

## International Student Migration: Outcomes and Implications

Jenny McGill

Doctoral Candidate, King's College London (UK)

### Abstract

*The present study examined the possible correlation between six life circumstances of international students (N=124) admitted entry into the United States for the purpose of academic study and their geographic choice of location upon graduation. This paper improves upon the current literature by offering actual migration outcomes (rather than intentions), by including three factors not previously analyzed, and by considering graduate students from a new subject field. The independent variables included: duration of study, scholarship award, doctoral study, participation in optional practical training, application for a temporary work visa, and the economic classification of the student's country of origin. The dependent variable was student geographic location as of 15 May 2011, categorized as in the United States or outside of the U.S. Data from foreign student graduates (academic years 2000-2011) from 43 countries were analyzed in binary logistic regression. Results show three variables (scholarship aid, optional practical training and temporary work visa application) were significantly correlated to a graduate's choice of residence. Findings are relevant for academic institutions and government agencies interested in international education, student migration behavior, comparative data as well as strategic policies.*

**Keywords:** international education; international student; migration; academic study; study abroad; population distribution; human geography

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In a world of expanding global corporate collaborations and transnational social networks, the appeal for internationally-educated professionals has dramatically increased in the last thirty years. With that has come a remarkable surge in students pursuing foreign degrees: 0.8 million students were enrolled abroad in 1975; 3.7 million were recorded as studying outside of their country of citizenship in 2009 (OECD, 2011).

Governments, institutions, and universities stand to benefit if more can be determined about what moves highly-skilled individuals across borders. For the decision-making process in migration, considerable research remains (Mahalingam, 2006). Van der Velde and van Naerssen (2010) discussed the macro- and micro-influences on cross-border mobility, conceptualizing three thresholds as well as various *keep* and *repel* factors involved. Structural pressures as well as individual rationality impact migration. The connection between personal motivations and migration outcomes has been studied as well (Bradley, Longino, Stoller, & Haas, 2008; Whisler, Waldorf, Mulligan, & Plane, 2008). Bradley et al. (2008) found that the number in the household

and the type of move affected migration intention, with the mental expectation *to move* predicting later mobility. A transnational comparison of five countries showed that different background variables (economic resources, age, home ownership, etc.) were a better predictor of migration behavior rather than a place-utility model of migration, which is based on the perceived cost-benefit analysis between any two locations (Simmons, 1986). Descriptive models of the process of migration and motivation have also been offered (De Jong, 2000; Hazans, 2003; Kok, 2006).

Newbold (2001) showed that within Canada, economically depressed areas were typically depleted of and not replenished by migrants. In particular, in Newbold's theory (2001, p. 35), "non-return migrants tend to be younger, better educated, and more highly skilled." Low retention rates were related to depressed areas with a higher turnover of residents, while in-migration rates were associated with areas having more economic viability. Newbold's study also illustrated that return migrations were "planned events," influenced by perceived cost-benefit analyses and familial input. Return migration was related to age, economic status, and family presence, among other factors. Newbold (2001, p. 23-24) argued that a "location-specific capital," namely, any current connection anchoring one's choice of location, would prove a better definition of where one considers "home." However, his study was not focused on international migration or the educated professionals in particular.

Overall, the migration of highly-skilled and educated workers has not been studied extensively. Further, research on migration outcomes specifically for international students who study outside their home country for any degree level is lacking. While considerable migration research exists, few studies observe the subsequent migration behavior of foreign graduates as it pertains to the United States (Vasta & Vuddamalay, 2006).

The number of immigrants entering the United States for educational purposes has increased considerably in the last fifty years, as well as their degree levels attained prior to entrance (Agarwal & Winkler, 1985; Bhagwati, 2003): In the 1949-50 academic year, 26,433 internationals began studies in the U.S. In the 2011-12, about 764,495 international students were enrolled in U.S. institutions, comprising 3.7% of total post-secondary student enrollment. Three countries possess 48% of the total number: China, India, and South Korea (Chow & Bhandari, 2012).

