

Institutional Factors Influencing International Student Graduation Rates and Debt

by

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A dissertation submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the
requirements for the Degree of
Doctor of Philosophy

Auburn, Alabama

August 4, 2018

Keywords: institutional factors, international students, graduation rates

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Abstract

International students enrich the campus culture and help domestic students to grow cross-cultural competencies, and international students have also contributed a lot to the revenue of both the hosting institutions and the U.S. economy. Regretfully, there has been a dearth of studies on international students, particularly in the areas of international student graduation rates and international student loan debt. This study focused on exploring the relationship between the socio-cultural and structural institutional factors and international student graduation rates and loan debt.

Data were extracted from the Integrated Postsecondary Education Data System (IPEDS). Included in the sample were 298 public-4-year higher learning institutions. The Stepwise procedures of Multiple Linear Regression analyses were conducted. It was found that the percentage of full-time students, Cost of Attendance (COA), the percentage of students receiving the Pell grants, the percentage of revenue invested in instruction and student services and the location of institutions were statistically related to the international student graduation rates. The percentage of full-time students, selectivity, the percentage of revenue invested in instruction and

student services, the average tuition and fee difference between the low-income students and the average tuition and fees of all students, whether the institution being or not being a research institution, the location of the institution, and tuition dependence were statistically related to international student loan debts.

The author has made some recommendations on improving international student graduation rates and reducing international student loan debt based on the findings.

Acknowledgement

I would like to express my deepest appreciation to my committee Chair Dr. DiRamio, who has continually provided me with new ideas and helped me to overcome the ESL problems in writing. Without his guidance and persistent help, this dissertation would not have been possible.

I would like to thank my committee Co-Chair, Dr. Wang, who has always been ready to help me improve the dissertation. What I have learned from her advice and her classes would become my biggest assets in my academic career.

I would also like to thank Dr. Witte for her help to me and my wife. I learned a lot from her, particularly in helping students to succeed.

Special thanks go to Dr. Llanes. He had been my major professor for four years. To me, he is not just a mentor and a good friend. He is more like a caring father. He has helped me a lot when there are turbulences in my study or life. I learned a lot from him, and I am blessed to have him around.

I am also deeply indebted to my wife. Without her, I would never be able to finish this program.

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Chapter 1 Introduction

The concept of internationalization resonates in many aspects of American life including higher education (Crow & Dabars, 2015). At campuses across the nation, internationalization is “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003, p. 2). Internationalizing their campuses is part of the development strategies for most higher education institutions (Skinkle & Embleton, 2014). One important tactic for internationalizing a college or university is to admit and enroll student from other countries. Findings in the research literature support the notion that international students enrich domestic students' educational experiences, improve their cross-cultural competences, and infuse the campus culture with inclusiveness and diversity (Jenkins, Harris, Krumm, & Curry, 2012; Wainwright, 2016). Shaping a student population to include students from other countries is important, particularly since not every domestic student in the U.S. can afford to nor is willing to study abroad (ACE, 2017).

Meanwhile, international students bring considerable revenue to their host institutions and local economies. According to U.S. Student and Exchange Visitor Information System Statistics, the number of international students at U.S. colleges and universities had reached 1.18

million (SEVIS, 2017). While adding more diversity and internationalization to the campus, students from outside the U.S. contributed more than \$36.9 billion and supported more than 450,000 jobs in the U.S. economy during 2016-2017 academic year (NAFSA, 2017). Many countries compete for international students. Several countries, including Australia and the U.K., backed by the strategic support of their respective governments, started earlier in the competition to attract international students than the U.S. These countries are making the recruitment of international students an education export industry (Ruby, 2009). Unfortunately, American colleges and universities have seen their international student populations dwindle over the last decade after 9/11 attacks (Clark, 2010; Douglass & Edelstein, 2009). However, U.S. institutions, in order to become more competitive in the market for international students, are implementing best practices in recruitment, retention, and graduation (Onk & Joseph, 2017; Ozturgut, 2013). Moreover, several international and national organizations were formed to achieve this end, including International Consultants for Education and Fairs (ICEF) and American International Recruitment Council (AIRC).

In addition to internationalization, accountability is an important higher education issue. In the area of accountability related to international students, few metrics have attracted as much attention or controversy as the graduation rates and the student debt accrued by these students

(Alex, 2015; American Association of State Colleges and Universities, 2006; Selingo, 2018).

Most freshmen, whether domestic or international, have high expectations to graduate within a certain number of years. Many of them are expecting to graduate in four years if they are enrolled in undergraduate programs. But, in reality, most undergraduate students will not graduate in four years (Mooring, 2016). According to the US Department of Education, in 2015, only 59% undergraduates managed to graduate in six years (NCES, 2016). Obviously, this will likely add to an international student's debt load, just like their American counterparts.

