



TIAA-CREF INSTITUTE: **ADVANCING HIGHER EDUCATION**

GLOBALIZATION OF HIGHER EDUCATION

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EXECUTIVE SUMMARY

International economic exchange has increased rapidly in recent decades, fueled by technologies such as the Internet and computers and by regularized reduction of trade barriers through international treaties. How much (and in what ways) will this affect higher education?

The U.S. has had a long-standing position as *the* world leader both in education at the baccalaureate and graduate and professional levels and also in the research activity that parallels this educational effort. Part of the U.S. advantage has been the keenly competitive nature of U.S. higher education, which finely hones the excellence of its colleges and universities. But that competition is now turning world-wide.

The growing competition has two sides – supply and demand. Many other nations, most notably China and India, have massive programs to invest in new higher education capabilities. Many of the prospective faculty members for those institutions are now receiving their doctoral-level training in U.S. universities. Eventually this growing capability across the globe will cut into the U.S. prominence in higher education. But for the short and intermediate terms (decades in duration at least), the growth in the number of students who wish to enter college from around the world will grow at very rapid rates, almost surely at rates exceeding the growth of resources in their home countries. This growth in college-attending students comes both from population growth itself (particularly in India) and also in the number of children who complete secondary education and who have growing propensities to undertake post-secondary schooling (China, India and elsewhere). Thus the immediate and



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intermediate futures probably see increasing numbers of international students coming to the U.S. for their schooling. These students will disproportionately attend our larger research universities, both at the graduate level and for undergraduate education, so the “boom” of international students will likely have less pronounced effects on smaller liberal arts colleges than on large research universities.

On the research side itself, risks to U.S. competitiveness loom more immediately for several reasons. First, U.S. education in K-12 now clearly lags that of many other nations in preparing students in science and mathematics. This appears clearly in time-trend data showing the growing proportion of international students in our graduate and professional degree programs, most strongly so in sciences, mathematics, and engineering.

Second, our national policy towards research creates growing risks that the research will migrate to other nations with friendlier policies towards research and researchers. These policies span the obvious issues of immigration and naturalization, but extend to intellectual property law (patents and copyright), with particularly special risks for loss of research created in the realm of regenerative and reproductive biology because of the way our government policies treat such research activities.

A number of steps can help U.S. higher education adjust to and gain from the growing internationalization of higher education, including internationalization of our curricula, and increased investment in specialized services for international students (ESL, immigration support, and cultural assistance). Diversification of our colleges and universities at every level (faculty, students and staff) along international dimensions will become crucial not only in the U.S. maintaining its “share” of the world market, but most importantly in the ways we prepare future leaders of our society for the globalized world in which they will live and lead.

INTRODUCTION

During my thirteen years as Provost at the University of Rochester, I often said that higher education in the U.S. was more successful in world competition than any other sector of the U.S. economy except professional basketball. With the defeat of U.S. basketball teams in international competition, I revised my statement: higher education is *the* most successful part of the U.S. economy in competing around the world. Our preeminence is unchallenged. So far...

I also often attribute our stature in higher education around the world to the highly competitive nature of our higher educational system. While we have many state universities, the U.S. also has a vigorous private higher education system for undergraduate, graduate and professional degrees. We compete vigorously for students, faculty, staff, research grants and private philanthropy. The culture and traditions of universities in other nations have never had this competition to nearly the extent that U.S. higher education has, in part because almost all of these are public universities. While the conduct of activities may be more “civil,” particularly in more traditional European universities, the lack of competition has also taken off the keen edge that competition engenders. Essentially, U.S. colleges and universities compete on quality, not price. In that world, we have reigned supreme.

Has this all changed? With a startling title, Tom Friedman portrayed vividly to the U.S. something we all knew at least vaguely was coming: worldwide competition! His book, *The World is Flat* (not in the sense of the shape of the earth but rather that it is a “level playing field”) portrays these issues eloquently. This essay focuses on the extent and ways to which this applies to higher education in the United States.