Academic migration raises pertinent questions regarding the causes and effects of such a significant demographic movement of highly-skilled individuals. The broad phenomenon of migrants departing their country of origin, gaining a higher level of skill or education abroad, and not returning home, has created such concepts, well-known in educational circles, as "brain drain." This pattern of movement highlights several issues for consideration:

- *What is their choice of residence after studying abroad in the U.S.? Why?*
- *What are their migratory intentions, if any, and when do these intentions appear (before, during, or after their course of study)?*
- *What observations have come to light with respect to the migration of these post-secondary graduates?*

Articles discussing the theoretical global implications of brain drain or brain gain are plentiful and worthy of review (Adnett, 2010; Gribble, 2008; Mahroum, 1999, 2005; Rosenzweig, 2007; Stark, 2005). Whether or not countries should participate in stemming or encouraging the most highly skilled to migrate (and even the existence of brain drain for the sending country) is disputed (Bhagwati, 2003; Borjas, 2004). Studies (Borjas, 2002; Regets, 2001) have also sought to determine the degree to which the international student population leads to displacement of U.S. nationals as students. Shao (2008) and Suter (2008), on the other hand, investigated the government policies which encourage the settlement and non-return of their foreign graduates. However, caution

is warranted when considering migration only in terms of bidirectional flows rather than in terms of integrated circularity (Piper, 2009).

Considering the United States, prospective overseas students can apply for a student visa for a temporary duration of stay. An international student is defined by this temporary academic status to study in the United States with an established intent not to immigrate. Ironically, the very international students approved for F-1 or J-1 *non-immigrant* visas at U.S. embassies around the world, end up legally and successfully changing their status while *within* the United States to remain resident. With this relative ease to apply to stay in the United States to immigrate, this is a welcome victory for “open borders” proponents and an issue of concern for those who consider non-immigrant visa entrances should remain just that. Lu, Zong, and Schissel (2009) argued that immigration policies do impact student decisions and called for research to include actual migration outcomes in the study of their relationship.

Research has focused particularly on foreign doctoral graduates and their rates of stay for the degree fields of economics, science, and engineering. Bhagwati (2003) suggested that academic study in the United States is the simplest method foreigners use to immigrate to the U.S. and estimates that over 70% of foreign-born PhD graduates remain in the United States long-term. According to Borjas (2002), among the foreign students who remain in the U.S.: Almost two-thirds of all petitions are a result of marriage (over 50%) or relatives already in the U.S. (10%); One third is due to employment-based applications (28%). Aslanbeigui and Montecinos (1998) studied the example among economics students (actual stay rates after graduations were not measured):

- 40% planned to leave the U.S. upon graduation;
- 45% planned to remain working in the U.S.;
- 15% intended to stay in the U.S. permanently.

Finn (2012) showed successive “stay rates” by foreign nationals who obtained doctorates in the U.S., by data extracted from tax records of international doctoral students who remained in the U.S. following graduation. However, the study reflects only the stay rates of doctoral graduates receiving science and engineering degrees: 62% of those who received PhDs were residing in the U.S. five years after graduation with rates remaining stable over a ten-year period. Citizens of certain countries exhibited the highest stay rates: China and Iran (89%), Romania (85%), former Yugoslavia (84%), India and Bulgaria (79%). The lowest stay rates were exhibited by students from Saudi Arabia (5%), Thailand (12%), and South Africa (28%).

Card (1979) conducted a longitudinal study to compare the migration outcomes in 1979 of Filipino graduate students studying in the U.S. to their stated intentions of migration in 1970. It is one of the very few studies with longitudinal data of migration behavior in addition to the present study. Interestingly, there was no significant difference in student attitudes between 1970 and 1979 or in their perceived notions of economic conditions between the U.S. and the Philippines. Circumstantial changes during their stay in the U.S. determined migration behavior, especially for those who, having planned in 1970 to return home to the Philippines, had not done so by 1979. Stay rates were affected primarily by student age, opportunity to remain in the U.S., and an overall embrace of the American culture, as opposed to immigration intentions prior to travel to the U.S.

Migration intentions rather than actual outcomes are more often the focus of attention (Lu, Zong, & Schissel, 2009; Soon, 2010b). Other studies examine the migration of students departing from their home country. Gibson and McKenzie (2011) tracked migration behavior for high school students leaving their home country (New Zealand) and related return factors. Constant and D’Adosto (2008) investigated scientists and researchers leaving their home, Italy, and their choice of destination. Similarly, de Grip, Gouarge, and Sauermann (2010) inspected the countries to which European science and engineering graduates migrate and why. In summary, what is lacking is

research on the return migration of postgraduate international students (in fields other than science, economics, and engineering) from the host country of study. The purpose of this study is to investigate actual international student migration outcomes, from the host country of the United States, and determine which factors relate to whether they remain in the U.S.

