FACTORS INFLUENCING INTERNATIONAL GRADUATE STUDENTS' PREFERENCES CONCERNING WHERE THEY PREFER TO START THEIR CAREERS

A Thesis

by

MARK MUSUMBA

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

December 2006

Major Subject: Agricultural Economics

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Approved by:

Co-Chairs of Committee,	James W. Mjelde
	Yanhong Jin
Committee Member,	John R. Hoyle
Head of Department,	John P. Nichols

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ABSTRACT

Factors Influencing International Graduate Students' Preferences

Concerning Where They Prefer to Start Their Careers. (December 2006)

Mark Musumba, B.S., Texas A&M University

Co-Chairs of Advisory Committee: Dr. James Mjelde
Dr. Yanhong Jin

Students' career decisions can impact the global economy through brain drain and gain. This study investigates factors affecting international students' preferences regarding where to start their careers. It is an ex ante study, conducted before final career decisions are made, and uses micro-level primary data. Information was collected from international graduate students at Texas A&M University, using a computer-assisted survey. Multinomial probit and logit models were used to analyze the data.

Unique to this study is that students could indicate they are not sure where they prefer to start their careers. An inference from the statistical test based on the inverse Mills ratio is that there are no significant differences between two groups, those who are not sure and those with defined preferences.

Fifty-one percent of the students surveyed indicated they preferred to begin their careers in the U.S., 22 percent preferred their home countries, and 27 percent were not sure. Of the students who preferred their home country over the U.S., significant influencers are political and career indices, number of years lived in the U.S., enrollment in Engineering and Business, and gender. A change in either the political or career

indices to favor the U.S. systems and more years lived in the U.S. both increased the likelihood of students' preferring to start their careers in the U.S. Both female students and students enrolled in Engineering and Business were more likely to prefer the U.S. For students unsure of their preferences, significant variables are career and civil indices, number of years lived in the U.S., degree level, source of funding, and marital status.

Results are consistent with previous studies, but with notable differences. For students who are unsure of their preferences, salary differences between the U.S. and their home countries are not statistically significant. Contrary to earlier literature, regional differences do not have a statistically significant effect on students' preferences. Consistency between this study of preferences and previous studies on actual decisions indicates students act on their preferences when starting their careers. Hence, this study's results provide insights for policies to deter brain drain or to enhance brain gain.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my committee, Drs. James Mjelde, Yanhong Jin, and John Hoyle who have not only advised me throughout my thesis work, but have also provided much support and encouragement. Without their guidance, support and continuous encouragement, all this would not have been possible. Dr. Mjelde and Dr. Jin have taught me so much that I will be forever grateful.

Special thanks to Mr. Reyes Santos, who assisted with setting up the web-based survey and making the necessary changes. My gratitude goes to Dr. Richard Woodward and Dr. Douglas Shaw, whose survey expertise was invaluable.

My gratitude goes to Ms. Jeanette Phariss, Dr. and Mrs. John and Carolyn Hoyle, Mr. Jim Cater and Mr. and Ms. Robert and Tonya Chandler and family, and Drs. Carolyn and Thomas W. Adair III for making my dream come true. Thanks to my church family at First Christian Church for believing in me and putting me through school and for their love and support. All my gratitude goes out to my friends who have made this experience memorable. I would like to thank my dad and mom, Mr. and Mrs. Robert Lutamu, for the great support, mentoring and spiritual guidance.

I dedicate this thesis to my dad, Mr. Robert Lutamu.

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CHAPTER I

INTRODUCTION

The term "brain drain" was coined by the British Royal Society in the late 1950s to refer to the emigration of British scientists and technologists to the U.S. and Canada (Cervantes and Guellec, 2002). Brain drain has come to mean the migration of skilled human capital from one country to another either permanently or for a long time. Some scholars believe that the lack of human capital in less developed countries is a main cause of economic underdevelopment (Stark, 2004). Rao (1979) notes that brain drain usually refers to two groups of people 1) educated and trained persons who migrate from developing countries to join the workforce of developed countries, and 2) students who go from developing to developed countries initially for the purposes of education but decide not to return home after graduation. On the other hand, the country receiving the skilled and educated workers may experience brain gain, an increase in the level of human capital,

Of particular interest is Rao's second group of people. Factors that influence where international graduate students at Texas A&M University, College Station, Texas would prefer to start their professional careers are identified in this thesis. This study is an *ex-ante*, before graduation, analysis of students' preferences and not necessarily actual decisions as to where students' careers will start. The population, international graduate students at Texas A&M University, is chosen because it constitutes highly

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This thesis follows the style and format of *American Journal of Agricultural Economics.*

educated individuals of a sending country (home country); therefore, their decisions on where to start their professional careers may have major socio-economic effects on the sending country and the U.S., the receiving country. The U.S. obtains highly educated labor when students stay after their education, whereas the sending country loses this labor which may have contributed to its economic development.

If a student prefers to start his/her career in a given country and the opportunity is available, then he/she is very likely to start their career in that country. The U.S has in the past increased the number of H-1b visas which are used to recruit the highly skilled labor that is lacking (Cervantes and Guelllec, 2002). International graduate students are more likely to obtain jobs in the U.S. than international students with only a bachelor degrees. International students with only bachelor degrees have to compete with many American citizens with the same education level (Larsen, 2004). As such, this study focuses on graduate students. Students' preferences on where to start their careers are important for both the sending country and the U.S.; their career decisions have potential implications for economic development worldwide through brain drain and gain.

Objective

The objective of this study is to improve the understanding on what factors influence international graduate students' preferences concerning where they would prefer to start their careers. To achieve this objective, a web-based questionnaire is administered to international graduate students at Texas A&M University, College Station, Texas. Using primary data obtained from this questionnaire, factors that influence the students' preference as to where they would like to start their professional

careers are examined using multinomial logit and probit analyses. Unique to this study is that the questionnaire allows for students to indicate they are not sure of their preferences as to where they would prefer to start their careers. This allows for a comparison of those students who are not sure of their preferences to students who have defined preferences. The questionnaire is designed to obtain students' perception on factors such as economic conditions, wage differentials, socio-psychological factors, sponsorship, political instability, and intellectual repression in the home country as compared to the U.S.

By addressing this objective, both the U.S. and home countries benefit. The home countries obtain information on which factors influence the students' non-return, potentially allowing countries to develop policies to attract students back home, if there is a shortage of skilled labor. Information obtained also allows U.S. policy makers to consider policies and infrastructure changes to help attract highly skilled labor. The receiving country gains when very skilled international students stay in the country of their education (Mahroum, 1999). Information may also allow the countries to work cooperatively to address development issues, if they feel brain drain is a cause of such issues. Results provide insights for such policy changes before actual career decisions are made to avoid the possible brain drain or to enhance brain gain.

CHAPTER II

LITERATURE REVIEW

In the 1960s, brain drain literature mainly focused on the losses that the sending country experienced from the movement of human capital. It is detrimental to the sending country if the emigrant is able to attain his/her education and consume the social benefits that the state offers (Bhagwati and Hamada, 1974). Social benefits include medical care, national defense, subsidized or free education, and other public goods. Consider the case when a person after increasing his/her human capital decides to leave the country and find a job elsewhere. If the emigrant's productivity is above the marginal productivity of labor, the sending country not only loses his/her contribution to the economy, but there is also a social welfare loss in terms of taxes that he/she would have paid.

Johnson notes that migration of skilled labor reduces both the labor and capital stock of the sending country. This is because migration includes both the uneducated and highly educated with the later having higher productivity. There will be a loss in social welfare because of emigration of highly skilled laborers such as doctors (Bhagwati and Hamada, 1974). Emigration deprives those persons left behind of the returns to social welfare that the emigrant would have contributed to society, thereby, lowering societal welfare. Bhagwati (1976) proposes that a tax should be assessed on skilled emigrant labor to recoup the social welfare losses that the sending country incurs from educating emigrants. Taxing emigrants, however, would be institutionally

difficult. On the other hand, Grubel and Scott (1966 p. 270) argue that emigration is beneficial in some cases,

> If a country wishes to maximize the incomes available to all people, then emigration should be welcomed whenever two conditions are met. These are, first, that the emigrant improves his own income and, second, that the migrant's departure does not reduce the income of those remaining behind.

Other more recent brain drain literature also suggests that brain drain is not always detrimental to the sending country. Miyagiwa (1999) presents a model of brain drain that emphasizes scale economies in higher education, demonstrating that brain drain raises the education level of the sending country. He observes, contrary to the presumption that brain drain hurts the unskilled labor left in the sending country, professionals with intermediate level abilities are hurt the most by brain drain, whether they choose to stay or emigrate. If professionals with intermediate abilities choose to emigrate, they will not be able to obtain better paying jobs in the receiving country. Also, the increase in overall education level in the sending country makes it difficult for professionals with intermediate abilities to obtain better paying jobs even after a proportion of highly educated personnel have emigrated.

A country open to emigration, unlike a closed one, increases the opportunities for the highly skilled labor pool to obtain international jobs, which acts as an incentive for human capital formation. The outcome is that through the emigration of highly skilled people (brain drain), the host country gains from the increase in human capital (brain gain) (Stark, Helmenstein, and Prskawetz, 1997). In a closed economy, workers under invest in human capital because they lack incentives. A socially preferred level of human capital, therefore, is not achieved because there are not enough skilled workers to

be employed in different jobs. Subsidies must be employed to achieve society's preferred level (Stark and Wang, 2002). An open economy under a well-controlled, restrictive migration policy increases the incentive to invest in human capital and the country moves towards the socially preferred human capital. The restrictive emigration policy ensures that the level of preferred workers in the economy is met by controlling the number of skilled emigrants.

The opportunity for an emigrant to obtain better employment opportunities in the receiving country increases his/her investment in education (brain effect), while the departure of the educated individuals from the sending country (drain effect) has a detrimental effect on the sending country. Beneficial brain drain occurs when the prospect of migration increases the human capital formation in the sending country. The average level of human capital is higher in a country open to immigration than a closed one (Beine, Docquier, and Rapoport, 2001). Beine, Docquier, and Rapoport (2001) conclude that beneficial brain drain is evident in an open economy. They argue that even though emigration may lead to both brain drain and brain grain effects, brain drain remains the likely outcome. Using cross-sectional data, Beine, Docquier, and Rapoport (2001) observe that emigration positively affects human capital formation and increases in human capital formation positively affect growth. Assuming migration opportunities and imperfect human capital transferability, an individual will choose to increase his/her probability to emigrate given their budget constraint. In doing so, the emigrant may choose to invest in improving test scores and language skills to increase his/her chances of emigrating (Lein and Wang, 2005).

Migration selectivity has increased in the receiving countries. Emigrants to the U.S. are better educated than the average person in the sending country and the proportions of the highly skilled emigrants from the sending country is high (Carrington and Detragiache, 1998). In Canada, the immigrant admission policies discriminate on the basis of skills. They use the Canadian "points" system where immigrants are screened for the economic benefits they will confer on Canada (Buckley, 1996). Migration selectivity increases the productivity and incomes in the receiving country. The income gap between receiving countries (rich) and sending countries (poor) is widened by increases in income in the receiving country when emigration is induced by wage differentials (Kanbur and Hillel, 2005). Migration selectivity, if it drains the sending country, induces people to acquire more human capital. Network effects play a major role in increasing the prospective of potential emigrants because of reductions in migration costs.

Odenyo (1979) addresses the problem of brain drain in Africa. He observes that there was not a brain drain of African professionals in the 1970s, because there were very few skilled persons in their home countries. The job opportunities in their home countries continued to grow. Even when African students went to study in the U.S., they tended to return home. Returning home is attributed to many factors including interracial discrimination and lack of a welcoming community or network abroad. Public rather than private sponsorship ensured students timely return home. Students who were first born, therefore, their father's successor were more likely to return home. Several factors are noted that delayed the return of students. Positive valuation of job opportunities in

the receiving country and poor political climate at home contributed to students not returning home. Post doctoral students were more likely to pursue practical experience in temporary jobs and pay off their loans before they returned home.

Kwok and Leland (1982) focus on the problem of brain drain associated with students deciding to stay abroad after completing their studies. They stated previous studies identify lack of employment opportunities and low pay as causes of brain drain. In Taiwan, however, ample employment opportunities existed at comparable real wages to those offered abroad. Employers in the receiving country have more accurate information of the true productivity of the student. Accurate information is obtained as the employers in the receiving country are more familiar with the curriculums offered by different schools, and have experience in hiring graduates from different universities. Because of asymmetric information, employers in the sending countries are not as well informed of the productivity of the graduates from the different universities; therefore, sending country employers offer wages that reflect the average productivity of the workers. Foreign graduate students who are average academically return to their home countries where they are offered wages based on average productivity, whereas the top academic foreign graduate students stayed in the U.S. Lien (1987) states that even though the employers may not be able to observe students productivity, other signals like universities' ranking and the person's productivity play an important role. Individuals use these signals to decide whether they will return home or stay aboard. Because of this asymmetric information, persons from high ranking universities with high abilities tend to stay in the U.S. where their productivity is highly rewarded (Kwok and Leland, 1982).

Agarwal and Winkler (1985) focus on the increasing trend in the enrollment of foreign students and factors relevant in the students' decision to stay in the U.S. Agarwal and Winkler (1985) note that immigration laws that make adjustment of visas possible played an important role in the decision to stay in the U.S. Other factors such as political upheaval in the country of origin, racial and religious persecutions, and the avoidance of military service also affected non-return rates. They note that the increase in financial aid by most of the OPEC countries in the late 1970s had played a major role in the increasing foreign students' enrollment. Their study can be aligned with the current trends where enrollment in the U.S. increased from 326,264 in 1990 to 698,595 in 2001 because of favorable immigration policies. After the terrorist attack on September 11, 2001, immigration laws were tightened on foreign students and the visas issued fell by 10.5 percent between 2001 and 2003 (Chellaraj, Maskus, and Mattoo, 2005).

Massey (1999) evaluates the role of the state in setting up policies to control emigration of skilled labor. In developing countries, very few restrictive policies have been put in place to control emigration of skilled labor. This has led to continued loss of highly skilled individuals to the developed countries. Households in developing countries make decisions to diversity their portfolios to avoid risks that stem from unemployment, crop failures, and market fluctuations (Massey, 1999). Sending labor abroad reduces the risk and increases the earnings of the households because of remittances the labor sends home. Formal and informal networks of emigrants in the receiving country reduce the costs of emigration. These networks provide information

on job availability, provide hospitality to emigrants, and help in job searches, hence, decreasing information costs (Kanbur and Hillel, 2005). Such networks create immigration supporting institutions that provide immigrants a layer that sustains international movement.

Oh (1973) studies the non-return rates among Asian students in the U.S., because of the concern that brain drain among Asians was very high. He conducts an extensive survey of students from six Asian nationality groups. Oh (1973) has difficulty defining the point at which brain drain occurs. Brain drain occurs when students do not plan to make their permanent homes in their homes countries in his study. He concludes that 60% of Asian students intend to stay in the U.S. for a substantial time after completing their studies. The students' non-return is mainly attributed to the favorable socio-economic conditions that existed in the U.S. at that time (1960-1969).

Das (1979) surveyed African students in 20 U.S. universities from developing and less-developing countries to study their attitudes towards returning to their home countries after they completed their studies. He concludes that students will return to their home countries if they are offered better opportunities to utilize their skills at home. In most cases, African students from both the developing and less developed countries specialized in fields where shortages of skilled labor existed in their home countries. Even though the sample contains students from less developed and developing countries, 84 percent of the students in both categories planned to return home after completing their studies. Students, with a master's degree or higher, are not as likely to return to their home countries, because their skills will not be used satisfactorily. The study also

confirms that students with higher employment opportunities in their home country are more likely to return. Most of the African students from less developed countries are sponsored by their governments that required them to return (Das, 1979). Family ties and racial prejudice also played an important role in the decision of most African students to return home. He also notes that if the economic and political conditions in Africa continued to be less conducive and the civil rights movement reduced the prejudices in public places in the U.S., African students would be more likely to stay in the U.S.

Bratsberg (1995) presents a conceptual model and an empirical analysis on non-return among foreign students in the U.S. Using data from the Immigration and Naturalization Services (INS) for 69 countries, he concludes that differences in the economic and political conditions explained the variation in their non-return rate. Bratsberg (1995) also looks at skill composition of the non-returning students using micro-data from INS. He states that an international student will choose to stay in the U.S. or return to their home country depending on which country values his/her skills more. In particular, students tend to return to rich countries and those countries close to the U.S., although propensity to remain in the U.S. varies across countries.

Huang (1988) explores the non-return rates of foreign students using data of students adjusting their visas from the INS. He uses secondary data to acquire different variables that might be important in the students' decisions to stay in the U.S. Further, he explores the role of U.S. immigration policies in facilitating the non-return of foreign student. An empirical model is formulated using pooled data from 25 countries from

1962 through 1976, which included not only typical economic explanatory variable but also socio-political variables. The study concludes that U.S immigration policy is an important and effective factor affecting the adjustment from student status to immigrant. If the objective is to reduce brain drain from developing countries various policies could be implemented. Policies such as non-immigrant visa regulations prohibiting adjustment of status and stringent labor certification regulation can be adopted to make immigration more difficult (Huang, 1988).

Carrington and Datragiache (1999) discuss the extent of brain drain by comparing the number of emigrants with the population level and education attainment of the sending country. They estimate the emigration rates from 61 developing countries to Organization for Economic Cooperation and Development (OECD) countries. Using 1990 U.S. census data information brain drain to the U.S was estimated. Carrington and Datragiache (1998) conclude that migration to the U.S. tends to favor the highly educated members of the sending country, rather than the average educated with the exception of Central American countries. Brain drain is high in the Caribbean, South America, and some African countries. Emigrants from Africa consisted primarily of highly educated individuals, with very few emigrants to the U.S. having only a primary education (Carrington and Datragiache, 1999). Alternatively, the migration flows from Central America is different from other developing countries in that the high migration rates are for persons with a secondary education rather than a tertiary education. Carrington and Datragiache (1999) present a quantitative assessment of brain drain, using data from foreign born population in the U.S., but the data has its limitations.

They used a pool of only foreign born individuals above the age of twenty-five. This might omit some of those individuals that were in high school, college, and new college graduates. Also, the illegal immigrants are not considered.

