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Universities as Firms
The Case of US Overseas Programs

E. Han Kim and Min Zhu

5.1 Introduction

Universities in the United States are the leading providers of higher education in the world. According to the *Newsweek* 2006 global university ranking, fifteen of the top twenty universities worldwide are American universities.[1] More than 580,000 foreign undergraduate and graduate students are currently studying in the United States. They spend around 15 billion dollars yearly, propelling the education industry into the fifth largest export service sector in the United States (Bhandari and Chow 2007). Universities in the United States are also active in a wide range of international activities, from setting up cross-country research labs to offering degree programs in foreign countries.

This chapter employs the standard economic analysis to study overseas degree programs offered by US universities. If US universities ever behave like firms, they are more likely to do so overseas, where they are not bound by the same set of obligations to domestic stakeholders as they are in the United States. We analyze how university characteristics (i.e., supply side) and host

1. Available at: http://www.msnbc.msn.com/id/14321230/, accessed August 2007.

country environment (i.e., demand side) interact to affect the likelihood of a university offering overseas programs, how universities choose location, and how they determine program pricing (tuition). We examine these issues using hand-collected data on US overseas programs from multiple sources.

Our analyses help address whether university motives for foreign direct investment (FDI) are different from those of multinational corporations (MNCs). While there are numerous studies about MNCs' FDI, to the best of our knowledge, there is no economics-based, scientific study of foreign investment by US universities. We also gather a unique data set that provides a comprehensive picture of the nature and type of overseas degree programs offered by US universities.

Although there are important differences between nonprofit universities and profit-seeking corporations, we assume universities, like firms, are subject to financial constraints and give high priority to increasing the present value of the revenue-cost difference. In such a framework, universities endued with different intellectual capital will self-select into two broad types: reputable institutions with selective admission standards and active research programs, or moderately ranked universities with relaxed admission standards and greater tuition dependency. Given these two types of universities, which type is more likely to have an overseas program? The answer is not immediately obvious. While moderately-ranked universities may be more willing suppliers, local demand would be greater for programs offered by the elite type. However, elite schools may be less willing to venture abroad because of their concerns for quality control, diluting brand names, and diverting home campus resources.

We start the chapter by comparing universities to firms. We discuss how economic motives and nonpecuniary factors affect universities' decision to offer overseas programs, providing an overview of the costs and benefits affecting the supply for and demand of US university overseas programs. This overview is based on our survey of articles published in the *Chronicle of Higher Education.* When we examine the historical archive of the *Chronicle,* we observe two major waves of US overseas programs. The first wave occurred during the late 1980s to the mid-1990s, mainly led by moderately ranked universities with less stringent admission standards. After almost a decade of relative inactivity, a new surge of overseas programs appears, with active participation by highly reputable research universities.

During the first wave, most overseas programs were apt to be supply driven and failed due to the lack of demand in the host countries. For instance, more than thirty US universities established branch campuses in Japan during its economic boom in the late 1980s. These universities had low name recognition and almost all of these overseas programs were closed by the mid-1990s due to low enrollment. In contrast, the current wave is more demand driven, and the main suppliers are large research universities with high visibility and strong reputations. It appears that the best schools

are making efforts to globalize their institutions and to provide higher education opportunities overseas.

Finance plays a decisive role in offering overseas programs. Schools with greater tuition-dependency are more likely to offer overseas programs. Their location choice illustrates the important role economics plays in these programs. Real gross domestic product (GDP) per capita and tertiary school age population are two key determinants of the location choice. Universities in the United States target countries with large potential markets where the local population has the economic means to pay for their services. They also follow US multinational corporations' FDI flows and invest in business friendly countries with loose regulations. Asia and the Middle East are the most popular destinations for overseas programs, but for different reasons. Asia provides a large market with strong local demand for US-style education. Alternately, Middle Eastern countries are attractive because they grant substantial financial aid to sponsoring universities with their oil money.

Our analysis of tuition charges reveals that US universities adjust their pricing to local conditions. They discount tuition less in countries with higher real GDP per capita. Undergraduate degree programs are discounted more than master degree programs because of greater local competition in the market for undergraduate degree programs. When universities reduce costs by forging local university partnerships and/or by obtaining financial support from local governments, they do not pass on the savings to local students in the form of lower tuition.

In sum, universities behave much like multinational corporations when they make overseas investments and operate overseas programs.

5.2 Universities as Firms

5.2.1   Organizational Structure and Objective Function

Universities differ from for-profit corporations in various ways. Universities provide both private and public goods. Their two main products are knowledge creation and knowledge dissemination through research and teaching. Research results are freely available to most members of society and help stimulate economic growth. Knowledge dissemination increases human capital, and the benefits can be direct to those who receive higher education, or indirect to those who benefit from the economic growth attributable to the development and accumulation of human capital through higher education. The need for higher education has become crucial in the age of globalization, as knowledge-based workforces have become an essential ingredient to acquire and maintain a competitive edge in the marketplace.

The payoffs from knowledge creation take a long time to be realized and are highly uncertain, yet they generate positive externalities to society. In turn, society supports these activities by nonprofit universities through gifts

and endowments from the private sector and subsidies from local and federal governments. The *Digest of Education Statistics* (National Center for Education Statistics 2008a) reports that during the 2004–2005 academic year, total tuition revenue represented only 16.4 percent of total revenue for all public degree-granting institutions and 29.5 percent for all private nonprofit degree-granting institutions in the United States. Society does not provide much support for for-profit universities, as it expects them to support their own profit-generating activities.[2]

Governance of universities is more complicated than governance of corporations. Unlike private enterprises with residual claim holders (stockholders), nonprofit universities have multiple stakeholders without a clearly defined pecking order, which leads to multiple objectives without well-defined priorities. Coleman (1973) compares universities to shells that encompass a variety of activities: teaching, research activities supported by government and private organizations, and external consulting. These activities often create conflicts of commitment and interest, leading to compromises in teaching and research effectiveness, although spillover effects (e.g., research and consulting experience benefiting the quality and effectiveness of teaching) may lessen the costs. Lacking well-defined priorities, faculty resource allocations are likely to be made for the benefits of individual faculty, and some universities may resemble a collection of little kingdoms built around individual faculty. Such an organizational form is not necessarily bad: it may encourage entrepreneurship on the part of individual faculty, making them more creative and productive. It also may make them more accountable for their individual actions. However, such an organizational form may make it difficult to create synergies between individual talents and for the university to act as a cohesive unit to meet various, and often conflicting, demands of the stakeholders.

Regardless of the organizational form a university takes, it must provide services to various stakeholders, who ultimately decide on the amount of its financial resources. Universities generate revenues from tuition, private gifts and endowments, state subsidies, and federal and private grants. Like firms, they strive to maximize the present value of the revenue-cost difference, not because they are profit maximizing, but because they want to maximize financial resources available for their pursuit of various goals and objectives, however ambiguous they may be.[3]

The strategies universities adopt to maximize the present value of the revenue-cost difference depends on the university type. Consider an elite university with high intellectual capital based on past research accomplish-

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2. See Goldin and Katz (1999) for a review of the history of universities. Nonprofit organizations are preferred to for-profit organizations when consumers are uncertain about product quality due to asymmetric information (Easley and O'Hara 1983).

3. Winston (1999) also recognizes that nonprofit organizations' behavior may appear profit driven because of budget constraints.

ments, academic traditions, and highly selective admission standards, yielding a strong reputation and a large number of prominent and loyal alumni. Its present value of the revenue-cost difference will be higher if the school maintains its high-quality research and teaching than if it suddenly turns into a tuition-maximizing entity by compromising its standards on research and teaching.

Unlike corporations, universities have strong incentives to be selective in choosing customers because the quality of output—student academic performance, job placement, and lifetime achievement—depends on the quality of input—student quality and effort. That is, universities employ a customer-input technology (Rothschild and White 1995). Furthermore, peer effects of fellow students generate externalities to the quality of output; for example, having good students helps to improve the academic performance of fellow students (Sacerdote 2001). This is one of the reasons universities subsidize their customers (students) with financial aid and maintain certain admission standards.

Students' learning is also enhanced by the presence of research activities (Clotfelter 1999). Elite universities receive feedback effects from maintaining high-quality research and teaching because they tend to attract more high-quality faculty and students who can further improve their quality and reputation. That is, high-quality research and teaching has a "multiplier effect" (Hoxby 1997; Winston 1999).

These various attributes and effects give an elite university strong incentive to maintain its high-quality research and teaching and selective admission standards. The result is a continuation of high-quality products to serve their stakeholders, who will, in turn, provide the necessary financial resources for the university to carry on its knowledge creation and dissemination activities. At the same time, high-quality students and faculty agglomerate in elite universities with ample financial resources.

In contrast, a new university with low intellectual capital may have little chance to receive private gifts and endowments to support high-quality teaching and research. The present value of the revenue-cost difference will be higher if it forgoes costly research activities and maximizes tuition revenue by relaxing admission standards. Such universities have little chance of survival if they imitate selective admission standards and pursuit of costly research activities of elite universities, unless they can obtain unusually large public subsidies or private gifts. In other words, to universities with low intellectual capital, survival is of greater concern than taking advantage of the customer-input technology, peer effects, and the multiplier effects that are important to elite universities. Therefore, universities with low intellectual capital will be more reliant on tuition revenue and compete for customers (students) by using less selective admission standards.

Thus, we hypothesize that universities will self-select into either highly reputable institutions with high-quality teaching and research or largely

tuition-dependent institutions that appear financially driven. We predict that these two types will follow different strategies in both knowledge creation and dissemination activities. Whereas the highly reputable will devote considerable resources to research and maintain highly selective admission standards, the tuition-dependent will maximize tuition revenues with relaxed admission standards.

5.2.2   Economic Motives for Overseas Ventures

Are highly reputable universities or tuition-dependent ones more likely to provide overseas degree programs? The answer is not obvious. Tuition-dependent universities will view overseas programs as opportunities to increase revenues and to distinguish themselves from rival schools in terms of international presence; thus, they will be more willing suppliers.[4] However, a successful, financially viable program requires a demand for its services in the local economy. Because education is a large, onetime investment for students, demand is determined by a trade-off between school reputation and the costs of education. The local market will be less receptive to a program offered by a US university with moderate reputation, unless it offers a deep discount in tuition. In contrast, more reputable schools will be able to charge higher tuition and/or enjoy greater demand.[5] However, an elite university may be less willing to supply overseas programs because of its concern about controlling quality from a distance. They have more to lose by putting their reputation at stake.

