 48 percent, from 1.08 million to 1.53 million (Yang, 2003). In 2004 China produced 640,000 undergraduate engineers, compared to 350,000 in India and 70,000 in the United States (Mooney and Neelakantan, 2006). The explosion in enrollment is even more significant at the graduate level. Nearly 12 times as many doctorates were awarded in 1999-2003 as in 1982-1989.[89] The country increased its share of scientific publications in the Science Citation Index by 65 percent between 1995 and 1999, after already raising is share fivefold between 1985 and 1995 (UNESCO, 2005).

The average size of Chinese universities has grown from 1,600 in 1998 to 6,000 students in 2005. Classes that were designed to seat 30 to 40 students now must accommodate more than 100 (Jing Lin, 2005). In 2006 the Ministry of Education announced that it would limit new university enrollments to 5 percent in 2007. The job market is straining to absorb the surge of graduates. In 2006 approximately 4.1 million students graduated from universities- 750,000 more than in 2005. However, new job opportunities declined by 22 percent that year, to just 1.6 million (Mooney, 2006).

India has seen a similar expansion of its system of higher education in recent years.[90] At the time of independence, India had one of the largest and most sophisticated higher education

[88] In 2006, a coalition of 32 American universities under the umbrella of the Texas International Education Consortium were contracted to help set up and run the new Prince Muhammad Fahd University, a US$80 million venture. Plans have also been confirmed to open a German/Saudi business school by September 2008, funded by the local Chamber of Commerce (AME Info, 2006).

89 *The Economist*, "A World of Opportunity". 9/10/2005, volume 376, issue 8443, p 14-16.

[90] The Indian discussion draws from Kapur and Mehta (2008).

systems among developing countries, although it was small relative to its population. Since then the system has expanded rapidly, with student enrollment growing at about two-and-half times the population growth rate. By 2006 India had 361 universities, more than 18,000 colleges and about 14 million students. India's gross enrollment ratio in tertiary education was approximately 11 percent, significantly higher than developing country averages, though lower than China's.

Recent growth – driven by the private sector – has been much greater in professional colleges (especially engineering, management and medicine), as well as in private vocational courses. The private sector, which accounted for just 15 percent of the seats of engineering colleges in 1960, accounted for nearly 87 percent of seats by 2003. Many students enrolled in public institutions spend significant resources on private coaching classes and training institutes (especially in IT-related skills). Although India's political parties and intellectuals rail against privatization, *de facto* privatization continues unabated (Kapur and Mehta, 2008).

Despite growth in student enrollment in recent years, both China and India have experienced only modest increases in public funding for higher education. China's evolution from a centrally-planned to a market-based economy has led to significant changes in its public expenditure policies.[91] In 1985, public expenditure on higher education (as a percentage of total public spending on education) was 21.8 percent; by 1995 it had dropped to 15.4 percent.[92] In 1997, all higher education institutions in mainland China began to charge all students tuition fees (Mok, 2000) and the government began encouraging universities to generate revenue through research and consultancy,[93] training programs, services to industries,[94] and solicitation of private donations and overseas contributions (Mok, 1999).

In India, while enrolment in higher education tripled in two decades (from the mid-1980s), public spending grew much more gradually. Its share in GDP (less than 1 percent) and in government spending on education (less than 20 percent) remained unchanged. Since this occurred at a time when enrollment was rapidly increasing, the result was a sharp decline in real

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[91] Measuring public spending on education in China is notoriously difficult, primarily due to an antiquated system of expenditure classification which makes it difficult to identify or monitor the amounts spent. China's officially reported spending figures reflect only about three-quarters of total government spending since extra-budgetary spending, social security outlays and central government bond financing of local projects are not part of the official budget (*Challenges for China's Public Spending: Toward Greater Effectiveness and Equity*, OECD).
[91] http://www.tfhe.net/report/downloads/Table%20E.pdf
[92] http://www.tfhe.net/report/downloads/Table%20E.pdf
93 For example, Jinan University offers paid consultation services in law and accounting (Mok 2001).
94 South China Normal University has tried to generate additional revenue by leasing out its university-owned property (Mok 2001).

spending per student. Most expenditure goes to salaries, resulting in poor infrastructure and intense competition for scarce resources within the system. While the Chinese government encourages universities to diversify sources of finance, in India a welter of controls make it difficult for public institutions to mobilize private resources be it higher fees, licensing arrangements, or even philanthropy. Indeed, resources that they raise are offset by cuts in public expenditure. Prior to independence, private philanthropy in higher education played a critical role in its growth, building some of India's best liberal arts colleges and technology institutes and supporting public institutions in significant ways. With private initiatives hostage to the discretionary actions of the state, private philanthropy's share in public higher education institutions withered, falling from seventeen percent just after independence to less than 2 percent a half-century later.

Indian higher education continues to be one of the most regulated sectors. The principal regulators are the University Grants Commission (UGC), the All India Council for Technical Education (AICTE) and for specialized professional courses such as medicine, law and accountancy, the respective professional bodies. Private universities (as distinct from private colleges which have to be affiliated to public universities) require approval from the federal regulator, UGC. Regulation has increased the cost of supplying education and resulted in adverse selection by deterring genuine educationists from investing, while encouraging those who are adept at manipulating the license quota raj in the system. This arrangement is one reason why many private colleges are run by politicians or their affiliates. A perceived need to curb "exploitation" because of high-fees has led to fee-caps instead of enhancement of scholarship and loan programs. User costs (or costs recovered from students) have remained at roughly 5 percent (compared to about a quarter in East Asia). Coupled with the severe fiscal constraints facing the state, the fees caps reduce the supply and quality of education rather than help the poor.