Adams (2005) contributes to earlier work by using data from the U.S. Census Bureau and OECD to determine how pervasive brain drain is. He concludes that international migration to the U.S. and OECD countries has continued to grow. Adams (2005) shows that international migration involves the movement of the educated, but does not take a very high proportion of the best educated individuals from the sending countries. Using his assumption, brain drain means migration of more than 10 percent of the tertiary educated population from a particular sending country, only a handful of the sending countries experience brain drain. Of the countries experiencing brain drain, there is a relationship between geographical proximity to the receiving countries and the size of the sending countries. Slightly populated countries close to the U.S. experience the most brain drain. These countries include Dominican Republic, El Salvador, and Jamaica (Adams, 2005).

Brain drain of highly skilled individuals from receiving countries leads to remittances by the emigrants to the sending countries. Remittances are a proportion of emigrant's earning that is sent from the country of employment to the sending country (Russell, 1986). There is a presumption in the literature and among policy makers that emigrant remittances play an important role in economic development of the sending country as foreign direct investment and other capital flows (Chami, Fullenkamp, and Jahjah, 2005). There have been various reasons postulated as to why emigrants remit

their incomes to family in the sending country. In Stark and Lucas' (1988) study of remittances to Botswana, they note that the family invests in educating a member of their family so that he/she can earn a higher income. This creates an unwritten obligation for the educated family member to support his/her family. Emigrants may also choose to remit income for altruistic reasons. Also, sons are more likely than daughters to remit incomes to their families possibly to increase their chances of inheritance.

In the small sending countries of Central America and the Caribbean region, remittances play an important role in the development process (Funkhouser, 1995). Most of these remittances are sent to the emigrant's family. In a study of Mexican households in 1982, remittances affected household-farm income and the accumulation of income-producing assets, and remittances were positively associated with the accumulation of animal herds (Taylor, 1992). Remittances also play an important role in enabling the sending country to pay for its imports. Remittances are an important source of foreign exchange (Russell, 1986). In 1987, estimated remittances to El Salvador were between $400 and $600 million. The lower amount was approximately 67 percent of exports and nine percent of the Gross Domestic Product (Funkhouser, 1995).

Among the more affected countries, Latin American countries suffer from high migration rate, while most African countries suffer from high selection biases (Docquier, Lohest, and Morfouk, 2005). Selection bias occurs when either the legal immigration network or infrastructure encourages the emigration of the highly educated individuals to the U.S. or OECD countries more than the less educated individuals. Using data from OECD countries on international migration by education attainment from 1990 to 2000,

they show that there was a strong rise in skilled immigrants from less developed countries, especially those from Africa and Latin America. They are able to reveal strong spatial, political, and cultural autocorrelation in immigration rates and biases. Most countries suffering from brain drain exhibit either high global migration rates or high selection biases but not both. Results show that selection biases are strong in countries characterized by instable political regimes and high degree of fractionalization.

Mahroum (1999) explores the increased supply of international labor in the engineering and science fields. He shows there is an increased demand in the U.S. for workers in these fields. More than half of the European graduate students in these fields remain in the U.S., unlike the students from Korean and Japan who return to their home countries. Mahroum (1999) observes that most of the scientists from Europe are attracted to a few places that included California, New York, and Massachusetts. These areas possessed a strong entrepreneurial culture, high standard of living, and good quality of life that attracted these scientists. Europe also experiences brain drain. The brain drain from Europe centers on the so called la crème de la crème scientists, who are the brightest and the best and whose talents can highly benefit the sending country (Mahroum, 1999). This is evident in the fact that many of the U.S. Nobel prize winners are originally from Europe.

CHAPTER III

PROCEDURES AND METHODOLOGY

A methodology to obtain primary data to determine the potential important factors that influence where students would prefer to start their careers is developed. A computer assisted survey design is used to survey international graduate students at Texas A&M University. Data from this survey is then analyzed using discrete choice models.

Obtaining E-mail Addresses

Primary data are obtained from international graduate students enrolled at Texas A&M University, College Station, Texas though a web-based questionnaire. Institutional Review Board approval was obtained on September 21, 2005. A cover letter explaining the objectives of the study and the importance of answering the questionnaire, along with the web address of the questionnaire, was sent by e-mail to graduate students at Texas A&M University. The e-mail addresses were obtained through an Open Records Act request. The University Counsel denied our initial request for e-mail addresses specifically for international students; as such a request for the immigration status of a student would violate their privacy rights. The Open Records Request, therefore, obtained the directory information on all enrolled graduate students in the Fall 2005. Directory information obtained were name, major, e-mail address, place of birth, and enrollment status. From this information, students born in the U.S. were eliminated from the list; leaving a list that consisted of 3,353 foreign-born graduate students at Texas A&M University. During the administration of the questionnaire, students were asked their home country. This allows for the elimination of foreign-born

domestic students. Not all addresses are necessarily associated with students at Texas A&M University in the Spring 2006, because of the time lag between obtaining the e-mail addresses (Fall 2005) and administration of questionnaire (Spring 2006). For additional discussion of this issue, see Chapter IV.

Questionnaire Development

Both previous literature and economic theory help develop the questionnaire. Economic theory of utility maximization provides the basis for this study. A student will prefer to start their career in the country where he/she obtains the highest level of perceived utility. From the previous literature, potential important factors influencing students' preferences as to where to start their careers include salary/wage differentials, standard of living, sponsorship, family ties, immigration policies, political climate, civil rights, cultural diversity, social services, aesthetics, distance from home, and marital status (see Chapter II).

Relative Utility Maximization

Utility is a measure of happiness or satisfaction gained from consuming goods and services and from the attributes of where one lives. Individual *i*'s utility function associated with country *j* is

(1) $$U_i^j = f(C_j \mid X_i),$$

where X_i represents a vector of idiosyncratic characteristics of individual *i* and C_j is a vector of attributes of country *j*. A student would prefer to start his/her career in the country that provides the higher perceived utility

(2) $U_i^R - U_i^H > 0$ prefer to stay in the receiving country,

$U_i^R - U_i^H = 0$ indifferent, or

$U_i^R - U_i^H < 0$ prefer to return home,

where U_i^R and U_i^H represent utility associated with living in the receiving country and the home country for individual *i,* respectively.

Assuming a linear utility function equation (2) can be written as

(3) $$U_i^R - U_i^H = \left[\left(\left(\alpha + \beta C_R\right) \mid X_i\right) - \left(\left(\alpha + \beta C_H\right) \mid X_i\right)\right]$$

where α is the intercept and β is the coefficient vector associated with country attributes C_j. Equation (3) can be simplified to

(4) $$U_i^R - U_i^H = \beta \left(C_R - C_H\right) \mid X_i \, .$$

As shown in equation (4), both the relative differences of attributes between the receiving and home countries and individual idiosyncratic characteristics are important in determining where students prefer to start their careers. The questionnaire is developed using these results; a scale of relative attribute differences between the two countries and personal information, such as marital status, major, and family size are obtained. The student gives his/her perception of the relative differences. That is, it is the student's perception and not actual differences that determine where students' would like to start their career. After obtaining the final draft of the questionnaire, a web site was constructed with the assistance of a computer extension specialist. Appendix A contains a copy of the questionnaire.

Pre-testing

The questionnaire was pre-tested using two focus groups and reviewed by faculty members who have experience conducting surveys. After drafting the initial questionnaire, the first focus group of seven international students enrolled in the Department of Agricultural Economics, completed a hard copy of the questionnaire on January 24, 2006. The focus group consisted of four women and three men, including two M.S. students and five Ph.D. students. Two students were from Europe, three from Asia, one from Africa, and one from South America. Three researchers were present to oversee the process. The students took between 6-15 minutes to complete the questionnaire. After the last student had completed the questionnaire, students provided feedback about the questionnaire. They made comments ranging from subjectivity of the questions, understandability, arrangement and length of questions, and suggestions concerning omitting some of the questions they thought were irrelevant. Taking the students' comments into account, as well as, faculty suggestions, revisions were made to the questionnaire. Revisions included questionnaire format and factors important in influencing one's preference for which country a student prefers to start his/her career.

The revised questionnaire was pre-tested using a second focus group consisting of six international students on March 6, 2006. Again, all students were enrolled in the Department of Agricultural Economics. No student present in the second focus group was a member of the first focus group. Using different students ensured that the students had no prior knowledge of the questionnaire. The focus group consisted of two M.S. and four Ph.D. students. Four students were from Asia, one from North America, and

one from Africa. The questionnaire was completed in 13 minutes or less by all students. After they had completed the questionnaire, the students again provided feedback. The students raised no major concerns about the questionnaire. They felt it was easy to understand and straightforward. Some minor concerns, however, were raised. As an example of a minor concern, the group raised concerns that the wording was not clear in the salary questions; they suggested changing the wording from "starting salary" to "starting annual salary."

Computer Assisted Survey

A computer assisted survey is one where computer tools such as e-mail and web sites are used to obtain information from respondents. A summary of advantages and disadvantages of computer assisted surveys over more traditional mail surveys is provided in Table 1 (Appendix B).

In this study, a computer assisted survey is used because it is felt that the advantages outweigh the disadvantages. A computer assisted survey is conducted by using a web-based questionnaire with the web address being sent out via e-mail. Survey design and population definition overcome most of the disadvantages. For example, one disadvantage of computer assisted surveys is coverage error or lack of e-mail accounts and web access. Only those who have access to the web and ability/skills to use the web will answer the questionnaire. Hence, it may lead to selection bias of subjects. This disadvantage is not relevant to this study because Texas A&M University provides all students an e-mail account and access to the internet through open access laboratories and/or personal computers in their offices. Compared to more traditional survey

methods, administration of computer assisted questionnaires is relatively free of monetary costs, after the initial administrative costs and the cost of obtaining the e-mail addresses. The overriding reason for the use of a computer assisted survey is the low cost to researchers of administering this web-based questionnaire. The computer extension specialist provided his time free of charge. Costs of e-mail addresses and data entry are not encountered with the survey design employed. A computer assisted survey can provide the same data as more traditional survey methods quicker and with ease in data entry.

Survey Administration

Data collection occurred between March 29 and April 25, 2006. Given the low cost of sending e-mails, it was decided to send the cover letter to all foreign born graduate students' e-mails. The initial cover letter (Appendix C) and two reminder e-mails (Appendix D) were sent. The initial cover letter was sent out in the evening of Wednesday, March 29. The e-mails were sent out in groups of 25-40 e-mail addresses using the blind copy option. This procedure was to help guard against e-mail accounts reading the mailing as spam and preventing students from obtaining other students' e-mail addresses. In addition, there was uncertainty as to how many e-mail addresses GroupWise, the e-mail program used, could handle at one time. The process was started at 9:30 pm and by midnight approximately 2,300 e-mails had been sent out. After midnight, there was a different report on the status of e-mails sent. GroupWise has a property that one can check on the status of sent e-mails. E-mails sent before midnight indicated the e-mails were transferred, whereas, e-mails sent out after midnight indicated

the e-mails were pending. Mailing was stopped until morning when the cause of the difference could be determined. The difference was that the outgoing component of GroupWise was shut down after midnight and all the e-mails sent out were delivered next early morning when the system was back up. The remaining e-mails, therefore, were sent out on the March 30 between 8:00 a.m. and 9:30 a.m. After 10 days, there were 285 respondents. Eighty-six e-mail addresses were addresses were no longer supported by the university.

To increase participation, representatives of six largest international graduate student associations were requested to send out courtesy reminders to their members to answer the questionnaire. These organizations were the Chinese, Indian, Taiwanese, Korean, Mexican, and Muslim Students Associations at Texas A&M University.

The first e-mail reminder was sent out the evening of Monday, April 10. After 20 days from the initial mailing and 10 days from when the first e-mail reminder was sent there were 466 responses. The second e-mail reminder was mailed out on the Thursday, April 20. The number of respondents increased on April 21, but only three students answered the questionnaire on April 23 and 24. The questionnaire website was shut down on April 25. The total number of respondents is 597.

Discrete Choice Analysis

Data obtained from the questionnaire is analyzed using two approaches. First, descriptive statistics are used to provide an overview of the data. Next, discrete choice analysis is used to examine factors important in determining students' preferences.

To identify the important factors affecting where international graduate students would prefer to start their careers, statistical regression analysis is performed. Because the dependent variable is categorical, ordinary least squares is not appropriate. The level of measurement and data generation process of the dependent variable determines the proper type of categorical dependent variable model (Greene, 1997).

Both the probit and logit models are used in the analysis. Development of the logit and probit models is similar, although the assumptions on the error terms differ. The error terms in the logit model are assumed to follow an extreme value distribution, which gives rise to the logistic function; while the probit model assumes a normally distributed error terms (Train, 2003). The economic rationale for the development of discrete choice models is based on the random utility model. The logit model is developed in detail. Because of the similarities between the models, the probit model is only briefly discussed.

Random Utility Model

A theoretical basis for discrete choice models and estimation can be found in the random utility model. In this framework, the indirect utility function (U_{ij}) for individual i and the j^{th} alternative can be decomposed into two parts: 1) a deterministic component V_{ij} that is known by the researcher up to some parameters, and (2) random component ε_{ij} that is unobservable to the researcher

(5) $$U_{ij} = V_{ij} + \varepsilon_{ij}.$$

The probability individual *i* prefers alternative *j* over *k* can be stated in terms of the probability of the utility of alternative *j* exceeding the utility of alternative *k*

$$(6) \qquad P_{ij}\left(U_{ij} > U_{ik}\right) = P_{ij}\left[\left(V_{ij} - V_{ik}\right) > \left(e_{ik} - e_{ij}\right)\right].$$

Equation (6) forms the basis for discrete choice models.

Logit Model

To determine the probability in equation (6), a specific distribution for the error terms is necessary. One typical assumption is that ε_{ij}'s are independently, identically distributed extreme value. The density for each unobserved component of utility becomes

$$(7) \qquad f\left(\varepsilon_{ij}\right) = e^{-\varepsilon_{ij}} e^{-e^{-\varepsilon_{ij}}}$$

with the cumulative distribution function

$$(8) \qquad F\left(\varepsilon_{ij}\right) = e^{-e^{-\varepsilon_{ij}}} .$$

From equation (6), the probability that individual *i* chooses alternative *j* is

$$(9) \qquad \begin{aligned} P_{ij} &= P_{ij}\left(V_{ij} + \varepsilon_{ij} > V_{ik} + \varepsilon_{ik}\right) \text{ for all } k \neq j \\ &= P_{ij}\left(\varepsilon_{ik} < \varepsilon_{ij} + V_{ij} - V_{ik}\right) \text{ for all } k \neq j. \end{aligned}$$

Assuming the ε's are independent, the cumulative distribution over all $k \neq j$ is the product of individual cumulative distributions

$$(10) \qquad P_{ij} \mid \varepsilon_{ij} = \prod_{k \neq j} e^{-e^{-\left(\varepsilon_{ij} + V_{ij} - V_{ik}\right)}} .$$

Because ε_{ij}'s are not known, the choice probability is the integral of $P_{ij} \mid \varepsilon_{ij}$ over all values of ε_{ij} weighted by its density that is formulized in equation (7). Therefore, the probability (P_{ij}), that decision maker *i* chooses alternative *j* is

$$(11) \qquad P_{ij} = \int \left(\prod_{k \neq j} e^{-e^{-\left(\varepsilon_{ij} + V_{ij} - V_{ik}\right)}} \right) e^{-\varepsilon_{ij}} e^{-e^{-\varepsilon_{ij}}} d\varepsilon_{ij} .$$

Integrating equation (11) gives

$$(12) \qquad P_{ij} = \frac{e^{V_{ij}}}{\sum_{k=1}^{K} e^{V_{ik}}}$$

which is the logit choice probability (Train, 2003).

Assuming that each respondent's choice is independent of the other respondents, the likelihood of choosing an alternative is

$$(13) \qquad L(\beta) = \prod_{i=1}^{I} \prod_{j=1}^{J} \left(P_{ij}\right)^{y_{ij}}$$

where $y_{ij} = 1$ if respondent *i* chooses *j* and zero otherwise, β is the vector of model parameters, *I* is the number of respondents, and *J* is the number of alternatives. The log likelihood function is

$$(14) \qquad LL(\beta) = \sum_{i=1}^{I} \sum_{j=1}^{J} y_{ij} \ln P_{ij} .$$

The estimator is the value of β that maximizes this function (Train, 2003). The log likelihood function is at maximum when its first derivatives with respect to each of the parameters equals zero

(15) $$\frac{\partial LL(\beta)}{\partial \beta} = 0 .$$

The maximum likelihood estimates are the values of β that satisfy the first-order condition. For convenience, let the deterministic component of the utility function be linear in parameters, $V_{ij} = \beta' X_{ij}$. Substituting equation (12) into (15), the derivative of the log likelihood function becomes

(16) $$\frac{\partial LL(\beta)}{\partial \beta} = \frac{\sum_{i=1}^{I} \sum_{j=1}^{J} y_{ij} \left(\beta' X_{ij} \right)}{\partial \beta} - \frac{\sum_{i=1}^{I} \sum_{j=1}^{J} y_{ij} \ln \left(\sum_{k=1}^{K} e^{\beta' X_{ik}} \right)}{\partial \beta} .$$

Solving equation (16) one obtains

(17) $$\sum_{i=1}^{I} \sum_{j=1}^{J} \left(y_{ij} - P_{ij} \right) X_{ij} = 0$$

Rearranging and dividing both sides by *I*,

(18) $$\frac{1}{I} \sum_{i=1}^{I} \sum_{j=1}^{J} y_{ij} X_{ij} = \frac{1}{I} \sum_{i=1}^{I} \sum_{j=1}^{J} P_{ij} X_{ij}$$

The values of β that satisfy the first order conditions are the maximum log likelihood estimates.

Multinomial Logit Estimation

Suppose there are two sets of factors, X_i indicating a vector of idiosyncratic characteristics of individual *i*, and C_{ij} a vector reflecting individual *i*'s perception of country attribute *j*. As noted earlier, an individual will prefer to start his or her professional career in country *j* if the perceived utility in country *j* is higher than in country k, that is, $U_{ij} > U_{ik}$ for any $k \neq j$. From equation (12), the probability of individual *i* preferring starting his/her career in country *j* is

$$(19) \qquad P_{ij} = \left[\frac{e^{\left(\alpha X_i + \beta C_{ij}\right)}}{\sum_{j=1}^{J} e^{\left(\alpha X_i + \beta C_{ij}\right)}} \right],$$

where α is the coefficient of vector X_i and β is the coefficient vector of $C_{ij..}$ Let C_{im} be a vector of attributes of country *m*. Dividing Equation (19) by $e^{\beta C_{im}}$, one obtains

$$(20) \qquad P_{ij} = \left[\frac{\left(e^{\left(\alpha X_i + \beta C_{ij}\right)} \Big/ e^{\beta C_{im}} \right)}{\left(\sum_{j=1}^{J} e^{\left(\alpha X_i + \beta C_{ij}\right)} \Big/ e^{\beta C_{im}} \right)} \right].$$

Equation (20) can be simplified to

$$(21) \qquad P_{ij} = \left[\frac{e^{\left(\alpha X_i + \beta\left(C_{ij} - C_{im}\right)\right)}}{\left(\sum_{j=1}^{J} e^{\left(\alpha X_i + \beta\left(C_{ij} - C_{im}\right)\right)} \right)} \right]$$

where $C_{ij} - C_{im}$ gives the differences in country attributes. This manipulation makes the logit model consistent with the survey development discussed earlier. A similar manipulation can be done for the probit model.