In this section, we provide an overview of the costs and benefits affecting the supply and demand for US overseas programs. We then explore non-pecuniary factors that may affect the programs. In the following empirical section, we analyze the interplay of these supply and demand considerations by examining the characteristics of universities offering overseas programs and of countries hosting the programs.

Supply

Financial Benefits The singular, most obvious financial benefit is tuition revenue. Successfully operating overseas programs also broaden a university's name recognition globally and attract future foreign donors. Universities with moderate reputations may have less to lose reputationally if their overseas programs lack quality. And because they are more tuition-dependent, their programs will offer more expansive admission standards.

Highly esteemed US universities, by contrast, may be less willing to pro-

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4. Winston (1999) points out US universities with low financial resources tend to employ less costly teaching methods such as distance learning and also recruit more foreign and older students to generate more revenues.

5. Hoxby (1997) argues that only elite universities are able to compete for the best students at the national level. Elite universities also enjoy advantages in the global education market due to yearly publication of various worldwide university rankings readily available on the Internet.

vide overseas programs because of their concerns for quality control, possible dilution of their brand names, and diversion of faculty resources from research. However, when foreign governments seek to expand higher education opportunities for their citizens through overseas programs, they are more likely to allow/invite highly ranked universities to establish programs, and may even entice them with financial subsidies. Consequently, successful programs are more likely to be in those disciplines in which the sponsoring universities already enjoy comparative strengths.

Financial Costs Universities need physical assets (e.g., classrooms and equipment) and human capital (e.g., faculty and staff) to establish overseas programs. However, compared to manufacturing firms, universities require fewer physical assets. Although this may help keep fixed costs relatively low, variable costs tend to be higher than domestic programs because faculty often garner extra compensation for teaching in overseas programs. For example, Carnegie Mellon University gives their US-based faculty teaching on its Qatar campus a 25 percent salary increase and provides them with amenities.[6] The Global MBA Program at the University of Michigan pays its faculty an additional 18.75 percent of their base salary plus an overseas trip inconvenience fee of 2.5 percent to teach a ten-day, 2.25 credit-hour course in Asia.

To cover these higher costs, universities may pass through the additional costs as a tuition surcharge, which lowers demand and keeps class sizes small. An alternative strategy is to hire local faculty and/or offer joint programs with local universities, which tends to lower the quality and prestige of the program. Some top ranked universities also may be able to convince local governments to provide financial support to cover costs.

Demand

In developing countries, the university attendance rate of the college age population is below 15 percent, much lower than the 40 to 50 percent in developed countries.[7] To the extent that an insufficient supply of higher education opportunities contributes to the low college-attendance rate in developing countries, overseas programs provide a valuable service in satisfying the unmet demand.

Alternative Choices The extent that overseas programs resolve the unmet educational demand depends on alternative choices available to local students. The choices include attending a local university and going abroad for

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6. Burton Bollag, "American's Hot New Export: Higher Education," *Chronicle of Higher Education,* February 17, 2006.
7. Beth McMurtrie, "The Global Campus, American Colleges Connect with the Broader World," *Chronicle of Higher Education,* March 2, 2007.

their degrees. Students will weigh the costs and benefits of these alternatives against attending an overseas program.

Local Colleges Students' college choices are highly sensitive to university rankings, as there is a universal belief that a degree from a higher ranked university will enable a graduate to find a better job with a higher salary (Brewer, Eide, and Ehrenberg 1999; Black and Smith 2006). Whether students perceive undergraduate overseas programs as higher-quality than programs offered by their local colleges depends upon the reputation of the provider. If the provider is a top ranked American university, students are more likely to consider the program as better than domestic programs and will be attracted to it. However, most undergraduate overseas programs are offered by moderately ranked US universities. These programs are not necessarily viewed as superior to domestic colleges and tend to be in low demand among top high school graduates. Moreover, many overseas programs hire local faculty to staff some courses, which may affect students' perceptions of program quality. The education market is considered a "trust market" where the quality of output is difficult to judge. Thus, it may take a while for overseas programs to build up their reputation, limiting the demand for the program and the price they can charge for their products.

Overseas programs usually offer courses in a limited number of disciplines, typically focusing on areas such as computer science and business, whereas local colleges offer a greater variety of courses in a wider range of disciplines. Because of their narrower offerings, students may think that overseas programs do not provide a comprehensive college experience, deterring many qualified students from enrolling. Furthermore, students may be concerned with the continuity of overseas programs. The uncertainty over the continuity may pose a risk on the value of the degree, although the adverse effects can be mitigated if the degree granting institution has a proven track record at its home campus.

Studying in the United States Local students may instead choose to attend universities in the United States. This choice gives a better opportunity to improve their English language skills, a highly valued commodity in the global market. To some students, experiencing American culture throughout their campus lives is almost as important as their college degrees. Studying in the United States also provides some students an interim step to immigrate to the United States. Those who highly value these nondegree experiences or opportunities will not be attracted to overseas programs. Furthermore, degrees earned through overseas programs may be perceived as less prestigious.

However, attending a university in the United States tends to be more costly. Students have to spend several years away from their family and friends, incurring high traveling and living expenses. They also may have to

risk their career opportunities with their current employers. Overseas programs offer a less expensive alternative to studying abroad, targeting students who want foreign degrees without leaving their homeland. Individuals unwilling to incur the higher expenses, unable to obtain visas to study in the United States, and/or unwilling to leave their current jobs because of high opportunity costs (e.g., managers interested in executive MBA programs) are the primary targets of the overseas programs. Most of these overseas programs also offer the opportunity for an American campus experience before graduation.

Host Country Environment Demand also depends on the host country's institutional characteristics, which are shown to have significant impacts on how foreign ideas and systems are accepted. Djelic (1998) documents significant differences in the level of acceptance and adoption of American corporate capitalism between France, Germany, and Italy after World War II, which are attributed to the difference in local political and economic environments. Similar forces may apply to overseas programs: they are more likely to be offered and be successful in countries where government policies are friendly in terms of financial support and/or regulation.[8]

Many US universities have recently established overseas programs in the Education City of Qatar and Knowledge Valley of United Arab Emirates (UAE) because of favorable government policies and generous financial support. Some Asian countries, such as Hong Kong, Singapore, and South Korea, in their pursuit of becoming regional education hubs, actively encourage overseas programs by foreign universities.

5.2.3 Nonpecuniary Factors

Firms venture abroad mainly to generate profits, and their location choices are largely determined by economic considerations.[9] Their decisions also are influenced by nonpecuniary factors. Because universities' stakeholders are more diverse without clearly defined pecking order, nonpecuniary factors may play a more important role in setting up overseas programs.

Network Dynamics

Implementation decisions, such as location choice, are influenced by organizational and network dynamics. Setting up educational programs in foreign countries is not an easy task. It may take years to complete the whole process from selecting program location, signing a mutual agreement (if a local partner is involved), seeking government approval (if required),

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8. See Green (2007) for a description of government policies regulating foreign providers of higher education.

9. For instance, firms in natural resource industries invest in countries where the resources are located. Manufacturing firms invest in less developed countries to take advantage of cheap labor. Service industries invest in countries with large customer bases. See Caves (1996) for a review on foreign direct investment of US multinational firms.

campus planning, to admitting the first class of students. To facilitate this process, some schools choose locations where they already have established connections either officially or unofficially through personal contacts. For instance, Cornell Medical School set up a branch campus in Qatar because one of their trustees encouraged them to do so and helped arrange financial support.[10] Overseas programs often have faculty directors who are born or have ethnic roots in the country of the program location.

Campus Internationalization

An important benefit of offering overseas programs is broadening international perspectives of American faculty and students. Faculty benefit from face-to-face interactions with foreign students and researchers. They gain valuable international experience from staying abroad, which helps expand the scope of teaching and research. Some overseas programs facilitate American students' study abroad, enriching their cultural experience. Courses are usually taught in English and credits can be easily transferred back to their home campuses. However, these benefits are not without costs. Faculty have to be away from home, spend less time on research, and teach in unfamiliar foreign surroundings, all of which make it difficult to secure a sufficient number of US faculty for the long term.

Status Competition

"Prestige maximization" (James 1990) and "the pursuit of excellence" (Clotfelter 1996) are often considered most important objectives for university administrators. Universities compete for high-quality faculty and students. They compete for faculty at the national level using tenure, lighter teaching loads, and plentiful research grants. This competition is especially severe among research oriented elite universities. To the extent that universities with higher status tend to receive greater endowments and gifts (e.g., Harvard), the status competition is not unrelated to economic motives.

Universities compete for students using various means, ranging from merit- and need-based financial aid to large expenditures to improve campus facilities (e.g., Clotfelter 1999). Like firms, universities advertise the beauty of their campuses and recreational facilities (Hutchins 1936). They may also collude to ease the burden of competition. In 1991, the US Justice Department charged eight Ivy League schools and MIT with violations of antitrust laws. Soon thereafter, the Ivy League universities agreed to stop comparing the aid packages of students admitted.[11] Perhaps as a consequence, the competition became stiffer, as Stanford and Harvard introduced early admission

10. This was pointed out to us by Ronald Ehrenberg during the NBER Conference on US Universities in a Global Market.
11. Scott Jaschik, "Justice Department Asks at Least 15 Colleges for Detailed Information on Admissions," *Chronicle of Higher Education,* July 24, 1991.

policies and other schools such as Yale and Princeton adopted a variety of financial aid packages (Clotfelter and Rothschild 1993; Winston 1999).

The international presence through overseas program may give a university an edge in this status competition. Setting up overseas programs signals a university's commitment to internationalization, which is given an important weight in various influential college ranking systems. For example, the *U.S. News & World Report* ranking considers campus internationalization an important aspect of college competitiveness. Higher undergraduate college rankings help recruit not only higher-quality students but also higher caliber research faculty through the halo effect (Kim, Morse, and Zingales 2009).

Altruism

It is possible that there is an altruistic motive in offering overseas programs. It is not unreasonable for American educators to believe their higher education system is the best. In their desire to help fellow mankind, they may want to set up American-style higher education institutions in countries lacking good higher education systems. What we have in mind are universities set up by missionaries in developing countries. But these are not overseas programs. They are full pledged local universities founded by missionaries.