Statement of the Problem

The graduation rates of domestic students has been a popular subject of research for many years (Alon & Tienda, 2005; Bowen, 2009; Carey, 2004; Creighton, 2007; Hightower, 2016). Comparatively, there is a paucity of research on the academic success of international students. Moreover, most studies on international student graduation rates were focused on the influence of non-institutional variables like the Test of English as a Foreign Language (TOEFL) scores, age, gender, country of origin, native languages, and first-year Grade Point Average

(GPA) (Nelsen, Nelsen, & Malone 2004; Yule & Hoffman, 2012). Much like their domestic student colleagues, institutional variables also influence international student graduation rates.

Most of the relevant literature available on institutional factors and their influence on international students have used qualitative methods and were summaries of experience (Creighton, 2007). Moreover, many findings reported were used to develop best practices (Brill, Balcanoff, Land, Gogarty, & Turner, 2014; Noguera, 2012), and some studies lacked the rigorous research methods required to empirically support their claims (Cao, 2012; Ozturgut, 2013). However, a few studies have robust research designs and were focused on institutional factors, such as classroom instruction quality (Pascarella, Seifert, & Whitt, 2008), institutional resources (Ryan, 2004), and diversity and inclusion (Lim & Yeh, 2002). On the whole, however, there are a lack of robust holistic studies that included multiple institutional variables. This study is intended to fill that gap in the research by investigating multiple institutional variables and using inferential analysis. However, graduation rates are not the only issue. The other issue is international student debt.

By January of 2018, total student loan debt that Americans owed had reached \$1.48 trillion or \$37,000 on average for each college graduate (Student Loan Hero, 2018). That represents a huge burden for most American students (Ulbrich & Kirk, 2017). The debt situation

may be even worse for many international students, many of whom come from lower-income countries (Kono, Eskandarieh, Obayashi, Arai, & Tamashiro, 2015). As a matter of fact, both China and India, the two biggest source countries for international students in the U.S., have much smaller economies compared with the U.S. For example, per capita GDP for China was \$8,123 and India was \$1,709, while the same economic indicator was \$57,638 for the U.S. (World Bank, 2016). What makes the situation worse for international students is that they are paying out-of-state tuition rates including added fees, while American students pay much less if they study in the state of their residency (Cantwell, 2015; Hu, 2011). In order to finance their study in the U.S., family members of many international students had to exhaust all of their financial means. In many cases, it was not only their parents but also their grandparents and extended family members who were challenged financially to support one student in study in the U.S. Therefore, debt is also a big issue to international students and was investigated in this study. Additionally, having many international graduates carrying the burden of deep debts is not beneficial to the sustainability or development of the host institutions, in this case, American colleges and universities.

Purpose of Study

The purpose of this study was to contribute new knowledge and novel findings about the relationship between institutional factors and both graduation rates and student debt of international students attending U.S. colleges and universities. Institutional variables investigated in this study included socio-cultural and structural institutional variables.

Socio-cultural variables. Socio-cultural factors are the scale forces within a culture that affect a person's thoughts, feelings, and behaviors (Psychology Wiki, 2018). Among the socio-cultural variables tested were the percentage of full-time students attending an institution, the selectivity of the institution or how rigorous the school was about admissions, and the percentage of international faculty among all faculty on campus. Other socio-cultural factors included in the study were whether or not the institution was a Historically Black Colleges and Universities (HBCU) or a Tribal institution, and the percentage of international students among all student population.

Structural variables. Structural variables are those that capture long-term conditions embedded in the social, political, and other institutional structures (U.S. Agency for International Development & Payson Graduate Program in Global Development, 2000). Included in this study, the first structural variable was whether the institution is or is not a research institution.

The second was the location of the institution, which was defined as whether the institution was located in the urban/suburban area or in the rural/small town area. Other variables included how much the institution depended on tuition and fees, as well as the percentage of the overall institutional revenue goes to scholarships. Cost of attendance (COA), tuition difference between low-income students and the general student population (i.e. average tuition difference), percentage of total institutional spending on instruction and student services, and the percentage of students receiving Pell grants.

This study was expected to provide findings and recommendations on these matters.

Findings and recommendations can be used by senior administrators and policymakers in higher education to make better-informed decisions and improve international student graduation rates while helping international students avoid deep debts.

Research questions and terms

The research questions for this study were:

1. What is the relationship between an institution's socio-cultural characteristics and international student graduation rates?

2. What is the relationship between an institution's structural variables and international student graduation rates?
3. What combination of variables, if any, produces the best statistical relationship with international student graduation rates?
4. What is the relationship between an institution's socio-cultural characteristics and international student debts?
5. What is the relationship between an institution's structural variables and international student graduation debts?
6. What combination of variables, if any, produces the best statistical relationship with international student debts?

Terms

International students. According to the Institute of International Education (2017), an international student is defined as anyone studying at an institution of higher education in the United States on a temporary visa that allows for academic coursework. These included primarily holders of F (student) visas and J (exchange visitor) visas. For the purposes of this

study and the data sources utilized, students at institutions other than accredited colleges and universities were not counted (i.e. secondary schools or vocational schools). Individuals who have permanent residency or a separate work visa were not counted. In the IPEDS data system, an international student is a Non-Resident Alien (NRA) student.