The multinomial logit model exhibits the property of Independence from Irrelevant Alternatives or IIA. That is, for any two alternatives *j* and *k*, the ratio of the logit probabilities

$$(22) \qquad \frac{P_{ij}}{P_{ik}} = \frac{\left(e^{\alpha X_i + \beta (C_{ij} - C_{im})} \right)}{\left(e^{\alpha X_i + \beta (C_{ik} - C_{im})} \right)} = e^{\beta\left[(C_{ij} - C_{im}) - (C_{ik} - C_{im})\right]} = e^{\beta (C_{ij} - C_{ik})},$$

does not depend on any alternatives other than *j* and *k*. That is, the relative odds of choosing *j* or *k* are the same no matter what other alternatives are available or the attributes are of the other alternatives. Hence, the logit model exhibits restrictive substitution patterns among alternatives due to the IIA property. The IIA assumption can be relaxed by using various generalized logistic estimations (Train, 2003). The multinomial probit model does not exhibit the IIA property and it allows for any patterns of substitution by using different covariance matrices (Train, 2003). This study assumes error terms in both multinomial logit and probit models are independent.

Probit Model

The underlying theory for the use of both the probit and logit model is similar. As noted, the difference between the two discrete choice models is the assumptions concerning the unobserved components of utility, $\varepsilon's$. A normal distribution is assumed in the probit model. In this analysis, using the multinomial probit models, the error terms are assumed to be independent. From equations (5) and (6), the probability of individual *i* choosing alternative *j* over *k* is

(23) $$P_{ij} = P_{ij}\left(V_{ij} + \varepsilon_{ij} > V_{ik} + \varepsilon_{ik}\right) \text{ for any } k \neq j .$$

The choice probability is the integral over all values of ε_{ij}

(24) $$P_{ij} = \int y_{ij}\left(V_{ij} + \varepsilon_{ij} > V_{ik} + \varepsilon_{ik}\right) \phi\left(\varepsilon_{ij}\right) d\varepsilon_{i} \quad \text{for any } k \neq j$$

where y_{ij} is an indicator of whether the statement in the parentheses holds, and $\phi\left(\varepsilon_{ij}\right)$ is the joint normal density function with zero mean and covariance Ω. Following a procedure similar to that in the logit discussion, the log likelihood function associated with equation (24) is

(25) $$LL(\beta) = \sum_{i=1}^{I} \sum_{j=1}^{J} y_{ij} \ln P_{ij}$$

where $y_{ij} = 1$ if respondent *i* chooses *j* and zero otherwise, β is the vector of model parameters. The maximum likelihood estimates are the values of β's satisfies the first order conditions. These conditions are similar to those previously discussed.

Testing for Model Appropriateness

There may be a significant difference between the two student groups, those who have a clear preference of where they prefer to start their careers either in the U.S. or home country (decided) and those who are not sure yet (undecided). Therefore, a test for statistically significant differences between the two groups is conducted.

The Heckman two step method using the inverse of the Mills ratio is used to test if there are differences between two groups. The first step is to estimate a bivariate probit model with the dependent variable being decided and undecided. Post estimation, the inverse Mills ratio is calculated for each observation. The inverse Mills ratio is

$$(26) \qquad IMR_{ij} = \frac{-\phi\left(\beta' X\right)}{\Phi\left(\beta' X\right)}$$

where IMR_{ij} refers to the inverse mills ratio for individual i choosing alternative j, ϕ is the joint normal probability density function, and Φ is the joint normal cumulative density function, X denotes a vector of explanatory variables in the probit regression, and β is a set of corresponding parameter estimates of the explanatory variables (Bryne, Capps and Saha, 1996). In the second step, a multinomial probit model is estimated with the dependent variables being students who prefer to start their careers in the U.S., home country, or are not sure. An additional independent variable, the inverse Mills ratio, is included in the estimation. The null hypothesis is $\beta_{IMR}^{HC} = \beta_{IMR}^{NS} = 0$ where β_{IMR}^{HC} and β_{IMR}^{NS} are the coefficients associated with IMR_{ij} in the home country and not sure equations relative to the U.S. The alternative hypothesis is the null hypothesis is not true. An F-

test is used to test the null hypothesis. Rejection of the null hypothesis implies that there is a statistical difference between the two groups. Failure to reject the null hypothesis infers the two groups are similar. If the test fails to reject the null hypothesis, the multinomial probit is re-estimated without the IMR variables included as independent variables in the two equations. The multinomial probit model is estimated with the inverse mills ratio as an independent variable, if the null hypothesis is rejected.

Unfortunately, the logit model does not have a test equivalent to the Heckman's procedure to test the difference between two groups. Within the logit estimation family, nested logit estimation procedures can sometimes be used to account for group differences. Unfortunately, in this study, the nested logit model cannot be used to account for differences between the groups because of data limitations. The two-step Heckman test will be extrapolated to the logit model. If the test fails to reject the null hypothesis, then the logit model is deemed appropriate. On the other hand, if the null hypothesis is rejected, the logit model will still be estimated, but with the caveat that the model is an approximation.

All estimations are done using STATA version 9.

CHAPTER IV

DATA, DESCRIPTIVE STATISTICS, AND REPRESENTATIVENESS

Five hundred and ninety-seven people either fully or partially responded to the questionnaire. The "usable sample" is defined as those students who fully completed the questionnaire. Fully completed questionnaire requires students to respond to every relevant question or using responses to select questions, responses to questions that students failed to complete could be reasonably ascertained. After data cleaning up and recovery, the usable sample consists of 470 observations.

Data Clean-up

As stated in Chapter III, the e-mail addresses obtained from Texas A&M University consisted of all the foreign-born graduate students. There were some U.S. citizens born outside the United States whose e-mail addresses were included in the list. Eleven students who answered that their home country is the U.S. were dropped from the data. Also dropped were ten respondents that didn't indicate their home country.

To be included in the usable sample, the respondents had to indicate which country they would prefer to start their career in question 26 (question from this point is abbreviated as q). This question had four options U.S, home country, country other that the U.S. or home country, and not sure yet (undecided). Twenty-seven students who did not answer this question were dropped. To the maintain consistency in the data between questions, respondents who answered the option of country other than home country or U.S. were dropped (23 respondents).

The numbers of respondents dropped because they did not fully answer the questions concerning the attributes of the countries were 28 respondents for q27, eight respondents for q24, and one respondent for q25. In addition, the numbers of respondents dropped for not completely answering questions about individual attributes were 1) one respondent for each question q01, q02, q04, q05, and q23, 2) four respondents for q06, 3) two respondents for q07, and, 4) five respondents for q08.

Three respondents were dropped because they failed to provide their marital status. Married respondents were asked to provide information about their spouse (q12-q16) and additional information was ascertained from those respondents whose spouses live in the U.S. (q16-q21). One respondent that indicated that he/she was married but did not answer q12-q15 was dropped. Respondents who indicated that they were married and their spouse lived in the U.S. but did not fully answer q16-q21 were also dropped (3 respondents). After dropping the above observations, 466 respondents were left in the data set.

Data Recovery and Modifications

By examining individual student responses, it was determined that some observations could be recovered based on the respondents' answers. Each individual observation recovered is discussed along with the reason(s) for the recovery. In addition, minor changes to respondent's answers were made to several observations to make the respondent's answers consistent.

Three respondents did not provide their marital status. Two of the three respondents answered all the questions concerning their spouses, indicating that they

were married. For these two respondents their marital status was changed from missing to married. The third respondent who did not provide their marital status also did not answer any questions concerning their spouse, but completely answered all the other questions. Therefore, the respondent's marital status was changed from missing to single.

Two respondents indicated that they were married although they did not answer any questions concerning their spouse, but answered all the other questions. It is, therefore, assumed they are single. One respondent indicated that she was single, but provided information about her spouse. We assumed that she is married.

One respondent indicated that she was married, answered all the questions about her spouse, but did not indicate the home country of the spouse. Because the respondent indicated that the spouse held an F-2 visa, the home country of the spouse was changed from missing to the same country as the respondent. In most cases, a student applies for a student visa (F-1) and the dependents are issued an F-2 visa if they are going to travel with the student.

One respondent indicated she was single, but answered one question concerning her spouse, that of the spouse's major field of study. Her response to the question concerning spouse's major field of study was changed to not applicable because she indicated that she was single. Seven respondents provided their spouses' major field of study, but indicated that their spouse was not a student. Because the respondent had indicated that the spouse was not a student, the respondent's spouse's major field of study of the student was assumed to be not applicable. One respondent indicated that

she was married, the spouse's home country was the U.S., and answered all the other questions concerning her spouse including those concerning the spouse living in the U.S. except q15 (Does your spouse live in the United States?). The response for this respondent was changed from missing to indicating the spouse lives in the U.S.

Question 15 asked where married respondents' spouses lived. Married respondents were to skip questions 16-21 if their spouse does not live in the U.S. Three respondents indicated that they were single, answered q15 (Does you spouse live in the U.S?). Because these respondents indicated that they were single, their responses to q15 were changed to not applicable. One respondent indicated that his spouse did not live in the U.S., but answered all the questions concerning the spouse living in the U.S. and that she holds an F-2 visa. It, therefore, was assumed that the spouse lives in the U.S. The respondent's answer to where the spouse lives was changed to living in the U.S. Three respondents indicated that their spouses lived in the U.S. and answered all the questions about the spouse except q16 (How long has your spouse lived in the U.S.?). The home country of the spouses for the three respondents is the U.S. It, therefore, is assumed that their spouses have lived in the U.S. for more than four years. Three respondents indicated the U.S. as their spouses' home country, but indicated their spouse held a visa (q17). Because the spouse's home country is the U.S., it was assumed that the spouses were either citizens or permanent residents of the U.S.

One respondent indicated that his/her spouse lived in the U.S. and was an undergraduate business major, but didn't indicate the visa the spouse held. Because the majority of international students have to get an F-1 visa to be enrolled in school, it is

assumed the spouse had F-1 visa. One hundred and forty students did not indicate how many children they had. We assumed that since they skipped the question, they did not have children. Four observations were recovered; therefore, there are 470 usable observations in the usable sample.

Descriptive Statistics

Descriptive statistics are provided in the Tables 2 through 16 (Appendix B). It is important to note two aspects about the data summary tables. First, in some tables more than one question is summarized. Second, the total number of usable responses (observations) to the individual questions is 470, 161, or 146 because of the questionnaire design. In the tables, it is noted where the total numbers of observations varies from the total usable respondents of 470. The different sample sizes refer to 161 married respondents and 146 married respondents whose spouses live in the U.S.

Number of respondents by college and the spouses' college are given in Table 2. Students from the College of Engineering comprise the highest percentage of the sample (42 percent). Colleges with the next highest percentage of students in the sample are the Colleges of Agriculture and Life Sciences, Architecture, Business, and Science which composes 16, eight, seven, and seven percent of the sample. No students from the College of Medicine responded to the survey. One possible reason is that very few international students are enrolled in this College.

Table 3 summarizes the students' country of origin. The countries that had an international student enrollment at Texas A&M University of less than 80 students are placed in the "Other" category. Six countries with enrollment greater than 80 students

are India, China, Korea, Taiwan, Mexico, and Turkey. Students from India represent 30 percent of the sample. The only other country with students representing greater than 10 percent of the sample is China. Ph.D. students represent 64 percent of the sample (Table 4). Of the spouses that are enrolled in school, spouses in Ph.D. programs have the highest percentage (35 percent) (Table 4).

Eighty-five percent of the respondents indicated that they have no children (Table 5). Of the 15 percent that indicated that they have children, they have an average of 1.4 children. Thirty-four percent of the respondents indicated that they had lived in the U.S. for more than four years (Table 6). This generally indicates that these respondents where either in the U.S. for their undergraduate degrees and continued on to graduate school, completed their masters degree in the U.S. and continued on for their Ph.D., or they are straight through Ph.D. students. Forty-two percent of the spouses have also lived in the U.S. for more than four years. Among those spouses are U.S. citizens and permanent residents.

As shown in Table 7, more respondents indicated that they hold F-2 visas (19 percent) than F-1 visas (16 percent). F-2 visa holders are the dependents of F-1 visa holders. This may indicate a high number of dependents of F-1 and J-1 visa holders (J-2) decided to go to college after they came to the U.S.

Fifty-three percent of the respondents indicated that their primary source of funding is their home government (Table 8). The second highest primary source of funding is private sources (26 percent). Surprisingly, only six percent claimed that a U.S. institution is their primary source of funding. Forty-three percent of the

respondents indicated that they have relatives living in the U.S. (Table 9), whereas approximately the same percentage indicated their spouse had relatives living in the U.S.

Most of the respondents indicated that their parents live in their home countries (Tables 10) and they have relatives in their home country that could to take care of their parents if needed (Table 11). The same is true of their spouses.

Thirty-four percent of the respondents indicated that they are married. Among married respondents, 90 percent indicated their spouses live in the U.S (Table 12). Seven percent of the spouses are either U.S. citizens or permanent residents. Twenty-five percent of the spouses have fulltime jobs. Fifty-seven percent of the respondents indicated that they found it very or fairly easy to integrate into the American way of life (Table 13). Only five percent indicated that they found it very difficult to integrate into the American life style. As expected, most students indicated that they expected to have a higher starting salary in the U.S. than in their home country (Table 14). Fifty-one percent of the respondents indicated that they preferred to start their professional careers in the U.S., whereas 27 percent are not sure and 22 percent would prefer to start in their home country (Table15).

In question 27, respondents were asked to indicate the relative differences between the U.S. and their home country. Responses range from -4 (home country is better) to 4 (U.S. is better) for all factors. As expected, for some factors more respondents indicated that the U.S. is better and for other factors the respondents tend to feel the home countries are better (Table 16). Most respondents indicated that the U.S. had more and better variety of professional opportunities both in the private and public

opportunities and higher political stability. On the other hand, respondents tended to indicate that the home country had better access to networking with fellow country men, less racial discrimination, and better appreciation for cultural diversity. Surprisingly, the respondents tended to indicate that their home countries have better access to health facilities than the U.S. This may be an indication of the respondents' student status in the U.S. On the environment side, students tended to feel the U.S. has better access to recreational facilities and cleaner air and water. All students' written comments are included in Appendix E.

Sample Representativeness

As discussed in earlier, 597 students either fully or partially responded to the questionnaire, but only 470 fully answered the questionnaire (usable sample). Given the nature of obtaining the e-mail addresses, it is difficult to ascertain an appropriate response rate. The population size and the number of respondents, however, are known. This allows the statements to be made about the representativeness of the sample. The e-mail addresses were obtained in the Fall 2005. Texas A&M University keeps students on their e-mail list for approximately six months after students leave the University either by graduation or some other reason. The e-mail list, therefore, not only contains students enrolled in the Spring 2006 (survey date), but also students who graduated or left the University in the Spring, Summer, and Fall 2005. As noted, the e-mail list also contained foreign-born U.S. students. These facts are illustrated by the fact the e-mail list contains 3,353 names but only 2,714 international graduate students were enrolled in the Spring 2006. Unfortunately, the e-mail list did not contain addresses of students who

enrolled starting in the Spring 2006. Considering all respondents including those who didn't fully answer the survey, 21 percent of international graduate students enrolled in the Spring 2006 (the population) answered the questionnaire. The percentage of international students who completely answered the questionnaire is 17 percent, usable sample percentage.

Students from India, China, Korea, Taiwan, Mexico, and Turkey combined constituted 71 percent of total enrollment of international graduate students at Texas A&M University during the Spring 2006. Students from these countries constitute 64 percent of the respondents (Figure 1 Appendix F). India had the highest number of students both in terms of enrollment and the number answering the questionnaire. When compared to the percentage of the population, students from China and Korea had slightly lower percentages of students answering the questionnaire. The percentages of Chinese and Korean students answering the questionnaire are six percent and nine percent lower than the percentage of the population. Students from Taiwan, Mexico, and Turkey make up five, three, and three percent of the population. The percentages of students' responding from these three countries are four percent for each country. The differences in percentages are approximately one percent (within rounding). Students from other countries constituted 36 percent of the sample, but only 28 percent of the student population.

In percentage terms, six percent more PhD. students answered the questionnaire compared to the percentage of those students in the population (Figure 2). Twenty-eight percent of the population is female, whereas 35 percent of the respondents are female

(Figure 3). Therefore, when compared to the percentage of student population, seven percent more females answered the questionnaire.

The College of Engineering has the most international graduate students enrolled at Texas A&M University and also has the highest number of respondents. Compared to the student population, the College of Engineering had four percent more students responding to the questionnaire (Figure 4). The other two colleges representing 10 percent or more of the sample are College of Agriculture and Life Sciences (10 percent) and the College of Science (11 percent). The College of Agriculture and Life Sciences had six percent more respondents compared to the percentage of the student population, whereas the College of Science had four percent less respondents (Figure 4).

Ph.D. students, females, students from the College of Engineering, and students from India make up a slightly higher percentage of sample than the population. However, the usable questionnaire responses are deemed representative of the population.

CHAPTER V

LOGIT AND PROBIT MODELS

As discussed in Chapter III, two models are estimated, the multinomial probit and the multinomial logit. Each model is discussed separately. A comparison of the two models is presented, and then a discussion concludes the Chapter. Tables 17 through 19 are in Appendix B.

Model Variables

In both models, the dependent variable is a categorical variable indicating whether a student prefers to start his/her career in the U.S., home country, or not sure. The base decision is the students' preferences are to start their career in the U.S. Twenty-five independent variables (excluding the intercept) are included in the model (Table 17). Coefficients are interpreted relative to the base.