Anecdotal evidence suggests many overseas programs set up by elite universities receive substantial financial support from foreign countries. Our empirical results indicate that universities establish programs in countries where there are sufficient student populations that can afford an American-style higher education. If altruism were an important motive for the recent surge in US overseas programs, we should have observed more media coverage of attempts to establish overseas programs in low income countries where people cannot afford higher education. However, this is not what we observe. The *Chronicle* reports very few US overseas programs in Africa, a continent desperately in need of improvement in both quantity and quality of higher education.[12]

5.3   Anecdotal Evidence

There is a dearth of empirical evidence on US universities' overseas programs. Thus, our initial step is to gather pertinent information about the overseas activities of US universities. We choose the *Chronicle of Higher Education* because it is the leading source of information on university activities. Its International Section provides numerous anecdotes on overseas activities, which vary from student exchange programs, international research collaboration, to overseas degree programs. We focus on overseas

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12. It may be that there is insufficient high school graduates capable of handling course work offered by American universities overseas, discouraging even the altruistic from attempting to establish overseas programs in Africa.

degree programs. Some are financially supported by foreign governments and partners, but many programs must be financially self-sufficient to avoid draining resources from home campuses. In this regard, these programs have to be run, at least partially, like business models.

When we examine the historical archive of the *Chronicle,* an interesting pattern emerges. Most of the *Chronicle* articles on overseas programs are published in two time periods: between the late 1980s and early 1990s, and more recently, beginning in the early 2000s. The earlier articles are simple. They either announce initiation of new programs or report program failures and campus closures. The articles are short and the contents lack details. Then, after almost a decade of sporadic coverage and relative silence about overseas programs, there is a resurgence of articles beginning in 2000. They provide rather extensive coverage of overseas programs initiated mostly by top ranked US universities. These recent articles provide more details about the overseas programs, including how the deals are structured with foreign governments.

Why have elite US universities suddenly started to offer overseas programs? Is this a second wave of overseas programs with different players? Or does the new spate of articles simply reflect a resurgence of the first wave? To analyze these questions, we use the Integrated Postsecondary Education Data System (IPEDS) at the National Center for Education Statistics (NCES) and download the overseas enrollment data from IPEDS enrollment surveys conducted in 1986, 1987, 1994, 1995, 1996, and 1998. In these surveys, universities are asked to report their student enrollment numbers on branch campuses in foreign countries. In 1986, 110 schools report overseas enrollment; by 1998 the number of schools reporting overseas enrollment shrinks to sixty-one. The total overseas enrollment[13] reported on all branch campuses in 1986 is 21,090 students, peaks in 1995 at 48,043 students, and gradually decreases to 23,534 students in 1998. The majority of these overseas programs are started by lesser-known American universities and colleges without doctoral programs. Less than 5 percent of the programs during this time period are sponsored by top research universities with doctoral programs. The IPEDS dropped overseas enrollment questions from their enrollment surveys after 1998, presumably due to a significant decrease in the number of overseas programs and a concomitant decline in media interest.

The decline in the first wave of US overseas programs was preceded by a spectacular failure of American overseas programs in Japan. During the Japanese economic boom in the late 1980s, more than thirty US universities established branch campuses there, hoping their western-style education programs would attract sufficient Japanese students. However, most

13. Total enrollment includes full-time and part-time students enrolled at the undergraduate, graduate, and professional degree levels.

programs struggled with low student enrollment and were closed by the mid-1990s. Temple University Japan is one of the rare survivors after sixteen years of operation. It currently has about 3,000 students enrolled (Bhandari and Chow 2007); however, at least until 2000, the branch campus reportedly lost $50 million a year.[14]

Most US universities involved in these Japanese overseas programs had low name recognition and, as a result, they were not able to attract students who could get into the upper tier Japanese universities. Location was another contributing factor. A number of US universities, lured by financial support from local governments, set up their programs in small towns, which hoped to use the presence of US overseas programs to stem the flight of their young people to larger metropolitan areas. However, these locations only made the programs less attractive to those who preferred to attend college in large cities. Language was also a problem. Even with English preparatory courses, students struggled to achieve sufficient English proficiency to enroll in degree programs. To make matters worse, many US universities got into financial disputes with local partners, who often sacrificed academic integrity in exchange for tuition money. Some partners even committed outright financial fraud.[15] These problems contributed to eventual closure of most of the programs.

During the recent resurgence in overseas programs by US universities, the leading players are different. They tend to be well-established, highly-ranked research universities with doctoral programs. They also appear to follow the recent globalization trend, somewhat analogous to US multinationals' FDI outflows.

There is a perception that US universities are not as involved in FDI as MNCs, which derive about 30 percent of their total sales revenue from foreign affiliates. The perception could be wrong because appropriate comparisons are knowledge-based service industries such as information and banking, which have less FDI. Table 5.1 shows that contributions made by foreign affiliates to US firms' total sales revenue during 1999 through 2004 increased for most industries. More important, it shows that for information and financial services industries, foreign affiliates' contribution to total sales revenue averages only about 15 percent. Although we do not have sufficient data to make a general comparison, the case of University of Chicago Booth School of Business is illustrative. Chicago offers overseas Executive MBA programs in London and Singapore. According to its website, tuition revenue from the overseas programs represents about 14 percent of its total tuition revenue in 2006.[16] This is quite comparable to that of the

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14. Beth McMurtrie, "Culture and Unrealistic Expectations Challenge American Campuses in Japan," *Chronicle of Higher Education,* June 2, 2000.

15. Ibid.

16. Our calculation is based on tuition data information obtained from the University of Chicago Booth School of Business website at http://www.chicagobooth.edu/, accessed August

Table 5.1   US foreign direct investment (selected industries)

Majority owned foreign affiliates (%)	1999	2000	2001	2002	2003	2004	Average
All industries	27.1	27.3	27.1	28.4	30.5	31.8	28.7
Mining	48.6	25.0	25.0	35.3	38.9	37.3	35.0
Utilities	12.8	14.9	15.0	15.7	11.6	10.2	13.4
Manufacturing	34.7	35.4	36.1	37.8	40.2	41.7	37.7
Wholesale trade	28.7	26.6	25.8	19.2	21.6	23.1	24.2
Information	13.1	12.4	12.3	13.8	14.8	17.2	13.9
Finance (except depository institutions) and insurance	15.3	17.8	17.3	17.4	18.5	18.8	17.5
Professional, scientific, and technical services	36.8	34.7	36.2	36.4	40.2	38.7	37.2
Other industries	13.0	14.2	15.3	15.8	16.7	15.8	15.1

Notes: This table shows the percentage of sales from majority-owned foreign affiliates, calculated as sales revenue of majority-owned foreign affiliates divided by the total sales of US parent firms and majority-owned foreign affiliates. The numbers are based on worldwide sales of US parent firms and majority-owned foreign affiliates from 1999 to 2004 obtained from Bureau of Economic Analysis website.

other knowledge-based industries, suggesting that some units of US universities are as active in generating overseas revenues as US multinational corporations.

Of late, overseas programs getting the most press coverage are those set up by upper tier US research universities in the Middle East (mainly Qatar and UAE). The Education City in Qatar, founded by the Qatar Foundation, spends $2 billion a year to host the branch campuses of Cornell University, Carnegie Mellon University, and others.[17] The Qatar Foundation pays for all the costs of these overseas programs. For example, it offered Cornell medical school $750 million to provide medical programs in the Education City.[18]

Money seems to be an important determinant in decisions to offer these overseas programs. According to one *Chronicle* article, the University of North Carolina declined to set up an overseas program in the Middle East region because the university was offered only $10 million, falling short of the $35 million the university requested.[19] Another article reports that New York University chose Dubai over Abu Dhabi because Abu Dhabi did not meet the university's demand for a $50 million upfront fee, plus payment for

2007. Because their overseas tuition includes costs of books, materials, and other fees, the 14 percent may be a slight overestimation of the actual contribution made by the school's overseas programs.

17. Zvika Krieger, "An Academic Building Boom Transforms the Persian Gulf," *Chronicle of Higher Education,* March 28, 2008.

18. Katherine S. Mangan, "Cornell's Medical School Will Open Degree Granting Branch in Qatar," *Chronicle of Higher Education,* April 20, 2001.

19. Katherine S. Mangan, "Qatar Courts American Colleges," *Chronicle of Higher Education,* September 6, 2002.

construction and expenses.[20] Michigan State University will open a branch campus in the UAE and receive a line of credit with favorable terms in several million dollars from Tecom Investments.[21]

Asia is another popular destination for overseas programs. In their efforts to become regional higher education hubs, Hong Kong, Singapore, and South Korea offer financial support and tax exemptions to attract foreign universities' overseas degree programs. Many US, UK, and Australian universities have responded by setting up degree programs there, or are currently in negotiations to do so. However, local government support does not guarantee success. The University of New South Wales set up the first comprehensive foreign university in Singapore with partial financing from Singapore's Economic Development Board. It hoped to enroll 300 students in the first semester and had a target enrollment number of 15,000 students by 2020. However, it attracted only 148 students and projected a deficit of $15 million. The branch campus was shut down in June 2007 after only three months of operation.[22] Johns Hopkins University's Biomedical Center in Singapore also closed in 2007 because of its failure to attract sufficient scientists and PhD students despite the $50 million the Singapore government spent to support the program.[23]

Other Asian countries, especially those with large college-age populations, such as China and India, also attract numerous US universities. Although we were unable to find profiles of many of these programs, one *Chronicle* article reports that at least sixty-six such programs exist in India.[24] Again, the huge potential demand in these countries does not guarantee success for overseas programs. Some business schools failed in China because they could not attract enough executives with sufficient English proficiency to enroll in their programs.[25]

Europe attracts relatively few US overseas programs, although it shares the same Western culture and is a popular destination for FDI outflow from the United States. Several factors weaken the competitive edge of US overseas programs there. First, Europe enjoys the presence of several prominent, highly-ranked universities. Second, it is easier for European students to come to the United States for higher education. Income disparities, culture,

20. Zvika Krieger, "An Academic Building Boom Transforms the Persian Gulf," *Chronicle of Higher Education,* March 28, 2008.