Domestic students. In this study, domestic students included students who are either U.S. citizens or hold permanent residency.

Integrated Postsecondary Education Data System (IPEDS). An online data system using data from annual surveys conducted by the National Center for Education Statistics (NCES), a unit of the U.S. Department of Education. Completion of IPEDS surveys is mandatory for all institutions that participate in, or are applicants for participation in, any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965 (National Center for Education Statistics, 2018).

Student and Exchange Visitor Information System (SEVIS). The information system used by the Student and Exchange Visitor Program within the U.S. Immigration and Customs Enforcement and U.S. Department of Homeland Security. SEVIS is used to manage foreign students and exchange visitors in the U.S. (U.S. Immigration and Customs Enforcement, 2018).

Graduation rate. FAFAS (2018) defines graduation rate as the following:

“Graduation rate is the percentage of a school’s first-time, first-year undergraduate students who complete their program within 150% of the published time for the program. For example, for a four-year degree program, entering students who complete within six years are counted as graduates.” This study used this definition.

Cost of Attendance. In this study, IPEDS definition of Cost of Attendance was adopted.

IPEDS (2018) defines Cost of Attendance as the following:

“Cost of attendance is the total amount institutions estimate that undergraduate-level full-time, first-time degree/certificate-seeking students will pay to attend before financial aid is considered”.

International students are not eligible to apply for federal loans unless they fall into the category of refugees (Department of Education, 2018).

Student loan debt for international study. In this study, debts are the money international students owe to either banks or their family or relatives after graduation. Eighty-two percent of international undergraduates are self-funded (Open Doors, 2017). Even for students who do not directly borrow from the banks, their family might have done it on their behalf. Debt in this study was calculated and approximated as: $(COA*4) * (1 + \text{Average International Student Loan Rate})$.

Research institution. In this study, research institutions included both doctoral/research institutions extensive and doctoral/research institutions intensive (Carnegie Basic Classification, 2015). Both extensive and intensive institutions offer a wide range of baccalaureate programs and committed to graduate education including doctorate programs (The Carnegie Classification of Institutions of Higher Education, 2000).

International faculty. International faculty herein refers to Non-Resident Alien (NRA) faculty. An NRA is a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely (IRS, 2017).

H-1B Visa. According to the U.S. Citizenship and Immigration Services, “H-1B is a visa in the United States under the Immigration and Nationality Act, section 101(a)(15)(H) which allows U.S. employers to employ foreign workers in specialty occupations. If a foreign employee in H-1B status quits or is dismissed from the sponsoring employer, the worker must either apply for and be granted a change of status, find another employer (subject to application for adjustment of status and/or change of visa), or leave the United States” (USCIS, 2017, para. 1). Effective January 17, 2017, USCIS modified the rules to allow a grace period of up to 60 days but in practice as long as a green card application is pending they are allowed to stay. Since there

are a large number of applicants, there is now a lot-drawing process to determine which eligible applicant will get H-1B visas (USCIS, 2016).

Limitations and Delimitations

This study focused on analyzing selected institutional factors, both socio-cultural and structural, and assumed that other factors not included are constant. There are many different classifications of higher education institutions, and this study focused solely on public 4-year institutions, particularly because there are dramatic differences among different categories of institutions (i.e. community colleges), for example, funding models and student characteristics vary widely. It was self-determined that it was more reasonable to include institutions from the same category in this study.

This study extracts data from IPEDS. Therefore, limitations of the IPEDS data were presumed. For example, IPEDS lack of full consideration of transfer students in calculating graduation rates and international debt. However, international students have much lower transfer rates compared with the domestic students (Zhang, 2016). Thus, IPEDS data did not seriously jeopardize the accuracy of the inferential analyses employed in this study.

Overview of Methods

This study used reliable and established data from IPEDS. After extracting the relevant data, necessary calculation and dummy coding, Multiple Linear Regression were conducted to explore the relationships between the independent variables and dependent variables. To be more specific, Stepwise procedures were conducted to get the best regression model.

Chapter 2 Literature Review

The concept of internationalization resonates in many aspects of American life including higher education (Crow & Dabars, 2015). At campuses across the nation, internationalization is “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003, p. 2). Internationalizing their campuses is part of the development strategies for most higher education institutions (Skinkle & Embleton, 2014). One important tactic for internationalizing a college or university is to admit and enroll students from other countries. Findings in the research literature support the notion that international students enrich domestic students' educational experiences, improve their cross-cultural competencies, and infuse the campus culture with inclusiveness and diversity (Jenkins, Harris, Krumm, & Curry, 2012; Wainwright, 2016). Shaping a student population to include students from other countries is important, particularly since not every domestic student in the U.S. can afford to nor is willing to study abroad (ACE, 2017).