India's higher education system has become a fiercely contested ground of distributive politics. This political economy has ensured that higher education remains one of the last bastions of India's "licence-permit raj," but one that is severely contested in Indian courts. This has pitted the executive and legislative branches against the judiciary. In a series of judgments in the 1990s, the courts affirmed the state's right to interfere in admission policy and the fee structure of private professional institutions, holding that education is a fundamental right and

therefore cannot be the object of "profit-seeking" activity. More recently in 2005, in a landmark decision the Supreme Court reversed its earlier stance unshackling institutions that do not receive state funding from state diktats. However, this immediately prompted Parliament to amend the Constitution mandating reservations in all private educational institutions as well. Like the government, courts have been reluctant to sanction fees hikes in public institutions, leading to a distinct division between public and private institutions.

From the 1980s while the state maintained tight official control over higher education, actual provisioning shifted to the private sector, a trend that accelerated in the 1990s. Private colleges are subject to roughly the same curricular guidelines as public institutions and lack pedagogical innovation or excellence associated with private initiative. The result is that Indian higher education is in a regulatory environment where the state will not allow private sector de jure deregulation and discourages foreign investment, even as the state sector has been strapped for resources due to the government's fiscal constraints and the inability of public education to mobilize funds from non-state sources.

While India's system is buffeted by its domestic political economy, in the 1990s the Chinese government passed legislation to decentralize management of higher education, increase levels of competition, and diversify forms of educational services (Central Committee of Communist Party of China, 1998). In 1953, China nationalized its system of higher education, granting the central government the power to allocate funds, formulate educational policies, manage educational administration, determine curriculum and recruit teaching staff. [95] With the aim of increasing competition within the system, the central government now ties funding to academic performance. The "211 Project" introduced a ranking system among Chinese universities, in which institutions listed as a top 100 university in mainland China receive additional funding for research and development. Selection depends primarily on performance in teaching and research, and capacity to become an international leader in an academic discipline. Under this system internal markets have evolved, in which universities try to sell themselves to the state (Mok, 2001).

[95] For example, between 1992 and 2000, 387 regular universities were merged into 212 universities. From 1994 to 2002, 250 of the 367 higher educational institutions were handed over to provincial governments for management from the central state. Between 1993 and 2004 the number of universities directly affiliated with State Council departments was cut from 367 to 111 (Zhou, 2005).

Competition has also been increased within individual universities. In 2003 Beijing University launched a controversial reform of its hiring and promotion policies, aiming to increase competition among assistant and associate professors. Life-long employment was eliminated, and the University announced that it would fire one-third of its assistant professors and one-quarter of its associate professors. Under new regulations, departments cannot hire their own graduates to the faculty, and an external review mechanism oversees hiring and promotions. Half of the College Academic Board Members will be international, and professors must be able to use at least one foreign language to teach and publish in international journals (Jing Lin, 2005).

As enrollment numbers and academic competition has increased, there are growing concerns about declining quality and academic ethics within Chinese higher education. Graduate students in Chinese universities are required to publish a certain number of research papers each year in major journals, and many people within the university system argue that this has led to a decline in academic ethics. In 2006 Zhu Qingshi, president of the University of Science and Technology of China, asserted "Overall, academic ethics have hit rock bottom." He argued that most Chinese graduate students are so desperate to reach their quota of published papers, that they do not take the opportunity to engage in real research (Mooney, 2006a).

The quality of graduates of Chinese universities has been questioned by international sources as well. A 2005 report by McKinsey & Company found that only 10 percent of Chinese job candidates, on average, would be suitable to work in a multinational company in nine different categories, including engineering, accounting, finance, and life sciences (Mooney and Neelakantan, 2006). A more recent survey of both multinational and domestic firms found that were comfortable hiring graduates from only 10 to 15 universities in China, since after these top institutions, the quality of graduates dropped off sharply (Wadhwa, Gereffi, Rissing and Ong, 2007).

The story is similar in India where a small number of elite institutions are of world quality, after which quality plummets especially in bread and butter arts and sciences. The system faces a crisis of accountability at all levels, stemming from a deeply flawed regulatory environment in which political control is exerted to influence admissions policies, internal organization, the structure of courses and funding. Increasingly even flagship institutions like the IITs and IIMs are suffering from growing shortfalls of faculty, the result of their inability to

adjust to the increasingly global markets for talent. Even the better Indian universities do little research, and are one reason why India which once surpassed China in scientific research publications, is now lagging behind. The administrative separation of research and higher education, the result of a policy decision made by the Indian government in the 1950s, has had a deeply inimical long-tern impact both on research as well as on India's higher education system.

Except for a few elite institutions, the quality of teaching in India remains poor. As quality deteriorates, students are less and less willing to pay the very resources without which quality cannot be improved. Rigid regulation and underinvestment has ensured that there is not enough quality education to meet the skill demands of the economy. With university degrees serving as formal minimal requirements but little else, competitive exams have virtually replaced performance at the university level as a passport to further education or jobs. Consequently, there is no compelling demand for quality improvement in the bulk of higher education. Resources have shifted to those arenas which perform signaling functions, such as entrance exams and competitive tests, and those who can afford it have seceded from the system, through a combination of private tuitions, private professional education and study abroad. Although the last is relatively small in numbers (about 1 percent of tertiary education), the financial implications are serious, with estimates suggesting that expenditure on overseas consumption of education exceeding $3 billion annually (Kapur and Mehta, 2008).