BACKGROUND DATA

First, some background data and concepts: as the world’s population grows, the absolute number of potential undergraduate and graduate students also grows. But college and graduate school attendance also closely link to per capita income of nations around the world. Thus with the general increase in the standard of living around the world from improvements in technology — and yes, from the globalization of all aspects of the economy highlighted by Tom Friedman — we can expect participation rates in higher education to increase as well, so college and graduate school attendance should grow faster than general population growth.

As Table 1 shows, foreign student enrollment in U.S. colleges and universities has grown at a tremendous rate over the past half century, from about 34,000 students total in 1955 to approximately 565,000 in 2006, a compound annual growth rate of about 5.8% that has increased the number of foreign students studying here by a factor of close to 20 during that period. During that same period, total enrollment in U.S. higher education has increased from 2.5 to 14.5 million students, almost a six-fold increase, but the faster growth rate of international students means that they now constitute about 4% of our student bodies in the US, versus about 1.4% a half century ago. The international students’ proportion has tripled.

TABLE 1
ENROLLMENT IN U.S. UNIVERSITIES BY INTERNATIONAL STUDENTS

Year	International Students	Total Students	International Percent
1954/55	34,232	2,499,800	1.4
1959/60	48,486	3,402,300	1.4
1964/65	82,045	5,320,000	1.5
1969/70	134,959	7,978,400	1.7
1974/75	154,580	10,321,500	1.5
1979/80	286,343	11,707,000	2.4
1984/85	342,113	12,467,700	2.7
1985/86	343,777	12,387,700	2.8
1986/87	349,609	12,410,500	2.8
1987/88	356,187	12,808,487	2.8
1988/89	366,354	13,322,576	2.7
1989/90	386,851	13,824,592	2.8
1990/91	407,529	13,975,408	2.9
1991/92	419,585	14,360,965	2.9
1992/93	438,618	14,422,975	3.0
1993/94	449,749	14,473,106	3.1
1994/95	452,635	14,554,016	3.1
1995/96	453,787	14,419,252	3.1
1996/97	457,984	14,286,478	3.1
1997/98	481,280	13,294,221*	3.6
1998/99	490,933	13,391,401	3.6
1999/00	514,723	13,584,998	3.8
2000/01	547,867	14,046,659	3.9
2001/02	582,996	13,511,149	4.3
2002/03	586,323	12,853,627	4.6
2003/04	572,509	13,383,553	4.3
2004/05	565,039	13,994,869	4.0
2005/06	564,766	14,528,728**	3.9

* In 1997 The College Board changed its data collection process.

** College Board Annual Survey of Colleges data on U.S. higher education enrollment.

Source: International Educational Exchange Network

These students come from around the globe, but increasingly from the Pacific Rim. Table 2 shows the origins of students by country, led by China, India, South Korea and Japan, with Taiwan sandwiched next on the list by U.S. neighbors Canada and Mexico.

TABLE 2
LEADING PLACES OF ORIGIN FOR INTERNATIONAL STUDENTS

Rank	Place of Origin	2004/05	2005/06	Percent of Total (2005/06)
1	India	80,466	76,503	13.5
2	China	62,523	62,582	11.1
3	Korea, Republic of	53,358	58,847	10.4
4	Japan	42,215	38,712	6.9
5	Canada	28,140	28,202	5.0
6	Taiwan	25,914	27,876	4.9
7	Mexico	13,063	13,931	2.5
8	Turkey	12,474	11,622	2.1
9	Germany	8,640	8,829	1.6
10	Thailand	8,637	8,765	1.6
11	United Kingdom	8,236	8,274	1.5
12	Hong Kong	7,180	7,849	1.4
13	Indonesia	7,760	7,575	1.3
14	Brazil	7,244	7,009	1.2
15	Colombia	7,334	6,835	1.2
16	France	6,555	6,640	1.2
17	Kenya	6,728	6,559	1.2
18	Nigeria	6,335	6,192	1.1
19	Nepal	4,861	6,061	1.1
20	Pakistan	6,296	5,759	1.0
Rest of world		161,070	160,444	28.3
WORLD TOTAL		565,039	564,766	100.0

Source: International Educational Exchange Network

This international enrollment surge has not spread uniformly across the higher education landscape in the US. In approximate numbers, half of these students now are in graduate programs and half in undergraduate (or AA) programs. But even the undergraduates heavily prefer doctoral-level institutions in general, with about 60% of all international students studying in doctoral-granting institutions and another 17% in masters-granting institutions (over three

quarters of the total), despite that these institutions represent only one third of all higher education institutions and have only one quarter of all enrolled students.