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Brief History of International Study

International students as a unique population in contemporary American higher education are not a new phenomenon. For example, as the birthplace of western higher education, ancient Europe began to see international students as early as the 5th Century B.C. (Bevis & Lucas, 2007), though, at that time, these students were not as visible as international students are now

on many campuses in the U.S. There are not many publications on the history of international students, particularly the early history of international students. However, two most notable sources are *the Catholic Encyclopedia: An International Work of Reference on the Constitution, Doctrine, Discipline, and History of the Catholic Church* (Herbermann, Pace, Pallen, Shahan, Wynne, & MacErlean, 1912) and the *International Students in American Colleges and Universities* (Bevis & Lucas, 2007). These two books were used as the main reference sources of the following brief introduction of the history of international students.

Foreign students in ancient Greece. The earliest mention of international students in higher learning in ancient Greece were found in a comment from Socrates. In the 5th Century B.C.E. and the arrival of Sophists in Athens, Socrates observed that the master teachers in Athens were often accompanied by a variety of pupils, including those from distant places who traveled with their masters as they made their way from city to city seeking new students. Most of the students, according to Socrates, seem to be foreigners (Bevis & Lucas, 2007). The popularity of Athens as a destination for higher learning by foreign students continued in the B.C.E. era.

In the Hellenistic period (336 BC-31 BC), Athens reached its zenith and, in a sense, increasingly became a university town with “(foreign) students of all ages and nationalities that thronged her streets and drew inspiration from her associations” (Walden, 1901, p.52).

Medieval Europe. Interestingly, students in Medieval Europe were quite mobile when seeking educational opportunities from master teachers (Haskins, 1928). There were little formal curricula taught nor fixed periods of study or degrees. Students of higher learning were both mobile and international in nature. For example, around 1205 A.D., English archdeacons studied with German layman in Bologna, Italy. Clerks from Sweden, Hungary, England, Germany, and Italy studied with French students at the university in Paris (Haskins, 1928). Even the Cathedral schools, considered as advanced institutions of higher learning in the Middle Ages, enrolled students from faraway places beyond the European continent. Foreign students at that time were largely looked down upon by the locals because many were poor sojourners and were perceived as lacking a sense of responsibilities (Herbermann et al., 1912).

International students in the European universities of the Higher Middle Ages. Advanced courses of instruction grew quickly in the municipal Cathedral church schools in the 10th and 11th centuries. Teachers began attracting students from many faraway regions. However, higher learning institutions developed rather slowly in Germany. Thus, many German students lacked opportunities to study at home and sought learning opportunities overseas. They usually went to France or Italy (Bevis & Lucas, 2007).

The average age of an international student at that time was around 15 (Bevis & Lucas, 2007). They were frequently taken advantage of by the local people. Luckily, some European universities offered to help these students. Foreign students were granted allowances or stipends in exchange for offering prayers and performing simple work, which resembled modern-day work-study programs and graduate assistantships.

The Confessional Age and the Grand Tour. The Confessional Age (16th-17th Century), though largely a period of religious division and change, had a profound influence on education. Many conflicts and wars occurred due to different religious doctrines and many higher learning institutions were caught in the middle of the difficulties. They were struggling to survive and many did not make it. Differences among the religious sects resulted in segregation of higher learning institutions. Schools became much divided, mostly based on differences by denomination and sect. Therefore, an institution upholding beliefs in one denomination would hardly be considered by students from a different denomination. Thus, there was a negative impact on international exchanges of students. However, English students seemed to be able to find educational opportunities in foreign countries under any conditions. Hundreds of them went abroad in the medieval European continent each year (Bevis & Lucas, 2007). Education played an important role in the English society and good education often was the key factor of success

for the non-blue-blood English citizens. Gradually, this introduced another peak for international education, which was known as the Grand Tour.

The term Grand Tour was introduced by Richard Lessels in his 1670 book *Voyage to Italy*. It was a uniquely English invention and included educational experiences of student travels. But, these students did not actually enroll in formal studies (Black, 1985; Lambert, 1937). According to Cieslak (1955), the Grand Tour was designed for young men who had already completed their formal education at home but wished to further develop and acquire a taste of cosmopolitanism. Those who undertook the Grand Tour contributed a lot to the local economies where they visited. Meanwhile, they promoted the banking industry, and for safety concerns, they did not want to carry much currency and had to rely on the letters of credit from London banks (Gross, 2008). This was early evidence of the economic returns that international students bring to local economies of the places in which they chose to study. Though the Grand Tour was never an easy task, many who experienced it spoke highly of the benefits they reaped.

International students in the U.S. Before the middle of the 1800s, few international students came to study in the U.S. On the contrary, many Americans went to Europe to study aboard since the European institutions were considered more prestigious at that time (Bevis &

Lucas, 2007). After the middle of the 1800s, international students from India and China began to enroll in American institutions in increasing numbers (Bevis & Lucas, 2007).