- *What percentage of international graduates returned to their country of origin?*
- *What personal and socioeconomic factors were related to their decision (marital status, gender, age, length of study, type of degree, employment)?*
- *How were migration outcomes related to perceived commitment to their home country, economic opportunity in the host country, and/or changing motivations during the period of study?*
- *Did the type of scholarship aid lead to a difference in rates of return?*
- *Did a contractual obligation to depart the U.S. (required to receive scholarship aid) then lead to actual student departure from the United States?*
- *Should the policies of the graduate school, in order to better meet institutional goals, be altered to accommodate these findings?*

Three types of variables comprise almost all of the research on international student migration: demographic and family-related, education-related, and perception of the country of origin (Soon, 2010a). Three variables of the present study (length of stay, type of degree, and purchasing power parity) reflected one of each of those three types in order to confirm previous research findings. An additional three variables (scholarship aid, practical training, and work visa application) were introduced to the previous literature.

This study is one of the few which offer actual foreign graduate migration outcomes from the host country of study. Card's (1982) study of the Filipino student population is outdated. Hawthorne & Hamilton (2006) focused on foreign medical students in New Zealand. This study supplements the current literature by offering migration outcomes from the United States, by including three additional factors not previously analyzed, and by considering graduate students from a new subject field: theology. This research builds the collective set of comparative data and is useful for universities and companies invested in promoting their stay or return as well as offering new directions for research. This paper will consider possible implications for educational and political organizations as well as the present academic institution. Current scholarship requirements and guidelines, as well as institutional communications, may be impacted by the findings of this study. On a broader scale, this study offers relevant findings and implications for educational institutions interested in the promotion of reciprocal international influence and government policymakers responsible for immigration regulations and international student trends.

### **Variables and Hypotheses**

The correlation between six life circumstances of international students (admitted entry into the United States for the purpose of academic study on a non-immigrant visa) and their geographic choice of location upon graduation was examined. The six independent variables were: Length of study; Type of scholarship; Type of degree; Participation in optional practical training; Application for a temporary work visa; and the economic classification of the student's country of origin.

The dependent variable was student geographic location as of May 15, 2011, whether remaining in the United States after their period of study abroad or living outside of the U.S. Two variables were continuous: Duration of study; and the purchasing power parity (PPP) for each student's country of origin. Duration of study was counted by each academic year of two full semesters, starting from August through May of the following spring. Four variables were dichotomous categorical variables: scholarship award, doctoral studies completed within the U.S.,

participation in post-completion Optional Practical Training, and non-immigrant application for three year work visa (Table 1).

The initial research questions and hypotheses were:

1. Is the length of time an international student studies in the United States related to their residence upon graduation? The length of time for degree(s) completion is positively correlated with United States residence following graduation.
2. Is receiving special scholarship aid given by the institution (with students' contingent agreement to depart the U.S. upon completion of studies) related to an international student's location after graduation? Receiving this designated scholarship aid is negatively correlated with U.S. residence following graduation.
3. Is the type of degree studied in the United States related to an international student's residence upon graduation? Completing doctoral studies in the United States is positively correlated with U.S. residence following graduation.
4. Is applying for the immigration benefit called post-completion Optional Practical Training (OPT) related to the international student's location after graduation? Applying for post-completion OPT is positively correlated with remaining in the U.S. following graduation.
5. Is applying for a 3-year temporary work visa (still requiring evidence of non-immigrant intent) during the course of studies related to the international student's location following graduation? Applying for a work visa change of status is positively correlated with ultimate residence in the United States after the term expires; conversely, maintaining the same non-immigrant visa status (F or J) is associated with a return to home country residence.
6. Is the Gross Domestic Product per capita known as the purchasing power parity (PPP) rating [as assigned by the Central Intelligence Agency (CIA)] for the international student's country of origin related to his or her location after graduation ("CIA World FactBook," 2011)? The PPP economic indicator of a foreign students' country of origin is associated with residence location after graduation. Namely, the lower the country of origin's PPP, the more likely residence will be in the U.S.