21. Karin Fischer, "How the Deal was Done: Michigan State in Dubai," *Chronicle of Higher Education,* March 28, 2008.

22. Pearl Forss, "University of New South Wales Singapore Campus to Shut in June," *Channel NewsAsia,* May 23, 2007.

23. Martha Ann Overland, "Singapore to Close Johns Hopkins Biomedical Center." *Chronicle of Higher Education,* August 11, 2006.

24. Shailaja Neelakantan, "In India, Limits on Foreign Universities Lead to Creative Partnerships," *Chronicle of Higher Education,* February 8, 2008.

25. Alison Damast, "China: Why Western B-Schools Are Leaving," *Business Week,* May 15, 2008.

and language present lower barriers for Europeans. It is also much easier for Europeans to obtain US visas in comparison to other nationalities, especially after 9/11. For similar reasons, Australia and New Zealand attract relatively few US overseas programs.

European and Oceania universities are also the main competitors of US universities for foreign students. According to a report by the Organization for Economic Cooperation and Development (2007), US universities enrolled about 540,000 foreign students in 2005, making it the most popular destination for international students. The United Kingdom and Australia are not far behind; their universities enrolled approximately 324,000 and 162,000 foreign students, respectively. These two countries have also been very active in setting up overseas programs.[26] The University of Nottingham was the first foreign university to set up a branch campus in China and the University of New South Wales was the first to set up a branch campus in Singapore. However, recent overseas activities of Australian universities are slowing down,[27] presumably due to low demand for their degrees.[28] Failures of UK overseas programs have also been reported in the media.[29]

For those few US universities offering overseas programs in Europe, location is important. For example, Chicago initiated a part-time executive MBA program in Barcelona in 1994, but moved to London in 2005. London is the financial center for Europe. Chicago, best known for finance, wanted to move closer to its potential clients.

There are also a number of US overseas programs in South America. The majority of these programs are established by American universities located in the southern and western regions, which are more heavily populated with Hispanics.[30] Their geographic and cultural proximity may explain why these universities are more likely to offer programs in South America.

Few US overseas programs in Africa are reported in the press.[31] Income disparities, insufficient high school graduates able to handle course work offered by American universities, government instability, and volatility in the region all may play a role in keeping US overseas programs out of a continent that desperately needs improvement in the quantity and quality of higher education.

26. New Zealand Ministry of Education (2001), available at: http://www.minedu.govt.nz/educationSectors/InternationalEducation/Initiatives/Offshore%20Education/NZsOffshorePublicTertiaryEducationProgrammes.aspx, accessed August, 2008.

27. David Cohen, "Australian Universities Cull Overseas Programs," *Chronicle of Higher Education,* July 20, 2007.

28. Luke Slattery, "'Beer and Beaches' Image Said to Hurt Australia's Higher-Education 'Brand,'" *Chronicle of Higher Education,* November 30, 2007.

29. Alison Damast, "China: Why Western B-Schools Are Leaving," *Business Week,* May 15, 2008.

30. See: http://www.censusscope.org/us/map_hispanicpop.html.

31. See Elizabeth Redden, "Cornell Degree, Offered in Africa," *Inside Higher Ed,* September 21, 2007. Redden reports that through a World Bank grant Cornell University offers a master's degree program in Agriculture and Rural Development in Ethiopia.

5.4   Empirical Analysis

To conduct an empirical investigation of the interplay of supply and demand, we collect data on overseas programs, university characteristics, and host country characteristics. We use these data to identify which universities are more likely to offer overseas programs, what characteristics of host countries are important in attracting US university programs, and how overseas programs are priced relative to their home campus tuitions.

5.4.1   Sample Construction

Data on Overseas Programs

Our data set covers US overseas programs from January 1988 through August 2008 because our online access to the *Chronicle of Higher Education* via Proquest Research Library starts in January 1988. The data is hand-collected using a three-step search process. We first search the *Chronicle of Higher Education* using the terms "overseas," "offshore," and "branch campus." We read all newspaper articles and identify universities with overseas programs in foreign countries during this period. We supplement the data with Observatory on Higher Education (OBHE) breaking news and special reports headlines,[32] American Council on Education (ACE) publications (Green 2007; Green, Luu, and Burris 2008), and Institute of International Education (IIE) *Open Doors 2007* report (Bhandari and Chow 2007). We include an overseas program in our sample whether it is failed, struggling, or forthcoming (i.e., agreement reached). An overseas program may or may not have a partner in the host country, and it may have a "brick and mortar" presence in the host country or offer degree programs only through online education. We exclude those in the discussion stage, or those awarding only certificates rather than degrees.[33] All the degree programs included in our sample require significant commitment from US universities (i.e., awarding degrees overseas) and put their reputation at stake.

For each overseas program we identify, we run additional *Chronicle of Higher Education* searches using the sponsoring university name and the location of the overseas program to obtain necessary information. When available, we record information on discipline, establishment date, curriculum, size, and financing of the programs.

For information concerning tuition and other program characteristics not covered in the articles, we search the websites of the overseas programs using

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32. We read the publicly available headlines of their news articles and special reports on the OBHE website at http://www.obhe.ac.uk/news/ and http://www.obhe.ac.uk/products/reports/.

33. Medical programs are an exception. Medical programs offered by US institutions abroad usually do not award foreign students degrees or certificates qualifying them to practice medicine in the United States. However, the students are mainly trained by US institutions, and we include these medical programs in our sample.

the university's name and location of the program, and record additional information on tuition. Sometimes this additional search leads to more overseas degree programs offered by the same universities. Based on these sample selection processes and criteria, we identify 159 overseas programs offered by 86 US universities in 46 countries.[34]

Data on University Characteristics

Universities in the United States come in many different forms and shapes in both intellectual and physical contexts. To categorize university types, we rely on the Carnegie Basic Classification (2005),[35] which categorizes universities into very high research universities, high research universities, research universities, master's universities, baccalaureate colleges, associate's colleges, and other specialized institutions.

To obtain an objective measure of the ranking among research universities, we use the 2007–2008 university rankings from four sources[36]: America's best national universities from *U.S. News & World Report,*[37] the top 100 global universities from *Newsweek,*[38] THE-QS "World University Rankings" from The *Times Higher Education Supplement* (THES) and Quacquarelli Symonds (QS),[39] and "Academic Rankings of World Universities" from Shanghai Jiaotong University.[40] The last two are compiled by ranking agencies outside the United States (British and Chinese, respectively) and reflect the reputation and competitiveness of US universities outside the United States, which suits our purpose of analyzing US degree programs abroad. The *U.S. News & World Report* and *Newsweek* rankings are the most widely cited and are readily available on the Internet to all foreign

34. The Council of Graduate Schools (CGS 2007) survey of graduate schools finds that 29 percent of American graduate schools have established collaborative overseas degree programs. Our sample is smaller because their survey includes programs that award certificates. Our sample is also smaller than Green, Luu, and Burris' (2008) survey that identifies 101 US degree granting institutions. The discrepancy here seems to be mainly due to media coverage bias; namely, overseas programs offered by lower level schools and small colleges are less likely to be reported. These omissions should not affect our results because our empirical analyses focus only on overseas activities of doctoral and master degree level institutions.

35. The data is obtained from Integrated Postsecondary Education Data System (IPEDS) 2005 Institutional Characteristics Survey (NCES 2008b). Each UnitID is treated as a university. UnitID is a unique identification number assigned to postsecondary institutions surveyed by IPEDS. Institutions participating in Federal financial assistance programs are required to complete IPEDS surveys.

36. Worldwide ranking sources can be found at Wikipedia (http://en.wikipedia.org/wiki/College_and_university_rankings). When these ranking sources include foreign universities, we re-rank American universities excluding foreign universities. The *Newsweek* ranking is for year 2006.

37. Available at: http://colleges.usnews.rankingsandreviews.com/college/national-search/c_final_tier+1, accessed December 2008.

38. Available at: http://www.msnbc.msn.com/id/14321230/, accessed August 2007.

39. Available at: http://www.topuniversities.com/worlduniversityrankings/results/2007/overall_rankings/top_400_universities/, accessed December 2008.

40. Available at http://www.arwu.org/rank/2007/ARWU2007_TopAmer.htm, accessed December 2008.

Table 5.2   **Correlations among four university ranking sources and endowment per full-time equivalent enrollment (Endow_FTE)**

	USNews	Newsweek	Times	SJTU
Newsweek	0.61			
Times	0.76	0.72		
SJTU	0.54	0.90	0.70	
Endow_FTE	0.68	0.48	0.57	0.45

Notes: "USNews" refers to America's best national universities from *U.S. News and World Report,* "Newsweek" refers to top 100 global universities by *Newsweek,* "Times" refers to the THE-QS World University Rankings from the *Times Higher Education Supplement* (THES) and Quacquarelli Symonds (QS), and "SJTU" refers to Academic Rankings of World Universities from Shanghai Jiaotong University. "Endow_FTE" is the 2005 market value of endowment assets divided by full-time equivalent enrollment obtained from 2005 IPEDS College Finance Survey.

students interested in US universities. Moreover, these four rankings employ a broad range of ranking methodologies and measure different dimensions of university reputation. For example, *U.S. News & World Report* uses evaluations from peer institutions, faculty and financial resources, and student selectivity to construct the ranking. In contrast, Shanghai Jiaotong University bases its university ranking on the numbers of publications in *Science* and *Nature,* Nobel laureates, and Fields Medal winners. Relying on these four rankings takes into account both domestic and international reputation and alleviates some of the subjectivity inherent in using a single ranking methodology.

Table 5.2 shows the correlation between the four ranking sources. They are all highly correlated with each other. Yet the correlations also indicate substantial variation across the rankings. This table also contains 2005 university endowment per full-time equivalent (FTE) enrollment, *Endow_FTE,* which is obtained from 2005 IPEDS college finance survey. All four university rankings are highly correlated with the level of endowment, demonstrating the important role endowment plays in university visibility and reputation.