Surprisingly, after the U.S. Revolutionary War for independence, many of the founders did not want Americans to study in Europe for fear that they might be assimilated by the European ways of life and thinking (Brickman, 1965). They were trying to develop America's own higher education system. During the process, American scholars who were educated in Europe, particularly Germany, played a critical role in advancing domestic higher education. Later on, with the American institutions gaining more and more praise from European scholars, more international students came to the U.S.

Since the mid-20th century, international student mobility had seen steady increases in the U.S. Between 1970 and 2010, international student populations in the U.S. grew from 130,000 to 720,000, at a higher rate than the growth of immigration, which quadrupled during the same period (Shih, 2016). Despite being the leading recipient of international students, the US lagged behind Israel, Japan, Canada, and Russia in the percentage of 25-64 year-olds with postsecondary educational credentials between the years 2010 to 2012. Additionally, the U.S. experienced a smaller increase in the number of college-educated citizens when compared to nations such as Luxembourg, Switzerland, and Poland (OECD, 2014). According to the National

Science Foundation (2018), the number of international students in the U.S. fell by 2.2% at the undergraduate level and 5.5% at the graduate level from Fall 2016 to Fall 2017. If the decline continues, it could have negative implications for the global competitiveness of American higher education (Redden, 2018).

Recruiting International Students

Today's American colleges and universities use diversity and inclusivity as ways to foster personal growth, challenge stereotypes, encourage critical thinking, and help domestic students communicate and feel comfortable with people they may perceive to be different (Geary, 2016). With the development of globalization and internationalization, the world is becoming increasingly diversified. However, with more diversity comes more challenges. College students will need to acquire competence to cope with the ever more diversified world after graduation and upon entering the workforce (Kerby, 2012). Recruiting international students increases diversity on campus and provides more opportunities for domestic students to improve their cross-cultural competencies. Additionally, recruiting international students brings significant economic returns to institutions and their local economies (NAFSA, 2017). However, opinions differ about whether or not institutions of higher education should recruit international students. Some critics question the value of the presence of international students on campus (Anderson,

2016; Coudriet, 2016). The first step to gaining a deeper understanding of this issue is to understand what internationalization and globalization mean.

Definition of globalization and internationalization. The terms globalization and internationalization are frequently found in media accounts since the 1980s but, unfortunately, they have frequently been ill-defined and misused (Shaydorova, 2014). According to Daly (1990), internationalization mainly refers to the increasing importance of international trade, international relations, treaties, and alliances. Contrastingly, globalization refers to the global economic integration of many national economies into one global economy through free trade, free capital mobility, and easy or uncontrolled migration (Daly, 1990). In 2015, 67,250 American students went overseas to study, while 907,251 international students pursued postsecondary education in the U.S. (UNESCO, 2016). Essentially, international mobility makes most universities and colleges internationally diverse to some degree. From an economic point of view, this mobility brought \$36.7 billion to the U.S. economy in the 2016-2017 academic year, according to the U.S. Department of Commerce (2018).

Important strategies to internationalize higher education. There are basically two strategies to internationalize American higher education. The first one is internationalizing at home and the second is study abroad. Both internationalization strategies involve activities in the

following aspects: movement of people, delivery of programs, the mobility of providers and international projects (Knight, 2008).

The movement of people includes the flow of students, faculty, and administrators. The movement of students includes both long-term students who attend full courses of study with the purpose of obtaining academic degrees from foreign academic institutions. Moreover, included in this strategy are short-term students who only take a few courses or carry out advised research for a few semesters at foreign academic institutions. The movement of faculty usually focuses on the exchange of ideas, jointly conducting research projects, and/or teaching some courses. The exchanges of administrators are mostly short-term visits, with the idea of collaboration and learning best practices from each other. Obviously, the movement of students is the largest in scale in terms of participation and frequency.

Delivery of programs. Many cooperative agreements between higher education institutions of different countries are based on the exchange and/or delivery of programs. Models of delivery include franchising, double/joint degree, and articulation (Knight, 2008). Since these programs are usually carried out based on the institutional cooperative agreements or memoranda of understanding, they are important channels to attract and recruit international students.

International students tend to trust the recommendations of their home institutions more than the

recruitment agencies when determining where to pursue education overseas. This is primarily because many recruitment agencies are considered profit-driven because many agencies charge high fees in countries like China and India (Altbach & Reisberg, 2013). Unfortunately, these two countries are the biggest source countries of international students coming to the U.S. (Open Doors Report, 2017).

The mobility of providers. Provider institutions strive to have physical or virtual presences in receiving countries while the foreign or international providers have the academic responsibility for programs and awards foreign degrees (OECD, 2007). Some providers have academic or financial partners in receiving countries, while others do not. Physical or virtual presence includes branch campuses, stand-alone foreign institutions, and franchise models (Knight, 2008). For example, New York University has many branch campuses abroad, including those in Abu Dhabi and Shanghai. There are high risks in opening overseas programs primarily due to the cultural and political differences between countries. By 2017, there were 249 international branch campuses operating worldwide, serving more than 180,000 students (Garrett, Kinser, Lane, & Merola, 2016). Among the campuses that were established since the mid-1990s, approximately 10% have failed (Wilkins, 2016).