Table 1  
Summary of Variables

	Type of Variable	Frequency	Percent	Cumulative Percent	
<b>Independent Variables</b>	Length of Study	Continuous	N/A	100.0	100.0
	Type of Scholarship	No Contract/No Full Tuition	69	55.6	55.6
		Contract/Full Tuition	55	44.4	100.0
	PhD degree Completion in U.S.	No PhD	101	81.5	81.5
		Completed PhD	23	18.5	100.0
	Optional Practical Training (OPT) <sup>a</sup>	No OPT	97	78.2	78.2
		OPT Participation	27	21.8	100.0
	Change of Status (COS) to Temporary Work Visa <sup>b</sup>	No COS	96	77.4	77.4
		COS Application	28	22.6	100.0
	<b>Dependent Variable</b>	Purchasing Power Parity <sup>c</sup>	Continuous	N/A	100.0
Geographic Location		Not in the U.S.	95	76.6	76.6
		In the U.S.	29	23.4	100.0

Note. N = 124. No cases missing.

<sup>a</sup>Optional Practical Training (OPT) is an approved 12-month period of work authorization immediately upon graduation by the Citizenship and Immigration Services.

<sup>b</sup>Change of Status (COS) is an application to alter one's non-immigrant student visa to a non-immigrant work visa (H or R) for an initial three-year term of work authorization if approved by the Citizenship and Immigration Services.

<sup>c</sup>Purchasing power parity (PPP) is the economic rating for each student's country of origin as rated by the CIA. The CIA categorized 228 countries with PPP ratings ranging from \$200 to \$122,100.

## Research Method

### Participants

International students were defined as an individual born outside of the United States who entered the U.S. on a non-immigrant F or J student visa and enrolled in a residential degree program. Participants in this study were international students who had enrolled and completed a master's or doctoral degree in theology at a private graduate school in the south central United States.

- 296 international students representing 61 nationalities (Hong Kong and Taiwan being counted as separate entities from China) comprised the foreign graduates of classes 2000-2011.
- Countries with the largest percentage of students were South Korea, India, and Canada (15.1%, 7.2%, and 6.8%, respectively).
- Out of the 296 graduates, 184 students responded to the consent forms sent.
- 5 students declined participation.
- 179 students consented to be included in group analysis, thus yielding a response rate of 62.2%.

The final graduate student sample ( $N=124$ ; 31 female, 93 male) included 120 individuals who entered the United States to commence a master's degree and 4 students commence a doctorate. Fourteen of the graduate sample, who had entered as a master's level student, continued doctoral studies at the same institution. Age data were not included for this study (Table 2).

Table 2

#### Sample Frequencies

	Students	Frequency	Percent	Cumulative Percent
Gender	Female	31	25.0	25.0
	Male	93	75.0	100.0
Household Type <sup>a</sup>	Single	46	37.1	37.1
	Married	78	62.9	100.0
Completed U.S. Degree	MA	101	81.5	81.5
	PhD <sup>b</sup>	23	18.5	100.0

Note.  $N = 124$ .

<sup>a</sup>Marital status as of entry into the U.S. to commence studies.

<sup>b</sup>PhD includes a minority of residential doctor of ministry (DMin) students prior to 2003, after which all DMin international students were non-residential.

Graduating classes from 2000-2011 were defined as the fall, spring, and summer graduating classes for each academic year. As an example, the Fall 1999, Spring 2000 and Summer 2000 semesters comprised the graduating class for the academic year 1999-2000. Foreign-born students with an immigration status of "permanent residence" or "employment in the United States" were considered "immigrant students" and not included in this study. Twenty five students began studies but did not complete at least one degree (due to withdrawal, transfer, death, currently enrolled without a first degree from the institution, or who otherwise had not yet graduated). These students were excluded from the sample.

In order to maximize the validity of this study, 8 students, who could not be verified as initial students entering on an F or J visa, were excluded from the sample (Students who completed at least the master's degree and attempted, but have not completed or are still enrolled in a second degree program, were included in this study. Two individuals, classified as "non-degree," were considered under the Certificate of Graduate Studies program for the clarifying purposes of this study. Any individual with the outmoded degree classification of Doctor of Theology (ThD) was

modified to PhD based on the two degree programs' similarities). International students who, after completion of their first degree, lived overseas for a period of time and re-entered the U.S. for a second degree, were noted as "in" the United States. At the completion of their second degree, their resulting location will be re-assessed.