In India, the success of narrow professional schools masks a deep crisis. The veneer of the few institutions of excellence masks the reality that the median higher education institutions in India have become incapable of producing students who have skills and knowledge, with the bulk of the system lacking adequate screening or signaling. Although Indian universities graduate 3 million students every year, only a fraction are considered suitable for employment in companies engaged in offshore IT and business process outsourcing industries (Johnson, 2007).[96] The Indian government recently announced a series of measures to raise GER to 15 percent in 2012 (from 11 percent in 2006). Notably it has committed to the largest planned increased in government spending to date -- an eight-fold increase from Rs. 91.4 billion in the 10th Plan (2002-07) to Rs 745 billion in the 11th Plan (2007-12).[97]

[96] India's National Association of Software and Service Companies reported that around 25 percent of engineering graduates and 10-15 percent of general college graduates are suitable for off-shoring companies.
[97] These figures are in constant 2006-07 rupees.

China faces similar concerns over educational quality. In both countries, students are forced to spend more years and larger resources to acquire some sort of professional qualification to signal their qualities to employers. In both systems the number of high quality students is not necessarily the result of the high quality of education provided to most, but rather because of the sheer size of the student pool and a Darwinian struggle to access the few institutions of excellence which raises the standards of even those who do not get in. Although China and India were able to successfully increase *quantity* in the past decade, the *quality* challenge is much more formidable and much less amenable to simply increasing the public budgetary resources.

5.2 Sub-Saharan Africa

Like much of the developing world, African universities have also witnessed a significant increase in enrollment in the past two decades. Between 1985 and 2002, the number of tertiary students in Sub-Saharan Africa increased from 0.8 million to about 3 million (Materu, 2006). This growth must be viewed in context, considering the extremely low rates of enrollment during the 1960s and 70s. Tertiary enrollment rates in Sub-Saharan Africa are still the lowest in the world. The gross enrollment ratio in the region has grown from just 1 percent in 1965 (World Bank 2000), to a still meager 5 percent in 2006- roughly the same enrollment rate that other developing countries achieved 40 years ago (Bloom, Canning and Chan, 2006). Between 1988 and 2001, the number of scientific articles published worldwide grew by 40 percent; however, during the same period in Africa, the number fell by twelve percent.[98] Moreover, the relatively large student population in Nigeria and South Africa skew the regional statistics, suggesting growth that has not been witnessed in many other countries.

African countries face a critical shortage of human capital. This shortage has serious consequences for the region's economic development. Bloom, Canning and Chan (2006) found that increasing the stock of tertiary education by just one year would lead to a 0.63 percentage point boost to income growth in the first year and an income gain of roughly 3 percent in the first five years. This shortage in human capital has been amplified by two additional factors: the AIDS pandemic and the brain drain from the continent. In 2006, nearly two thirds (63 percent) of all persons infected with HIV were living in Africa. The impacts of this disease are enormous on

[98] US National Science Foundation. 2002. "Science and Engineering Indicators 2002" Arlington, VA

both the stock of human capital in the region and the educational system, due to the re-direction of resources towards the disease and the large numbers of students and teachers who are either infected themselves or distracted from work and studies by caring for family members.

The human capital shortage in African countries has also been exacerbated by brain drain. Sub-Saharan Africa has the world's highest proportion of students studying abroad compared with those studying at home (6 percent), and many of these highly educated students do not return after their studies (Materu, 2006). The United Nations Conference on Trade and Development (UNCTAD) estimates that roughly 30 percent of Africa's university trained professionals live outside the region (Interacademy Council, 2004) and the Economic Commission for Africa estimates that in the 1990s, Sub-Saharan Africa lost 20,000 professionals to emigration each year (Economic Commission for Africa, 1999). Moreover, unlike other countries with highly-educated emigrant populations, most African countries have not yet found a way to develop strong ties to their diaspora, an untapped resource which could provide much-needed capital to the region.

There is great diversity in the quality of tertiary education institutions across the region. While South Africa boasts world-class institutions of higher education, many countries have barely-functioning university systems. Many African universities are notoriously politicized, overcrowded and severely under-funded. Students are a powerful political force, often in league with different political factions. In 1991, all public universities in Kenya were shut down following protests due to student fee increases (Oketch, 2003). In Cote d'Ivoire, student union leaders played a key role in the lead-up to the civil war, stirring up xenophobia that fueled the conflict. Nigerian universities are frequently overrun by violent criminal gangs which hire themselves out to local politicians. Deteriorating facilities, poor teaching and administration all fuel the students' ire. The politicization of the student body is mirrored (and indeed sometimes precipitated), by the politicization of the university administration by state authorities who exercise direct control. For example, in Benin and Tanzania, the government appoints senior university managers; in Cameroon, the Minister of Education directly supervises the universities; in Madagascar, the Ministry of Education appoints all faculty members and is responsible for setting their salaries.