International projects. International projects include a wide variety of non-degree-

awarding activities such as joint curriculum development, collaborative research, benchmarking, technical assistance, e-learning platforms, professional development, and other capacity-building initiatives (De Wit, 2005). Faculty members are the primary contacts for these projects, though occasionally a small number of students might take part. These projects are important for internationalization efforts, but, unfortunately, they take time to be initiated, developed, and sustained. They also require good matches between the two sides both institutionally and personally.

Attitudes toward internationalization in higher education. Iuspa (2010) conducted a Student and Faculty Attitudes Survey on Internationalization using 552 students and 98 faculty members as participants at Florida International University. After conducting both psychometric and correlation analysis, he reported that both students and faculty indicated positive agreement on the benefits of internationalization. Of course, some people hold different views. According to Hubpages (2015), some people believed international students were taking the spots that could be filled otherwise by someone else born in the U.S. They also blame international students for causing rising tuition and fees at American colleges and universities.

The core issue was to understand the benefits of having international students study in the U.S. These benefits included both indirect and direct economic benefits. Direct economic

benefits included rapidly increased revenue from tuition and fees and living expenditures paid by international students. According to Loudenback (2016), “they (international students) are financing a chunk of education costs for public universities and their domestic students, and they are fueling the US tech industry” (para. 4). Indirect economic benefits included improving the caliber of the local labor force by retaining top international talent. These indirect benefits are often overlooked but are essential to the long-term development of an economy. As a matter of fact, the long-term benefits may well outweigh the direct and immediate economic benefits because workforce productivity is one of the most important economic factors (Amadeo, 2018).

Recruiting international students as a means of internationalizing the campus. It is essential to understand the benefits that internationalizing our campus brings when discussing internationalizing higher education. According to American Council on Education (ACE), internationalizing the campus brings the following benefits:

- ***Local Impact.*** Institutions are more vital and attractive places when they are internationalized, and these qualities strengthen their local communities. Internationalized institutions are stronger institutions generally, and as such, they are in a better position to serve their local stakeholders.

- ***Institutional Strength.*** A global footprint is essential for any university to be recognized for its quality. All institutions that are noted for their excellence also have a significant international presence. Internationalized universities are stronger financially.
- ***Service to the Community.*** Universities should promote human welfare around the globe, and not just in their own country. American students need to understand the influence of the United States on other parts of the world in order to be effective citizens. Foreign students return to their home countries with a more accurate, nuanced understanding of the United States.
- ***Students and Curriculum.*** Global competence is essential for a successful career in a globalized society and economy. Every college graduate should develop the international skills and perspective that will enable them to become responsible and well-informed members of society. Complete mastery of any academic discipline requires an understanding of its international dimensions.
- ***Knowledge.*** The most urgent research questions transcend national boundaries. Research increasingly involves international networks of collaborators.” (ACE, 2016, para. 5)

Internationalization is not a state to be achieved, but it is an ongoing process by which colleges could strive to increase the global learning of students (Knight, 1993, 1994). During this process, study abroad, international students, and a globalized curriculum are important measures of internationalization.

Study abroad, throughout history, has been playing a vital role in the internationalization of higher education in the U.S. As a matter of fact, the whole higher education system in the U.S. was deeply shaped by the former international students from the American continent to Europe, particularly Germany (Bevis & Lucas, 2007). However, studying abroad is expensive, with the overall college student debts reaching 1.26 trillion in 2016 (studentaid.ed.gov, 2017), many domestic students find it hardly affordable to go to study abroad (Berdan, 2015).

Globalizing the curriculum is a process that takes an extended period. Most of the faculty are still America-born and America-educated. According to the National Center for Education Statistics (NCES, 2013), 79% of the post-secondary faculty were White, 6% were Black, 5% were Hispanic, and 10% were Asian/Pacific Islander. Among the four-year public higher education institutions, only 3.5% of the faculty were international faculty (IPEDS Data Center, 2017).

The role that recruiting international student plays in the internationalization of higher education is important. According to the U.S. Department of State (2018), international students enrich U.S. universities and communities with unique perspectives and experiences that expand the horizons of American students and make U.S. institutions more competitive in the global economy. Taking into account the constraints on the two other options for internationalizing the campus, namely study aboard and internationalizing the curriculum, it is evident that recruiting international students is the best option to internationalize the campus.