Eight continuous variables are included in the models. Of these eight variables, five are indices. The indices are a combination of factors included in question 27, which are a scale of relative differences between the U.S. and the home country. The indices are 1) political index consisting of political stability and public safety, 2) environmental index consisting of level of public recreation facilities, air and water pollution, 3) career index consisting of the number and variety of professional opportunities in the private and public sectors and the ability to network with fellow country persons, 4) civil index consisting of gender equality, racial discrimination, and appreciation for cultural diversity, and 5) living index consisting of access to health facilities, standard of living, and educational opportunities for children. The indices are calculated by summing the

respondents' answers to the different factors that make up the index (Table 17). The remaining continuous variables are the number of years spent in the United States (q05), number of children the respondent has (q22), and salary differences. Salary differences are calculated as the differences between how much the respondent expects to earn in the U.S. minus what he/she expects to earn in their home country. Because in the questionnaire, the salary questions are categorical, the mid-points for each expected salary range is used in calculating the differences. A positive difference indicates that the respondent expects to earn more in the U.S. than in the home country and vice versa. The other 17 independent variables are categorical and explained in Table 17.

Expected Signs on the Coefficients

Based on prior studies and economic theory, the expected effect for some of the variables can be stated. As noted earlier, the coefficients are interpreted relative to the base decision, students prefer to start their career in the U.S. A negative coefficient, therefore, indicates a decrease in the probability that for that equation (return home or not sure) relative to the U.S. As such, there is an increase in the probability of preferring to stay in the U.S. for a negative coefficient. Positive coefficients have a similar interpretation with a decrease in the probability of preferring to stay in the U.S..

The coefficients associated with the differences in the salary between the U.S. and the home country are expected to be negative. A student is expected to prefer to stay in the U.S. if the salary in the U.S. increases relative to that in their home country and vice versa. Given the scale of relative differences between the U.S. and the home country, an increase in an index indicates that the student feels the U.S. rates higher in

that index measure. As such, negative coefficients associated with the indices are expected. A negative coefficient indicates that as a student feels the index measure increases in U.S. relative to their home country, there is a higher probability of preferring to start their career in the U.S. It is expected that the longer a person lives in the U.S., the more likely the student will prefer to stay in the U.S. As a student spends more time in the U.S., the student becomes acclimated to the U.S. lifestyle. Increased acclimation makes the student feel that the U.S. is home. A negative sign is, therefore, expected on years living in the U.S. It is expected that females would be more likely to prefer to stay in the U.S. than males. This is because males have better job opportunities in most home countries and are more likely to be responsible for their families and heirs back home. The expected sign on female is, therefore, negative.

Students who have found it easier to integrate into the American life style are more likely to prefer to stay in the U.S. Given the two integration variables are not so easy and difficult, positive coefficients are expected. Respondents in technology and science related fields are more likely to prefer to stay in the U.S. Technology and science disciplines tend to have more job opportunities in the U.S. than in other countries (Cervantes and Guellec, 2002). As such, relative to students in the College of Agriculture and Life Sciences, students in the Colleges of Science and Engineering are more likely to prefer to start their careers in the U.S. Negative coefficients are expected on these college variables. No expected effects for the other college variables are postulated. Students with relatives in the U.S. and those who have relatives to take care of their parents in the home country are expected to be more likely to prefer to start in

the U.S. Both these variables are expected to have negative coefficients. Ph.D. students are expected to prefer to start their careers in the U.S. This is because Ph.D. students have more opportunities to advance their careers in terms of research and the ability to work with professionals in their fields in the U.S. (Chu, 2004). Relative to M.S. students, the expected coefficients on the Ph.D. variable is negative. Besides colleges, other variables with no prior expected sign are number of children, regions, visa status, funding sources, and marital status.

Testing the Model Appropriateness

There may be a significant difference between the two respondent groups, those who have a clear preference of where they prefer to start their careers either the U.S. or home country (decided) and those who are not sure yet (undecided). As discussed in Chapter III, the inverse Mills ratio is used to test for the possible group differences. The p-value associated with the joint F-test on the coefficients associated with inverse mills ratio is 0.46. This test indicates there is no significant difference between the two student groups, decided and undecided. Given this inference, the multinomial probit with three options of where students prefer to start their career (the U.S., home country and not sure) is an appropriate form. Unfortunately, there is no test similar to the above test available for the logit model. The inference from the Mills ratio test for the probit is, therefore, extrapolated to the logit model; the multinomial logit model is an appropriate model.

The difference in normalization between the models should be considered when comparing the results of multinomial probit and logit models (Tables 18 and 19). The

coefficients in the logit model are approximately $\sqrt{1.6}$ times larger than those of probit due to the different assumptions on the error terms (Train).

Multinomial Probit Model

The p-value from the likelihood ratio (LR) chi-square test is less than 0.00001, implying that the independent variables' coefficients are not jointly equal to zero. As such, at least some of the variables help explain the differences in the student preferences as to where they would like to prefer to start their careers. In the following discussion, a five percent significant level is assumed unless otherwise noted.

Returning to Home Country Relative to Staying in the U.S.

Six of the 25 variables (political index, career index, number of years, salary, College of Business, and female) are significant at five percent (Table 18). An additional five variables (Colleges of Science and Engineering, not so easy, Ph.D., and F-1) are significant at the 10 percent level. All variables with previously discussed expected signs, except Ph.D. and relatives living in the U.S., have the expected signs. The negative sign on the two significant indices indicates that an increase in the indices decreases the likelihood a student preference is to return home. The negative sign on years indicates that the longer one spends in the U.S. the less likely they are to prefer to return to their home country. Female students are more likely to prefer to start their careers in the U.S. than male students. Relative to students in College of Agriculture and Life Sciences, students in the College of Business are more likely to prefer to start in the U.S. The negative coefficient on the College of Science indicates that relative to the students in College of Agriculture and Life Sciences, students in the College of Science

are more likely to prefer to start their career in the U.S. Relative to the students who have found it easy to integrate into the American life style, students who have found it not so easy to integrate into the American lifestyle prefer to start their careers in their home county.

For the variables with no prior expectation placed on them, only F-1 is significant at the 10 percent level. Students holding F-1 visas have an increased likelihood of preferring to start their careers in the U.S.

Not Sure Yet Relative to Staying in the U.S.

Six variables (civil index, career index, number of years, Ph.D., home country, and married) are significant at the five percent level (Table 18). All variables except the environment and living indices and Ph.D. have the expected signs. The civil and career indices' coefficients are negative. Increasing the civil and career indices increases the likelihood students would prefer to start their careers in the U.S. The negative sign on number of years indicates the longer a student spends in the U.S. the more likely they are to prefer to start their career in the U.S. The positive sign on Ph.D. indicates that relative to masters students, Ph.D. students are more likely to be not sure. Relative to single students, married students are more likely to prefer to start their careers in the U.S. The only variable with no prior expectation that is significant at five percent is primary source of funding is home country. Relative to the privately sponsored students, students that are funded by their home governments are more likely to prefer to start their careers in the U.S.

Students in the Colleges of Science and Engineering are more likely to prefer to start their careers in the U.S. relative to the College of Agriculture and Life Sciences students. Surprisingly, salary is not significant in the not sure equation, although the negative sign indicates an increase in salary would increase students' preference to start their careers in the U.S. Coefficients associated with Colleges of Science and Engineering and salary are not significant at the 10 percent level.

Multinomial Logit Model

The McFadden R^2 of 0.15 indicates that the model provides a reasonably good measure of fit for cross sectional survey data. The likelihood ratio (LR) chi-square test indicates that for both equations (home country relative to the U.S. and not sure relative to the U.S.), the independent variables coefficients are jointly not equal to zero. The p-value from the LR test is less than 0.00001.

Returning to Home Country Relative to Staying in the U.S.

As shown in Table 19, seven (political and career indices, number of years, salary, Colleges of Engineering and Business, and female) of the 25 variables are significant at the five percent level. An additional three variables (number of children, College of Science, and F-1 visa) are significant at the 10 percent level. All variables with previously postulated signs, except Ph.D., relatives living in the U.S., and care for parents, have the expected signs. An increase in any of the indices decreases the likelihood respondents' prefer to return home. The number of years that a student spends in the U.S., salary, gender, and students in the Colleges of Science and Engineering have the expected negative signs. The longer a student lives in the U.S., the

more likely they are to prefer to start their career in the U.S. As salary expectations increase in the U.S. relative to their home country, students' likelihood of preferring to start their career in the U.S. increases. Female relative to male students are more likely to prefer start their careers in the U.S. Students in the Colleges of Science and Business, relative to students in the College of Agriculture and Life Sciences, are more likely to prefer to start their careers in the U.S.

Students who found it difficult to integrate into the American lifestyle had the expected positive sign. Surprisingly, Ph.D. students, students with relatives living in the U.S., and students who have relatives to take care of their parents have positive signs. These three coefficients are, however, insignificant at the 10 percent level.

For variables in which no prior expectations are placed on the coefficients, only the College of Business is significant at the five percent level. A negative coefficient associated with the College of Business indicates relative to College of Agriculture and Life Sciences students, students in business are more likely to prefer to start their careers in the U.S. There appears to be no regional differences in students' preferences on where they prefer to start their careers.

Not Sure Yet Relative to Staying in the U.S.

Six variables (career and civil indices, number of years, Ph.D., home country, and married) are significant at the five percent level. No additional variables are significant at the 10 percent level. All variables with postulated effects, except environment and living indices, Ph.D. students, and students with relatives living in the U.S., have the expected signs. Of these four variables, only the Ph.D. variable is

statistically significant at the five percent level. The number of years that a student spends in the U.S., salary, gender, Colleges of Science and Engineering, and students who have relatives to take care of their parents, have the expected negative signs. Students who found it difficult to integrate into the American life style are more likely to prefer to return home as expected.

For the variables in which no prior expectations are placed on the coefficients, only students who are sponsored by their home government is significant at five percent level. The coefficient associated with home country indicates relative to private sponsored students, students sponsored by the home country are more likely to prefer to start their career in the U.S.

Differences between the Probit and Logit Models

There are very few differences between the estimated multinomial logit and probit models. One minor difference is that in the probit model, the coefficient associated with the College of Engineering is not significant at the five percent level, whereas it is significant in the logit model at the five percent level. However, the difference in p-values is 0.02. Another difference is that the variable relatives to care for parents is negative in the probit model but positive in the logit model. The probit model has the expected sign on this coefficient. In both models, this variable is highly insignificant (p-values of 0.91 or greater). Because there are only minor differences between the models, it appears that the assumption on the error term has little effect on the inferences from the models. Given there are only minor differences between the logit and probit models, only the results from the multinomial logit are discussed.

Discussion

Additional discussion on selected significant and insignificant variables is provided. The discussion is augmented with results from previous studies, students' written comments on the questionnaire, and descriptive statistics.

Significant Variables

The political index consists of both political stability and public safety. This index is important in determining the likelihood of whether students' preferences are to start their careers in the U.S. or home country. For students who are not sure, the political index, however, is not significant. Many African countries governments are politically instable, while some developing countries that are politically stable are faced with the problem of public safety (Odenyo, 1979). In either case, an unsafe environment is created. One student's comments expand on the differences between political stability and public safety in her home country.

> Although in my home country, political situation was unstable during last 15 years, it is interesting to notice that still you could leave your house unlocked. Simply crime was in high layers in government, so I have been feeling very safe on streets.

As students perceive an decrease in political stability and public safety in their home country, the students' likelihood of preferring to start their careers in the U.S. increases. Stability and safety appear to be important factors in influencing students' preferences.

The career index is significant in both equations, students who preferred to start their careers in the home county and those who are not sure relative to the U.S. This index consists of the number and variety of professional opportunities in public and private sectors and the ability to network with fellow country men. Significance of this

index implies that students prefer a country that offers them a higher level of opportunities. Summary statistics on the students' responses indicate that students generally feel there are more private professional opportunities in the U.S. relative to their home countries; the public professional opportunities are relatively equal. Students felt networking is generally higher in their home countries.

The longer students stay in the U.S., the more likely they are to prefer to start their careers in the U.S. It appears the longer students stay in the U.S. the more acclimated they become to the U.S. lifestyle, giving them a sense of belonging in the U.S. culture. One student commented,

> The only reason why I would like to stay in the US is because I've been here so long and most of my friends are here.

Extrapolating beyond career starting preferences to continuing careers, this result suggests that as students continue to live and raise their families in the U.S., the less likely they will be to return home. Home countries will have a hard time attracting workers back to their country.

One contributing factor to the estimation results maybe the reality that women's rights in the U.S. are higher than in many other countries (Meijer, 2005). Females are more likely than males to prefer to start their career in the U.S. Women may find that life is better in the U.S. with free expression, the ability to work, the availability of technological advancements, and the ability to pursue professional careers. In addition, women are less likely to return to their home countries because it would entail losing their amassed wealth and their new found freedoms in the U.S. (Grasmuck and Pessar,

1992). Eighty percent of the female respondents indicated that gender equality in the U.S. is higher than their home countries.

Students in technology and science fields have a higher likelihood of preferring to start their careers in the U.S. relative to students in the College of Agriculture and Life Sciences. This may be attributed to the level of technological and scientific advancements in the U.S. relative to the students' home countries. The U.S. tends to absorb many highly qualified workers in these fields (Mahroum, 1992). In addition, students in these fields may be more likely to pursue their career in the U.S. because of easier access to research funds and the ability to work with peers in their field. Europe also has a high level of technological development. But, students in technology fields may be more likely to advance their careers in the U.S., because of the higher research potential. In 2000, the U.S. spent $121 billion more on research and development than the European Union (Chu, 2004). Further, the U.S. also offers a variety of fields of study that may not be applicable in the home country. As one student in the College of Science stated,

> My area of interest only allows me to work in the US, as there are very few industry (sic) in India, my home country.

Students in the College of Business have an increased likelihood over College of Agriculture and Life Science students in preferring to start their careers in the U.S. One possible explanation for this finding is similar to the explanation associated with technology and science fields. As with the technology and science fields, job opportunities in the U.S. may be more available, especially with large corporations. On

the other hand, agriculture is the foundation for many national economies, with good job opportunities.

As expected, salary is a significant variable in determining students' preferences on where they prefer to start their careers. As students feel their starting salary increases in the U.S. relative to their home country, they are more likely to prefer to start their career in the U.S. However, salary is not the only issue. Purchasing power of the dollars earned is also important. Several written comments claimed that even though they were not able to obtain as high of a salary in their home country than the U.S., they still would live better lives in their home countries because of the cost of living. One student, for example, commented,

> Although when compared in dollars the salary I would expect to get in my home country is lesser (sic) with that amount of money I could live rather lavishly in my home country than I would here with 4 times the money.

There is a need to take into account the purchasing power parity of each country.

Insignificant Variables

Some observations on the variables that are not significant are noted. The civil index, which includes gender equality, less racial discrimination, and appreciation for cultural diversity, is not significant for the students who prefer home country relative to the U.S. but is significant in the not sure equation. It is surprising these factors are not statistically significant for the respondents who prefer their home country. Insignificance may be related to the procedure used in creating the index or other variables such as the female variable capturing civil rights effects. Another postulated reason for this index not being significant is the civil rights movement worldwide. This

movement may have resulted in students' perceptions of decreased civil rights disparities worldwide. For example, during the 1970s most African students who came to study in the U.S. preferred to return home. Racial discrimination and civil rights were some of the main reason given (Das, 1979). At that time, African students that came to the U.S. faced the same discrimination that African Americans faced. In addition, international African students also faced inter-racial discrimination. After the civil rights movement, African students may have found it easier to obtain jobs in the U.S. Such changes in civil rights maybe translated into this issue not being significant in determining preferences.

Students with more children are more likely to prefer to start their careers in their home country (insignificant in both equations at the five percent level, but is significant in the preference of home country relative to U.S. at the 15 percent level). Several reasons are postulated for this finding. First, the cost of living and raising children may be higher in the U.S. than in their home countries. Besides increased cost of living discussed previously, additional increases in costs are related to students not being able to obtain help from their parents, other relatives, and friends in the U.S that they would be able to obtain in their home country. Another possible reason is maybe some students do not want to raise their children in the U.S. culture. They would prefer to have their children obtain the cultural values of their native country. One student commented,

> I understand the system of my home country much more than that of the USA, so would like to raise my children in my home country.

Students also indicated in their comments that family is important in their preferences on where to start their careers. Even though the variables relatives living in

the U.S. and relatives to care for parents are not significant, several students indicated that they preferred to live near their family and friends in the home country. One student commented,

> The pay will definitely be good in U.S., which will provide a good standard of living for me and my family. However in India I can be close to my parents, relatives and friends. I can have a better social life in India, which can give me peace of mind (sic).

Costs and cultural issues are important factors related to students wishing to return home, however, other factors related to children may induce students to prefer to stay in the U.S. One of the factors that may influence their preferences is the better educational opportunities for their children. Of the married respondents, 54 percent indicated that they would prefer to start their career in the U.S. Seventy-eight percent of the married respondents indicated that the U.S. had better educational opportunities for their children. Such conflicting views may contribute to the insignificance of the number of children variable.

Students who are having difficulties integrating into the American life style have an increased likelihood of preferring to start their careers in their home countries. Colleges with good social networks that help assimilate foreign students into the American lifestyle may be affecting student preferences as to where they would prefer to start their careers. Students who come to a university with a network of fellow country men assimilate easier into the American culture (Massey, 1999).

Salary differences between the U.S. and home country are not a significant factor in increasing the likelihood of students who are not sure about their preferences on where they would like to start their career. Students in this group may not be concerned

about how much they will earn or they have not yet looked at the job market. Instead, other factors beyond salary may be important for those who are not sure. As indicated, the number of years one spends in the U.S. is significant in both equations, students who preferred the home country and not sure. However, 50 percent of the students that are not sure of their preference have lived in the U.S. for two years or less. It may be that they are not yet comfortable with the U.S. lifestyle.

The environmental index is not significant in either equation. Summary statistics indicate students perceived that the U.S. has better access to recreation facilities and cleaner air and water. One interpretation of these results is that students are more focused on their careers than environment issues. The negative coefficient on the environment index indicates that as the students perceive the U.S. has a better environment relative to their home country, students are more likely to prefer to start their career in the U.S. Specific questions concerning the exact location that students prefer to start their career may better explain the role of the environment in students' preferences. A student commented on where he prefers to start his career,

> California (Juat like the place I live back in Turkey HomeLand) Sea,m mountains, less humid air than Texas, what can I say more:) (sic).

Although 51 percent of the student indicated that they preferred to start their careers in the U.S., some students' written comments indicated that they would prefer to start their career in the U.S., work for sometime to gain experience, and then return to their home countries. For example,

> I prefer to start my career in United States. This is because of several reasons. Two primary ones being 1) Working in United states for a few years is an

> experience and that experience would be useful for securing better jobs in my Home country/ around (sic).

This may imply that some student feel they need U.S. experience to be competitive in the job market in their home countries.