Global trends – increasing enrolments, the relative high costs of educating students and budget constraints – are even more pressing in Africa. It is therefore unsurprising that some

African countries are also followed the worldwide trend of increasing market influences in higher education. As public universities struggle with overcrowded classes and inadequate resources due to budget shortfalls, a number of countries have passed legislation allowing for the private provision of tertiary education. Most of the private tertiary educational institutions in Africa were established in the 1990s, in response to the inability of public institutions to meet rising student demand. By 2005, about one-third of the approximately 300 universities in Sub-Saharan Africa were privately funded (Materu, 2006). In the face of failing public institutions crippled by lack of resources, overcrowding and social disturbances such as wars and gang feuding, these private institutions are frequently viewed "safer zones" of learning (Mabizela 2004).

Although private institutions fill an important role in educational provision, they are often criticized for specializing in inexpensive fields of study that are in high demand, while ignoring fields important to national development such as natural and physical sciences, engineering, and technology (Mabizela, 2004). Public institutions on the other hand focused for decades on production of civil servants from a small elite population (Banya 2005) and have also been unable to build a domestic cadre of technical personnel. In addition to administrative reforms, many African universities have instituted reforms to increase female enrollment in the past two decades to address the low number of female graduates. For example, Ghana, Kenya, Uganda, Tanzania, and Zimbabwe have lowered admission cut-off points for female candidates, yet female enrollment in Africa still lags far behind male enrollment, even in comparison with other developing countries.

Tertiary education in Africa has been largely overlooked by the international development community, with resources allocated instead to primary and secondary education.[99] This is partially due to low primary education enrollment rates—Africa is the only region in the world where primary enrollment rates were lower in 2000 (75 percent) than they were in 1980 (81.7 percent). The message by the powerful donor community was not to waste resources to

[99] One notable exception is the Foundation Partnership to Strengthen African Universities- an initiative launched in April 2000 by the Carnegie, Ford, MacArthur, and Rockefeller foundations. Aiming to raise the awareness of the importance of higher education to African development, the organizations invested $100 million in African universities the first five years of the project. In December 2007 the Carnegie Corporation announced the creation of a new graduate-level training program in science and engineering for African academics as part of its involvement in the project.

developing institutions of higher education. Instead countries were encouraged to close domestic universities, send students overseas for higher education, and re-direct funds towards primary education.

Domestically many African countries ritualistically affirm the importance of tertiary education for the "knowledge economy," but this is seldom backed by concrete changes in resource allocation – often because they just don't have the resources. For example, Burkina Faso has pledged to increase higher education enrollment by 50 percent and increase public vocational education by 116 percent by 2010, yet the state has not allocated any more public funds towards tertiary education, nor secured any additional private funding. Similarly, Malawi has pledged to reserve 30 percent of university places for girls and introduce a comprehensive scholarship program for girls and needy students, but has not increased funds to finance these goals.

Africa's relatively low population density and low enrollment ratio suggest an appropriate setting for regional universities. By pooling resources, African countries may be able to offer better-quality education to a larger number of students. Yet Africa has scores of regional organizations, institutes and secretariats whose effectiveness remains hostage to nationalist and parochial interests. Nonetheless, a number of international initiatives are underway to foster stronger regional (rather than national) research institutions in African countries. A new program, the Alliance for a Green Revolution in Africa (AGRA), has undertaken to train regional PhDs in Africa focusing on plant breeders.[100] Until now, most PhD training of African plant breeders has taken place in Europe or the United States. That training has primarily involved crops and techniques (e.g. DNA sequencing) that are largely irrelevant to African farming. Most crops important to Africa—such as cassava, sorghum, millet, plantain, and cowpea—the so-called "orphan crops," are of little importance to researchers and educators in the developed world. As a result, there is a serious shortage of breeders of these crops. Thus, even as millet continues to be an important part of the diet for millions of Africans, almost none of the more than US$35 billion in agriculture research spent by North American and European-based private firms goes towards millet and Africa itself has less than a dozen millet breeders in all of the continent. AGRA is supporting regional programs including the African Centre for Crop

[100] AGRA has been funded by $150 million grant from the Ford and Rockefeller Foundations. http://www.agra-alliance.org/

Improvement (ACCI) with the University of KwaZulu-Natal in South Africa and the West Africa Centre for Crop Improvement (WACCI) with the University of Ghana, Legon. Together, the two programs will train approximately 120 PhD plant breeders over the next ten years, helping to create the critical mass of crop breeders. AGRA is also helping a group of 12 eastern and southern African universities offer curricula in dairy science, food science, plant breeding and biotechnology, research methodology and rural development, and crop improvement utilizing methods like roving tutors and web tutorials.

Another example of a regional effort is the Global Business School Network's (GBSN) African pilot program launched in July 2004, encompassing a consortium of than 30 leading business schools around the world which aims to enhance the institutional capacity of business schools in Africa and increase the supply of management talent for the local private sector. The programs work to improve the curriculum and skill development of African business schools, aiming to raise the leadership and quality of business education to international standards, while keeping the information locally-relevant and attainable within the context of the limited resources in African business schools.

The increasing importance of knowledge and a high-skill workforce in a country's economic development, coupled with the accelerating speed of change in information and increasing importance of infrastructure is creating a situation in which "falling behind" the knowledge curve has ever-more dire consequences for countries and regions. As African universities struggle to balance scarce resources with greater demands, they must not only improve the training of a larger number of students, but also need to generate new knowledge addressing local needs. However, the neglect and under-funding of higher education in Africa has stunted the growth of an indigenous research capacity, relevant to the region's needs. In part this problem has been exacerbated by massive doses of expensive (and often mediocre) "technical assistance" provided by donors whose short-term attempts to substitute for weak human capital may well have stunted its long-term development, as we note next.

