

Factors Contributing to the Desire to Study in the U.S.

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The impact of non-U.S. students on American higher education is varied. While non-U.S. students constitute 2.7% of undergraduates in U.S. programs, non-U.S. students account for 12% of graduate enrollments and that percentage is concentrated in a relatively small number of U.S. universities (Altbach, 2002). Over recent years, the pool of potential students in the developed world has been decreasing. However, the demographic trends in the developing world have been different. “In fact there is a huge bubble of young people just entering adulthood, and anxious for access to the advantages of higher education” (Hira, 2003, p. 915). There is not enough capacity to support demand for higher education in some countries. According to Altbach (2004), more than half of the world’s postsecondary students are in the developing world today, and that proportion is expected to grow in the coming decades (Altbach, 2004).

The purpose of this paper is to estimate model factors that influence non-U.S. citizens and their desire to study in the United States. The decision of where to study can be affected by the characteristics of the country in which the individuals reside along with characteristics of the individuals themselves. In particular, factors such as gender and age may affect a student’s decision on where to study.

This paper determines factors influencing international students’ desires to study in the United States using a database of Graduate Management Admission Test (GMAT[®]) candidates. Data from the 20,295 records of non-U.S. examinees in testing year 2005 who took the GMAT[®] exam one or more times provided the basis for this analysis. The information was obtained from test-taker responses to the background information questionnaire, score report information from examinee records, and other registration information for testing years beginning July 1 and ending June 30.

Background

The United States has often been thought of as one of the premier locations in which to receive an education. However, there is a growing recognition by other countries of the significant benefits that education as an export can bring (Hira, 2003). Several major economies—most notably, India’s and China’s—have grown to the point where they can offer competitive opportunities for people who stay or return home (Florida, 2004). The United States has been faced with increasing competition from other countries for the “global pool of talent.”

Altbach conducted a special study in 1998 to determine the chief factors that affect Third World countries and whether an individual student goes abroad to study (Xiaoxuan, 2004). Examples of some of the “push” factors that encourage students to study abroad include “failure to pass examinations for school admission” and the “advantages of foreign degrees.”

Some of the “pull” factors that attract talent to a country include “advanced educational facilities”, “high standards for education,” and the “experience of life abroad.” Altbach (2004) determined that a significant number of international students study abroad with the intentions of staying in the host country to work and make a career. He further argued that the attraction for students to the United States is its large and diverse economy, the willingness of employers to hire well-qualified foreigners, and the high salaries available in many fields, including academe (Altbach, 2004).

“The push-and-pull theory is extensively used in social sciences and the science of population statistics. It is also a theory most often used in the world’s academic circles when studying the flow of talent” (Xiaoxuan, 2004, p. 5). Traditional push-pull theory, however, suggests that immigration is an uncontrolled, open process of natural flows of people where difficulties, such as poverty and unemployment in the home country may push people to

other countries that have favorable conditions such as a high standard of living or job opportunities that pull them there. Yet this traditional theory ignores individual characteristics that may directly account for the migrations of people globally.

According to results from the GMAC® Global MBA® Graduate Survey, MBA students studying outside their country of citizenship chose to do so because they felt the country offered better quality education than that which was available in their own country, that there were better career opportunities, the country offered schools with an international reputation, and they could broaden their international and cultural experience (Edgington, 2004).

Students overseas appear to move largely from the developing countries to the industrialized nations. Altbach (2002) observed that only 15% of non-U.S. students studying in the United States came from Europe, and the large majority of non-U.S. students came from developing countries. As table I illustrates, this holds somewhat true for GMAT® test-takers as well. Table I displays the percentage distribution of all non-U.S. GMAT® examinees in testing year 2005. Approximately 22% of all GMAT® tests taken in Testing Year 2005 were taken by European citizens, and nearly 52% were taken by citizens of Asia.

Country	Percent of Volume
Asia	51.90%
Western Europe	17.80%
Central and Southern America	7.60%
Canada	6.60%
Middle East	5.40%
Africa	5.40%
Eastern Europe	4.60%
Australia/Pacific Islands	0.70%

Methodology

This analysis only includes non-U.S. examinees who responded to the GMAT® background information questionnaire. Examinees with missing information were excluded from the analysis, as were examinees who did not send any score reports. Examinee age on the date of test administration, desire to work full-time, undergraduate major category, undergraduate school region, country

region of citizenship, location of country region, gender, native language, and GMAT® total score was used for analysis, along with score report information. Score report information was used to estimate the factors that contribute to a student's desire to study in the United States. The variables used in the analysis are described in Table 2.