These data have important implications for how the future looks to various U.S. higher educational institutions. Basically, “the world is flat” mostly for doctoral- and masters-granting institutions. Baccalaureate-granting colleges have not participated in the globalization of higher education to nearly the same extent as have doctoral-level institutions, and (as the final section of this essay discusses) it may be more difficult for them to “get into the game” than it is for larger institutions.

International students also choose programs of study quite differently compared with U.S. students: most of them come to the U.S. to study in engineering, the natural and biological sciences, computer science, and business. A third of all masters degrees obtained by international students are in the field of business. Only small handfuls — about 3% overall — study humanities, and another 4% study fine arts.

GROWTH IN POTENTIAL STUDENTS

The world’s educated population is growing at a remarkable rate, primarily arising from growth in pre-collegiate education in the Asian sector of the world (most notably, China and India). China now has the largest population in the world at 1.3 billion, growing at an annual rate of 0.6%. India has the second largest population at 1.1 billion; growing at about 1.6% per year.¹ These trends will make India the most populous nation in the world within just a few years. Between them, these two nations already have three-eighths of the world’s population. While these nations are not as affluent as the United States and Europe, together they create about two-fifths of the world’s Gross Domestic Product (reflecting purchasing power). Moreover, their inflation-adjusted economies are growing rapidly — 8% for China, 4% for India, versus 0.4% for the US). While other sectors of the world’s economy are also important, the size and growth of these two economies makes them the dominant force in the future for higher education in the US.

To put this into a more vivid picture, consider a simple example: by recent estimates, nearly one-third of India’s population of 1.1 billion people appears in the under-14 age group and this population segment is growing rapidly (22.7 births per 1,000 people). India has a median age of less than 25 years. By contrast, China, because of restrictive policies, has a much lower birth rate (13.5 per 1,000) and has only 20% of their population in the under-15 age group, with a median age of about 35 years. Thus India has about 0.35 billion in the “K-12 pipeline,” while China has “only” a bit over 0.25 billion in the same age group. In terms of potential college attendees, India already leads the world, and their lead will grow with their relatively high birth rate.

To reframe this more towards higher education, each single-year age cohort (e.g., age 18) in India now has about 24 million people in it. About half of all children in India complete secondary education, and about 10% (a rate that grows through time) enter post-secondary education.² Thus (in very round numbers) India currently has about 12 million 18-year olds with at least some secondary education, and 2.5 million of them enter some form of post-secondary education.³

These numbers will grow through time, probably fairly rapidly, through two forces. First, the inherent population growth rates in India will lead to increases in the size of each age cohort.

Second, possibly of even greater importance, as the wealth of Indian citizens rises (as the globalization of the economy in general will accelerate), more and more of them will seek college education for their children. Higher education is a luxury good: as income rises, the demand for college education rises at an even higher rate.

By contrast, the U.S. college-age population is static at best, and by most demographic forecasts, shrinking through time as the second-generation “baby boomers” work their way through the educational system. Most forecasts show the number of high school graduates in the U.S. falling slightly in the coming years, more notably so in the Northeast and less so in the South and West. In (again) very round numbers, the U.S. has about 4 million people in the age-18 cohort, almost all of whom enrolled in secondary school, and about 3 million (70-80% depending on the measure) enrolled in post-secondary educational programs of some sort. U.S. colleges and universities grant about 2.7 million degrees annually.

Comparing these data, we see that the “college-attending” population in India already almost matches that of the US, and India will soon have more students attending post-secondary educational programs than does the U.S. as their college participation rates grow from the current 10% level to higher levels. And their relative size will grow through time because of differential population growth rates (1.7% vs. 0.9%).