6. ROLE OF THE INTERNATIONAL COMMUNITY

6.1 International Development Assistance

Tertiary education has largely been overlooked by the international community as an important component of a country's development strategy. During the early years of the Cold

War, education was viewed as crucial to the development of capitalist economic models, spread of democracy and improvement of mutual understanding between the US and developing nations- thereby reducing the threat of communist expansion.[101] By funding education projects in developing nations, the US and other Western countries hoped to strengthen diplomatic relations with these countries, particularly in Latin America and Asia.

The World Bank's record is emblematic in this regard. Even though it was the largest single source of multilateral external finance for education in developing countries, only 4.2 percent of its total lending between 1961 and 1998 was directed towards education (Brennan, 2002). Its early education loans (in the 1960s) were for agricultural universities in the Philippines and East Pakistan but these were few and far between. In the 1970s the Bank's educational lending was redirected towards primary education and by 1980, "the focus for educational development was set squarely on the formal system of schooling, and inevitably on its foundation stone- primary education. On this the Bank would entertain no policy deviance" (Jones and Coleman, 2005, 114). The Bank's involvement in health and education was diverted by the debt crisis in the 1980s, as resources were directed towards financial stabilization and market-oriented economic reforms.

In 1994, the World Bank produced a report entitled, *Higher Education*: *The Lessons of Experience*, and followed-up with another report in 1995, *Priorities and Strategies for Education: A World Bank Review*. The 1994 report stresses that higher education should not have much priority in development strategies.

> Indeed, it is arguable that higher education should *not* have highest priority claim on incremental public resources available for education in many developing countries, especially those that have not yet achieved adequate access, equity and quality at the primary and secondary levels. This is because of the priority these countries attach to achieving universal literacy; *because the social rates of return in investments in primary and secondary education usually exceed the rates of return on higher education* and because investment in basic education can improve equity because it tends to reduce inequalities. (World Bank, 1994, p.3)

However, the executive summary of the same document reads:

[101] For instance Lipset (1959) argued "the higher one's education, the more likely one is to believe in democratic values and support democratic practices…if we cannot say that a 'high' level of education is a sufficient condition for democracy, the available evidence does suggest that it come close to being a necessary condition in the modern world."

> Higher education is of *paramount* importance for social and economic development. Institutions of higher education have the main responsibility for equipping individuals with advanced knowledge and skills required for positions of responsibility….estimated *social rates of return of ten percent or more in many developing countries also indicates that investments in higher education contributed to increase in labor productivity and to higher long term economic growth essential for poverty alleviation.* (World Bank, 1994, p.1)

Another World Bank report released in 2000, *Higher Education in Developing Countries: Peril and Promise*, found higher education in most developing countries to be in a "perilous" state, but argued that higher education "cannot guarantee rapid economic development- but sustained progress is impossible without it" (World Bank 2000, 19). Finally by 2007, the Bank acknowledged,

> A more knowledge-intensive approach to development is not an option for African countries. It is the only path which is likely to lead to sustained outward oriented development given the evolving circumstances in Africa and in the global economy. This report maintains that a knowledge intensive strategy requires a greater focus on tertiary education and on research. (World Bank, 2007, p. 52, emphasis in original).

Despite this rhetoric, the international funding of higher education relative to other lending has not increased, but rather has declined (see Table 24). The development model still prioritizes technical assistance over post-secondary education (Table 25, 26). Given the degree to which technical assistance resources are routed through donor country universities, the latter's role has been rather mixed. Many British universities receive substantial funds from DFID for technical assistance. And many wealthy American universities receive considerable funds from donors to train developing country nationals. These financial incentives have affected the incentives of these institutions to help develop tertiary education institutions within poor countries.

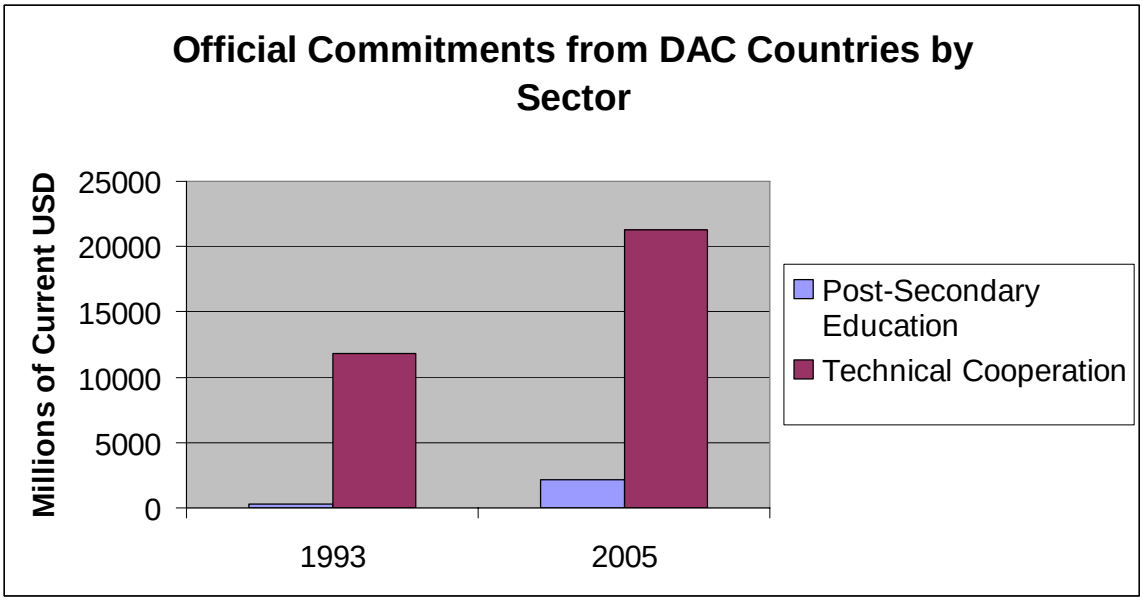
Table 24: Educational Lending of Major Development Organizations (in millions of current US dollars)