Sixty-seven US universities appear at least once as top fifty in at least one of the four rankings.[41] We follow Kim, Morse, and Zingales (2009) and use the Borda Count method to average the relative rankings within this group of sixty-seven universities. A university ranked first in a ranking study is given a score of 50; the second is given 49; and so on. We then take the simple average of the scores each university gets from the four ranking sources. The average Borda Count Scores (BCS) are reported in table 5.3, which shows a natural break point at the sixteenth university. We classify these

41. In *Newsweek*'s 2006 top 100 global university ranking, only forty-four are US universities.

Table 5.3   Relative ranking of universities using average Borda Count Scores (BCS)

Institution name	BCS	Diff	Institution name	BCS	Diff
Harvard University	50.00	—	University of Minnesota-Twin Cities	14.50	0.00
Yale University	46.75	-3.25	University of North Carolina at Chapel Hill	14.50	0.00
California Institute of Technology	46.25	-0.50	Rice University	13.25	-1.25
Stanford University	46.25	0.00	University of Rochester	13.00	-0.25
Massachusetts Institute of Technology	46.00	-0.25	Boston University	12.75	-0.25
Princeton University	44.75	-1.25	University of Virginia-Main Campus	12.50	-0.25
Columbia University in the City of New York	43.75	-1.00	Purdue University-Main Campus	10.50	-2.00
University of Chicago	42.25	-1.50	Case Western Reserve University	10.50	0.00
University of Pennsylvania	41.25	-1.00	Georgetown University	10.25	-0.25
University of California-Berkeley	40.25	-1.00	University of California-Davis	10.25	0.00
Cornell University	38.50	-1.75	North Carolina State University at Raleigh	9.25	-1.00
Duke University	38.00	-0.50	University of Notre Dame	8.25	-1.00
Johns Hopkins University	36.00	-2.00	Georgia Institute of Technology-Main Campus	7.50	-0.75
University of California-Los Angeles	35.00	-1.00	Rockefeller University	7.25	-0.25
University of Michigan-Ann Arbor	33.50	-1.50	Pennsylvania State University-Main Campus	7.25	0.00
Northwestern University	33.25	-0.25	University of California-Irvine	6.75	-0.50
University of California-San Diego	29.00	-4.25	Tufts University	5.75	-1.00
University of Wisconsin-Madison	28.00	-1.00	Wake Forest University	5.75	0.00
University of Washington-Seattle Campus	27.75	-0.25	Michigan State University	5.25	-0.50

University	BCS	Diff	University	BCS	Diff
New York University	26.00	-1.75	University of Texas Southwestern Medical Center at Dallas	5.25	0.00
Washington University in St. Louis	24.75	-1.25	Brandeis University	5.00	-0.25
Brown University	24.25	-0.50	University of Florida	5.00	0.00
Carnegie Mellon University	23.00	-1.25	College of William and Mary	4.75	-0.25
University of Illinois at Urbana-Champaign	22.50	-0.50	Texas A&M University	4.75	0.00
Vanderbilt University	22.00	-0.50	Ohio State University-Main Campus	4.50	-0.25
The University of Texas at Austin	22.00	0.00	Boston College	4.25	-0.25
University of California-San Francisco	19.75	-2.25	Rutgers University-New Brunswick/Piscataway	4.00	-0.25
University of Maryland-College Park	16.75	-3.00	Lehigh University	4.00	0.00
University of Southern California	16.75	0.00	University of Arizona	3.25	-0.75
Dartmouth College	16.50	-0.25	Rensselaer Polytechnic Institute	2.50	-0.75
Emory University	16.50	0.00	University of Massachusetts-Amherst	1.75	-0.75
University of Pittsburgh-Main Campus	16.25	-0.25	Indiana University-Bloomington	1.25	-0.50
University of California-Santa Barbara	14.75	-1.50	Yeshiva University	0.25	-1.00
University of Colorado at Boulder	14.50	-0.25			

Notes: We use the Borda Count method to average the relative rankings from four ranking sources. A university ranked first in a ranking study is given a score of 50, the second is given 49, and so on. We then take the simple average of the scores each university gets from the four ranking sources to calculate the average Borda Count Score (BCS). When the ranking sources include foreign universities, we re-rank American universities excluding foreign universities. "Diff" is the difference in BCS scores between a university and the university ranked one place above it. A natural breakpoint in BCS is at the sixteenth university. We classify the first sixteen universities as elite and the remaining forty-eight research universities (excluding specialized institutions Rockefeller University, University of California at San Francisco, and University of Texas Southwestern Medical Center at Dallas) as good.

top sixteen research universities as "elite," and the remaining forty-eight research universities (excluding specialized institutions) as "good."[42] The other research universities not included in the list of sixty-seven are defined as "moderate." We follow 2005 Carnegie Basic Classification and define all other universities that award at least fifty master's degrees and fewer than twenty doctoral degrees per year as "master." To check the sensitivity to the choice of different ranking sources, we add six more ranking sources to classify university categories. The results (unreported) are robust.[43]

We retrieve university level enrollment and financial data for these universities from the IPEDS. We use a number of IPEDS surveys, including its Institutional Characteristics Surveys, Enrollment Surveys, and Finance Surveys. From these sources we construct the following variables: full-time equivalent enrollment, *Enrol_FTE,* which is full-time enrollment plus 0.38[44] times part-time enrollment; *Part_Time,* percentage of part-time enrollment to total enrollment;[45] *Non_Resid,* percentage of nonresident alien enrollment to total enrollment; tuition revenue dependence, *Tui_Dep,* the ratio of tuition revenue to total revenue;[46] and university endowment, *Endow_FTE,* the market value of endowment assets divided by full-time equivalent enrollment.

Data on Host Country Characteristics

We obtain host countries' real gross domestic product (GDP) per capita, *GDP_PPP,*[47] and growth rate of real GDP per capita, *Growth,* in years 1999 through 2003 from Penn World Tables (Heston, Summers, and Aten 2006). The tertiary school age population, *Stu_Pop,* in years 1999 to 2003

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42. We exclude from our sample highly regarded but specialized institutions such as Rockefeller University, University of California at San Francisco, and University of Texas Southwestern Medical Center at Dallas.

43. The six additional university ranking sources are: Faculty Scholarly Productivity Index from Academic Analytics, Top American Research Universities from the Center for Measuring University Performance at Arizona State University, United States National Research Council Rankings, Washington Monthly College Rankings, Avery et al. (2005), and Webometrics Ranking of World Universities by the Cybermetrics Lab. Ninety-five universities appear at least once as top fifty in at least one of the ten rankings. We use the Borda Count method to average the relative rankings within this group of ninety-five universities. We classify the top thirty-one universities as "elite," and the remaining sixty-four schools as "good." The other research universities not included in the list of ninety-five are defined as "moderate." We follow 2005 Carnegie Basic Classification and define all other universities that award at least fifty master's degrees and fewer than twenty doctoral degrees per year as "Master." All our empirical results remain qualitatively the same.

44. This number is the average full-time equivalent of part-time enrollment reported in 2005 IPEDS Enrollment Survey.

45. Total enrollment is the sum of full-time enrollment and part-time enrollment.

46. Total revenue includes tuition revenue; revenue from federal, state, and local governments; endowment income; private gifts and grants; sales and services income; auxiliary income; hospital income; independent operations income; investment income; and others.

47. It is measured in 2000 constant international dollars. An international dollar has the same purchasing power as US dollar over US GDP.

is from United Nations Educational Scientific and Cultural Organization (UNESCO) Institute for Statistics Data Center (available at: http://stats .uis.unesco.org/unesco/TableViewer/document.aspx?ReportId=143&IF _Language=eng). The US FDI outflows to other countries from 1999 to 2003 are obtained from Bureau of Economic Analysis website (BEA 2007). We also obtain measures of government stability *Gov_Stab*[48] and strength of legal system *Law_Order*[49] from the *International Country Risk Guide* in years 1999 to 2003 (Political Risk Services Group 1999–2003) and the ease of doing business index *Ease_Bus* in years 2004 to 2009 from the Doing Business website.[50]

5.4.2 Summary Statistics on Overseas Programs, Disciplines, Degrees, Finances, and Enrollments

Table 5.4 reports the number of universities with overseas programs, separately for nonprofit public, nonprofit private, and for-profit universities in each of the seven categories: elite, good, moderate, master, baccalaureate colleges, associate's colleges, and other specialized institutions. In terms of percentage, elite universities are dominant players, with 66.7 percent of public universities and 53.8 percent of private universities having overseas programs. It also shows relatively higher participation rates by public research universities than by their private counterparts. One possible explanation is that relative to private universities, public universities face greater operational constraints imposed by local governments and state legislators. For example, they are often required to charge in-state students lower tuition and give them preferential treatment in admission. These constraints no longer apply when these public universities go abroad.

Table 5.4 also shows that less than 1 percent of schools belonging to the categories of baccalaureate colleges, associate's colleges, and other specialized institutions offer overseas programs. This extremely low percentage may be due partially to the lack of press coverage on those institutions. However, the *Chronicle* usually covers newsworthy activities even by very small and little known colleges. Among for-profit universities, none belongs to the "elite" or "good" universities, and most belong to "associates" or "others." Of 2,764 for-profit universities, we are able to identify only seven that offer overseas programs, with five belonging to "masters." There are probably many more overseas programs offered by for-profit universities, which are not covered by the press and, hence, are not identified through our search

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48. It ranges from 1 to 12, with 12 indicating the highest governance stability.
49. It ranges from 1 to 6, with 6 representing the strongest judicial system.
50. Available at: http://www.doingbusiness.org/CustomQuery/, accessed August 2008. The ease of doing business index ranks business regulations for 181 countries. It covers ten aspects including starting a business, dealing with construction permits, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and closing business. A higher ranking means simpler regulation and stronger protection of property rights.

Table 5.4   **Number of universities with overseas programs by university category and type**

	Type								
	Public			Private nonprofit			Private for-profit		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Elite	3	2	66.7%	13	7	53.8%	0	0	—
Good	27	9	33.3%	21	5	23.8%	0	0	—
Moderate	136	18	13.2%	74	10	13.5%	8	0	0.0%
Masters	270	8	3.0%	375	18	4.8%	43	5	11.6%
Baccalaureates	149	0	0.0%	511	1	0.2%	77	1	1.3%
Associates	1,073	1	0.1%	132	0	0.0%	589	0	0.0%
Others	547	0	0.0%	908	0	0.0%	2,047	1	0.0%
Total	2,205	38	1.7%	2,034	41	2.0%	2,764	7	0.3%

Notes: Column (1) shows the total number of universities in each category based on our average Borda Count Score and Carnegie 2005 basic classification. Column (2) shows the number of universities with overseas programs in each category. Column (3) shows the percentage of universities with overseas programs in each category, which is calculated as number of universities with overseas programs divided by the total number of universities in that category. Each UnitID in IPEDS is treated as a university.

process. Based on these data considerations, we focus our investigation only on nonprofit universities in the "elite," "good," "moderate," and "master" categories.