China has a somewhat different situation. The age-18 population cohort in China is “only” about 18 million people, and it grows more slowly than India’s because of government policy to restrict childbearing. However, the rate at which Chinese citizens attend secondary education and beyond is not only high but appears to be growing rapidly. By recent World Bank estimates, about 75 percent of current Chinese children enroll in secondary school and about 20 percent enroll in post-secondary education. Thus this year, China will have about 3.6 million 18-year-olds in post-secondary education, already more than the number entering post-secondary education in the US. And China’s rapidly growing economy (6-8 percent “real” per year by World Bank estimates) will accelerate the rate at which Chinese youths attend post-secondary educational programs.

To punctuate these college-attending growth rates, consider the time path of proportions of age cohorts attending post-secondary schooling in these three countries through time:

TABLE 3
POST SECONDARY SCHOOLING PARTICIPATION

	1985	1995	2005
China	2.9%	5.3%	20.3%
India	6.0	6.6	11.4
USA	60.2	80.9	82.7

Source: <http://devdata.worldbank.org/edstats/cd1.asp>

While I repeat myself here, I wish to emphasize again that these proportions will surely grow considerably in these growing economies – wealth fuels both the ability and the desire to attend post-secondary school, and we can only expect that these rates will rise rapidly through time. By comparison, current levels in other representative developed nations include (in rank order) Korea (90%), Sweden (82%), Russia (71%), Canada (62%), Israel (58%), France (56%), Japan (55%), Turkey (51%), and Germany (46%). I would not be at all surprised to find China overtaking some on this list within a quarter century, perhaps sooner.⁴

Aggregating data from other nations would make the same point more broadly but with less dramatic numbers. The potential college-attending population is large, growing, and (unless global investments in higher education facilities far exceed my understanding), U.S. colleges and universities probably will stand to gain more than to lose from globalization of the world of higher education, at least in the coming decades, particularly our larger post-baccalaureate degree granting institutions.

To summarize this, global growth in the number of students seeking post-secondary education will make the overall market for higher education grow. If the U.S. can avoid disturbing normal flows of students as occurred in the past, our higher educational institutions should find growing possibilities for enrolling international students. To the extent that other nations' investment in higher education (at the extreme form, founding of new and large universities in nations around the world) absorbs some of this growth, the U.S. will likely still benefit, but less so than if the international investment had not occurred.

The lesson drawn here arises from centuries of observation of international trade. When one nation produces something more effectively than others, they tend to specialize, outproducing their internal demands and exporting to the rest of the world. Only artificial trade barriers can impede these flows. These flows arise more readily in manufactured products and commodities (ore, grain, etc.) than for services, particularly for services requiring the individual buyer to participate in person (haircuts, restaurant meals, education, and surgery, for example). The U.S. can continue to be a major and growing exporter of educational services unless we make it so difficult for foreign scholars to come to the U.S. (e.g., through immigration control) that they turn elsewhere for their educational attainment.

One advantage we have in the U.S. is hard for other nations to replicate: the world has about 0.4 billion native-English speakers, and about an equivalent number who have English as a second language. Some estimates say that a quarter of the world's population has at least minimal competence in English. Thus education carried out in English will have a natural attraction to scholars from around the world. Some universities now growing in other nations have partnered with U.S. universities, and many of them actually have instruction in English, no matter what the native language of the country.

U.S. COMPETITIVENESS POSITION

I do not intend to suggest here that post-secondary education in other nations, such as those of India, China and many others, matches that of U.S. collegiate education. But the dismal relative performance of the U.S. K-12 system compared with that of many other nations gives pause. As a National Academy of Science report⁵ detailed, the U.S. is falling behind many other industrialized and developing nations in preparing our children for collegiate level education.

