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## 1

# The Prospects for the BRICs: The New Academic Superpowers?

*Philip G. Altbach*

The BRIC countries—Brazil, Russia, India, and China—are expanding rapidly, and many observers see these countries as dominant economies in the coming decades. When economist Jim O'Neill coined the term BRIC in 2001, those countries accounted for 8 per cent of global gross domestic product (GDP). He predicted that this would increase to 14 per cent by 2011. In fact, the BRICs accounted for almost 20 per cent of GDP in 2012 (Liu and Li 2012). Fareed Zakaria, among others, has commented on a major shift in global influence away from North America and western Europe, and the BRICs are seen at the forefront of this shift (Zakaria 2008). Logic might dictate that academic power will rise along with economic and political expansion (Levin 2010). These four countries do indeed show impressive growth in their higher education systems and promise to expand and improve in the coming decades. Yet, it is by no means assured that the BRICs will achieve the academic prominence that is likely in economic or political spheres. Each, as will be discussed here, faces significant challenges. Some of the systemic factors that impact higher education in the BRICs are analyzed in this chapter; this is followed by an analysis of the most central prerequisite for academic development and excellence—the academic profession.

If the economic destiny of the BRICs is on an upward trajectory, the same cannot be said with certainty for higher education. Just as there are significant variations in the details of economic and political development among the four BRICs, quite different academic traditions, current realities, future plans, and scenarios make it likely that the four countries will proceed along quite different academic paths. Further, the route to global academic dominance is highly complex and depends on

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much more than patterns of economic growth or the sophistication of a nation's economy or society.

All four BRICs are, in different ways, transitional academic systems. Three—Brazil, China, and India—face the challenge of rapid expansion of access and enrollments; at the same time they are attempting to build world-class research universities at the top of the system, to contribute research and top-level training to an increasingly sophisticated economy. Russia, which possesses a mature higher education system and offers a high level of access, faces the challenge of rebuilding its research universities, while improving the quality of the system as a whole.

### **Centers and peripheries**

The BRIC countries find themselves in an unusual paradox. On the one hand, none of them are yet an academic superpower. All lag behind the main academic centers. On the other hand, all except Russia have rapidly expanding academic systems and goals of improving their global standing and building top-ranking universities. Further, all four BRICs are significant regional centers, influencing neighboring countries, and providing academic leadership in their respective areas. Brazil, India, and Russia are by far the most productive academic systems in their regions. In East Asia, Japan remains the dominant academic power, and South Korea is expanding academically, but China has the fastest growth rate and is investing the most resources in higher education.

Russia remains the central academic influence in the former Soviet Union, and Russian is the main language of instruction and research as well. Although countries in Eastern Europe are increasingly looking toward the West and English is replacing Russian a key language of academic communication, Russia retains some influence. India is by far the largest and most influential academic system in south Asia, with some modest impact in the Middle East as well. Brazil is the scientific superpower in Latin America, in terms of research productivity, the production of doctorates, and to other areas. The fact that it uses Portuguese and the other countries are Spanish-speaking limits its influence, however.

Each of the BRICs, because they contain large and self-sustaining academic systems, see themselves as independent academic entities. At the same time, they look to the major academic powers for ideas about higher education development, research paradigms, and other matters. China and Russia are to some extent adapting Western academic organizational and governance ideas. Brazil seems mainly immune from

external ideas, while India's academic system, built on the British pattern and influenced by India's own bureaucratic culture, does not look abroad for ideas about change.

English, as the dominant scientific language, has an impact in all of the BRIC countries, and it is a challenge for all but India, which from the beginning of its academic history has used English as the primary language of teaching and research. Following independence in 1947, Indian languages began to be used for teaching in some undergraduate colleges and a few universities. However, a majority of undergraduate courses and almost all graduate-level degrees are taught in English.

English is more problematical in the other BRIC countries. China and Russia have established a small number of courses and degree programs taught in English, in part to attract international students. China in particular has expanded the number of English-medium degrees, and at the top universities some courses are offered in English for domestic students. Brazil seems to lag somewhat behind in embracing English as a major theme in academic development.

The BRICs, with the partial exception of Brazil, are emphasizing the importance of their academics publishing in English, in recognized international scientific journals, and in general participating in the global scientific community. Promotion and prestige are increasingly related to publication, and many Chinese universities offer special payments to their academics who publish in top international journals.

The balance between striving to achieve global recognition, on the one hand, and sustaining a national and regional academic culture on the other remains a dilemma for the BRICs. While they seek to join the academic superpowers, at the same time their own national academic systems require support and their regional influence deserves attention (Altbach and Salmi 2011).