International students and university revenue. It is no secret that most international students are self or family funded, especially those at the undergraduate level pay high tuition and fees. In the academic year 2015-2016, 66.5% of all international students in the U.S. were self or family funded (iee.org, 2017). Most alarming is the fact that international undergraduate students are sometimes charged fees in countries where there are no fees for domestic students, which is a practice known as differentiated fees (Redden, 2015). In the U.S., most international students pay out-of-state tuition, which is typically three times more than the tuition charged to in-state students. Some countries, including Australia and Great Britain leverage international student fees as a means of financing their operations (Ziguras, 2011). For example, some Australian universities received nearly one-quarter of their total revenue from overseas and

international student fees (Marginson, 2007). The Institute of International Education (2012) reported that a lack of funding for public universities had increased their reliance on the revenue provided by international students, while private universities also sought to bolster their positions in the face of increased international competition. This report is echoed by the National Bureau of Economic Research (2016), where they found an overall reduction of 10% in state appropriations accompany a 12% increase in international enrollment at public research universities and a 17% increase at the most resource-intensive public institutions. According to Cantwell (2015, p. 520), there was a positive and statistically significant association between newly enrolled international undergraduate students and net tuition revenue at sampled research and doctoral institutions. Holding other variables constant, a 1% increase in the enrollment of international undergraduate students at a particular research or doctoral institution predicted a 0.04% increase in net tuition revenue. Kuehn (2012) reported that the revenue from international students had more than doubled in Canada from \$55.5M to \$129M in the time period from 2001-02 to 2010-11.

Importance of International student graduation

Retention, persistence, attrition, and graduation. To observers of higher education, words retention and persistence are used interchangeably. However, there are differences between the

two terms. The National Center for Education Statistics (NCES) differentiates the terms by defining retention as an “institutional measure” and persistence as a “student measure” (Hagedorn, 2005). Stated simply, institutions retain, and students persist. Another term commonly associated with retention is attrition, which is the “diminution in numbers of students resulting from lower student retention” (Seidman, 2005a, p. 85). If a university has higher persistence rates, it will, in theory, have lower attrition rates, which likely leads to more students completing and graduating.

Accountability. Accountability in U.S. higher education continues to gain momentum in higher education and has steadily found its way into the educational system of other countries around the world (Teichler, 2012). Various accountability measures are used to demonstrate the value of higher education institutions, with a strong focus on student progress and success. Pressures for more accountability are from multiple sources, including state and federal government, accrediting agencies, parents, students, and the media (Deming & Figlio, 2016). In this era of ever-increasing international mobility, accountability should extend to include international students. As a matter of fact, due to the importance of international students in contemporary higher education, colleges and universities should attach equal, if not greater,

importance to them in terms of accountability (Lee & Rice, 2007). In other words, academic success measures should be as important to educate international as domestic students.

International competition. Since international students bring valuable economic and societal benefits to the host countries, the competition for international students has increased (Douglass & Edelstein, 2009). The United States has allies who are also strong competitors, which includes Australia, Canada, UK and several European countries.

Australia has led the way in competing with the U.S. in recruiting international students (Slattery, 2008). The Howard Administration (1996-2007) made recruiting international students a point of emphasis on the Australian economy and promoted measures to increase enrollment, and postsecondary education became Australia's third biggest export (Slattery, 2008). According to the Australian Education International, Australia received nearly \$16 billion in annual income from international students in 2012. International students accounted for one-fifth of total college student population in Australia and among these students, and 20% was from China (Australian Bureau of Statistics, 2011). For some institutions in Australia, the proportion of international students is dramatically higher. According to the official website of Central Queensland University (2018), half of its students are international students. Universities in Australia found their budget and human resources decisions tightly linked to the enrollment of international

students. For example, at Central Queensland University, when international enrollment dropped, 200 faculty and staff members were dismissed in 2008 (King, 2013). Similarly, Melbourne University had to deal with a budget deficit as much as \$5 million (Hegarty, 2014). International students are offered a fast track to citizenship in Australia, which is beneficial to the Australian economy and maintaining a skilled workforce. Thus, there is a strong interconnection between immigration policies and education in Australia (Ziguras, 2006).

Canada is another strong competitor of the U.S., and international students contributed nearly eight billion dollars in revenue to their economy (Foreign Affairs and International Trade Canada, 2012). The Canadian government has used visa policies to support this industry. Canada's work laws allow international students to work for three years after graduation with or without a job offer. Once the student has been hired, he or she can apply for permanent residency. In November 2016, Canada's immigration minister announced changes to the scoring system used to select candidates for permanent residency (International Consultants for Education and Fairs Monitor, 2016). Under this rule, fewer points are awarded for qualified job offers, while international graduates who received higher education in Canada could receive additional points, and this new scoring system is expected to place international graduates on a much stronger footing (Citizenship Canada, 2017). In comparison, the U.S. only allow

international students graduated from non-Science Technology Engineering and Mathematics (STEM) areas to stay only 12 months on Optional Practical Training (OPT) after graduation. Moreover, the U.S. is imposing quotas in the allotting of H1-B visas (USCIS, 2018). Since President in the current U.S. Administration took office, immigration policies have become more uncertain. Students from Abroad see these policies as making the U.S. an even less favorable destination for further education. The U.S. has been sending a negative signal to international students who plan to seek job opportunities after graduation in the U.S. (Redden, 2017). Sometimes referred to as the “Trump Bump” by researchers and the media (Fischer, 2017), and it has negatively influenced the international student recruitment at American higher education institutions.