Students that are sponsored by their home governments are more likely to prefer to start their careers in the U.S. Home government is significant in the not sure equation, but is not significant in the U.S. versus home country equation (significant at the 12 percent level). This result implies that even though some students may expect (or have) to return home after their education, they would prefer to stay in the U.S. There is a potential difference between students' preferences and expectations. In this study, the focus is on preferences.

CHAPTER VI

CONCLUSIONS

Brain drain and gain influence economic development worldwide. Although previous studies differ on their conclusions as to the effect of brain drain and gain, all studies indicate they have an important effect on economic development. Brain gain, an increase in the level of human capital, is generally viewed as being beneficial to the welfare of the receiving country (Kanbur and Hillel, 2005). The effect of brain drain, the migration of skilled human capital from one country to another country, has both detrimental and beneficial effects on the home country. Detrimental effects include the loss of highly productive skilled and educated individuals (Beine, Docquier, and Rapoport, 2001). Beneficial effects generally are related to increasing the overall education level and incomes of the sending country citizens (Miyagiwa, 1991). Although brain drain has conflicting effects, the overall feeling is the lack of human capital and opportunities in less developed countries is a main cause of economic underdevelopment (Stark, 2004).

Only a small component of the brain gain / drain phenomenon is addressed in this study. Specifically, the objective of this study is to improve the understanding on what factors influence international graduate students' preferences concerning where they would prefer to start their career. Students' preferences play an important role in influencing their actual decisions as to where to start their careers. Unlike much of the previous literature, which uses ex-post secondary data, this study investigates the factors that affect students' preferences on where to start their careers at the micro level using

individual data. This study is an ex ante analysis, that is, before the career decision on starting jobs are made. Career decisions on starting jobs have potential implications for economic development worldwide.

Primary data is collected from international graduate students at Texas A&M University, College Station, Texas, using a computer assisted survey. Both descriptive statistics and statistical estimation, using multinomial probit and logit models, are conducted to identify the important factors influencing students' preference on where they prefer to start their careers.

Unique to this study is that students could indicate they are not sure of their preferences as to where they would prefer to start their careers. This allows for a comparison of those students who have defined preferences to those students who are not sure of their preferences. A test, based on the inverse Mills ratio in Heckman two-stage model, is conducted to determined whether there is a significant difference between the two groups of students, those who are decided and those who are not sure. An F-test indicates there is no statistically significant difference between these two groups. Because of the similarity of the inference between the logit and probit models, only the multinomial logit model results are discussed in detail.

Seventeen percent of all international graduate students enrolled in the Spring 2006 (the population) completely answered the questionnaire. Fifty-one percent of the students indicated that they preferred to start their careers in the U.S., 22 percent prefer their home country, and 27 percent are not sure. Of the students who preferred to start their careers in the home country relative to the U.S., significant factors influencing their

preferences are political and career indices, number of years lived in the U.S., the college that the students are enrolled in (Colleges of Engineering and Business), and gender (females relative to males). Coefficients associated with the significant variables have the expected signs. An increase in the political and career indices and the number of years the student has lived in the U.S. increases the students' likelihood of preferring to start their careers in the U.S. Students enrolled in the Colleges of Engineering and Business relative to students in the College of Agriculture and Life Science are more likely to prefer to start their careers in the U.S. Female relative to the male students are more likely to prefer to start their careers in the U.S.

For the students who are not sure of their preferences, significant variables are career and civil indices, number of years lived in the U.S., degree level (Ph.D.), primary source of funding (home government), and marital status. Consistent with the home country relative to the U.S. equation, significant variables have the expected affects. Students who are sponsored by their governments are more likely to prefer to start their careers in the U.S. Relative to masters students, Ph.D. students are more likely to prefer to start their careers in the U.S. Married relative to single students are more likely to prefer to start their careers in the U.S.

Although variables concerning family, environment index, and civil index are not statistically significant, students' written comments showed that at least some students felt these factors influences their preferences. Some students indicated that although they would prefer to start their careers in the U.S., they intend to go back to their home country after gaining experience and accumulating wealth. Purchasing power parity

between the U.S. and the home countries, which may be an important factor not captured in the empirical estimation, is also mentioned in the written comments. Students noted that they might be able to live better lives in their home countries with less income (in terms of dollars) compared to the U.S.

This study focuses on preferences and not actual decisions. In contrast, most previous studies examined actual decisions, that is, after people made the decision to migrate or not. The results of this study are generally consistent with previous studies, but there are two notable differences. Surprisingly, in the equation students who are not sure of their preferences relative to staying in the U.S., salary differences between the U.S. and their home country are not significant. Contrary to earlier literature, regional differences do not have a statistically significant effect on students' preferences. Even with these two differences, the consistency between the present study and previous studies indicates students appear to act on their preferences when starting their careers.

Implications

The consistency between this study findings, focusing on preferences, with previous studies, focusing on actual career decisions, provides a legitimate foundation for proactive policies to avoid brain drain or to enhance brain gain. The implications discussed below are based on the assumption that sending countries overall suffer from brain drain and receiving countries benefit.

Fifty-one percent of the students indicate they prefer to start their careers in the U.S and an additional 27 percent are not sure of their preferences. This implies that up to 78 percent of the students may prefer to start their careers in the U.S. Given students

act on their preferences, these students will be looking for employment in U.S. Extrapolating this finding to all international graduate students in the U.S. implies major pressure on the U.S. job market for applicants with post baccalaureate degrees. These international students may fill openings that are going unfilled because of the lack of U.S. post baccalaureate graduates or they may be competing against U.S. citizens. If the U.S. is to experience the benefits of brain gain, there will be a need to create jobs for both graduating U.S. citizens and international students.

The political index, consisting of public safety and political stability, influences students' preferences. To lure students back to their home country, policies to improve political stability and the level of public safety in the home countries are warranted.

Policies to increase opportunities in both the public and private sectors should be implemented in the home countries. Students indicated that there are more private opportunities in the U.S. relative to the home country. Sending countries may want to encourage foreign investment in the private sector to create more opportunities. An increase in the opportunities in the private sector is likely to lure students back to their home countries.

Female students are more likely to prefer to start their careers in the U.S. relative to male students. Eighty percent of the female students indicated that there is more gender equality in the U.S. relative to their home countries. To improve the return rates of female students, sending countries should improve women's rights in the work place and society. Another less popular idea would to be to encourage males instead of females to study abroad, if sending countries want to increase student return rates.

Students in the agricultural fields are more likely to return to their home countries relative to students in the technology and science fields. This implies that countries that send their students to study in the technology and the science fields are more likely to lose them to the U.S. than if they send students to study in agricultural fields. This finding provides a basis for differential allocation of government funds to students in different fields.

As the number of years a student lives in the U.S. increases, the likelihood that the student would prefer to start their career in the U.S. also increases. To increase student return rates, countries should consider sponsoring students for educational opportunities that are short time in duration. Students become comfortable with the U.S. lifestyle the longer they stay. U.S. student policies directed towards shorten the length that the time students can stay in the U.S. may help foreign countries address brain drain problems.

Study Limitations and Future Research

One limitation of the research is the procedure used to obtain the e-mail addresses of the international students. A list of only international graduate students for the Spring 2006 semester could not be obtained from the University because of time lags and such a request may violate the students' privacy rights. Obtaining a better list of e-mail addresses of the population is desirable. Another limitation is the assumption of either a logistic or a normal distribution of error terms. Nonparametric qualitative models should be examined. In the questionnaire, questions concerning the student's age and ethnicity were inadvertently left out. Including these questions in the future is

recommended. In addition, many students claimed that there is a difference in the dollar amount that they earned in the U.S. versus their home country because of the purchasing power parity. Purchasing power parity should be considered in future studies.

To increase our understanding between student's preferences and actual outcomes, continuing studies that follow international students as they graduate and start their careers are suggested. Such follow-up studies would allow for the observations of differences and similarities between the preferences and actual outcomes concerning where careers are started.

Further studies are recommended to increase our understanding of the role that the natural environment plays in students' preferences. Increasing the coverage of students to include universities that are located closer to outdoor recreational opportunities is suggested as further research. Selection bias may have occurred. Students enrolled in universities closer to recreational opportunities may prefer outdoor activities or be more environmental conscious. Further, the role of the environment may be taking a backseat, because students are more focused on starting their careers than environmental issues. To address these shortcomings, further studies are recommended pertaining to students' perceptions about the environment and how these perceptions may change as they move from college to professional lives.

In this study, there is no significant difference between students from different regions. Differences between developed and developing countries have been found in previous studies. Further study on this surprising result is recommended.

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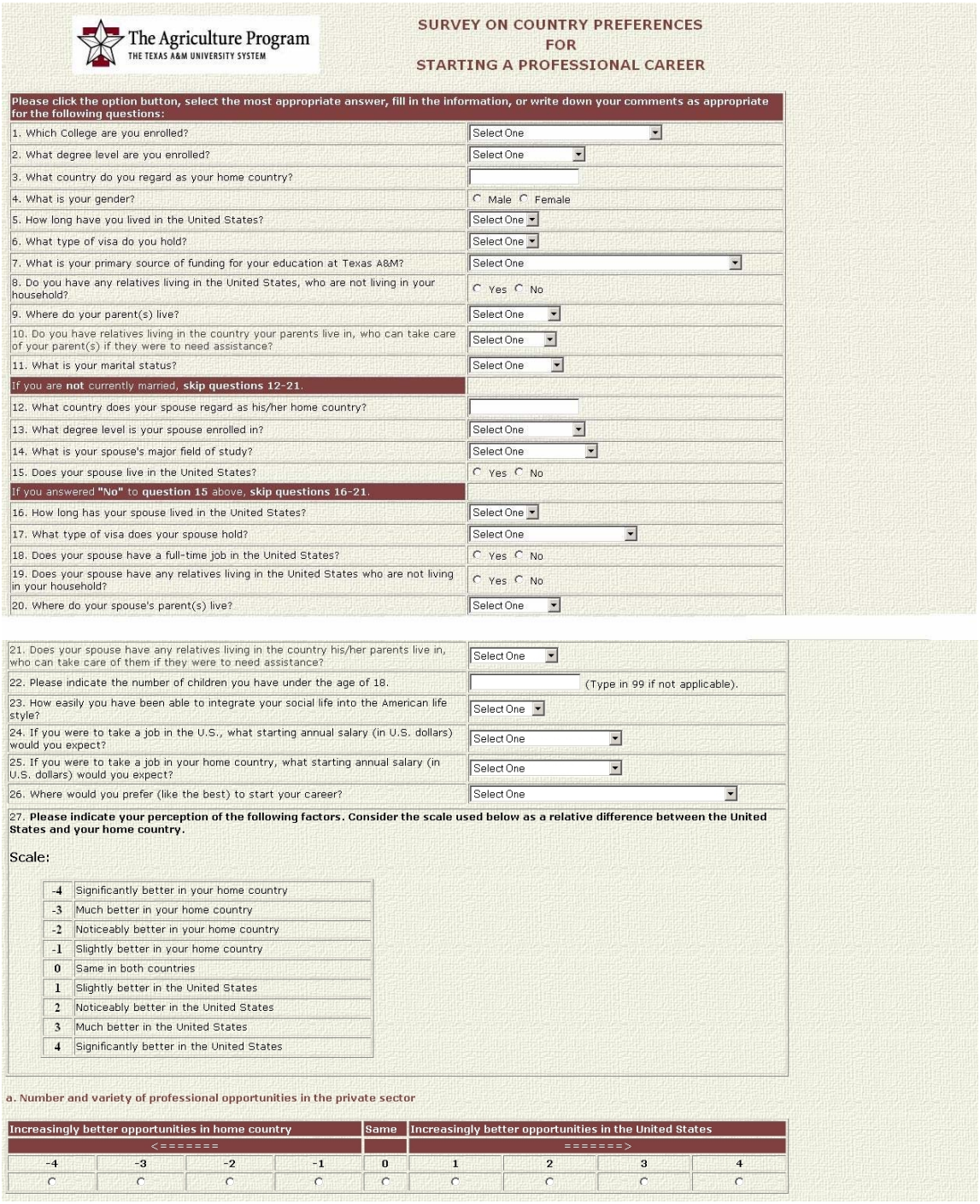
APPENDIX A

WEB BASED QUESTIONNAIRE



The Agriculture Program
THE TEXAS A&M UNIVERSITY SYSTEM

SURVEY ON COUNTRY PREFERENCES FOR STARTING A PROFESSIONAL CAREER

Please click the option button, select the most appropriate answer, fill in the information, or write down your comments as appropriate for the following questions:

1. Which College are you enrolled?	Select One
2. What degree level are you enrolled?	Select One
3. What country do you regard as your home country?	
4. What is your gender?	Male Female
5. How long have you lived in the United States?	Select One
6. What type of visa do you hold?	Select One
7. What is your primary source of funding for your education at Texas A&M?	Select One
8. Do you have any relatives living in the United States, who are not living in your household?	Yes No
9. Where do your parent(s) live?	Select One
10. Do you have relatives living in the country your parents live in, who can take care of your parent(s) if they were to need assistance?	Select One
11. What is your marital status?	Select One
If you are **not** currently married, **skip questions 12-21**.	
12. What country does your spouse regard as his/her home country?	
13. What degree level is your spouse enrolled in?	Select One
14. What is your spouse's major field of study?	Select One
15. Does your spouse live in the United States?	Yes No
If you answered **"No"** to **question 15** above, **skip questions 16-21**.	
16. How long has your spouse lived in the United States?	Select One
17. What type of visa does your spouse hold?	Select One
18. Does your spouse have a full-time job in the United States?	Yes No
19. Does your spouse have any relatives living in the United States who are not living in your household?	Yes No
20. Where do your spouse's parent(s) live?	Select One

21. Does your spouse have any relatives living in the country his/her parents live in, who can take care of them if they were to need assistance?	Select One
22. Please indicate the number of children you have under the age of 18.	(Type in 99 if not applicable).
23. How easily you have been able to integrate your social life into the American life style?	Select One
24. If you were to take a job in the U.S., what starting annual salary (in U.S. dollars) would you expect?	Select One
25. If you were to take a job in your home country, what starting annual salary (in U.S. dollars) would you expect?	Select One
26. Where would you prefer (like the best) to start your career?	Select One

27. **Please indicate your perception of the following factors. Consider the scale used below as a relative difference between the United States and your home country.**

Scale:

-4	Significantly better in your home country
-3	Much better in your home country
-2	Noticeably better in your home country
-1	Slightly better in your home country
0	Same in both countries
1	Slightly better in the United States
2	Noticeably better in the United States
3	Much better in the United States
4	Significantly better in the United States

a. Number and variety of professional opportunities in the private sector

Increasingly better opportunities in home country				Same	Increasingly better opportunities in the United States			
<=======					======= >			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

b. Number and variety of professional opportunities in the public sector

Increasingly better opportunities in home country				Same	Increasingly better opportunities in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

c. Access to public recreation facilities

Increasingly better access in home country				Same	Increasingly better access in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

d. Cleaner air (less air pollution)

Increasingly better air quality in home country				Same	Increasingly better air quality in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

e. Cleaner rivers and lakes (less water pollution)

Increasingly better water quality in home country				Same	Increasingly better water quality in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

f. Level of political stability (peaceful handover of power)

Increasingly more stable in home country				Same	Increasingly more stable in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

g. Level of public safety (protection of the population by the government from crime)

Increasingly safer in home country				Same	Increasingly safer in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

h. Access to health facilities

Increasingly better facilities in home country				Same	Increasingly better facilities in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

i. Gender equality (women are treated the same as men)

Increasingly more equality in home country				Same	Increasingly more equality in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

j. Less racial discrimination (all races are treated the same)

Increasingly less discrimination in home country				Same	Increasingly less discrimination in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

k. Standard of living (quality and quantity of goods and services available to people)

Increasingly higher standard in home country				Same	Increasingly higher standard in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

l. Educational opportunities for children

Increasingly better opportunities in home country				Same	Increasingly better opportunities in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

m. Appreciation for cultural diversity

Increasingly more appreciation in home country				Same	Increasingly more appreciation in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

n. Starting annual salary after completing your studies

Increasingly higher salary in home country				Same	Increasingly higher salary in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

o. Ability to network with fellow country persons (people from home country)

Increasingly better networks in home country				Same	Increasingly better networks in the United States			
<=======					=======>			
-4	-3	-2	-1	0	1	2	3	4
○	○	○	○	○	○	○	○	○

28. Please provide any additional comments concerning your preference on where you would like to start your professional career.

Submit Reset

APPENDIX B

Table 1. Summary of Potential Advantages and Disadvantages of Computer Assisted Surveys over More Traditional Survey Methods

Advantages	Disadvantages
Short response time	Low questionnaire response rate
Low variable costs	High fixed costs at the beginning
Convenience for respondents and researchers	Little sample control
No media gap to overcome	Coverage error
Willingness to answer open-ended questions extensively	Delivery failures & browser incompatibility
High item response rate	Lack of anonymity
Design Flexibility	E-mails are easy to delete
Minimizes interviewer bias	Multiple or inappropriate responses from respondents
Ease to Identify duplicate responses	Unsolicited e-mails don't conform to netiquette
Relatively free after initial administration costs	Incentives for reply can't be enclosed
Ease to collect sensitive information	
Provide same information to respondents as other methods	
Data entry may be automated	

Sources: Grant, Teller, and Teller, 2005; Couper, 2000; Couper, Blair, and Triplet, 1999; Schaefer and Dillman, 1998; Harewood et. al, 2001; Tse, 1998; Schillewaert, Langerak, and Duhamel, 1998; Sheelhan and Hoy, 1999.

Table 2. Colleges the Respondents Are Enrolled in and the Spouse's Major Field of Study and International Graduate Student Enrollment by College

	Respondents (q01)		Spouses (q14)[2]		Spring 2006	
College	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Agriculture & Life Science	76	16.17	13	8.07	274	10.29
Architecture	37	7.87	2	1.24	170	6.38
Business School	34	7.23	19	11.80	142	5.33
Education	30	6.38	7	4.35	111	4.17
Engineering	199	42.34	34	21.12	1222	45.89
Geo-Sciences	19	4.04			98	3.68
Interdisciplinary	2	0.43			140	5.26
Liberal Arts	27	5.74	10	6.21	156	5.86
Medicine[(1)]	0	0.00	5	3.11	0	0.00
Public Service	2	0.43			14	0.53
Science	33	7.02	20	12.42	304	11.42
Veterinary Medicine	7	1.49	1	0.62	32	1.20
Other	4	0.85	11	6.83		0.00
Not a Student			39	24.22		0.00
Total	470	100.00	161	100.00	2663	100.00

q01: Which college are you enrolled in?

q14: What is your spouse's major field of study?