	World Bank [a]			IDB			ADB		
	Total Volume to Tertiary Education	Percent of total loans to tertiary education	Percent of total education loans to tertiary education	Total Volume to Tertiary Education	Percent of total loans to tertiary education	Percent of total education loans to tertiary education	Total Volume to Tertiary Education	Percent of total loans to tertiary education	Percent of total education loans to tertiary education
1960-1969	47.8	0.6%	19.6%	94.4	2.6%	77.8%	-	-	-
1970-1979	710.6	1.4%	28.7%	215.2	1.9%	59.4%	92		46.8%
1980-1989	3,580.0	2.3%	50.6%	256.0	1.2%	35.6%	190.3		17.3%
1990-1999	4,513.7	2.0%	25.7%	129.7	0.2%	5.1%	520.8		15.0%

2000-2005	1,703.0	1.5%	18.5%	8.8	0.02%	0.5%	52.5[b]		3.6%

a: Includes higher education and post-secondary vocational training
b: ADB data refers to 2000-2004
Compiled by authors

Table 25:



Source: http://devdata.worldbank.org/edstats/wbl_b.html

Table 26: Official Commitments from DAC Countries by Sector

	Post secondary [a]	**Technical Cooperation** [b]
1970		1,425.14
1993	303.62	11,769.07
2005	2,186.03	21,281.94

In Current prices (million USD)
a: Includes higher education and advanced technical and managerial training.
b: The amount of technical co-operation included in grants and loans. Technical co-operation is the provision of know-how in the form of personnel, training, research and associated costs.
Source: http://devdata.worldbank.org/edstats/wbl_b.html

A notable exception to the weak efforts by donors to train talent in developing countries has been the role of the Consultative Group in International Agricultural Research (CGIAR). Since its inception in the early 1970s, CGIAR centers have trained more than 35,000 scientists through workshops, and offered guidance to over 1,700 graduate students on their theses. The

centers have also been active in reviewing the curricula of university partners. In October 2004 CGIAR launched the Global Open Food and Agriculture University (GO-FAU), a program aiming to improve postgraduate education in agriculture knowledge in developing countries by distributing course materials for existing master's level programs and aiding in the development of new distance Master's programs. GO-FAU's mission is to develop postgraduate level course content in food, agriculture, and natural resources through coordination with CGIAR Centers and regional partners. By the end of 2010, the goal is to commence five Master's programs in agriculture, food, and natural resources delivered through distance education, and collaborate with over 30 universities in Asia, Africa, and Latin America to improve their existing Master's programs (Consultative Group on International Agricultural Research, 2006).

6.2 General Agreement on Trade in Services (GATS)[102]

With the commercialization of higher education and the growth of cross-border mobility of students and providers, GATS is becoming increasingly relevant as the framework within which these occur. The general idea behind GATS is that knowledge is a commodity like any other and should be freely traded around the world. However, with education widely perceived as a public good, there have been rampant fears that this would "commercialize" higher education and threaten its public good benefits.

There are 12 sectors of service provision covered by GATS, one of which is education. Any country can decide whether it will make a commitment in any of the 12 sectors and the degree of market access that it will allow. Since negotiations involve a bilateral request system, any country can make a request of another country, which in turn has the power to decide whether it will accept the request. However under the "Most Favored Nation" rule, all countries

[102] The GATS was formalized in 1994 in the Uruguay Round of WTO negotiations and came into effect in 1995. It aims to reduce or eliminate barriers to trade among its 150 country members. The agreement defines four ways in which services can be traded, described as the four "modes of supply":
Cross-border supply refers to services that flow from one WTO member territory into another, via telecommunications or mail. In this mode, neither the consumer nor the provider physically moves. This mode is particularly relevant in discussions of distance and virtual education.
Consumption abroad is when a consumer or his/her property moves into another member's territory to obtain a service. This mode applies to transnational students, including study abroad.
Commercial presence is when a service supplier moves to another member's territory to provide a service. Branch campuses, twinning arrangements and franchising agreements fall under this category.
Movement of natural persons is when a person from one member country moves to another to supply a service. This provision does not include a time-period for entry or stay. Faculty members or researchers who travel to another country would be categorized under this mode.

have to be treated equally in terms of market access and national treatment for services covered in the agreement. For example, if a country allows one foreign provider to set up a branch campus, it must offer the same opportunity to providers from any member countries. Although the major focus of GATS is sectors such as financial services, information technology, and telecommunications, there is significant apprehension about its implications for higher education. Along with health care, education is generally considered one of the "sensitive sectors" which has aroused significant discussion and debate among member countries.