The U.S. Department of Homeland Security mandated institutional compliance by August 2003 of the Student and Exchange Visitor Information System (SEVIS). This change dictated that foreign students could no longer live in the United States without studying in a residential degree program at a government-approved institution. In that year, 3 individuals were living residentially and studying a non-residential degree prior to the law change and are included in the study. Since 2005, all international students in non-residential programs were not included in this study. Post-completion Optional Practical Training (OPT) in this study is defined as the one-year period of work permission granted by the U.S. government after graduation.

### **Research Materials and Procedure**

First, alumni reports were obtained from the institution's registrar and alumni offices. Second, student files contained in the international student office were analyzed to transcribe the name on each file; the files were incomplete prior to the graduating year 2000. The three lists of names from the three departments (registrar, alumni, and international office) were then crosschecked to confirm immigration status and create a master list of complete names. Office files were compared against the institution's computer database, since the database was known to include false positives in the sample list (e.g., permanent residents included along with those on an F and J visa). The Alumni directory is limited to those alumni who voluntarily respond to the department's request for information and consequent updates.

Multiple faculty members and staff, who had a personal acquaintance with and considerable knowledge of students' present locations, reviewed the compiled list. The author, current advisor directing the International Student Office, has worked in this office since 1999 and possesses extensive personal knowledge of student location, having maintained personal contact with them. The finalized list of students was used to research each member of the sample. Informed consent was obtained, reducing the number of graduates available for study from 296 to 179. Office staff utilized the last known e-mail of the students and Internet search engines (e.g. Google, Facebook, etc.) to confirm knowledge of student location, and the location of all participants was determined. Data collection began formally in 2006 and was completed in 2011. Inevitably, a few students' migration outcomes alternated over the course of ten years; therefore, the migration outcomes for each participant were reviewed and reflect the residence as of May 15, 2011.

Scholarship aid was defined as a contractual scholarship awarded to the student by the educational institution. The eligibility terms for this kind of scholarship were: 1) Preceding evidence of intent to depart the U.S. upon completion of study, and/or 2) A signed contract to that effect by the student upon arrival. Out of the 69 students granted scholarships based on their agreement to return to their country of origin: 55 students received full tuition scholarships with the first year of living expenses covered; and 14 received a full leadership scholarship (all tuition and living expenses covered). These two groups were combined to code the scholarship variable. All other kinds of partial scholarship aid were not included. Any external or private scholarship aid students may have received was not included in this study.

### **Data Analysis and Results**

Statistical analyses were performed using SPSS Version 18.0, employing binary logistic regression. For all analyses, probability values below 0.05 were considered statistically significant. Data for the

dependent variable of the students' present location (1 = in the U.S., 0 = not in the U.S.) were available for 100% of the total sample, as were the values of independent variables. The following analysis was done for this particular set of complete data. As of May 15, 2011, roughly three-fourths (76.6%) of the international graduate sample ( $N=124$ ) were residing outside of the United States. This percentage varies greatly, based on which groups of graduates are included (see Table 3 for an explanation of this variance).

Binary logistic regression was performed to measure which variables may be related to the likelihood of foreign students' residence in the United States after completion of their degree program (see Table 4). Testing the full model compared to a model with intercept only was statistically significant,  $\chi^2(6, N = 124) = 87.25, p < .001$ , which indicates that the model was able to distinguish between students with residence in the United States and those whose residence was not in the United States. The model correctly classified 91.9% of cases, showing its efficacy to distinguish cases and appropriate goodness of fit.

Three of the six independent variables showed statistical significance a correlation to the dependent variable. The duration of study did not demonstrate any correlative effect. Receiving contingent scholarship aid was negatively correlated with ultimate residence. The odds ratio for a special scholarship award (inverted for clarity;  $1/\text{Exp}(B)$ ) was 15.38 with a 95% confidence interval (166.67, 1.54) and showed students who received scholarship aid with a contractual return were 15 times more likely to depart the United States than their counterparts (see Table 3). The type of degree did not demonstrate any correlative effect.

In support of the fourth and fifth hypotheses, participation in the 12-month optional practical training and application for the 3-year work visa was positively correlated with U.S. residence. Given the 12-month length of Optional Practical Training (OPT), the post-completion OPT variable was run including only graduating years 2000-2010. The odds ratio for application of post-completion Optional Practical Training was 24.40 with a 95% confidence interval (3.59, 165.97). This showed that if students delayed departing the United States for a one-year term of temporary employment, they were twenty-four times more likely to remain in the United States.