Table 5.5 shows the number of overseas degree programs offered by the four categories of universities and by nine broadly defined disciplines. "Arts and sciences" includes foreign languages, economics, physics, and others. "Engineering" includes mechanical engineering, chemical engineering, material engineering, and other traditional engineering programs. "EECS" refers to electrical engineering, computer science, and IT programs. "Business" includes finance, accounting, marketing, and management. "Public affairs" includes international relations and public policy. "Medicine" includes medical education, nursing, and health care. "Other" includes film, theater, and hotel management.

Panel A shows that among the ninety-one undergraduate overseas programs, only one is offered by elite universities. The main suppliers of the undergraduate programs are master universities, with 70 percent of market share. In contrast, panel B shows a higher participation rate by elite universities in graduate level programs, offering 9 percent of the master's degree programs. Master universities are still the biggest suppliers, offering 48 percent of the master's degree programs. This dominance by master universities simply reflects the fact that master universities outnumber elite universities by 688 to 16. Although not included in the table, when Master

Table 5.5   Number of programs by degree level, discipline, and the sponsoring university's category

	Arts and sciences	Education	Engineering	EECS	Business	Public affairs	Law	Medicine	Other	Total
A Bachelor										
Elite	1	0	0	0	0	0	0	0	0	1
Good	1	1	2	2	1	1	0	0	0	8
Moderate	6	1	0	3	3	2	0	1	2	18
Master	15	1	1	13	27	5	0	1	1	64
Total	23	3	3	18	31	8	0	2	3	91
B Master										
Elite	2	0	0	1	4	2	0	1	1	11
Good	1	0	1	8	5	2	0	1	0	18
Moderate	0	4	1	6	16	1	1	3	1	33
Master	5	5	1	3	32	6	0	3	2	57
Total	8	9	3	18	57	11	1	8	4	119
C PhD										
Elite	0	0	0	0	0	0	0	2	0	2
Good	1	0	1	1	0	0	0	0	0	3
Moderate	0	0	1	1	1	0	1	1	0	5
Master	0	0	0	0	0	0	1	0	0	1
Total	1	0	2	2	1	0	2	3	0	11

Notes: "Arts and sciences" includes foreign languages, economics, physics, and others. "Engineering" includes mechanical engineering, material engineering, and other traditional engineering programs. "EECS" refers to electrical engineering, computer science, and IT programs. "Business" includes finance, accounting, marketing, and management. "Public affairs" include international relations and public policy. "Medicine" includes medical education, nursing, and health care. "Other" includes film, theater, and hotel management.

universities offer overseas programs, they are much more likely to offer both undergraduate and graduate programs in a variety of disciplines at the same location.

In terms of discipline, Business and EECS are by far the most popular majors offered in overseas programs. Finally, panel C shows US universities offer significantly fewer doctoral-level overseas programs, perhaps because they require substantial research expenditures without generating sufficient tuition revenue.

Table 5.6 shows the average university financial and enrollment data in years 1995 to 2005 by university category and by whether or not they have overseas programs. Higher-ranked schools are generally larger and better endowed than lower-ranked schools. Private schools are better endowed, depend more on tuition revenue, are smaller, have more nonresident alien students, and have more part-time students than public schools. This table also shows that universities with overseas programs are larger and more dependent on tuition revenue.

5.4.3   Regression Results

Likelihood of Having Overseas Programs

Our first inquiry is what university characteristics help explain the likelihood of having overseas programs. For this purpose, we use the following probit specification:

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\begin{aligned}
\Pr(\text{overseas}_i) = G(&\beta_0 + \beta_1 \times \text{Enrol\_FTE}_i + \beta_2 \times \text{Part\_Time}_i \\
&+ \beta_3 \times \text{Non\_Resid}_i + \beta_4 \times \text{Tui\_Dep}_i \\
&+ \beta_5 \times \text{Log(Endow\_FTE)}_i + \beta_6 \times \text{Reputation}_i \\
&+ \beta_7 \times \text{Public}_i + \beta_8 \times \text{interaction terms}_i + \varepsilon_i).
\end{aligned}
$$

The dependent variable *Pr(overseas)* is equal to 1 if a university has overseas programs and 0 otherwise. *Enrol_FTE* is full-time equivalent enrollment and measures the size of a university. *Part_Time* is the percentage of part-time student enrollment. *Non_Resid* is the percentage of nonresident alien enrollment and measures a university's openness to foreigners. *Tui_Dep* is tuition revenue as a percentage of total revenue. Log (*Endow_FTE*) is the log value of university endowment per full-time equivalent student. *Reputation* is proxied by indicator variables, *Elite, Good,* and *Moderate. Public* is an indicator variable for public university. We also include interaction terms between university ranking categories and the *Public* indicator. Subscript *i* refers to university *i*, while *G* is the probit cumulative distribution function.

Because overseas programs affect tuition revenue, expenditure, and the percentage of nonresident alien enrollment, we lag all financial and enrollment variables by using 1995 university enrollment and financial data. Of the 144 current overseas programs offered by advanced-degree awarding

Table 5.6   Summary statistics of financial and enrollment variables (1995–2005)

Category	Control	Overseas	Enrol_FTE	Part_Time (%)	Non_Resid (%)	Tui_Dep (%)	Endow_FTE
Elite	Public	Yes	33,047	8.6	9.0	15.3	65,557
		No	35,214	4.5	6.2	8.3	13,573
	Private	Yes	14,308	16.6	15.0	17.3	347,639
		No	13,729	13.9	17.9	8.4	633,932
Good	Public	Yes	29,997	16.8	8.1	19.7	8,349
		No	29,377	14.6	5.9	17.2	29,200
	Private	Yes	17,472	18.4	13.6	35.3	112,854
		No	8,800	10.8	9.7	29.6	210,896
Moderate	Public	Yes	21,338	27.6	5.8	20.9	7,846
		No	14,158	27.6	4.6	22.8	6,888
	Private	Yes	10,037	34.4	8.1	60.0	29,953
		No	5,936	32.4	6.8	60.0	29,059
Masters	Public	Yes	11,633	30.4	4.2	34.0	910
		No	6,619	31.7	2.2	26.1	2,291
	Private	Yes	3,829	42.0	4.8	69.3	10,271
		No	2,449	33.6	3.2	62.7	17,533

Notes: All variables are averaged values from 1995 to 2005. "Enrol_FTE" is full-time equivalent enrollment, which is full-time enrollment plus 0.38 times part-time enrollment. "Part_Time" is the percentage of part-time enrollment to total enrollment. "Non_Resid" is the percentage of nonresident alien enrollment to total enrollment. Tuition revenue dependence, "Tui_Dep," is the ratio of tuition revenue to total revenue. "Endow_FTE" is market value of endowment assets divided by full-time equivalent enrollment. "Endow_FTE" is adjusted by inflation and is in 2005 constant dollars. Financial variables are available in 1995, 2000, 2001, 2002, 2003, 2004, and 2005 IPEDS Finance Surveys. Enrollment variables are available in all IPEDS Enrollment Surveys from 1995 to 2005. The IPEDS surveys were not conducted in 1999. Both public and private schools follow the Old Form accounting standards until 1997, after which most of the public schools follow Governmental Accounting Standards Board (GASB) accounting rules while the others follow Financial Accounting Standards Board (FASB) accounting standards. The GASB and FASB treat revenue items differently, which render the financial data for public and private schools not directly comparable after 1997.

Table 5.7   Summary statistics for independent variables in the likelihood regression

Variable name	Observations	Mean	Median	Standard deviation	Min	Max	Correlation with 2005 data
Enrol_FTE	913	6,614.5	4,026.8	6,986.6	61.9	43,860.7	0.98
Part_Time	913	33.0	30.0	17.9	0.2	99.1	0.79
Non_Resid	913	3.7	2.3	4.4	0.0	35.7	0.79
Tui_Dep	913	44.7	40.6	22.7	4.9	100.0	0.89
Endow_FTE	913	17,761.4	3,352.8	73,845.3	0.0	1,703,445.0	0.88

Notes: "Enrol_FTE" is full-time equivalent enrollment, which is full-time enrollment plus 0.38 times part-time enrollment. "Part_Time" is the percentage of part-time enrollment to total enrollment. "Non_Resid" is the percentage of nonresident alien enrollment to total enrollment. Tuition revenue dependence, "Tui_Dep," is the ratio of tuition revenue to total revenue. "Endow_FTE" is market value of endowment assets divided by full-time equivalent enrollment. All variables are based on data obtained from 1995 IPEDS College Enrollment and Finance Surveys.

institutions, only four existed in 1995. At that time, both public and private schools followed the same accounting standard (the Old Form), making their financial data more directly comparable.[51] As a robustness check, we also use 2005 data as independent variables in unreported regressions. The results are quantitatively the same.

When universities have missing data in 1995, we use the average values of universities in the same category (in terms of reputation and the public/private classification) in 1995. Table 5.7 presents the summary statistics of the 1995 university enrollment and financial data.[52] The 1995 data are highly correlated with their 2005 data, indicating persistency in university characteristics.

Table 5.8 reports the estimates using probit regression.[53] University size, measured by full-time equivalent enrollment, has a positive and significant effect on the probability of having overseas programs, indicating larger universities are more likely to offer overseas programs. A 1,000 increase in full-time equivalent enrollment increases the probability of having an overseas program by 0.8 percent, holding all other variables constant at the

51. Public institutions used the Old Form until 2002, and were required to follow New Governmental Accounting Standards Board (GASB) no later than 2004. Private institutions used the Old Form until 1997, when they switched to Financial Accounting Standards Board (FASB). These accounting standards differ in their treatment of revenue and expenditure composition.