Table 2: Variable Descriptions*

Variable	Description
REGION	Undergraduate school region (1=U.S., 0=Non-U.S.)
AGE	Age on date of test administration
WORK	Response to: "Do you plan to work full-time while pursuing your degree?" (1=Yes, 0=No)
MAJOR	Undergraduate major category (1=Business and Commerce, 0=Other)
CITIZEN	Citizenship country region (1=Asia, 0=Other)
COUNTRY	Location country region (1=U.S., 0=Other)
GENDER	Gender (1=Male, 0=Female)
LANGUAGE	Response to: "What is your first or native language?" (1=English, 0=Other)
TOTAL	GMAT® Total Score
USA	Indicates whether a score report was sent to at least one U.S. school (1=Yes, 0=No)

* Years of work experience was evaluated but removed due to multicollinearity with age.

The dependant variable, USA, measures the desire to study in the United States. USA is equal to 1 if the test-taker sent at least one score report to a U.S. school, and 0 if there were no score reports sent to a U.S. school. Due to the nature of the dependent variable, a logistic regression model is used to estimate the factors that contribute to a student's desire to study in the United States.

The desire to study in the United States is expected to be positively related to undergraduate school region (REGION), negatively related to AGE, negatively related to the desire to work full-time (WORK), positively related to undergraduate major category (MAJOR), positively related to citizenship region (CITIZEN), positively related to country region (COUNTRY), positively related to gender (GENDER), positively related to native language (LANGUAGE), and positively related to GMAT® total score (TOTAL).

Undergraduate school region is expected to be positively related to the dependent variable, using the hypothesis that if a student is willing to attend a U.S. school as an undergraduate, they will be more likely to want to return to continue their graduate studies. Age is expected to have a negative relationship with the dependent variable, using the hypothesis that younger students are more mobile and willing to travel. In a follow-up study of mba.com registrants conducted by GMAC®, respondents age 33 and older are the least likely to be enrolled in a program

outside their country of citizenship (Schoenfeld, 2004). The desire to work full-time is hypothesized to have a negative relationship with the dependant variable using the assumption that if a student wants to work full-time while attending graduate school, they currently have a job that they will be less likely to leave in order to study in the United States. Undergraduate major in Business and Commerce is hypothesized to be positively related to the dependent variable due to the wealth of prestigious business schools located in the United States, as well as its being home to many financial centers.

Altbach (2004) states that, "The large majority of foreign students in the United States come from developing and newly industrializing countries, with 55 percent from Asia" (p. 20). Therefore, citizenship region is hypothesized to have a positive relationship with the dependent variable. Country region is also hypothesized to have a positive relationship based upon the assumption that if a student currently resides in the United States, they will be more likely to want to remain in the United States to pursue their graduate business education. It is hypothesized that gender will have a positive relationship with the dependent variable, using the assumption that female students will be less likely to want to uproot themselves and potentially their families, as this is a slightly older student population. According to an mba.com registrant follow-up survey conducted in November 2004, men are significantly more likely to be enrolled in a program outside their country of citizenship

(Schoenfeld, 2004). Native language is hypothesized to have a positive relationship, as it is potentially easier for native English speakers to integrate into U.S. society than for those who do not speak the language.

Finally, it is expected that GMAT® total score will have a positive relationship with the dependent variable because attending school abroad can be a costly endeavor. A potential “pull” factor for students is “scholarships for students from abroad.” As such, one would expect that students who would like to come to the United States will be well prepared for the GMAT® exam, as this could be a deciding factor in scholarship funds.

Table 3 describes the characteristics of the GMAT® examinees in the population studied. The results indicate that 58% of the GMAT® test-takers graduated from an undergraduate university in the United States, with an average age of approximately 28 years old. This table also tells us that 39% intend to work full-time while pursuing their degree. Regarding country of citizenship and location, 47% are citizens of Asia, and 44% had a U.S. address at the time of test registration. Only 23% speak English as their native language, and the majority are male (60%). The mean GMAT® total score is 539. Lastly, 71% sent at least one score report to a U.S. graduate business school.

Table 3: Descriptive Statistics					
Variable	N	Minimum	Maximum	Mean	Std. Deviation
REGION	20,295	0	1	.58	.493
AGE	20,295	17	62	27.76	4.938
WORK	20,295	0	1	.39	.488
MAJOR	20,295	0	1	.52	.500
CITIZEN	20,295	0	1	.47	.499
COUNTRY	20,295	0	1	.44	.497
GENDER	20,295	0	1	.60	.489
LANGUAGE	20,295	0	1	.23	.423
TOTAL	20,295	200	800	538.61	119.135
USA	20,295	0	1	.71	.454

Results

The results from the logistic regression are detailed in Table 4.