The gap appears greatest in mathematics and sciences. Data from the National Science Foundation's Survey of Earned Doctorates (Table 4) confirm the major shift in just two decades in the composition of the population earning doctorates in the US. In 1985, about three quarters of all doctorates earned in the U.S. were awarded to U.S. citizens. By 2005, that had fallen to three fifths. The falloff is most dramatic in sciences and engineering (two-thirds down to one-half awarded to U.S. citizens). In 2005, U.S. citizens constituted a minority of the PhD recipients from U.S. universities in physical sciences and mathematics, life sciences and engineering. Only in the humanities and education did U.S. citizens retain the same share of degree recipients over this two-decade span.

TABLE 4
U.S. CITIZENS AS PERCENT OF EARNED DOCTORATES IN THE U.S.,
BY FIELD AND COUNTRY OF ORIGIN

	1985	2005
All Doctorates	74.7%	60.9%
Physical Sciences	67.3	48.0
Life Sciences	76.4	63.5
Physical +Life Sciences	72.4	56.9
Engineering	38.5	31.2
Sciences + Engineering	64.4	49.7
Social Sciences	79.4	70.3
Humanities	83.5	82.5
Education	85.6	82.5

Source: National Science Foundation, Survey of Earned Doctorates, 2006

These data have several potential interpretations. Most directly, many of the finest U.S. universities now find that U.S. students are less competitive for doctoral study (especially in the sciences and mathematics) than international students. So in part this trend arises from the lack of competitiveness of U.S. students against those receiving collegiate education elsewhere. International students are just better prepared, particularly in mathematics. Second, it reflects a growing demand for graduate education from these nations, particularly China, India, South Korea, Japan, and (increasingly) former Soviet Union nations. The US, I continue to believe, still remains the best nation in the world to obtain higher education.

These international students contribute importantly to the economic growth of the United States through their intellectual contributions. Many of them remain to become faculty members or researchers in our colleges, universities, industry and government. They also contribute to the creation of new intellectual property. While no national data exist on this, a study undertaken at the University of Rochester shows the central role of international graduate students in the process of invention. In patent disclosures (the first step to patent filing in all universities) over the past five years, 42% of all inventors listed on disclosure forms at the UR were not U.S.

citizens. Over half of the graduate students on patent disclosures were from other countries. Since 2000, roughly one third of all patents granted to the University of Rochester have had at least one foreign inventor involved.⁶

Perhaps of greater long-term consequence, while some of these graduates remain in the US, others return to their native lands and become professors in the growing array of new universities arising throughout the world. We are training the professors who will become our future competition! While this process will not immediately close the gap between available schooling slots and the growing number of potential post-secondary students, in the long run, our training of international students will slowly erode our competitive position in the world market of higher education.

GROWING COMPETITION IN EDUCATION

The net effects of this growth in potential students at the collegiate and doctoral level of course depends not only on the growth in potential students but also the growth in the supply of education worldwide. Many sources suggest that many nations are eagerly expanding their undergraduate and graduate educational abilities, but the extent to which they can even keep up with their own growing college-ready populations remains unknown at this time.

India, China, and many small nations in the Middle East (fueled in part by petroleum revenues over the past quarter-century or so) have embarked upon massive efforts to grow their undergraduate and graduate educational systems. I cannot find any reliable information about the extent of these efforts, but numerous anecdotes suggest very ambitious plans for growth at the collegiate level in these and other nations. A few nations are also deliberately growing their graduate educational capabilities to compete with the US, most notably Australia and other Pacific Rim nations.

How much could this foreign competition affect U.S. higher education in the future? I can only offer conjecture here, but I can note that it would take investments in collegiate education of extraordinary proportions to keep up with the population growth of potential college-age students in India, China and elsewhere.

GROWING COMPETITION IN RESEARCH

The higher education system in the U.S. produces not only education of students but also an extraordinary array of scholarly research, much of it in the sciences and engineering, fueled by large investments by the federal and state governments of the US, most prominently through the NIH, NSF and other federal agencies. States also support higher education through construction and subventions to the operations of state colleges and universities.

The U.S. stands at more of a precipice in the research arena than in the teaching of students. Research is relatively portable – single laboratories can move from nation to nation at relatively little cost, whereas creating entire new universities is more costly and obviously has a much longer time horizon. While Federal policies can affect international students' interest in obtaining degrees in the United States (most notably through immigration policy and practices), it can also affect where research is carried out in many other ways beyond immigration practices.