The BRICs remain peripheral in the global knowledge system. China and India send the largest numbers of students in the world overseas for international study. Indeed, those two countries account for close to half of all global student mobility—and their numbers are likely to increase. All of the BRICs have a significant net outflow of students. Students studying in the BRIC countries by and large come from surrounding countries, emphasizing their roles as regional centers. Only China attracts significant numbers of international students, mostly from neighboring East Asian countries.

China, India, and Russia also contribute significantly to the global flow of academic talent, with many PhD graduates from these countries working elsewhere. This brain drain has been quite significant over

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several decades. Despite modestly improving rates of return and the new trend for some top academics and scientists to hold appointments in several countries, quite significant numbers of academics chose to leave these three countries. The causes are complex and include better working conditions, infrastructure, salaries abroad, academic atmosphere, academic freedom, and other factors.

Interesting variations among the four BRIC countries can be observed. Brazil has not suffered much of a brain drain, and the return rate for Brazilians who study abroad is quite high. An attractive academic environment in the top universities and competitive salaries, no doubt, contribute to the country's higher education. Russia, which has a long and distinguished academic tradition, suffered dramatic financial cut-backs in higher education following the collapse of the Soviet Union in the 1990s. Numerous academics, including many distinguished scientists, left the country, and others quit the universities to start different careers. Only recently has the government recognized the need to rebuild the academic system. Funds have been invested in research universities and in several programs to improve the academic system, although salaries remain largely unattractive. China has implemented several programs to lure back top academics, who returned to China with improved salaries and working conditions. These programs have been modestly successful. India has not recognized its academic brain drain and has no programs in place to lure Indian academics back, although many Indians in various technology fields have returned to the booming high-tech sector—but not to the universities.

The BRIC countries thus occupy an anomalous academic terrain. They are at the same time large, growing, and increasingly powerful academic systems and still striving to occupy a more important global position. In many respects, they remain gigantic peripheries (Altbach 1993).

### **Massification as the underlying reality**

The expansion of enrollments has been the key reality of global higher education in the last half of the 20th and the beginning of the 21st century (Altbach, Reisberg, and Rumbley 2010). The “logic” of massification has affected all countries, resulting in increased access to higher education, greater importance of academic credentials for employment and social mobility, and the centrality of higher education in increasingly knowledge-based economies.

China and India have experienced massive growth in the past two decades and, in fact, will account for more than half the world's

Table 1.1 Total and gross enrollment, 2009

Country	Total enrollment	Gross enrollment ratio
Brazil	6,115,138	36 <sup>a</sup>
China	29,295,841	24
India	18,648,923	16
Russian Federation	9,330,115	76
United States	19,102,814	89

Notes: <sup>a</sup>Gross enrollment ratio for Brazil was not available from UNESCO Statistics. The number was retrieved from Trading Economics, which used data from the World Bank.

Sources: UNESCO Institute of Statistics; Brazil gross enrollment ratio: Trading Economics.

enrollment expansion by 2050. Brazil, which had no universities until 1920, began to rapidly expand its enrollments later than the others. Table 1.1 shows current enrollments for the four BRIC countries and includes the United States for comparison.

In 2012, the BRIC countries and the United States have the five largest enrollments in higher education, and by 2008 the five countries, combined, accounted for 48 per cent of the world's enrollment in higher education (see Figure 1.1). In terms of enrollment, China and India are now among the world's three largest academic systems, and India will soon move into second place. Brazil ranks in fifth position and will no doubt move up the charts in the coming years. Russia will probably experience little enrollment expansion. The reason for the inevitability of expansion in China, India, and Brazil is, of course, the fact that they currently enroll, by international standards, a modest percentage of the relevant age cohort—in the case of India only 16 per cent, while China serves 24 per cent, and Brazil 36 per cent. Russia, in contrast, enrolls 75 per cent—similar to most economically developed countries.

Rapid massification produces some inevitable results—including an overall deterioration in the quality of higher education. This does not mean that the top part of academe becomes worse, but the average quality, measured by virtually any criteria, does go down. For example, 38 per cent of those teaching in postsecondary education in China have only a bachelor's degree, although the proportions of academics with at least a master's degree are much higher in the other BRIC nations. The average quality of students entering postsecondary education declines, at the same time that competition for places in the top universities increases. The phenomenon occurs because a larger number of more modestly qualified students are entering the bottom tier of universities,