Table 3

*Location Frequencies of Foreign Student Graduates*

		Frequency	Percent	Cumulative Percent
International Students	Not in US	95	76.6	76.6
	In US	29	23.4	100.0
	Cases Unknown	0.0	0.0	0.0
	Total	124	100.0	100.0

*Note.* Location as of May 15, 2011. The original sample ( $N=179$ ) included 26 graduates currently enrolled in the U.S., 6 currently on 12-month OPT, 5 on 36-month work visa, and 18 who married U.S. citizens or otherwise applied for permanent residency. 51 of those 55 were residing in the U.S. If the total number of graduates (including those who during their studies applied for a permanent change of residence, but excluding those graduates who are currently enrolled or on temporary work permission) were considered ( $N=142$ ), the percentage of international graduates residing outside of the US dropped to 67.6%. If all graduates ( $N=179$ ) were considered, then 44.7% (80 of 179) of international graduates from classes 2000-2011 held U.S. residence with 55.3% of graduates residing abroad.



Table 4

*Predictors of Migration Outcome*

Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp(B)
Total Time for Studies	.069	.145	.226	1	.635	1.071	[.806, 1.424]
International Scholarship	-2.741	1.177	5.424	1	.020	.065	[.006, .648]
Completion of PhD	1.896	1.179	2.586	1	.108	6.656	[.660, 67.075]
Post-Completion Optional Practical Training	3.195	.978	10.665	1	.001	24.400	[3.587, 165.973]
Change of Status to Work Visa	4.176	.927	20.283	1	.000	65.083	[10.574,400.571]
Purchasing Power Parity	.000	.000	2.908	1	.088	1.000	[1.000, 1.000]
Constant	-2.455	1.125	4.756	1	.029	.086	

Note. N = 124. CI = confidence interval.

<sup>a</sup>Variables entered: Total Time for Studies ( $M = 4.34$ ,  $SD = 3.02$ ,  $N = 124$ ), Scholarship ( $M = 0.44$ ,  $SD = 0.50$ ,  $N = 124$ ), Completion of PhD in U.S. ( $M = 0.19$ ,  $SD = 0.39$ ,  $N = 124$ ), Post-Completion Optional Practical Training ( $M = 0.22$ ,  $SD = 0.41$ ,  $N = 124$ ), Change of Status to Temporary Work Visa ( $M = 0.23$ ,  $SD = 0.42$ ,  $N = 124$ ), Economic Purchasing Power Parity Rating of Country of Origin ( $M = 20509.68$ ,  $SD = 15991.900$ ,  $N = 124$ ).

A change of immigration status was hypothesized to be correlated with remaining in the U.S. Those students, who applied for a short-term work visa which requires an attestation of non-immigrant intent in the application, were analyzed. Considering the temporary three-year term of a work visa, the work visa change of status variable was run including only graduating years 2000-2008. Applying for a work visa had a statistically significant odds ratio of 65.08 with a 95% confidence interval (10.57, 400.57). Despite the temporary nature of a work visa application, this variable possessed the greatest positive predictive value, in that students who applied for a 3-year work visa were strongly correlated with remaining in the United States long-term, compared with those who did not seek a temporary term of work. The PPP economic rating of the country of origin was not shown to be statistically significant in relation to the dependent variable.

### Discussion

To reiterate the research questions of the study: *What were the actual international migration outcomes of graduates after their term of study abroad was completed? Which variables were associated with staying in or leaving the United States?* Six factors (length of study, scholarship aid, type of study, post-completion practical training one-year term, application for a change of status for a three-year work visa, and the purchasing power parity of the country of origin) were tested to investigate their relationship to the dependent variable, location of residence. Of the six variables tested, three were significantly correlated to a student's location upon graduation, in accordance with the hypotheses.