Most notably, I would argue, science policy (taken broadly) has the potential for significantly altering where the best research in the world takes place, and this occurs most prominently in the life sciences, specifically in areas relating to reproduction and regenerative biology and medicine. U.S. policy towards stem cell research has already led to significant shifts overseas of some top laboratories, both for reasons of funding availability and also from threats of criminal prosecution that occasionally arises in the political arena for those carrying out embryonic stem cell research. A number of States, concerned about the loss of research (and derivative jobs) have created multi-billion dollar programs to fund the types of research that current federal policy precludes. If I could foresee any area where U.S. competitiveness is at risk, it would center in those areas of science and technology where political intervention affects the ability to carry out broad areas of research. Extrapolating Tom Friedman's observation, one can readily conclude that this research will take place. The only question is where. If it takes place in other nations around the world, the U.S. will surely lose some of the benefits, including first-mover advantages, revenue streams arising from intellectual property, and jobs created offshore to avoid political interference.⁷

HOW SHOULD U.S. HIGHER EDUCATION RESPOND?

Globalization has come upon U.S. and will assuredly grow, not just in higher education but in all forms of commerce. Almost all educators now understand that preparing students for this world has become a key part of any coherent liberal arts or professional education. What steps might U.S. higher education institutions take to further these goals? While not pretending either that this list is exhaustive or would apply to every single institution of higher education, I offer the following ideas.

Diversify campus communities along international dimensions.

If we really believe that a diverse environment enhances student learning, then we must take seriously the notion that diversity encompasses more than historical “under-represented minority” populations from the US. Indeed, recent U.S. Supreme Court rulings⁸ emphasize the importance not only that higher education institutions identify the broad educational benefits of diversity but also that such diversity represent more than historical racial categories. It makes perfect sense in every way for U.S. higher educational institutions to diversify their campus communities along international lines as well. The flow of new PhD students coming out of our programs will make this happen more or less automatically, especially in the fields of science and technology, but it may be a steeper hill to climb for students, especially undergraduates, and even more so for baccalaureate-degree institutions.

While the direct enrollments of international students will likely continue to focus on doctorate-granting institutions (international students seem to show strong preferences for our research universities over our smaller colleges), the growing presence of international students will probably cause a spillover effect that increases enrollment possibilities in all parts of the U.S. higher education world. Smaller institutions can probably enhance their international student presence by collaborating with each other (e.g., through small-college consortia) to produce efficiently a set of services necessary to attract international students.⁹

Internationalize Our Curricula

At first blush, this means creating or enhancing things like International Relations majors, improving modern language opportunities and the like. I suggest that this concept can extend much further: almost any subject taught in a liberal arts curriculum can include an international focus. Most professional degrees – certainly those involving the healing arts, business and others involving interpersonal exchange regularly – will benefit from an enhanced understanding of cultural and institutional differences relating to people from other nations, whether those interchanges occur in the U.S. or elsewhere.

Study abroad has become a common feature of higher education, particularly among elite colleges and universities. While I know little about the substance of these programs, I have heard frequent concerns that these represent little more than elaborate vacations with a “journal” attached at the end. Serious attention to the value of study abroad comes as a natural part of a globalization effort.

Selectively Consider International Partners

Particularly among larger universities, establishing global partnerships that involve significant interchange of faculty, staff and students, and perhaps even joint enterprises, makes good sense. A few research universities in the U.S. have embarked on such activities quite broadly. A number of U.S. universities have had international programs for MBA students for decades. I would urge caution in this approach, however; it will not be the right thing to do for many institutions, and to the extent that it diverts a campus from its primary mission (in the name of globalization) it can be disruptive and harmful.