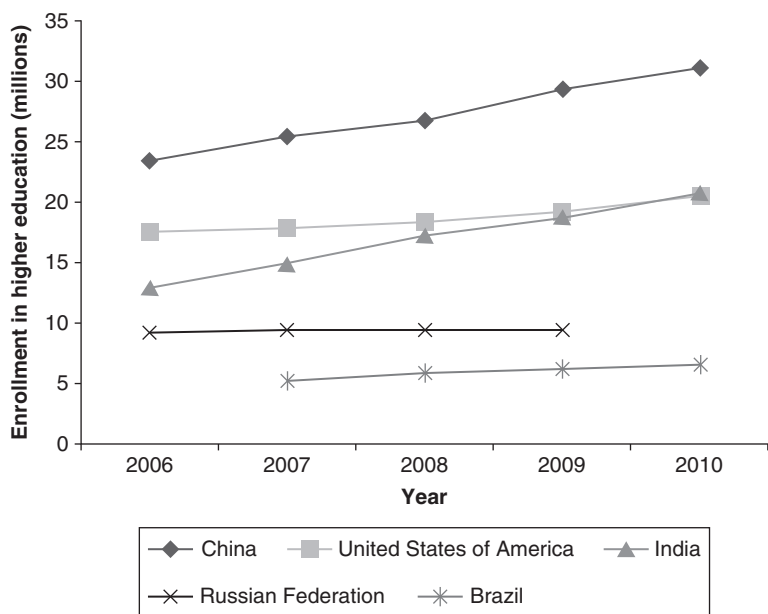
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Figure 1.1 Enrollment in higher education, BRICs and the United States, 2006–2010.

Sources: UNESCO Institute of Statistics; Brazil gross enrollment ratio: Trading Economics.

while competition for the limited number of places at the top-ranking universities is greater as applicants are aware of the quality and prestige variations among universities. Per-student funding also declines as numbers increase, and governments do not allocate sufficient funding to maintain quality for larger numbers. Thus, academic systems become more differentiated, either by plan or by the forces of the market—with the emergence of a small top tier of universities, alongside a much larger group of institutions catering to students from a wide range of backgrounds and abilities.

The fact is that none of the BRIC countries provide a reasonable standard of quality to students in the mass sector of postsecondary education. Each underinvests in this sector. As a partial result, the private sector has moved in to provide mass access, and its quality is often low. In China and Brazil, particularly, the academic qualifications of those teaching in the mass sector are inadequate, and part-time instructors are widely used. Dropout rates are high, and many graduates are deemed to be unemployable.

Few countries have been able to develop and sustain a well-defined higher education system that adequately supports mass enrollments and world-class research universities at the same time. The BRIC countries, each in its own way, have been grappling with this key challenge in the era of massification.

## The challenge of funding

Postsecondary education everywhere faces significant financial challenges. The cost of catering to a larger and more diverse clientele is at the heart of the problem. Very few governments have the financial resources to fully support a comprehensive mass higher education system. The BRIC countries, due largely to their economic success in recent years, have the ability to provide more funds to higher education. Yet, despite clear needs, public investment remains relatively low when compared to that in developed countries. The average expenditure in education as a percentage of GDP for countries in the Organization for Economic Cooperation and Development (OECD), in general the wealthier nations, is 5.9 per cent (public and private combined); and the United States spends 7.2 per cent of GDP (public and private combined). Table 1.2 shows the BRICs range from 2.1 per cent (China) to 4.3 per cent (Brazil).

Inadequate funding has significant implications throughout the academic system and makes it difficult, if not impossible, for postsecondary

*Table 1.2* Expenditure in education and research and development (R&D)

	Expenditure in education		Expenditure in R&D		
	% GDP (2009)	Tertiary education as % of GDP (2008)		Domestic gross expenditure (PPP US\$ billions, 2009)	As % of GDP (2009)
		Public	Private		
Brazil	4.3	0.8	n.d.	18.0	0.9
China	2.1	n.d.	n.d.	123.7	1.4
India	4.1	n.d.	n.d.	28.1	0.8
Russia	3.1	0.9	0.5	21.8	1.0
United States	5.7	1.0	1.7	383.6	2.7

*Note:* n.d. = no data.

*Sources:* Percentage of expenditure in education as % of GDP: *The Economist's "Pocket World in Figures."* Expenditure in tertiary education as % of GDP: *OECD Factbook*, 2011. Expenditure in R&D: Batelle, *R&D Magazine*. Data from International Monetary Fund and Batelle.



education to fulfill its goals and to serve the needs of individuals and society. The implications include low salaries for the academic profession and others working in higher education, a theme that will be discussed later in this essay. Quality suffers in many ways, with poor and often overcrowded facilities, a lack of support staff, outdated or non-existent laboratories, substandard libraries and information technology, as well as limited access to internet-based resources, and other problems.

All of the BRIC countries have implemented special funding initiatives for higher education from public resources and have in the past several decades increased financial support for higher education. Yet, in all cases, the amounts allocated have been inadequate. In all four cases, base funding for higher education to pay for the expansion has been especially inadequate—resulting in poor quality of education, denial of access to some who seek to enter postsecondary education, and increasing dropout rates.