GATS is fairly non-specific in its definitions, leading to much confusion among member states. Article I of GATS states that the agreement applies to all measures "affecting trade in services" taken by "central, regional or local governments and authorities and non-governmental bodies in the exercise of powers delegated by central, regional or local governments or authorities." However, services by governments and their agencies which are purchased for "government purposes and not with a view to commercial resale or with a view to use in the supply of services for commercial resale" and those which operate on a "non-commercial basis" are excluded from obligations. With the increasing public/private hybrids in education, the textual ambiguities of this "government service exclusion" have led to much confusion.

Due to the ambiguity of the definitions and the complex nature of educational provision, numerous rounds of WTO negotiations have sought to locate a mutually acceptable interpretation of what trade in educational services actually means. There are a host of questions that face negotiators, such as whether tuition fees constitute a commercial transaction and whether public institutions that rely on non-governmental sources of income are "commercial." As higher education becomes increasingly subject to market forces and as universities rely on both private and public sources of income, these questions become increasingly complex.

The implications of GATS for quality, access, and equity of higher education are not known. Many universities and bodies of higher education, including the European University Association (EUA) and the National Unions of Students in Europe (ESIB), have expressed fears that GATS may hinder the ability of states to regulate their system of higher education (Nyborg, 2002). These fears – not dissimilar to those expressed against trade liberalization in the 1980s – include its possible adverse impact on the autonomy of admissions and financial aid policies, on pressures on universities to eliminate non self-supporting departments and rollback social goals, such as affirmative action programs to increase access for disadvantaged groups (Ginsburg,

Espinoza, Popa and Terano, 2005). For instance, the South African Minister of Education stated, "it is important that we remain vigilant to ensure that increased trade in education does not undermine our national efforts to transform higher education…. Trade considerations cannot be allowed to erode the public good agenda for higher education" (Observatory on Borderless Higher Education, 2004).

Among developing countries, fears abound that opening the higher education markets to private foreign providers would transform their countries into the dumping ground of low-quality education. Moreover, critics fear that a flood of foreign providers would be exploitative, offering profitable subjects while leaving national universities to provide for non-profitable subjects such as arts and humanities (Mohamedbhai, 2002). There are also fears that foreign providers would lure away well-qualified faculty, further hampering the development of quality public higher education systems in these countries. This argument is somewhat flawed – it is tantamount to saying that FDI would lure away the best public sector managers, therefore it should not be allowed. Advocates of GATS argue that students in developing countries would benefit from an increase in options to meet the growing demand for tertiary education. Moreover, an increase in competition among educational providers may also increase the quality of domestic stock. This, however, may be wishful thinking, given the many market failures in this sector. Although the ambiguities of GATS present ample room for disagreement and discussion, it appears that they allow for considerable flexibility (Adlung, 2006). But the difficult issues concerning quality assurance, regulation, and access remain.

7. RESEARCH AGENDA

While higher education holds much promise for developing countries, our survey reveals that the hype of a "knowledge economy" notwithstanding, we actually know very little about how or even whether it works, except in the most general sense. This is perhaps not surprising given the multiple goals and the uncertain links between these goals and social and individual benefits.

Indeed, what is striking about higher education is the weakness of the analytical frameworks on even the most fundamental questions: what is the purpose of higher education? To train people for a labor force or train a labor force that is in turn trainable by employers? To

create a middle class? Is the goal of higher education to provide a ladder for social mobility or create national elites? To influence and mould the minds of young people? The answer, "all of the above", merely shifts the analytical burden. How should resources be optimally allocated across academic disciplines (between pure professional education and the so-called "liberal arts"), levels of higher education, and between suppliers and students? Who should pay for it and how much? Even within academic fields there are few yardsticks. A supply chain of health care would need doctors, nurses and paramedics, pharmacists and lab technicians, hospital administrators and even accountants. But if the goal is better societal health outcomes, where should the marginal expenditure be directed? Indeed it is at least conceivable that its best spent on civil and environmental engineers who can ensure clean water and sanitation and agricultural scientists who can ensure greater food output?

If higher education basically serves a screening and signaling function, what are the best selection mechanisms to ensure excellence and how should these mechanisms balance equity and diversity? Is there agreement on what constitutes "excellence"? What should be the balance between research and teaching and when should a country outsource these activities, purchasing higher education (or some aspects of it) from abroad? It has taken decades, but the concept of comparative advantage is now broadly accepted in the production of goods and certain services – why not higher education services? Why are market failures so intrinsic to higher education? As the balance between public and private sectors has sharply moved towards the latter, even in higher education, this has been much less the case in the institutional pinnacle of higher education – research universities. Why is it that all the leading universities in the world (the top 500 in any ranking) are not-for-profit research universities? Indeed, in most countries around the world they are public and even in the one notable exception (the US), public resources (in the form of research funding) account for more than half of their annual budgets. Despite the enormous variance in quality across higher education institutions, even within countries and academic disciplines, exit is very uncommon. Mergers and acquisitions are the exception. In a world where any successful firm expands globally, the best higher education institutions are single locational and do not expand their student population. While this may be a deliberate strategy in order to preserve brand premia, it may also reflect an inherent conservatism in higher education that, despite the radical posturing of faculty and students, is very resistant to change, hemmed in by cautious administrators, nostalgic alumni and faculty with life-time job security.