Table 4: Logistic Regression Results Dependent Variable = USA					
Variable	Coefficient	Wald	Exp (B)	95.0% C.I. for Exp (B)	
				Upper	Lower
Constant	-1.557*	72.831	.211		
REGION	2.044*	1575.646	7.725	6.983	8.545
AGE	-.030*	43.264	.970	.961	.979
WORK	-.787*	277.623	.455	.415	.499
MAJOR	.194*	18.382	1.214	1.111	1.326
CITIZEN	.935*	400.897	2.547	2.324	2.791
COUNTRY	3.602*	1548.680	36.660	30.640	43.863
GENDER	.117*	6.438	1.124	1.027	1.231
LANGUAGE	-.316*	36.312	.729	.658	.808
TOTAL	.003*	190.182	1.003	1.002	1.003
Model Chi-Square [df]	11263.101 [9]				
% Correct Predictions	85.2				
Cox & Snell R ²	0.426				
The Wald statistics have 1 degree of freedom. *Statistically significant at the .05 level.					

As predicted, the coefficient on the REGION variable is positive and statistically significant at the .05 level. The odds ratio for the REGION coefficient is 7.725 with a 95% confidence interval of [6.98, 8.54]. This suggests that those who graduate from a U.S. undergraduate university are 7 times more likely to want to attend graduate business school in the United States than those who did not. The coefficients on AGE and WORK are both negative, as expected. This indicates that older students and those who wish to work full-time while in school are less likely to want to study in the United States.

The coefficients on the CITIZEN and COUNTRY variables are positive and statistically significant at the .05 level. The odds ratio for the CITIZEN coefficient is 2.547 with a 95% confidence interval of [2.324, 2.791]. This suggests that examinees who are citizens of Asia are 2.5 times more likely to want to study in the United

States than those from other countries. The odds ratio for the COUNTRY coefficient is 36.660 with a 95% confidence interval of [30.640, 43.863]. This suggests that non-U.S. examinees with a U.S. address at the time of test registration are 36 times more likely to want to study in the United States than those with non-U.S. addresses.

According to the model, males are more likely than females to want to study in the United States. The coefficient of the GENDER variable is statistically significant at the .05 level. The coefficient of the native language variable, LANGUAGE, is negative, which was not expected. This means that non-U.S. examinees with English as their native language are less likely to want to study in the United States. The coefficients for TOTAL and MAJOR are both positive and in the expected direction. This indicates that the higher the GMAT[®] score, the more likely the examinee is to want to study in

the United States. Also, test-takers who majored in a “Business and Commerce” undergraduate major are more likely to want to study in the United States than those who did not.

The results of the regression model in Table 4 indicate that all of the factors studied contribute to a GMAT® examinee’s desire to study in the United States. The overall model is significant at the .05 level according to the model chi-square statistic, predicting 85% of the responses correctly. The Cox & Snell R² is 0.426.

Conclusion

The purpose of this paper was to model to factors that influence non-U.S. citizens and their desire to study in the United States. The results indicate that a variety of demographic factors significantly contribute to this decision. The factors that have the greatest effect on a student’s decision are graduating from a U.S. undergraduate university and location at time of test registration. The next biggest factors that affected a student’s decision to study in the United States were country of citizenship and the desire to work full-time while attending graduate school. Lastly, the factors that marginally affected a student’s decision to study in the United States were GMAT® exam total score, age, native language, undergraduate major, and gender.

An interesting finding of this study is that examinees who indicate that English is their native language are less likely to want to study in the United States. Although initially surprising, this finding is similar to a study of all test-takers in TY 2004, where citizens from the regions of Canada, Australia & Pacific Islands, and Western Europe sent fewer score reports to U.S. schools compared to those in other regions (Peyton, 2005). U.S. schools are most likely popular in these regions based upon reputation, but U.S. schools are facing increased competition from schools located within Canada, Australia, and Western Europe,.

There are many other factors that affect whether or not a student decides to study abroad, some of which can be political or social. These factors exert pressures on individuals in a positive or negative direction in the form of “push” or “pull” forces (Xiaoxuan, 2004). Altbach (2004) asserts that , “While there are pulls from different segments of the academic system, students are also pulled by America itself—by the lure of life in the United States’ globally disseminated culture” (p. 21). However, in order for the United States to maintain its competitive advantage and to continue to draw and keep global talent, the United States must be cognizant of the factors that pull in talent and invest in the necessary resources to maintain its global position.

When reviewing these results, it is important to note that it is not mandatory for GMAT® test-takers to respond to background information questions¹ to register for the GMAT®. Also, any examinee who took the test more than once is represented in the analyses by the number of times they took the test.² The results presented in this report are generalizations, and will not apply to every student.

Contact Information

For questions or comments regarding study findings, methodology or data, please contact the GMAC® Research and Development department at research@gmac.com.

For more information on geographic trends of all GMAT® test-takers, please reference GMAC® research report *Geographic Trend Report for Examinees Taking the Graduate Management Admission Test®* (RR-05-02).

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1 As a result of online registration, the percentage of “missing” or unreported BIQ information has been decreased dramatically in recent years.

2 The average percentage of tests taken by repeat test-takers is approximately 21%.

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