A FINAL THOUGHT

Will U.S. students ever undertake their entire higher education abroad in significant numbers? This, of course, is the ultimate “end game” of a “flat world” of a highly competitive higher education environment that spans the globe. We now actually see some U.S. citizens traveling all around the world to have major surgical procedures undertaken.¹⁰ Given all the concerns about the growing costs of higher education in the U.S. and the dramatic price differences found in such fields as health care (fees for major surgical procedures overseas are often 10% of common costs here in the US), it is natural to consider whether we might ultimately begin to see significant numbers of U.S. undergraduates seeking their college or professional education overseas.

My immediate thought is that this is unlikely: most U.S. college students remain close to home even when they have excellent choices of college at greater distances. Part of this comes from the low tuition costs associated with community colleges and state universities for in-state residents, which will naturally create the appearance of students preferring to remain “near home.” But I think “near home” remains important for many college students, for reasons including the opportunity to return home during school breaks, familiarity with regional customs, etc. While I have not researched this issue in depth, I would find myself surprised if U.S. students emigrated overseas for their collegiate education even at significant cost advantage. Surgery only takes one trip, and a vacation can often accompany it. Collegiate education takes many years and implies many trips between school and home (or an abandonment of that option

that few U.S. students now exhibit). Until major changes occur in international educational capabilities, transportation complexities, and student preferences I think, U.S. higher education is relatively immune from this risk.

ABOUT THE AUTHOR

Charles E. Phelps came to the University of Rochester in 1984 as professor and director of the Public Policy Analysis Program, a graduate program offered by the Department of Political Science, in conjunction with the Department of Economics. In 1989 he became chair of the Department of Community and Preventive Medicine in the School of Medicine and Dentistry. He became Provost in July 1, 1994 and served until July 31, 2007. As Provost, he was responsible for overseeing the academic activity of the University, including teaching, research, and supporting services (e.g., libraries, information technology, and technology transfer) in each of the University's six schools. He currently holds the titles of University Professor and Provost Emeritus.

In 1991 he was elected to the Institute of Medicine of the National Academy of Sciences and to the National Bureau for Economic Research. He began service three years ago on the Report Review Committee of the National Research Council (the quality control process for the National Academies). His textbook, *Health Economics*, is now in its third edition.

Provost Emeritus Phelps earned his bachelors degree from Pomona College in Claremont, California. He then earned both an M.B.A. in hospital administration and Ph.D. in economics from the University of Chicago. Before coming to Rochester, Phelps worked at the RAND Corporation. He has been a TIAA-CREF Institute Fellows since 2006.

ENDNOTES

- ¹ Source for all country-specific economic and population growth data and in this paper: www.worldbank.org/data/countrydata/countrydata.html.
- ² World Bank EdStat for this and comparable data on participation rates.
- ³ Recall from Table 2 that the U.S. has about 75,000 students from India, probably less than one percent of the post-secondary school attendees from India.
- ⁴ All data on schooling participation from <http://devdata.worldbank.org/edstats/cdl.asp>
- ⁵ *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, National Academies Press, 2007.
- ⁶ Bruce Jacobs, “The Tangible Contributions of International Graduate Students: An Alternative Approach and Some Evidence from the University of Rochester,” Council of Graduate Schools Communicator, Volume 38, No. 4, May, 2005.
- ⁷ Thomas Friedman recently suggested what I viewed as a stunningly good idea: grant automatic and immediate U.S. citizenship to all foreign nationals receiving a PhD in the US. (New York Times, May 23, 2007 opinion editorial, “Laughing and Crying.”
- ⁸ Grutter v. Bollinger, <http://www.law.cornell.edu/supct/html/02-241.ZS.html> and Gratz v. Bollinger, <http://www.law.cornell.edu/supct/html/02-516.ZS.html>.
- ⁹ Large universities all have robust international student offices that assist in immigration issues, help organize affinity groups for international students, etc. These can probably be accomplished better through consortia than individually by small schools. Ultimately, however, small schools face the limiting factor of loneliness: the concept of “critical mass,” so often spoken of in diversity discussions in higher education, applies equally to international students of various types.
- ¹⁰ To get a sense of this, I suggest that you google “medical tourism. For those who trust Wikipedia, see http://en.wikipedia.org/wiki/Medical_tourism.