52. The average tuition dependency in table 5.7 is much higher than those reported by the *Digest of Education Statistics* (National Center for Education Statistics 2008a) for the academic year 2004 and 2005. The difference is mainly due to the difference in computing the average. The averages reported by Department of Economic Security (DES) are value-weighted—calculated as total tuition revenue of all public (or private nonprofit) institutions divided by total revenue of all public (or private nonprofit) institutions, whereas the average in table 5.7 is equal-weighted. Thus, the DES averages give greater weights to top tier, larger schools with greater endowment, which table 5.6 shows are less tuition dependent.

53. We also estimate OLS and logistic regressions. The results (unreported) are quantitatively the same.

Table 5.8   **Probit regression on the likelihood of having overseas programs**

Variable name	Coefficient	Marginal effect
Enrol_FTE	0.074***	0.008***
	(0.015)	
Part_Time	0.006	0.001
	(0.004)	
Non_Resid	0.035***	0.004***
	(0.012)	
Tui_Dep	0.011*	0.001*
	(0.006)	
Log (Endow_FTE)	−0.043	−0.005
	(0.077)	
Elite	1.640***	0.449***
	(0.505)	
Good	0.617	0.102
	(0.401)	
Moderate	0.180	0.021
	(0.234)	
Public	−0.166	−0.018
	(0.337)	
Elite*Public	−0.855	
	(0.930)	
Good*Public	−0.576	
	(0.554)	
Moderate*Public	0.020	
	(0.317)	
Constant	−2.839***	
	(0.495)	
Observations	913	
Pseudo R^2	0.22	

Notes: The dependent variable is equal to 1 if a university has overseas programs and 0 otherwise. "Enrol_FTE" is full-time enrollment plus 0.38 times part-time enrollment in thousands. "Part_Time" is the percentage of part-time student enrollment. "Non_Resid" is the percentage of nonresident alien enrollment. "Tui_Dep" is tuition revenue as a percentage of total revenue. "Log(Endow_FTE)" is the log value of university endowment per full-time equivalent student in thousands. All financial and enrollment variables are 1995 value. "Elite" is an indicator variable equal to 1 if a university's Borda Count Score is ranked in the top 16 and 0 otherwise. "Good" is equal to 1 if a university's Borda Count Score is ranked between 17 and 67 (specialized institutions excluded). "Moderate" is equal to 1 if a university is considered a research university by the Carnegie 2005 report but is ranked below 67. "Public" is an indicator variable for public university. Robust standard errors are reported in parentheses.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

mean. This impact of size is nontrivial, considering that the likelihood of sponsoring overseas programs for an average university[54] is only 5.33 percent. Nonresident enrollment also has a positive and significant effect on the

54. An average university implies all independent variables are held at their mean values. Mean values of independent variables are reported in table 5.7.

likelihood of having overseas programs. A 1 percent increase in nonresident enrollment increases the probability of having overseas programs by 0.4 percent, holding all other variables constant at the mean. Tuition revenue dependence has a significant positive effect as well.[55] A 1 percent increase in tuition revenue dependence increases the likelihood of having overseas programs by 0.1 percent, holding all other variables constant at their mean. Elite universities are more likely to have overseas programs. Moving from master to the elite category increases the likelihood of having overseas programs by 44.9 percent for private schools, holding all other variables constant at their mean.[56]

These results suggest that the most active participants in overseas programs are large Elite research universities. Schools more open to foreign students are also more likely to have overseas programs. It appears that the best schools are making efforts to globalize their institutions and to provide higher education opportunities overseas.

The regression estimates also indicate that universities with higher tuition dependency are more likely to have overseas programs, suggesting that finance plays a role in the decision making process. How much economics matter in offering of overseas programs is the subject of investigation in the next two sections.

Location Choice

If finance plays an important role, universities' location choice may not be much different from those of multinational corporations making FDI. Thus, to examine how host country characteristics are related to the location of overseas programs, we follow the international trade literature. Specifically, we relate the number of overseas programs in a host country to measures of economic development, the recent economic growth rate, the size of the market for higher education, the US outflow of FDI, and other local environmental factors by estimating the following regression:[57]

$$\text{Density}_j = \beta_0 + \beta_1 \times \text{GDP\_PPP}_j + \beta_2 \times \text{Growth}_j + \beta_3 \times \text{Stu\_Pop}_j$$
$$+ \beta_4 \times \text{FDI}_j + \beta_5 \times \text{Gov\_Stab}_j + \beta_6 \times \text{Law\_Order}_j$$
$$+ \beta_7 \times \text{Ease\_Bus}_j + \beta_8 \times \text{Continent}_j + \varepsilon_j.$$

55. We also use two alternative measures of tuition dependency that account for student financial aid. The first is the ratio of tuition revenue net of financial aid to total revenue; the second ratio is based on the same numerator divided by total revenue net of financial aid. The results (unreported) are quantitatively the same.

56. We are not interpreting the marginal effects of the interaction terms, because we have three interaction terms in the probit regression. Interpreting interaction effect in nonlinear models is complicated and the widely-used Norton, Wang, and Ai (2004) interaction effect correction can only be applied to probit specification with one interaction term. Not correcting for interaction effect does not affect the marginal effects of other independent variables.

57. As a robustness check, we also estimate a conditional (fixed-effect) logit and a standard logit model with clustered standard errors (at university level) by relating a university's probability of having overseas programs in a host country (1 if having overseas programs in the

Density measures the number of overseas programs located in host country *j*. It includes all overseas degree programs offered by advanced-degree-awarding US universities in that country. As a robustness check, we include overseas programs offered by all categories of universities and colleges. The results (unreported) do not change.

All independent variables are averaged values from 1999 to 2003 except for *Ease_Bus,* which is available only from 2004 to 2009. The host country real gross domestic product (GDP) per capita is *GDP_PPP. Growth* is the growth rate of *GDP_PPP.* These two variables measure the level and the slope of economic development of host country *j*. The tertiary school age population is *Stu_Pop,* which measures the potential size of the host country's higher education market. The *FDI* is US foreign direct investment outflow to host country *j. Gov_Stab* is government stability of the host country, which is a proxy for political risk. *Law_Order* measures the strength of judicial system and *Ease_Bus* measures the ease of conducting business in the host country. *Continent* is a set of dummy variables that indicates whether the host country *j* is located in Africa, Asia, Europe, Middle East,[58] North America (Canada), and Oceania. We would have liked to include the likelihood of obtaining local financial support, and the quality and openness of local higher education markets; unfortunately, we can obtain such data only for a handful of countries, making it impossible to conduct meaningful tests.

Table 5.9 reports the regression estimates. We use the negative binomial model because the variance of the dependent variable (2.68) is much larger than the mean (0.77). A likelihood ratio test confirms the existence of overdispersion.

The regression estimates in table 5.9 indicate that economics play an important role in location decisions of US universities. The two significant variables, the level of GDP per capita and student population, are both critical ingredients for financial viability. Universities in the United States target countries with large potential markets where the local population has the economic means to pay for their programs.

The regression estimates imply that a 1,000 dollar increase (in 2000 constant international dollars) in real GDP per capita increases the expected number of overseas programs in a country by 7.1 percent, holding all other variables constant. The size of the local market also has an important impact. An increase in the tertiary school age population by one million increases the expected number of overseas program in a country by 4.4 percent, holding all other variables constant. Universities in the United States also seem to follow US FDI outflow, perhaps because they regard the countries with

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host country and 0 otherwise) to host country characteristics. The results (unreported) are very similar.

58. Following Bhandari and Chow (2007), the Middle East region includes Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Authority, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen.

Table 5.9   **Negative binomial location regression**

Variable name	Negative binomial coefficient	Percentage change (%)
GDP_PPP	0.069**	7.1**
	(0.029)	
Growth	−0.006	−0.6
	(0.046)	
Stu_Pop	0.043***	4.4***
	(0.006)	
FDI	0.048**	4.9**
	(0.021)	
Gov_Stab	0.015	1.5
	(0.138)	
Law_Order	−0.379*	−31.6*
	(0.226)	
Ease_Bus	−0.016**	−1.6**
	(0.008)	
Africa	−0.183	−16.7
	(0.751)	
Asia	1.054**	186.9**
	(0.452)	
Europe	−0.350	−29.5
	(0.683)	
Middle East	1.078**	193.9**
	(0.518)	
Oceania	0.196	21.7
	(0.726)	
Constant	0.446	
	(1.655)	
Observations	117	
Log Pseudo Likelihood	−111.47	

Notes: Dependent variable is "density," which measures the number of overseas programs offered in a host country by US institutions that award advanced degrees. All our independent variables (except for "Ease_Bus," which is averaged from 2004 to 2009) are averaged values from 1999 to 2003. "GDP_PPP" is host country real gross domestic product (GDP) per capita in 2000 constant international dollars (in thousands). Growth is the growth rate of GDP_PPP. "Stu_Pop" is the tertiary school age population in millions. "FDI" is the US foreign direct investment outflows to the host country in 2000 constant US dollars (in billions). "Gov_Stab" measures government stability. "Law_Order" measures the strength of legal system. "Ease_Bus" measures the easiness of doing business. "Africa," "Asia," "Europe," "Middle East," and "Oceania" are dummy variables indicating the location of host country. The Middle East region includes Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Authority, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen. Robust standard errors are reported in parentheses.

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.

close US trade relationships as having friendlier environments for US entities to conduct business and having a higher demand for US-style higher education. An increase of one billion dollars (in 2000 constant international dollars) in US FDI outflow increases the expected number of overseas programs in a country by 4.9 percent.

Universities in the United States also are more likely to have overseas programs in countries with business-friendly environments and weaker regulations. A one point improvement in the ease of doing business index[59] increases the expected number of overseas programs by 1.6 percent, and a one point increase in the strength of judicial system[60] decreases the expected number of overseas program by 31.6 percent. We doubt that US universities purposefully target countries with weaker judicial systems; rather, the correlation seems to be due to the fact that de facto barriers against setting up overseas programs are less effective in countries with weaker judicial systems.

Table 5.9 also shows that Asian and Middle Eastern countries are more popular destinations for overseas programs. Universities in the United States offer more overseas programs in Asia because of its large market for higher education and greater local demand for US-style higher education. The main attraction to the Middle East appears to be its financial support with oil money.