In developing countries, problems are severely compounded by the lack of data on virtually all aspects of higher education. While data on higher education in OECD countries is plentiful, there is very little comparative and international data on developing countries that could help shape goals and allocate resources. The most obvious policy question – where are inputs most valuable? – requires some measures of outcomes such as educational attainments in standardized tests, entry/graduation ratios and the percentage of students who repeat grades and classes. Such data is uncommon. More than half the world's countries lack comparable data on the fields of study of students in the country. Most have little idea of the backgrounds of the students – more than half even lack gender-disaggregated data on tertiary education (UNESCO GED, 2006).

The most discernible instrumental outcome of higher education is its links and impact on labor markets. Here again, we have no real idea on how growth is affected by investment in different types, stages and quality of education. When do diminishing growth returns set in? How are growth effects from the expansion of one stage of education affected by the level of attainment achieved at an earlier stage? And when does higher education "work" – what is the policy environment that maximizes the payoffs of higher education? Needless to say, even less is known about the less discernible and instrumental aspects of higher education, such as its effects on shaping the sensibilities and values of future leaders.

While our survey has highlighted the weakness in the governance of higher education in developing countries, viable alternatives are unclear. Clearly the regulatory framework is crucial, but there does not appear to be a good understanding of the relationship between the regulatory framework and the purposes and quality of higher education. In an activity such as higher education, where information asymmetries are severe, one could make a case for three regulatory options:

1. E*x ante regulation* by having high entry barriers on education providers, but this can often simply lead to rent-seeking by the regulator or government functionaries.
2. E*x post regulation* where everyone takes a common exam no matter where they study, but this is easier to impose in professional fields such as accounting, law or medicine, where there are shared and minimally acceptable standards.

3. *Peer group regulation* where professions and peers have a self-interest in maintaining quality, both to preserve professional rents and forestall external (state) intervention. But this assumes the professional bodies are strong and not prone to politicization, which can be a serious error.

It is not clear what an optimal regulatory structure would look like, especially because it there is little understanding of what an optional industrial organization of higher education would look like. It appears that the administrative and institutional separation between research and teaching in many developing countries has usually undermined both. But on another governance issue – the management and administration of universities – there is surprisingly little work. It is interesting that while universities provide data on faculty-student ratios, few provide data on faculty-staff ratios which may be a better indicator of how well the university is run. If managerial talent is scare in most developing countries, a victim of poor higher education systems, that in universities is even weaker despite the fact that universities are complex organizations which require competent management.

The very promise of higher education for developing countries is also making this a politically contentious issue. Universities are political because they influence the minds of young adults. And they are becoming even more so because of the growing awareness of the distributional implications of higher education. As private provision and international education grow, issues of equity and access become even more contentious. Many of the underlying handicaps faced by students from lower socio-economic groups appear to occur much earlier in the life cycle – at the primary and secondary school level – but policies to overcome these handicaps are pressed in higher education, often too little and too late.

Tertiary educational funding that improves equity while being reasonably cost-effective is another area that merits attention. There are many contentious debates regarding the effectiveness of voucher systems (in which the funding follows the student) rather than the normal pattern of state institutional funding. The former might appear more attractive at the conceptual level but administrative realities may well make the latter more effective in many settings. This is even more so when one takes into account the difficulties of handling (and enforcing) loan defaults. And if one moves away from simple means-test to additional identity-based criteria, the complexities spiral.

If research on how public resources should be allocated *within* higher education is scarce, that on affirmative action can be very contentious while often existing in an empirical vacuum. How should group rights balanced against individual rights? Advocates highlight the important "role-model" effect of such programs for disadvantaged groups, but how important are these role models to a student's vision of what is possible for him or herself? Do these programs perpetuate racial stereotypes? How valuable is diversity in an educational environment? And what exactly is "diversity"? What criteria (or sunset clauses) should be used to phase out these programs? There is little agreement on even the most basic question. Under what conditions do such programs entrench identity politics or instead gradually erode them? Then there are practical questions of how to implement these programs. To what extent should governments use control or incentive mechanisms to oversee such programs? What should be the policy at private institutions given their growing importance? And how should design of such programs reflect not just the normative aspects but the reality of how political considerations will impact implementation?

Even while it is becoming evident that the private sector is playing (and will play) an important role, most developing countries lack detailed information on private educational institutions, be it enrollment or subjects studied. Even less is known on the private non-profit higher education sector in developing countries. While tax incentives can encourage private philanthropy directed towards higher education and research, there are several key questions regarding which we have little empirical evidence. What is the elasticity of private philanthropy to tax incentives? What are the tax losses, both direct and indirect, given the inevitability of tax incentives becoming a tax dodge in the guise of dubious educational enterprises? And how does the quality of the resulting private higher educational institutions compare with their public counterparts?

Finally, newly emerging issues of international education and virtual education require considerably greater attention. Despite their strong growth, institutional mobility and enrollment in these programs is not being monitored. Australia and the UK are the only OECD countries currently collecting data on international students enrolled in their institutions operating abroad. Otherwise there is no comparable data on the cross-border electronic delivery of educational programs and overseas campuses, let alone on the educational outcomes of these programs. And

while virtual education seems to hold much promise, there is little conclusive data on the outcomes of virtual learning. What stages of education and for what subjects is this most helpful?

Higher education just might be a ticket to the promised land for developing countries. But in the absence of better analytical and empirical understanding of this burgeoning sector, there is a risk that higher education will become a new mantra before the price of the ticket or even the destination is known.

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