[1]Medicine major for the spouses included veterinary medicine majors and medical students.
[2]The Spouses are not necessarily enrolled at Texas A&M University.

Table 3. Countries That the Respondents and Spouses Regard as Their Home Country and International Graduate Student Enrollment by Country

	Respondents (q03)		Spouses (q12)		Spring 2006	
Country	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
India	141	30.00	32	19.87	612	22.55
China	67	14.26	33	20.49	557	20.52
Korea	38	8.09	16	9.93	466	17.17
Taiwan	18	3.83	4	2.48	123	4.53
Mexico	20	4.26	8	4.98	81	2.98
Turkey	17	3.62	5	3.10	86	3.17
Others	169	35.96	63	39.13	789	29.07
Total	470	100.00	161	100.00	2714	100.00

q03: What country do you regard as you home country?

q12: What country does your spouse regard as his/her home country?

Table 4. Degree Levels of Respondents and Spouses

	Respondents (q02)		Spouses (q13)	
Degree Level	Frequency	Percentage	Frequency	Percentage
Undergraduate			12	7.45
Masters	164	34.89	25	15.53
PhD	301	64.04	56	34.78
Non-Degree Seeking	4	0.85	7	4.35
Not a Student			61	37.89
Other[1]	1	0.21		
Total	470	100.00	161	100.00

q02: What degree level are you enrolled in?

q13: What degree level is your spouse enrolled in?

[1]Other was an option that was meant for students who were post-doctorate or didn't know their classification.

Table 5. Respondents' Number of Children

Number of Children (q22)	Frequency	Percentage
0	401	85.32
1	48	10.21
2	13	2.77
3	8	1.70
Total	470	100.00

q22: Please indicate the number of children you have under the age of 18

Table 6. Number of Years the Respondents and Spouses Have Lived in the United States

	Respondents (q05)		Spouses (q16)	
Years	Frequency	Percentage	Frequency	Percentage
<1 Year	74	15.74	18	12.33
1-2 Years	87	18.51	22	15.07
2-3 Years	75	15.96	21	14.38
3-4 Years	73	15.53	23	15.75
> 4 Years	161	34.26	62	42.47
Total	470	100.00	146	100.00

q16: How long has your spouse lived in the United States?

q05: How long have you lived in the United States?

Table 7. Type of Visas Held by the Respondents and Spouses

	Respondents (q06)		Spouses (q17)	
Visa	Frequency	Percentage	Frequency	Percentage
F-1	74	15.74	58	39.73
F-2	87	18.51	41	28.08
J-1	75	15.96	4	2.74
J-2	73	15.53	12	8.22
U.S. Resident/Citizen			10	6.85
Other[1]	161	34.26	21	14.38
Total	470	100.00	146	100.00

q06: What type of Visa do you hold?

q17: What type of Visa does your spouse hold?

[1]Other category for the respondents and spouses includes those students who enrolled with other visas such as M-1, M-2, H-1, H-4 and L-2.

Table 8. Primary Source of Funding for the Respondents' Education at Texas A&M University

Source of Funding	Frequency	Percentage
Private	121	25.74
Home Government	249	52.98
United States Institution	27	5.74
United States Government	12	2.55
Sponsor, requiring me to return	46	9.79
Other[1]	15	3.19
Total	470	100.00

q07: What is your primary source of funding for your education at Texas A&M?

[1]Other was an option for the respondents who didn't fall into the general categories stated.

Table 9. Frequency of Respondents and Spouses That Have Relatives Living in the U.S. That Do Not Live in the Respondents' Household

	Respondent (q08)		Spouse (q19)	
Relatives	Frequency	Percentage	Frequency	Percentage
Yes	203	43.19	61	41.78
No	267	56.81	85	58.22
Total	470	100.00	146	100.00

q08: Do you have any relatives living in the United States, who are not living in your household?

q19: Does your spouse have any relatives living in the United States who are not living in your household?

Table 10. Countries Where the Respondents' and Spouses' Parents Live

	Respondents (q09)		Spouses (q20)	
Country	Frequency	Percentage	Frequency	Percentage
Home Country	447	95.11	133	91.10
United States	9	1.91	11[1]	7.53
Other Country	10	2.13	2	1.37
Both Deceased	4	0.85		
Total	470	100.00	135	100.00

q09: Where do your parents live?

q20: Where do your spouse's parent(s) live?

[1]Eleven respondents indicated that their spouses' parent live in the United States. Of the 11 respondents, ten indicated that the U.S. was their home country of their spouses, whereas one indicated that the spouse's home country was not the U.S. (Venezuela).

Table 11. Frequency of Respondents and Spouses That Have Relatives That Can Take Care of the Respondents' and Spouses' Parents

	Respondents (q10)		Spouses (q21)	
Response	Frequency	Percentage	Frequency	Percentage
Yes	422	89.79	133	91.10
No	41	8.72	11	7.53
Not Applicable[1]	7	1.49	2	1.37
Total	470	100.00	146	100.00

q10: Do you have relatives living in the country your parents live in, who can take care of your parents if they were to need assistance?

q21: Does your spouse have any relatives living in the country his/her parent(s) live in, who can take care of them if they were to need assistance?

[1]Not applicable includes those respondents whose parents are deceased.

Table 12. Marital Status of the Respondents

Marital Status (q11)		Frequency	Percentage
Married		161	34.26
(q15) Does your spouse live in the U.S.?[1]	Yes	146	90.68
	No	15	9.32
(q18) Does your spouse have a full time job in the U.S.?[2]	Yes	37	25.34
	No	109	74.66
Single		294	62.55
Divorced		11	2.34
Widow/Widower		4	0.85

q11: What is your marital status?

q15: Does your spouse live in the United States?

q18: Does your spouse have a full-time job in the United States?

[1]The calculations for q15 based on a total of 161 married respondents.

[2]The calculations for q18 are based on 146 married respondents who indicated that their spouses lived in the United States

Table 13. How Easy It Has Been for the Respondents to Integrate into the American Life Style

Ease	Frequency	Percentage
Very Easy	80	17.02
Fairly Easy	189	40.21
Not So Easy	118	25.11
A bit difficult	57	12.13
Very Difficult	26	5.53
Total	470	100.00

q23: How easily have you been able to integrate your social life into the American life style?

Table 14. Expected Starting Salary If the Respondents Stay in the United States or Go Back to Their Home Country

	U.S. (q24)		Home Country (q25)	
Annual Salary	Frequency	Percentage	Frequency	Percentage
<$25,000	2	0.43	177	37.66
$25,001-$35,000	21	4.47	101	21.49
$35,001-$45,000	60	12.77	68	14.47
$45,001-$55000	90	19.15	50	10.64
$55001-$65,000	101	21.49	33	7.02
$65,001-$75,000	73	15.53	22	4.68
$75,000-$85,000	73	15.53	12	2.55
$85,001-$95,000	26	5.53	1	0.21
>$95,000	24	5.11	6	1.28
Total	470	100.00	470	100.00

q24: If you were to take a job in the U.S., what starting annual salary (in U.S. dollars) would you expect?

q25: If you were to take a job in your Home Country, what starting annual salary (in U.S. dollars) would you expect?

Table 15. Country in Which the Respondents Prefer to Start Their Careers

Country	Frequency	Percentage
Home Country	104	22.13
United States	238	50.64
Not Sure Yet	128	27.23
Total	470	100.00

q26: Where would you **prefer (like the best)** to start your career?

Table 16. Scale of the Relative Differences between the United States and the Home Country

		Increasingly better in home country ←						→ Increasingly better in the U.S.		
		-4	**-3**	**-2**	**-1**	**0**	**1**	**2**	**3**	**4**
Private Sector Opportunities	Frequency	34	28	34	12	38	51	81	95	97
	Percentage	7.23	5.96	7.23	2.55	8.09	10.85	17.23	20.21	20.64
Public Sector Opportunities	Frequency	31	41	41	28	70	39	82	68	70
	Percentage	6.60	8.72	8.72	5.96	14.89	8.30	17.45	14.47	14.89
Access to public recreation facilities	Frequency	27	23	25	11	85	44	73	91	91
	Percentage	5.74	4.89	5.32	2.34	18.09	9.36	15.53	19.36	19.36
Cleaner Air	Frequency	30	29	24	10	65	39	86	84	103
	Percentage	6.38	6.17	5.11	2.13	13.83	8.30	18.30	17.87	21.91
Cleaner rivers and lakes	Frequency	33	24	21	18	56	38	94	90	96
	Percent	7.02	5.11	4.47	3.83	11.91	8.09	20.00	19.15	20.43
Level of political stability	Frequency	11	13	15	15	169	53	64	60	70
	Percentage	2.34	2.77	3.19	3.19	35.96	11.28	13.62	12.77	14.89
Level of public safety	Frequency	32	30	41	27	81	60	71	66	62
	Percentage	6.81	6.38	8.72	5.74	17.23	12.77	15.11	14.04	13.19
Access to health facilities	Frequency	79	53	59	35	56	41	64	37	46
	Percentage	16.81	11.28	12.55	7.45	11.91	8.72	13.62	7.87	9.79
Gender equality	Frequency	15	10	18	21	161	84	73	54	34
	Percentage	3.19	2.13	3.83	4.47	34.26	17.87	15.53	11.49	7.23
Less racial discrimination	Frequency	95	58	67	48	120	34	18	20	10
	Percentage	20.21	12.34	14.26	10.21	25.53	7.23	3.83	4.26	2.13
Standard of living	Frequency	27	16	20	17	63	71	109	76	71
	Percentage	5.74	3.40	4.26	3.62	13.40	15.11	23.19	16.17	15.11
Education opportunities for children	Frequency	31	35	35	27	93	63	75	60	51
	Percentage	6.60	7.45	7.45	5.74	19.79	13.40	15.96	12.77	10.85
Cultural Diversity	Frequency	65	33	41	26	102	61	67	49	26
	Percentage	13.83	7.02	8.72	5.53	21.7	12.98	14.26	10.43	5.53
Starting annual salary	Frequency	6	6	9	14	40	67	101	103	124
	Percentage	1.28	1.28	1.91	2.98	8.51	14.26	21.49	21.91	26.38
Networking with fellow country persons	Frequency	113	55	63	30	117	20	36	16	20
	Percentage	24.04	11.70	13.40	6.38	24.89	4.26	7.66	3.40	4.26

q27: Please indicate your perception of the following factors. Consider the scale as a relative difference between the United States and your home country

Table 17. Variables Used in the Probit and Logit Estimation

Variable	Variable Definition	Number of Variables added to the model	Expected Sign Relative to Base U.S.
Political Index	q27f + q27g	1	Negative
Civil Index	q27i + q27j + q27m	1	Negative
Career Index	q27a+q27b+q27o	1	Negative
Environment Index	q27c + q27d + q27e	1	Negative
Living Index	q27h + q27k + q27l	1	Negative
Number of Years (q05)	Number of years respondents have lived in the U.S.	1	Negative
Number of Children (q22)	Number of children	1	?
Salary	Differences in income between the U.S. and Home Country: q24-q25	1	Negative
College Enrolled (q01)	Includes five Categories; Science, Engineering, Business, Others, and **Agriculture**	4	Negative for science and Engineering and ? for others
Degree Level (q02)	Ph.D.+ Post Doc and **Masters + Non Degree seeking**	1	Negative
World Region (q03)	European Influence, Latin America, Asia and **Africa**	3	?
Gender (q04)	Female and **Male**	1	Negative
Visa Status (q06)	F-1 and **Other**	1	?
Funding (q07)	Home Country + Sponsor requiring me to return home, Other and **Private**	2	?
Spouse and respondent Have Relatives Living in the U.S (q08)	Yes and **No**	1	Negative
Relatives to Care for Parents (q10)	Yes and **No**	1	Negative
Marital Status (q11)	Married, **Single/Widower/Divorced**	1	?
Lifestyle (q23)	Not so easy, difficult and **Very easy**	2	Positive
Total		25	

Note: The variables omitted to avoid perfect multicolinearity are in bold print and are listed last.

Table 18. Multinomial Probit Model Estimated Coefficients [1]

	Home Country			Not Sure		
Variables	Coefficients	t-test	p-value	Coefficients	t-test	p-value
Political Index	-0.08	-2.22	0.03	-0.02	-0.60	0.55
Civil Index	-0.05	-1.76	0.08	-0.05	-2.15	0.03
Career Index	-0.08	-3.63	0.00	-0.04	-2.22	0.03
Environment Index	-0.03	-1.28	0.20	0.00	0.16	0.87
Living Index	-0.02	-0.91	0.37	0.01	0.65	0.51
Number of Years	-0.26	-3.13	0.00	-0.17	-2.27	0.02
Number Children	0.32	1.52	0.13	0.12	0.57	0.57
Salary	-0.22	-3.69	0.00	-0.04	-0.72	0.47
College Enrolled						
Science	-0.58	-1.64	0.10	-0.24	-0.73	0.46
Engineering	-0.60	-1.85	0.07	-0.19	-0.62	0.54
Business	-0.94	-2.27	0.02	-0.43	-1.14	0.25
Other	0.04	0.08	0.93	0.30	0.79	0.43
Degree level - Ph.D.	0.45	1.67	0.10	0.67	2.76	0.01
World Region						
European Influence	0.07	0.07	0.95	-0.57	-0.83	0.41
Latin America	0.52	0.54	0.59	-0.74	-1.13	0.26
Asia	0.44	0.45	0.65	-0.46	-0.71	0.48
Gender-Female	-0.87	-3.46	0.00	-0.05	-0.24	0.81
Visa Status - F-1	-0.56	-1.73	0.08	-0.22	-0.72	0.47
Funding						
Home Country	-0.43	-1.59	0.11	-0.50	-2.04	0.04
Other	-0.07	-0.21	0.83	-0.32	-1.01	0.31
Relatives Living in U.S. - Yes	0.27	1.22	0.22	0.13	0.66	0.51
Relatives to Care for Parents -Yes	-0.01	-0.04	0.97	-0.30	-1.12	0.26
Marital Status- Married	-0.09	-0.33	0.74	-0.59	-2.41	0.02
Lifestyle						
Not So Easy	0.36	1.40	0.16	0.20	0.85	0.40
Difficult	0.48	1.71	0.09	0.08	0.30	0.77
Constant	1.19	1.12	0.26	1.08	1.38	0.17

[1]Students preferring to start their careers in the U.S. is the comparison group.

Table 19. Multinomial Logit Model Estimated Coefficients [1]

	Home Country			Not Sure		
Variables	Coefficients	t-test	p-value	Coefficients	t-test	p-value
Political Index	-0.11	-2.38	0.02	-0.03	-0.63	0.53
Civil Index	-0.06	-1.59	0.11	-0.06	-2.15	0.03
Career Index	-0.10	-3.56	0.00	-0.05	-2.09	0.04
Environment Index	-0.04	-1.13	0.26	0.01	0.24	0.81
Living Index	-0.04	-1.08	0.28	0.02	0.69	0.49
Number of Years	-0.34	-3.15	0.00	-0.20	-2.16	0.03
Number Children	0.46	1.63	0.10	0.15	0.56	0.57
Salary	-0.28	-3.54	0.00	-0.04	-0.63	0.53
College Enrolled						
Science	-0.82	-1.75	0.08	-0.28	-0.67	0.50
Engineering	-0.85	-1.95	0.05	-0.19	-0.49	0.63
Business	-1.30	-2.33	0.02	-0.48	-1.01	0.31
Other	0.13	0.22	0.82	0.39	0.8	0.42
Degree Level - Ph.D.	0.56	1.58	0.12	0.84	2.73	0.01
World Region						
European Influence	0.05	0.03	0.97	-0.73	-0.87	0.38
Latin America	0.62	0.48	0.63	-0.88	-1.11	0.27
Asia	0.42	0.33	0.74	-0.55	-0.7	0.48
Gender-Female	-1.22	-3.48	0.00	-0.01	-0.04	0.97
Visa Status - F-1	-0.72	-1.65	0.10	-0.27	-0.72	0.47
Funding						
Home Country	-0.57	-1.58	0.12	-0.63	-2.03	0.04
Other	-0.13	-0.29	0.77	-0.41	-1.03	0.30
Relatives Living in U.S. - Yes	0.38	1.30	0.20	0.17	0.71	0.48
Relatives to Care for Parents - Yes	0.05	0.12	0.91	-0.37	-1.1	0.27
Marital Status- Married	-0.14	-0.39	0.69	-0.75	-2.42	0.02
Lifestyle						
Not So Easy	0.48	1.41	0.16	0.25	0.87	0.38
Difficult	0.60	1.57	0.12	0.10	0.29	0.77
Constant	1.67	1.19	0.24	1.25	1.29	0.20

[1]Students preferring to start their careers in the U.S. is the comparison group

APPENDIX C

COVER LETTER

Howdy International Graduate Students,

Researchers at Texas A&M are currently studying the issue of where International Graduate Students prefer to start their professional careers. My Master's thesis is part of this research. I am requesting your assistance by filling out a short questionnaire. Completion of this questionnaire takes approximately 10 minutes. The questionnaire is found on the following website: http://eit-data.tamu.edu/IntGradSurvey/IntGradSurvey.html . Please cut and paste the link into your browser if the above link is not working in your email program.

I appreciate your help in assisting me with this project. If you have any questions or comments, please feel free to contact me mmusumba@vprmail.tamu.edu . Thank you very much for your time.

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IRB Issues

The questionnaire is anonymous and participation in this survey is voluntary. The study involves approximately 4000 international students at Texas A&M University. There are no risks in participating in this questionnaire and the IP address of your computer will not be recorded. You can click on the above link to access the questionnaire.

This research study has been reviewed by the Institutional Review Board-Human Subjects in research, Texas A&M University. For research related problems or questions regarding subjects' rights, contact the institutional Review Board through Ms. Angelia M. Raines, Director of Research and Office of the Vice President of Research at (979)-458-4067, araines@vprmail.tamu.edu .

By responding to this questionnaire, you acknowledge that you understand the following: your participation is voluntary; you can elect to withdraw at anytime; there are no positive or negative benefits from responding to the questionnaire, the questionnaire will be used for student research; and the researcher has your consent to publish materials obtained from the research.

I appreciate our help in assisting me with this project. If you have any questions or comments, please feel free to contact me. I will share the survey results with you if requested. I am under the supervision of Drs. James Mjelde and Yanhong Jin in the Department of Agricultural Economics. If you need any further information from them please do contact.