Duration of study, the total length of time a student remained in the U.S. while enrolled, showed no significant correlation to location outcome, despite earlier research to the contrary (Card, 1982). Soon (2012) also found that the length of stay is related to migration intention to not return home. More research is necessary to show that the length of stay in the host country affects migration outcomes directly. The awarding of scholarships with a conditional requirement that students return to their country of origin is not a new concept (Kwok & Leland, 1982). Receiving a contingent type of scholarship aid (that is, the recipient was awarded with a conditional requirement that they return to their country of origin) showed a negative correlation to U.S. residence upon

graduation, confirming the hypothesis. These findings affirmed the value of a contractual agreement for impacting return migration, which Card (1982) also has shown. This encourages the continued institutional practice of a scholarship contract offer as having effect and worth administrative effort. However, the scope of this study could not determine causation between this type of contractual scholarship and location upon graduation. The higher rate of return could have been affected by the signed contract, with its binding ethical considerations or by the institution's initial selection based on the applicant's evidence of strong home ties, as being more committed to return home from the start. Soon (2010b) found that those who initially intend to return home upon completion of studies in New Zealand more often do. In five years, a new and larger sample of graduates (academic years 2000-2015) and will be re-analyzed for significance and longitudinal comparison.

The type of degree, and the completion of doctoral study, showed no significant correlation. That is, completing either an intermediary level of graduate or terminal doctoral study seemed not to impact the graduate's ultimate choice of residence after graduation. This is noteworthy as other research has shown an extremely high stay rate or intended stay rate for those leaving their home for doctoral study (Aslanbeigui & Montecinos, 1998; Constant & D'Agosto, 2008; Finn, 2012). Soon (2010a, 2012) established that doctoral level students are more likely to intend not to return home. Given that many of the doctoral students in the present study were still enrolled as of 2011, this variable will be reanalyzed.

Confirming the hypotheses, participation in the one-year practical training and application for a three-year work visa were confirmed to have a significant correlation to geographic location, despite both having a temporary term and the classification of non-immigrant status. As the data spanned almost twelve years, the findings showed where graduates chose to reside even after their one-year or three-year term of employment had expired. If given a legal occupational opportunity to stay, this may trump their original intention to leave. Hazen and Alberts (2006) found that students' intentions to migrate were largely economic and professional factors. Although the study did not assess student motivations prior to study, it established that economic ties are related to international students staying in the U.S.

Delaying departure from the United States after graduation may indicate changing immigrant intent. Rosenzweig (2007) has shown that students may be driven by the same motivation as the general population in migration: economic benefit. In addition, the above variables coincide with earlier research that stay rates increase with the permission to remain legally in the foreign country of study, and therefore, delay a return to one's home country (Card, 1982). The "seduction by an appealing alternative to the original plan" dictates migration outcomes rather than the "strength of the original commitment to return home" (Card, 1982, 23). An investigation of these matters can offer valuable information to corporations and institutions which may be eager to recruit certain populations to remain in the U.S. or, alternatively, to return overseas.

Whereas the variable, purchasing power parity of the country of origin (PPP), was hypothesized to be positively related to migration outcomes, this study showed no significance in their correlation. In other words, the study showed no relation to the objective economic differences of a student's country of origin and their choice of residence after graduation. Great value lies in this finding. It serves to correct assumptions about any particular student's migration outcome. To *label* students, based on the economic earning power of their home country (and perceived country status), as more or less likely to depart the United States was *not* validated by the data. Suanet and Van de Vijver (2009) hypothesized that using country-level measures of country wealth (such as Gini and Hofstede's dimension of country economic wealth) were associated with foreign exchange student perception of cultural distance, yet the association was similarly *not* confirmed by their findings. This seems to fit Piper's (2009) argument that the dichotomy between

developed and non-developed nations should be eliminated in favor of the complex interrelatedness of human migratory processes. Students are not merely remaining in the U.S. if they originate from a particular nation; rather, a variety of complicated factors impact the decision. This lack of correlation can inform academic staff and donors of how to properly address and advise international students without making presumptions about their migration outcome.

However, researchers have found evidence to the contrary. Szelenyi (2006) suggested that the economic development of the country is related to international migration. Further, Hawthorne and Harrison (2010) detected that nationality did factor as a significant variable in their study of migration intentions and outcomes. Finn (2012) found that graduates from particular countries of origin showed significantly higher stay rates, namely, China, Iran, India, and parts of Eastern Europe. This evidence rests on how the variable is defined, e.g., as student perception of the country's development or nationality itself rather than the PPP rating. Further research on this type of variable is warranted.

### **Limitations of Study**

Although this study is unique in its measurement of actual migration outcomes of an international student population, a caution should be mentioned. The study analyzed one institution and, with a relatively small sample size, has limited generalizability. Also, the sample size discouraged an investigation of gender difference in migration. This is in large part due to the lower rates of female international enrollment as just 25% of the sample population. According to the current study, future graduates will be combined with the current sample to increase the overall population. With a larger sample size, additional factors (age, gender, marital status, and country of origin) will be added to confirm the work of Lu, Zong, and Schissel (2009) who found that gender and marital status affected stay rates.