### **R&D and the research universities**

Despite the rapidly growing economies of the BRIC countries, and the stated goals of each to emphasize research and development (R&D) as a keystone of economic development, all four countries spend less than the 2008 OECD average of 2.3 per cent of GDP and well under the 2.7 per cent spent by the United States (see Table 1.2 above).

R&D expenditures do not, of course, all go to universities, but there is a correlation between broader R&D expenditures and research support for higher education—and it is clear that the BRICs lag behind the most developed countries. China spends the largest amount and also the greatest proportion of GDP, and India and Brazil do worse. This is also the case for patent applications, another proxy indication of scientific productivity. Most observers note that China's R&D growth—as measured by patents, research expenditures, and facilities—has been impressive; and if current trends continue, China will become a major research power in a decade. The other BRIC nations show less impressive growth, although segments of the higher education systems in each country are impressive.

Two of the BRIC countries, China and Russia, have complex research systems that in many ways weaken the research strength of the universities. In both countries, the apex research organizations are institutes that are part of the Academy of Sciences system. These institutes focus exclusively on research and, by local standards, are better funded by the government than the universities. Perhaps most significant, national

policy has long given the universities responsibility mainly for teaching, with research receiving less support. The academy tradition was a central part of Russian, and then Soviet, scientific policy and was adopted in China after the establishment of the People's Republic in 1949. In recent years, both countries have recognized the problems of the academy system and have moved to better integrate the institutes with some of the universities, and also provide more resources to the universities for research. In some cases, academicians have university appointments, and doctoral students work in the institutes. India also has a small number of research institutes, but they are less central to the scientific system.

Research universities are at the pinnacle of any higher education system, and they are central in the efforts of the BRICs to rise to prominence both in higher education and in economic and scientific development (Altbach 2007). Progress has been impressive in three of the BRICs—Brazil, China, and Russia. India lags behind. China, as a result of its two major initiatives aimed at building research universities, the 211 and 985 Projects, invested heavily and now has approximately 100 universities with impressive infrastructures, some of which are developing into globally competitive institutions (Levin 2010). China's government and the top universities aim at establishing the country as a major academic power. China's growing research universities are struggling to build an academic culture to accompany their facilities (Altbach 2009).

Brazil's research universities are, with a few exceptions, concentrated in the state of São Paulo, which allocates a significant part of its tax revenues, by law, to major public research universities and has been able over time to build some of Latin America's top research universities. A few other federal universities have also built a research profile. None of India's universities appear anywhere near the top in any of the international rankings, a surprising fact for a country with the world's third largest academic system. Only the highly respected Indian Institutes of Technology are internationally recognized, and these are small and specialized schools. Russia's traditional research universities, which had significant strength and global respect, declined following the end of the Soviet Union in the 1990s. Rebuilding is now underway, and the government has identified 29 national research universities. Additional funding is provided, and these institutions have a mission of building world-class research universities in Russia. The traditional key universities maintained significant strength, and several new institutions have been established. It is too early to determine if this initiative

will result in several Russian universities joining the ranks of the leading global universities.

While the BRIC economies are expanding rapidly, and higher education is recognized as a top priority for each country, none has universities that are in the top ranks of global research universities yet.

### **A mania for mergers**

Two BRIC countries, China and Russia, have frequently used institutional mergers as a means of improving efficiency and enhancing the ranking of universities (indeed, Russian President Vladimir Putin recently announced that another wave of mergers will take place). Perhaps not surprising, since many universities in these two countries were divided into small specialized institutions during the Soviet period in Russia and in the 1950s in China, when the Soviet model was widely followed. But academic mergers are often very difficult to successfully implement. For the most part, they stem from government decisions, rather than the institutions themselves. Often, the goals of mergers are bureaucratic efficiency or a desire to bring together institutions, so that there will be economies of scale—and quick improvement in the global rankings.

Variations in academic culture may also contribute to problems in the successful implementation of mergers: overlapping and conflicting bureaucratic structures, the geographical separation of campuses, entrenched interests of administrators or faculty, the challenges of combining management and other systems, and the simple matter of size. While mergers may not be problematical in all cases, careful attention needs to be paid to both goals and the practical challenges of implementation.

### **The private sector and the privatization of public higher education**

Massification and inadequate public support for higher education have been responsible for the rise of a growing private sector worldwide. Indeed, private higher education is the fastest growing segment worldwide (Levy and Zumeta 2011). Each of the BRIC countries has a growing private sector. In fact, much of the enrollment expansion in the BRICs is in the private sector or in revenue producing segments of the public sector. Brazil's is the largest in terms of the proportion of students attending private universities—about 75 per cent. India has the most

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