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APPENDIX D

REMINDER COVER LETTER

Howdy International Graduate Students,

About a week ago you received an e-mail requesting you to complete a questionnaire. If you have already completed the questionnaire, thank you very much for your input and please disregard this e-mail. If you have not completed the questionnaire, please take the time to complete the questionnaire, as your preferences are important. As a fellow international graduate student, I am requesting your assistance in helping me complete my M.S. thesis.

Researchers at Texas A&M are currently studying the issue of where International Graduate Students prefer to start their professional careers. My Master's thesis is part of this research. I am requesting your assistance by filling out a short questionnaire. Completion of this questionnaire takes approximately 10 minutes. The questionnaire is found on the following website: http://eit-data.tamu.edu/IntGradSurvey/IntGradSurvey.html . Please cut and paste the link into your browser if the above link is not working in your email program.

I appreciate your help in assisting me with this project. If you have any questions or comments, please feel free to contact me mmusumba@vprmail.tamu.edu . Thank you very much for your time.

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IRB Issues

The questionnaire is anonymous and participation in this survey is voluntary. The study involves approximately 4000 international students at Texas A&M University. There are no risks in participating in this questionnaire and the IP address of your computer will not be recorded. You can click on the above link to access the questionnaire.

This research study has been reviewed by the Institutional Review Board-Human Subjects in research, Texas A&M University. For research related problems or questions regarding subjects' rights, contact the institutional Review Board through Ms. Angelia M. Raines, Director of Research and Office of the Vice President of Research at (979)-458-4067, araines@vprmail.tamu.edu .

By responding to this questionnaire, you acknowledge that you understand the following: your participation is voluntary; you can elect to withdraw at anytime; there are no positive or negative benefits from responding to the questionnaire, the questionnaire will be used for student research; and the researcher has your consent to publish materials obtained from the research.

I appreciate our help in assisting me with this project. If you have any questions or comments, please feel free to contact me. I will share the survey results with you if requested. I am under the supervision of Drs. James Mjelde and Yanhong Jin in the Department of Agricultural Economics. If you need any further information from them please do contact.

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APPENDIX E

Additional Comments to the Questionnaire Concerning Students' Preferences.

1 Although in my home country, political situation was unstable during last 15 years, it is interesting to notice that still you could leave your house unlocked. Simply crime was in high layers in government, so I have been feeling very safe on streets. I am still not present in US so long to be able to give right conclusion regarding public safety in US, but I noticed that although American people are very kind, in some situations they know very little about living in the rest of the world and they are scared of many things only because of prejudices they heard on TV. That scares me a little bit, simply people should get much wider education. Specially, what I don't like about starting career in US is long process of changing visa status and long uncertainty in that sense. At this moment Europe, Canada and Australia offer much better deals for someone from my country, so that is huge reason why I might decide to start my career there. Simply, I want to feel completely accepted and work without being scared about my status.

2 NASA, About :Less religious discrimination (all religions are treated the same), -4

3 Filial ties, culture, stength of family as an institution are important factors for preference towards home country.
In my area, even with differences in starting salaries, one can afford a relatively comfortable living in my home country takeing into acount purchasing-power-parity. But USA is definitely better place to be to have a strong professional start.

4 A lot of graduate students (mostly PhD, but also some masters) are not "starting their careers", they may have a relevant career already and are improving their academic training or even changing direction in their careers. I felt this survey did not address these students well. In that sense, I started my career in academia more than 13 years ago in my home country and I believe that I escalated positions faster than what I would have here in the US.

5 Academia or National Laboratory

6 According US law, people with US citizenship can be employed at US national Lab. It means that US educates foriegn students by US fund and kick them.

7 After 2 to 5 years of working in US, I would like to return to my home country.

8 Although when compared in Dollars the salary I would expect to get in my home country is lesser, with that amount of money I could live rather lavishly in my home country than I would here with 4 times the money.

9	At home, I will make more money and do not have to go through the visa system, it's a lot of pain getting the working visa and having to update everything often gets frustrating.
10	Based on the Job Prospects and Salary I might take a job outside US also.
11	Because if you want to work for a multinational company it is easier to start in U.S. where most of them are based.
12	Being a forced-choice questionnaire, this survey doesn't allow me to REALLY say what I plan to do... in point of fact, I plan to live and work all over the world, spending a few years working in each place - Australia, NZ, Europe, Latin America, Africa & Asia.
13	California (Juat like the place I live back in Turkey HomeLand) Sea,m mountains, less humid air than Texas, what can I say more:)
14	China is big. Consequently the difference is also big. My opinion can not stand for those who are not from Shanghai. Good Luck!
15	Cultural diversity is still making his way through, moreover the cultural diversity decreased in higher ranked positions.
16	Definitely, if get chance I choose United states as a platform to start my professional career. Better opportunities, better salaries (comparison to my home country), better education, better options to be familiar with the professionals of my field are the major causes.
17	Eventhough higher salaries and better job oportunities are available in the United States, the way non-US-citizens are treated (sometimes like criminals, sometimes like ignorant people, especially myself being a woman and even considering that my education level is considerably HIGHER than the common American citizen) makes me strongly desire to go back to my home country. It might be the case that I will be treated in the same way in my country but I do know how to put up with that kind of behavior there, whereas here you might end up being treated in an even more hostile way.
18	Few questions depend geographically/demographically on which area a person is living in.. Whether it is Houston, TX or Greensboro, NC? Mumbai, MH, India or Vizag, AP, India
19	fine
20	FYI I am studying for the EMBA and have already a job and Greencard.

21 Gender equality should work both ways. There are no incentives for male teachers in high schools or middle schools, where women have a huge numerical advantage.
Gender inequality is a problem in both my country and United States: in both cases there is discrimination against men, and it is called "gender equality".
I'd prefer to start my career in the US because of higher starting salary and more open opportunity for advancements.

22 having some work experience in US might be good initially for a few years, but currently I am planning to return to my home country in the end.

23 Here bcos of the technologial advance, which will be useful when I go back in five years

24 hey i had a 10year career there as an architect. wanted more knowledge so came to study. no clue where will i like to work afterwards. here i start from scrach. there i know people n people know me. more proffesional atitude here less there. so cant answer right now.

25 Howdy! I would prefer working for some time to gain knowledge about my field (constrution management) because the technology provided is far better than that used in India. After gaining significant knowledge I would prefer going back and starting my own small projects. If the answers above did not help you please feel free to contact me by email at: roshan@tamu.edu. Thanks and have a good semester.

26 I am a Distance Learning Student, so I don't need to live in the USA. I am from Venezuela and work in Mexico. My major is in Petroleum Engineering. I have 7 years of professional experience. I really think I may have good opportunities in the USA to continue with my professional career in the future, but that is something that could change according the oil/gas world industry evolvement.

27 I am already working so I approacha the situation differently, but I do still recognize that US, specially Houston is right in the center of my industry (oil), so it is a very good place to work, gain experience, and extend the professional network.

28 I am currently working for TAMU and will relocate in June to work for TAMU in Qatar. I'm not sure what I'll do after that. I think one of the things I gained through years of education abroad is the confidence that I'll do good anywhere. It would have been a good idea to ask the age. Generational differences may be playing a role in answering these questions.
Good luck with your research!

29 I am extremely motivated towards my work. I like to work hard and enjoy what I do will full enthusiasm. The work environment in US in general is significantly better and more serious than India - so most probably I would like to work in US at the start at least for experience. But I am thinking of doing a PhD so that might take a long time and I have not thought about it that seriously as yet.

30 I am not married but also no single. Partner lives in home country.

31 I believe salary cannot directly be compared in US and India (my case). Because $1 when converted to Indian Rupees can purchase much more in India than what a dollar can purchase in US. Hence I would request you to not compare the Salary directly instead compare the salary to Purchasing Power Parity to see what lifestyle one can live with the salary in that particular country. Thanks!

32 I came to the US with the focus of enhancing myself in my chosen field so I could use the theories and practices that I learn can be used in my country. So I tailor made my course work (electives) to suit the needs of my country. I was very clear that I was going to return home after my PhD. Moreover, the quality of life interms of family, domestic help and support, children's education and freedom for movement safety is definitely much better in my home country. The quality of life is definitely better in terms of monetory benefits and living conditions. But when you are qualified and have a good income those things can be achieved in one's home country. Finally I guess its one's perception of what is important in life that decides where you live to a certain extent it could range form personal safety to a false pride of "living in the US" factor that seems to be the main issue in my country atleast.

33 I can make less money in my homecountry, however, the cost of living in lower too. At the end of the day, the quality of life for a PhD is not very different and life is little more relax.

34 I don't have a preference at this point. Once done with graduate studies, I will apply everywhere (US, home country and the world) and choose any job offer that fits me best.

35 I feel US has much higher access to the latest technologies, research funding, and netwrok that increases the quality of research.

36 i guess many grad/ phd. students would like a position in an american university because of both better wages and better professional connections than in our home-countries, good luck

37 I guess your questionare may be wrong. I'm a PhD student in Economics and the ppp may greatly impact the income you will be making when comparing the US vs. your home country. In Bolivia not even the President makes more than 30000 a year. This items should be ppp adjusted plus the ranges for the home country may be too high. A question that may explain my decision and its not controlled in your survey is: Where do you think your skill and work will have a stronger impact?

38 I have already started my career. I would like to work in US for some years, then may be go back. For me work is more important. Both countries have some advantages and disadvantages as per my choice of living.

39 I have already started my professional career. I have had a teaching position for the last 6 years.

40 I have filled out this questionnaire with the intention of helping the involved research, but I should mention that I am a U.S. citizen. This fact may alter your results.

41 I have not yet decided where to start my professional career and neither have inclination to home country or US in particular. Might as well start in a different country if the opportunities are good so it all depend on the job offers.

42 I have personal reasons that make me have a preference for staying in the U.S.

43 I have to return to my home country but after completion of my work period with El Salvador goverment, i would like to look for a job opportunity here in the US.

44 I have worked for 3 years before coming to Texas A&M. I would prefer to continue my professional career in a place that can offer me a job to my liking (in terms of job satisfaction, pay package and working environment).

45 I just completed a Graduate degree after 25 years of teaching, so I am NOT "starting my career" as this survey assumes.

46 I prefer to start here in America since I have many more opportunities here. However, the lifestyle is much better in my home country, where people take time to enjoy life and there is much more appreciation to cultural activities and world awareness. I hope to make America a much better place for all of us.

47 I prefer to start my career in United States. This is because of several reasons..Two primary ones being 1) Working in United states for a few years is an experience and that experience would be useful for securing better jobs in my Home country/ around the globe. 2)Primary funding or rather a lot of money was brought from home for my education here..therefore I have to work here to settle my liabilities. This is because of the higer value of the Dollar. Apart from these two factors I do not think there is any big difference between working in United states or India. I have got a very good experience during my education here and I have enjoyed understanding different cultures...an exposure to people from so many different countries which I would not have been able to get in my Home country. The stantard of living is more or less the same in both the countries, so it would not make much of a difference where I work..only difference being the conversion rate for the dollar due to which I will work here for a few years. Unless I am held up by my profession/company in United states, I prefer to go back to my home country or work in different countries, rather like a global citizen. Moreover I would be like a good-will Ambassador for the United states, I believe my education can be used to make people appretiate the diversity (not relevant in India, as it is already too diverse..but at different countries where I might work)

48 I prefer to start my profession in my home country even though sarary is a lot more less than working in the States. The most significant factor is that my family, home, and country are "My Places" to which I have connectedness. This does not mean I have "home sick" because I have stayed in the States for 6 years since my master pursue. But the States are not my place that I significantly experience as "My Home."

49 I should stay at home for a while and then apply a job in the US ten years later.

50 I should stay at home for a while and then apply a job ten years later.

51 I think comparing the US with developing countries (even with some european countries) is going to show most of the selections down to the right. I think you should include how much money do you need per year for living expenses and contrast it with the annual salary. Regarding education, quality in some cases are very comparable, but as in the US, if you do not have enough income you're out of the game. One of the main advantages the US has over the rest of the world regarding employment is the salary, how diligent federal institutions and companies are to get you a visa and the large variety of options for developing professional careers. All this factors overcome the lack of family around, the food from your home country, the individualistic nature of the american society. In the end, if you have a great salary you can afford one big vacation per year, visit anybody, anywhere, send gifts, etc. it is a win-win situation.

52 I understand the system of my home country much more than that of the USA, so would like to raise my children in my home country.

53 I want to star my professiona career in US becuse the future research potential is high.

54 I worked five years in my country. I started as an Electrical Engineer in my home country Ecuador. Believe it or not, my first salary was $2000 per year. I lived with my parents, so I just spend this money in food and other little things. Another problem is that the job offers are not increasing in my country. Also, outsourcing is not used correctly in Human Resources. I mean that they use this term to hire people without any benefit. No medical care, no dental care, nothing. Just your $200 USD per month. Before coming here, I was a manager of a good company with a salary of $24000 per year. I do not have political friends in my country, that is the problem that I can not find better jobs with more money. I have to grow up by myself. The problem is that it takes too long to complete your dreams. Sorry, but shortcuts in the field that I was working, exists for political people. I have seen people without any preparation in good positions in the sector of Telecommunications. For that, I would prefer to work in America for the equal opportunity jobs that you can find here.

55 I would like to start my career in Texas, working for an Environmental consulting firm, or with a post doctoral position

56 I would like to be based regionally rather than in one particular country as far as my political career is concerned.

57 I would like to start in USA to make some money and then think of going back to home country in order to have more stability and social life.

58 I would like to start my career here. However, i will not stay here too long. I will definitely go back to my homecountry. Afterall, no place in the world would i feel more welcome than home :)

59 I would like to start my career in the US and possibly move to the home country after 4 years.

60	I would like to start my career in US but after 4-5 years I would like to got back to my home country.
61	I would like to start my professional career in academia. I am working towards my Ph.D and would like to start as Assistant Professor after finishing my studies.
62	I would like to start my professional career in the US. I intend to stay here until a mid career level position, before opportunities in my home country will become better than the US.
63	I would like to start my professional career in U.S. but after 4-5 years I will go back to my home country.
64	I would like to start working in a country where there are no racial conflicts or any kind of harrasment against international students.
65	I would like to work in a big seismic research center, and most of them are in the States.
66	i would like to work in either US or Canada
67	I would prefer to start working in my home country because the intangible luxuries available over there are much more, like servents, drivers, cooks. Not only for upper class but lower middle class as well. These things you cant find here even if your a milionare.
68	i would rather go back to my country when i finish my masters, but the here i would get much better conditions. if i stay, it will be only because of that.
69	I would return back to my home country and work there, because my family is there and also I dare say the annual salary will be better if compare to US (I don't mean in USD but in general compare my currency to US's).
70	If it were not for the decaying moral standard in China, I wouldn't have stayed here.
71	If you were to take a job in the U.S., what starting annual salary (in U.S. dollars) would you expect? This is NOT a good comparison AT ALL....expenses are ALSO FAR LESS...This IS NOT A GOOD SURVEY AT ALL...YOU IGNORED A LOT OF FACTORS...LIKE YOU SOCIAL LIFE IN THE US...i know pollution is far less...how about compassion for each other, friends, family ties..students in the US have depression problems..THINK ABOUT THAT and pls include those factors also in your survey.
72	I'm already employed in the US as part of my internship, which is a degree requirement for me.

73 I'm not sure if I am what you'd count as international; I came to the United States when I was 8 years old and have become a naturalized citizen. I don't consider myself anything other than American and will stay here to work for at least a significant portion of my life.

74 I'm not sure wheter this survey applies to me. I am originally from Mexico but I am a Permanent resident and I have lived here for 12 years, so I consider the US my home country and my wife is American. I got my undergradutate degree in Mexico and started my career in Mexico but I only spend the first year there, and I've worked in the US ever since.

75 In an international organization such as IITA, CIP, CIAT, UNDP etc

76 In my home country even the salary is less in the USA

77 In terms of "career opportunities," my home country is getting much better. I am open to living in any country, depending on the quality of the opportunity. I don't think the US has better quality careers for my type of major, a growing subject of study not a traditional science. Just like in every country, there is "definitely" discrimination in the US, if not more than other places.About this questionnaire: No choice for "Not Applicable" or "don't know." so, I think answer choices are not "comprehensive"...

78 In terms of health facilities, USA has a great service, unfortunately, if you don't have money to pay for health plan/insurance you cannot afford to use them. However, in my country (Brazil), if you are poor you still can be treated whenever an emergency happen, because it's free. Also, I want to point that here you may get better payment, but the life is also more expensive. In my country you get paid less, but it's enough to have a good lifestyle, comfortable and more relaxed. I love my country.

79 In the end, my preferences probably won't matter if I want to pursue a career in my field (academia). After all, it was not like I planned to move to the U.S., let alone Texas. My impression is that applying for tenure track positions is the same as applying to grad school… it’s one big c**pshoot.

80 in the southern usa

81 In the US definitively someone with a profession has more options and posibilities fo find a good job, a job that rewards you the 5 or more years that you dedicate to study or specialice in an area. Like a veterinarian, in Mexico, I know very professional people working like salesman or in something that they did not expected from themselves because of the lack of opportunities. But even this, in this country, as an foreing person, and latin person, sometimes some people does not look at you as you deserve, even if you are a hardworker, they care more about your skin color or your fluid english than in your ethical and job strenghts.

82 In US there is a huge difference in laws for discrimination and common practices: there are laws against discrimination but still in normal life and working life women are much more discriminated.

83 India

84 India would be a much better place than US as u get to stay with parents and relatives, u get good salary there too and u can contribute to ur country. No mattter what u do u are always an outsider in this country. U can never belong here. When u stay here always the VISA issues trouble u and its a big pain.

85 It is always good to start the career here ... work for a few years and then get back home. This allows us to work with good people and then continue collaborating with them even after we get home.

86 It is hard to compare certain aspects of my country to the US. If I speak from my personal life and background, the Colombia offers me more comfortability, better career move, better access to public facilities, health care, etc...but just because of my background. At the same time, I do not know what peple in this country of middle class are used to. I am an interantional student and I get easy assistance when I need it but I don't know how a middle class person or a poor person would say about it...so it was difficult for me to compare...you are omparing oragne to apples and its so easy to make conclusions on stereotypes based on the results of the questions. Although, the salary is less back home, it allows you to buy mor ethings than here in the US...so eventhough the salary is less back home, the quality of life would be the same or better. I believe a lot of time sinterantional students want to live here for 1 to 2 years just to save 10 to 20,000 dollars and go home. With that money they will be able to buy a nice apartment or so...and so it helps accelerate when they would purchase a home but it doesn't necessarily mean that is because they go back home right away the salary would be too low to live. Comapring both salaries in both countries, it woud take the same amount of time to purchase a\the same quality of house in bth countries...living in the US for 1 to 2 years may accelarate the time when you purchase a home back home that's all. I hope I was not too long, it is very interesting...I hope your research will help lift up some steroetypes about International Students and our countries. If you need more questions here is my e-mail:catagio98@neo.tamu.edu

87 It seems like very intersting research topic. but I think your suvery design has a little bit bias in the view of US. I am not sure your are a US citizen. I don't think you can find sufficient results from your results to understand the different situations such as cultural background. but :) good topic.