The present study combined the migration outcomes of all graduates as of May 15, 2011. The number of graduates, who changed their location more than once between their respective graduating year and 2011, was miniscule. However, future assessment will distinguish the sample by two-year, five-year, and ten-year stay rates (in addition to the overall calculation of outcomes at a specific date in time). These results will be compared to Finn's study (2012) of doctoral graduates.

### **Areas for Further Research**

This initial study encourages avenues of further research, for example, a comparison of the migration outcomes between students from different disciplines of study (e.g. students of science versus theology). Little data are available on actual international student migration outcomes, and the present study was the first to consider students of theology. Finn (2012) found that science and engineering graduates had a very high rate of stay after completion of their doctoral degree in the U.S. Doctoral students in economics seem similar in this regard (Aslanbeigui & Montecinos, 1998). Due to the small sample size of theological doctoral graduates in this study, a comparison with doctoral students from other disciplines will be made in the future. Perhaps students of theology have a heightened sense of responsibility to contractual agreements and/or more of a moral obligation to reciprocate by returning to their home countries than students of other disciplines.

Another avenue for research is the investigation of timing, as to when during their sojourn do the migration intentions of students change, considering that all foreign students must convince the U.S. Department of State of their non-immigrant intent in order to receive an initial F or J student visa. For the present sample, a follow-up questionnaire will be sent to the international alumni to self-report the reason and motivation behind their migration decision in hindsight. Since 2009, incoming international students have completed a questionnaire at orientation regarding their

migration intention upon entry. Data collection will continue through 2013 and will be compared to actual migration outcomes upon graduation.

While gender and family factors influencing migration intention have been considered (Lu, Zong, & Schissler, 2009; Soon 2012), further study of student perception of cultural distance (that is, cultural dissimilarity between country of origin and foreign educational context) and the role it plays in leading these initial migrants to stay is valuable, especially to elicit desired labor migration (Suanet & van de Vijver, 2009). Determination of the factors that lead these highly skilled graduates to move can inform institutional policy in sufficing labor demands and strategic goals.

### Concluding Remarks

The results, however, were useful in designing the future research and for the comparison with other studies. These results—in demonstrating what factors were and were not related to location upon graduation—provide relevant information for the institution to clearly communicate to its constituency and administration as to the correlated factors associated with the migration behavior of foreign students and tomorrow's international leaders. In addition, if an educational institution has a special initiative for international exchange and reciprocation, this study offers strategic information on capitalizing on achieving desired outcomes.

Research on the factors and patterns of international student migration can be used for multiple purposes by educational institutions, corporations, and national governments. Many schools track their current international student enrollment but may wish to follow their international alumni; this study is a guide to further this goal. Moreover, these findings were directly relevant to the current institution in the review of its admission and administrative policies. Applications, such as the scholarship contract (the grantee agreement to return overseas upon degree completion), were reviewed to improve the efficiency of administrative procedures. With the result that those who received scholarships were more likely to return abroad, the additional paperwork required was deemed efficient. Additionally, the results of this study enabled staff members to describe more clearly to donors and the extended institutional family what percentage of our international students have returned overseas as well as what factors impacting their migration. These findings were also useful to commence further in the areas of international education, migration behavior, and educational reciprocity.

As migration involves “individual behavior with respect to movement across space,” the present research discussed migration for international study in particular (Fawcett, 1986, p. 5). International migration is a complex engagement of personal motivations, economic prospects, geopolitical factors, and cultural transitions. In that process, this study offers important data adding to the current lack of research. Foreign student migration, with its impact both on the host and home country as well as on the individual lives of migrants, is an area worthy of continued research. Specifically, the discovery of the factors involved in why people move can prepare educational institutions in how to help their international students to transition during their temporary stay of study and plan for their future.

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#### **About the Author**

**Jenny McGill** is an intercultural consultant and has served in international education since 2000. She is a PhD candidate at King's College London, focusing on migration and identity. Travel for volunteer work, study, and research has taken her to Latin America, Europe, Eurasia, and Africa. Email: [j.mcgill@fulbrightmail.org](mailto:j.mcgill@fulbrightmail.org)