To examine whether geographical and cultural proximity also matter when universities make decisions about location, we divide US universities into four regions according to US Census Bureau geographic locations: Northeast, Midwest, South, and West.[61] Table 5.10 tabulates the number of overseas programs located in the seven continents by the region. It shows that Asia and Europe have more or less equal representation from all four regions (relative to the total number of overseas programs offered by universities in each region). The Middle East has a high representation of universities from the Northeast region. Middle Eastern countries tend to target top US universities with substantial financial aid and the Northeast region has more top ranked universities. The only indication of cultural and geographic proximity affecting location decisions is the relatively higher representation of universities from the South and West regions in Latin America (relative to the total number of overseas programs offered by universities in each region). In short, although geographic and cultural distance may matter, the overriding factor in location decisions seems to be economics.

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59. This variable ranges from 1 to 181, where 1 is the country where it is easiest to do business.

60. This variable ranges from 1 to 6, where 6 indicates the strongest judicial system.

61. Northeast includes ME, NH, VT, MA, CT, NY, NJ, PA, and RI. Midwest includes MI, OH, IN, IL, WI, MN, IA, MO, KS, NE, SD, and ND. South includes TX, OK, AR, LA, MS, AL, TN, KY, GA, FL, SC, NC, VA, WV, DC, MD, and DE. West includes WA, OR, CA, NV, ID, UT, AZ, NM, CO, WY, MT, AK, and HI.

Table 5.10   **Number of overseas programs offered by region and by Census Bureau geographic location of US universities**

Location of US university	Africa	Asia	Europe	Latin America	Middle East	North America	Oceania	Total
Midwest	0	29	6	1	3	0	0	39
Northeast	2	27	7	4	11	1	2	54
South	1	25	8	5	6	0	1	46
West	0	10	3	4	0	3	0	20
Total	3	91	24	14	20	4	3	159

Notes: Northeast includes ME, NH, VT, MA, CT, NY, NJ, PA, and RI. Midwest includes MI, OH, IN, IL, WI, MN, IA, MO, KS, NE, SD, and ND. South includes TX, OK, AR, LA, MS, AL, TN, KY, GA, FL, SC, NC, VA, WV, DC, MD, and DE. West includes WA, OR, CA, NV, ID, UT, AZ, NM, CO, WY, MT, AK, and HI. Middle East region includes Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Authority, Qatar, Saudi Arabia, Syria, United Arab Emirates, and Yemen. This table includes all 159 overseas programs identified from the press.

Tuition Discounts

If universities behave like firms, they will adjust product pricing to suit the local environment. In this section we investigate this pricing issue by focusing on tuition discounts. We hypothesize that universities adjust their tuition based on affordability; that is, they offer higher tuition discounts in countries with lower income to attract a sufficient number of students. Other factors relevant to the local demand include the reputation of the sponsoring university, the degree level, and the discipline.

Tuition discounts may also be influenced by the cost structures of overseas programs. Costs can be lowered by inviting a local university as a partner and by employing local faculty at lower salaries than US faculty. Costs can also be lowered by obtaining financial aid from the local government and/or a third party such as the World Bank. Thus, we use the following specification to analyze overseas program tuition:

$$\text{Discount}_{ijk} = \beta_0 + \beta_1 \times \text{GDP\_PPP}_j + \beta_2 \times \text{Stu\_Pop}_j + \beta_3 \times \text{Gov\_Stab}_j$$
$$+ \beta_4 \times \text{Reputation}_i + \beta_5 \times \text{Public}_i + \beta_6 \times \text{Prof}_k$$
$$+ \beta_7 \times \text{BA}_k + \beta_8 \times \text{Joint}_k + \varepsilon_{ijk}.$$

Discount$_{ijk}$ is 1 minus the ratio of overseas subprogram k's tuition in host country j to the tuition of a comparable program at the same degree level and in the same discipline on university i's US home campus. Because some universities offer several degree programs in multiple disciplines at the same location and tuition varies across degree levels and disciplines, we break down an overseas program at each location into subprograms by their degree levels and disciplines. We make tuition comparable across programs and locations by assuming that a student takes, on average, four three-credit

courses per semester, or equivalently, eight three-credit courses per academic year.[62]

The average tuition discounts are 21 percent, 26 percent, 28 percent, and 8 percent for master, moderate, good, and elite universities, respectively. The discounts are significantly greater than zero at the 1 percent level for all types except elite universities.

An indicator variable for professional schools is $Prof_k$, equal to 1 if the overseas subprogram is in engineering, EECS, business, law, medicine, or other professional disciplines, and 0 otherwise. Variable BA_k is equal to 1 if the overseas subprogram is a bachelor's program and 0 otherwise. $Joint_k$ is equal to 1 if the overseas subprogram has a partner university in the host country or has received full or partial local financial support. This variable is our proxy for lower cost. Other independent variables are defined earlier.

Table 5.11 reports the ordinary least squares (OLS) regression estimates with robust and clustered (at the university level) standard errors. We exclude overseas PhD programs, because doctoral students often work as research and/or teaching assistants, receiving financial stipends and tuition waivers.

Three variables show statistical significance: real GDP per capita, "Good" university category, and bachelor's degree programs. Overseas programs offer lower tuition discounts in higher income countries. An increase in real GDP per capita by 1,000 dollars (2000 constant international dollar) leads to a 2.2 percent decrease in tuition discount, holding all other variables constant.

Tuition discounts for baccalaureate programs are 25.5 percent more than master's programs, holding all other variables constant. We attribute this greater discount to the stiffer competition undergraduate degree programs face from local universities, relative to advanced degree programs.

Indicator variable *Good* has a significant effect on tuition discounts, while *Elite* and *Moderate* do not. Moving from the master university group to the good group increases tuition discounts by 23.6 percent, holding all other variables constant. However, elites do not offer higher tuition discounts even though tuition is much higher at elite universities' home campuses than at masters. Because of their high visibility and reputation, they may not have to offer tuition discounts to attract students. Good universities, by contrast, lack the same visibility and reputation and, thus, have to offer substantial tuition discounts to fill their classrooms.[63]

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62. If overseas program tuition is in foreign currency, we convert it to US dollars using foreign exchange rates as of August 29, 2008.

63. Differences in home campus tuition charged by moderate and master level universities are much smaller than those between good and master; hence, moderate schools may not need to offer significantly more tuition discounts than master schools. The average private university home campus tuitions for the 2007 and 2008 academic year are $35,082, $34,941, $25,220, and $21,084 for elite, good, moderate, and master groups, respectively. The corresponding averages for public schools are $8,259, $8,030, $6,318, and $5,374.

Table 5.11   Tuition discount regression

Variable name	OLS coefficient
GDP_PPP	−0.022***
	(0.004)
Stu_Pop	−0.000
	(0.001)
Gov_Stab	−0.050
	(0.054)
Elite	0.021
	(0.187)
Good	0.236**
	(0.114)
Moderate	0.046
	(0.113)
Public	0.006
	(0.074)
Prof	0.050
	(0.053)
BA	0.255*
	(0.131)
Joint	0.032
	(0.068)
Constant	0.913
	(0.572)
Observations	86
R^2	0.510

Notes: Discount is the ratio of overseas subprogram tuition in a host country to the tuition of a comparable program at the same degree level and in the same discipline on the sponsoring US university's home campus. We make tuition comparable across programs and locations by assuming that a student takes an average of four three-credit courses per semester, or equivalently, eight three-credit courses per academic year whenever necessary. "GDP_PPP" is host country's real per capita GDP in 2000 constant international dollars (in thousands). "Stu_Pop" is the tertiary school age population in millions. "Gov_Stab" measures government stability, which is a proxy for political risk. "Elite" is an indicator variable equal to 1 if a university's Borda Count Score is ranked in the top 16 and 0 otherwise. "Good" is equal to 1 if a university's Borda Count Score is ranked between 17 and 67 (three specialized institutions excluded). "Moderate" is equal to 1 if a university is considered a research university by the Carnegie Classification but is ranked below 67. Variable "Public" is an indicator variable for public university. "Prof" is equal to 1 if the overseas subprogram is in engineering, EECS, business, law, medicine, and other professional disciplines and 0 otherwise. "BA" is equal to 1 if the overseas subprogram is a baccalaureate program and 0 otherwise. Joint is equal to 1 if the overseas subprogram has a partner university in the host country or has received local financing support. Robust and clustered (at university level) standard errors are reported in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Finally, but equally interesting, our proxy for lower costs, *Joint,* has no effect on tuition discounts, implying that US universities do not pass on any cost savings to local students in the form of lower tuition. This pricing behavior is similar to that of profit-seeking corporations.

5.5   Conclusion

This chapter examines US university overseas programs because if universities ever behave like firms, they are more likely to do so when they make investments overseas. When operating abroad, universities are not bound by the same set of implicit and explicit contracts entered over time with domestic stakeholders.

We unearth an abundance of evidence in support of our hypothesis that US universities behave like firms when they make overseas investments. Universities with higher tuition dependency are more likely to offer overseas programs. They target markets with a large pool of potential clients, in business-friendly environments, with loose regulation. Upon entering these markets, they price their products to suit local affordability and local competition. Furthermore, when they save costs by forming local partnerships or by obtaining local financial support, we find no evidence that they pass on the savings to local clients. These behaviors are exactly what one would expect from profit-seeking multinational firms in their foreign direct investments.

These findings do not necessarily imply that US universities behave like firms in their domestic operations. Because nonprofit universities face various constraints from explicit and implicit contracts entered over time with multiple stakeholders, their domestic behavior may differ substantially from their overseas behavior. Nevertheless, one can easily think of similarities in governance structures between large universities and large, diffusely held public corporations with clear separation of ownership and control: centralized administration, bureaucratic behavior, the me-first attitude often observed among those who participate in the governance process, and finally, but most important, the need to ensure sustainability by ensuring sufficient financial resources. Whether these similarities lead large modern US universities to emulate profit-seeking public corporations in operating home campuses within the US borders is an interesting subject for future research.

Finally, our results have an implication on how US universities' overseas programs affect their domestic programs. In a recent hearing by the House Committee on Science and Technology, lawmakers questioned whether university ventures abroad are undermining American economic competitiveness. Representative David Wu of Oregon says that he "wanted to be sure that colleges that established branches overseas did not price themselves

too cheaply and 'start giving away the store.'"[64] Our results suggest that the public can rest assured that US universities are not diverting resources to the benefit of overseas students. Quite the contrary, US universities seem to price their products strategically, like US multinational corporations, using their competitive edge in attempts to generate more resources for the benefit of their home institutions.

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