88 I've taken questionnaire like this several times now, but every time I take one, I feel like these questioins are irrelevant to what they are trying to find out. You say you are trying to find where International Graduate Students prefer to start their professional careers. Of course our status, experiences here, and the work environment in our home country and the U.S are important factors to decide where we want to work, but for me at least how simply I feel about my own country is a very important factor just because that's where I grew up. Let's say the air is clearner in the U.S than in Japan. Of couse it's because we have more people in less land, packed. Still I believe people in Japan (government AND citizens) try harder to make the air clean. The U.S has cleaner rivers and parks, but I grew up in a place that have different kind of natural beauties. I believe we have more beautiful mountains,oceans, islands etc. It all depends on our experiences. I guess what I want to say here is I think where international students want to work is much driven not by "if the U.S has better environment" but by "Do you like your own country." They seem like a same question, and of couse I'm biassed and I do not know about people from other countries, but I just wanted to tell you that what you are trying to find out is much more than this questionnaire can find out.

89 Just a comment regarding question (27-n)note that there are no taxes in Saudi Arabia.

90 My area of interest only allows me to work in the US, as there are very few industry in India, my home country

91 My home country has not TAX and there is more vareity in almost all services and products, whereas in the US there is a Monopoly in some secvtors. Cost of living in Kuwait is alot less with eg. free medical, free education even the university...

92 My ideal plan is to start working in US for a few years and then go back to my home country.

93 My memory and knowledge of my country of origin are sparce, as I was quite young when my family moved to the US. As such, my perceptions are somewhat biased and skewed.

94 My preference or choice of where I would like to start my professional career will be dominated by the nature of the responsibilities that the job offers me. I dont mind going to any country so long as the job is interesting, challenging and gives me opportunities to learn.

95 My situation is a bit strange because my husband is not from my home country, and although by many of the standards measured in your study his country is less attractive than my country or the United States, we will likely live in his country for other reasons. We feel that regardless of other factors, in order to have a good quality of life it is most important to be surrounded by a loving family and supportive friends. In his country (Greece) a great deal of importance is placed on enjoying life, even when things are not ideal, and we have found that while we enjoy what North America has to offer, on a day to day basis we are much happier and live a more meaningful life in Greece.

96 Not only salary or better work conditions affect but also overall conditions such as social, political, environmental and educational conditions. Although it depends on the kind of job involved, usually, in developing countries, work opportunities are available for people of high education, but these jobs are of very poor quality because of corruption, law salaries, and lack of promotion opportunities. Most highly educated people who have jobs in public sectors became eventually frustrated of their work conditions. They find no-progress in their status and qualifications. Usually political atmosphere determines overall status. The situation may be better for the private sector but still salaries are not good. Also globalization and telecommunication are reducing the affect of the location of your workplace. In summary, for home political and social adversities and instability, seeking different cultural experience and, sometime, better salaries and work conditions, working abroad (especially in the US) is preferable

97 Perhaps start out in the U.S ... India does not have such an advanced high technology industry .... gain experience .... go back to India as soon as possible - after making sure that the value addition here is ample...

98 Please correct the annual expected income table for the lower levels other than 25,000. my starting salary with phD degree would be about 5000 USD Annually, which is significantly lower than 25000K.

99 Policies realted to Indian students are pathetic in United States. We are always under threat of not doing anything which makes us "illegal". I feel like an alien in this land!!!!!!!!!!

100 Post-Doc in Europe

101 Private company in construction industry

102 Q10 does not really take into account the social net provided by the country the parents live inQ24/25 Although the salary is significantly less in my home country, it provides better social programs which levels the difference for families, etc.Ql) educational opportunities depend on the level of education: Are we talking about elementary school/high school or about PhD studies?

103 Regardless of job opportunities and who may be at home to take care of your parents, home will always be home and I would prefer to live there because Canada has better health care, more culture, better educational standards for your children etc. Unfortunately, the majority of the jobs are in the United States....so here I am.

104 Start in United States, but not end in United States.

105 Start it in US and after 5-6 years move back to hoime country!

106 starting salary in US is higher, but the cost of living is also higher. In the short term, US is a better place to work, money wise. In the long run, financial benefits would be the same. I want to start my career in my home country, because there is no place to substitute for a home country where I grow up.

107 The direction is wrong "If you are not currently married, skip questions 12-21." The Q22 is still a question related to the people who are married! The flow in this questionnaire is not at all clear.

108 The experience in my field is still not available in my home country, and the public interest in it is also very low. I would prefer to stay in a country where I can get more professional experience prior to returning to my home country.

109 The last question is kind of weird, as the ability to network with fellow country persons will be more in the home country obviously.
So is the question about the pay in India. Obviously pay (in US$) in my home country will be less. But then the purchasing power in both the countries is almost similar.

110 The only reason why I would like to stay in the US is because I've been here so long and most of my friends are here.

111 The pay will definately be good in U.S., which will provide a good standard of living for me and my family. However in India I can be close to my parents, relatives and friends. I can have a better social life in India, which can give me peace of mind above all else. So it's what I want most - money OR peace of mind. And I am not clear on the descision yet!

112 The place depends on the job opportunity. I prefer to work in the U.S. because of better working environment and salary. I also want to work in my home country if I can find a good job with good opportunity.

113 The professional career in U.S. is the world-class.

114 The questions above are not well suited for a country like mine. First of all the cost of living is very different. Making 50,000 at hime is like making 300,000 in USA> Secondly, (which might be true for many poor countries), the life standard varies between rich and poor. If I go home I will have access to excellent medical and recreational facilities, probably better than here, but a common person, would be living way below any poverty standards.
I think such survey should control for the socio-economic conditions of other countries. Where measures of happiness and success are differnet. Where there are extended families and financial stability alone is not considered successful. Therefroe I fille dup the survey to my best ability, but I do not consider it a valid reflection of the situation

115 The questions comparing salaries in the U.S and the home country cannot be that exact. Yes, I can make much more here but then everything is much much cheaper in my country. What I mean is if I make less, I spend less. For example, health care is outrageous in the U.S. We have access to a lot of free health care services in Iran, even free dental care.

116 The questions concerning salary in home country equated with salary in US can be very misleading... for example, although I know that I can earn atmost 10000$ in my home country, I can live like a king there for that sum while here it would barely afford an average lifestyle.
There should have been questions on standard of living in conjuction with salary estimations.

117 The salaries might be higher in the states but the racism and the ignorance of white race is not worth the dilemma...

118 The salary comparsion is not reasonable, since the same amount of US dollars has different purchase abilities in different countries.

119 The United States provides excellent grounds for new foreign professionals to acquire valuable start up experience so they can take it and apply to their home countries in the future, especially if the individual's home country is a developing nation. This temporary brain drain would be ideal. The reverse would be more diffucult (ie. from a developing nation to the United States). However, once the professional gains momentum in his/her career (as perceived benefits and standar of living increases), he/she may decide to not return to his/her home country if this decision is plausible.

120 The USA is becoming very defensive and anti anything that is nonwhite. A good example is when it refused to even let international investmentors like dubai ports come into USA, a deal that would have benefited the US economy. It is something for US congress to refuse the ports deal but it is something else for US senators to come out and call UAE names like islamophasict(Sentora of PA), terrorist nation, rouge nation and other hate filled comments has shown the true racist nature of the USA and that there is no place for someone like me here. Every billion dollar the UAE spends buying Boeings instead of Airbuses creates 10 thousand jobs in the USA and the UAE has ordered more than $30 billion of Boeings in the past 4 years alone..meaning it has created 30k jobs! in the USA! So did other developing countries... They buy weapons and airplanes from the USA while they can get better deals buying from elsewhere but they do it at their own loss just to help the US economy. UAE has been reinvesting its oil money into the USA, buying expensive weapons, granting oil exploration rights to US firms,..did everything and in return it has gotten spit at in the face. UAE has soldiers in Afghanistan and IRAQ and in return it got degraded and refered with all sort of degrading and humulating bad names...Or maybe the UAE and other forigen countries should dump its dollar reserve, and

withdraw its $200 billion plus investments in the USA..maybe the saudies should withdraw their trillion dollar investments in the usa..maybe China should dump its dollar reserves.... we live in a connected world, but it seems that the USA is the only place where people are so bigots and racist. I understand people are against foriegner controling ports, but there was no need for such hatered and bigotry.. then again, racisim is deeply rooted in the USA and I can not and will not work in a place where I am treated as second class human being.I was indifferent to where I would start my career since I believe in science and advancing knowledge for the sake of humanity...but after the Dubai ports deal, I will not even consider staying in the USA..even I got multiples of my starting salary in my home country. Nothing is worth my self respect.

121 There are many factors on which my preference depends, money is only one: 1. My country is a developing one and not so many natives are having high degree and so my chance is better there 2.In my country, although the salary is a little less, but by counting taxes which we dont pay there and the cheaper daily life, I would be able to save more in my country. There I will also have free education both K-12 and University for my kids and free treatment from government without need for health insurance. The standard of infrastructure overthere is of high standard, the air is so healthy as my country is regraded as one of the most cleanest counties if not the cleanest. All these promote me to go there. However, I will miss one thing in the United States, the environment here is multicultural and very helpful for education. I will very much miss this part but still I cannot trade other features in my country for this one. Thank you.

122 There are no straight answers to many of the questions you ask. Personally I think that the only thing which makes me reconsider going back to Pakistan is the lack of freedom of expression. This lack of freedom is most visible in discrimnatory laws based on religious injuctions e.g. Blasphemy laws and Hudood Ordinance which systematically take away women's rights in particular and human rights in general. Children's education is another very significant factor. But this does not mean there is a lack of pportunities, foreign trained professionals who return to the country are very few so there are immense opportunities and great chances of rapid growth.

123 There is a lot of difference between my home country and the United States. Both have their advantages and disadvantages. But I believe, the US is the best place to work for and live in. In my home country there is a lot of corruption and there is no appreciation for quality work. But here in the US, things done well are appreciated well. People are very friendly and truthful and nice, totally UNLIKE my home country. Simply saying, there is peace in the air in this country. Thats why I love America. Even if I am to go back to my home country, I will love and respect this nation much more than my homeland as here is where I found real, genuine people.

124 This decision is not just financial in nature for me. I have my family (parents) back home and i need to be with them in the future. SO starting my career here is a possibility but that would definitely be short term in nature. Racial stereotypes and crimes that i have witnessed also makes it difficult to see myself here for a long term. I guess what i am suggesting is this decision on starting a career/continuing it, is emotional in nature for me and not financial.

125 U.S. rocks!!! Health insurance should be WAY cheaper.

126 Ubi bene mia patria.

127 What to choose?!!! Quality of life in my country would make me happy, quality of life in the US would make me rich and "successful". I should care more about being happy, and yet I am choosing to stay, try to be succesful and accepting to miss all good things of life...or maybe I'll have enough money to go home often...you made me think again, thanks!

128 Where can I view the result?

129 With respect to professional development, the US has a lot more oportunities. The only consideration that I will give to return to my home country is the presence of my family, network of friends, and some quality of life (less stressful pace than in US).

130 would like to work in US for 2 to 3 ears and then head back to India

131 You should know that some countries award (economically and politically) academic professors that publish in international journals and engage in international research projects. I want to become a scholar and would like to start my career in the US. My staying,though, would be temporary in order to establish myself in a scholar network and thus gain status when I get back to my country (which is my ultimate goal)

132 Your survey doesn't take into account something like postdoc. Because I do want to get two to three years of postdoc before going home. The income is lower in my country than in the USA. However, the cost of leaving there is better. One can get comparable goods and services easier and cheeper.

APPENDIX F

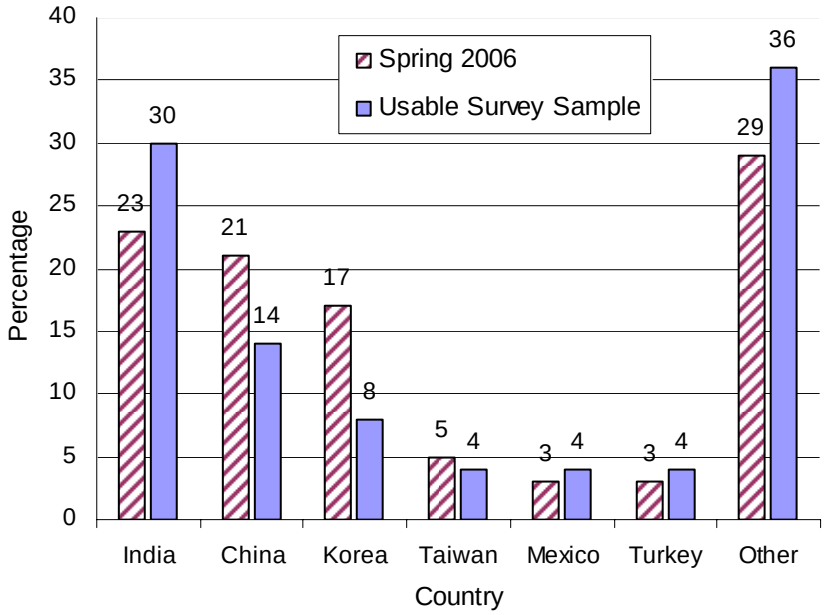

Figure 1. Percentage of international graduate students enrolled at Texas A&M University and questionnaire respondents by country

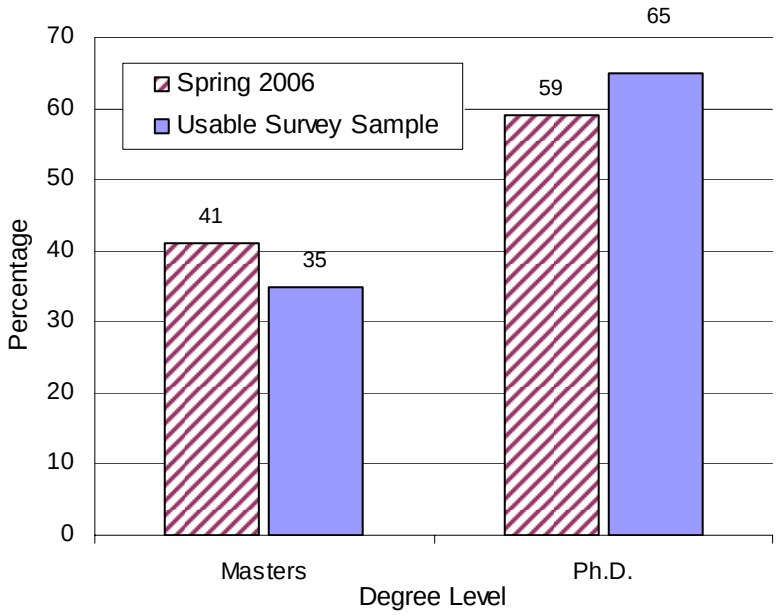

Figure 2. Percentage of international graduate students enrolled at Texas A&M University and questionnaire respondents by degree level

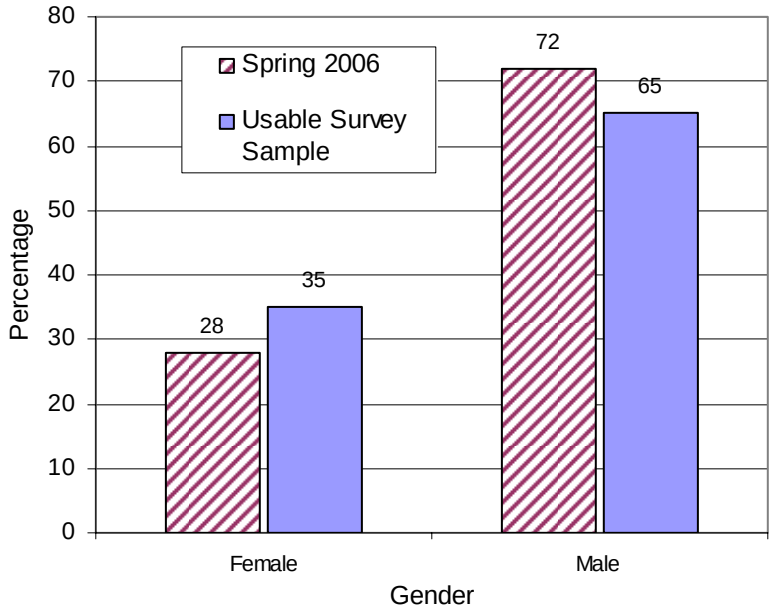

Figure 3. Percentage of international graduate students enrolled at Texas A&M University and questionnaire respondents by gender

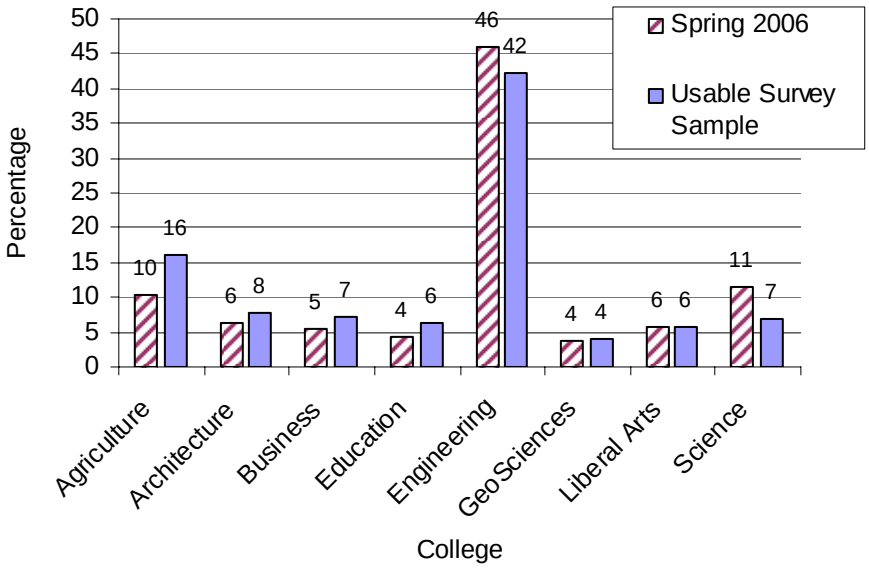

Figure 4. Percentage of international graduate students enrolled at Texas A&M University and questionnaire respondents by college

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