Until recently, the U.K. had allowed international students to stay for two years after graduation, which made it very attractive to international students. It takes only three years to get a bachelor’s degree and one year to get a master’s degree in the U.K. The two-year stay greatly increased the ability to pay back the tuition and fees. Though this two-year rule has been abolished with Brexit, the May administration is making it difficult for international students to stay in the UK after their studies. This is unfortunate because, with the much-depreciated British currency, tuition and fees are more affordable to international students than ever.

Aside from Australia, Canada, and the UK, other countries are also competing for more international students. For example, New Zealand, France, and Germany are in the market for international students as well. France and Germany are very competitive in their effort and offer nearly free education to international students (CampusFrance, 2018; Noack, 2017). Even if not free, cost of studying in New Zealand was much lower than that of the U.S., UK, Canada, and Australia (Manashjyoti, 2015).

Choudaha (2013) concluded that the landscape of international student recruitment had been changing. It has been getting tougher to compete in an environment of decreased budgets and increased competition. For example, U.S. enrollment of international students at American universities started to flatten in fall 2016, and a downward trend in new enrollments was accelerating in 2017 (Inside Higher Education, 2017). Forty-five percent of the universities surveyed reported a drop in international student enrollment.

Student expectation. McFadden, Maahs-Fladung, and Mallett (2012) conducted a survey of 216 international students from 56 countries at a southern public research university and it found that regardless of degree levels, faculty/student ratio, admission processes, and time to degree completion as top three concerns in students' decision-making process for choosing an overseas institution. This provides empirical evidence that international students do care about

graduation rates. According to McDonald and Alpert (2007), most consumers need word-of-mouth (WOM) to guide their adoption decisions. Particularly, in the field of international education, research conducted by the International Consultants for Education and Fairs Monitor (2013) concluded that positive versus negative WOM was important in choosing a university to study overseas. WOM has always been a significant influencer of a brand and a business's success or failure. Today, this has been amplified by the power of the internet and social media. Therefore, an investment in factors leading to international student satisfaction could be considered a marketing investment to reduce negative WOM and increase positive WOM. If an international student had an unpleasant experience at a particular school, it disseminated quickly and damage the school's reputation. It is a heavy investment and debt load for an international student with the backing of his/her family to study overseas. Like any student, International students expect to graduate and see a return on their investment. Low graduation rates could become negative WOM and likely exert negative impacts on future international student recruitment in an institution.

Theories on college student retention and completion

Theories on college student retention and completion have always been evolving. Tinto (2006) observed that about 40 years ago student retention was studied mostly from a psychology

lens and focused mostly on student “attributes, skills, and motivation” (p. 2). However, that one-pronged approach has been thoroughly discarded in the intervening years. We now “have a range of models, some sociological, some psychological, and others economic in nature that has been proposed as being better suited to the task of explaining student leaving” (Tinto, 2006, p. 4).

Astin’s Involvement Theory. Astin’s Theory of Involvement (1984) emphasized the importance of student involvement in college. The core concept of the theory was based on three elements, namely, inputs, environments, and outcomes, along with five basic postulates about involvement. A student’s inputs included their demographics, their background, and any previous experiences. Student environments included all of the experiences a student would have during college. Outcomes covered students’ characteristics, knowledge, attitudes, beliefs, and values that existed after a student graduated from college. On involvement, Astin further created 5 basic assumptions. According to Astin, involvement required an investment of both psychosocial and physical energy. Secondly, the amount of energy invested in involvement varied from student to student. Thirdly, some aspects of involvement may be qualitative, and some others may be quantitative. Next, what a student gained from being involved (or their development) was directly proportional to the extent to which were involved (in both aspects of quality and quantity). Lastly, academic performance was correlated with student involvement

(Student Development Theory, 2007). Furthermore, researchers had continued to study this correlation and obtained comparable results. Student involvement in co-curricular activities such as student organizations, leadership positions, and activity in campus residence halls had a positive correlation with retention and academics (Kuh & Pike, 2005). Ultimately, based on this theory, more involved college students should do better in graduation. However, today's colleges and universities are different from the colleges and universities in the past. For example, there are more and more commuters and online students. Commuter students represent a majority of U.S. college students today. For example, in 2014, about 75% of undergraduates lived off-campus at the University of Minnesota (University of Minnesota Office for Student Affairs, 2015). These students' involvement might be dramatically different from the traditional students.

Terenzini and Reason (2005) Multiple and Interrelated Model. Pascarella and Terenzini (2005) concluded that based on the careful review of past literature, multiple forces worked together in multiple settings to influence student learning and persistence. Additionally, Terenzini and Reason (2005) offered a conceptual framework that incorporated and extended the models by Astin (1985, 1993), Tinto (1975, 1993), Pascarella (1985), and Berger and Milem (2000). They argued that those existing college effect models remained narrowly focused on a few areas affecting students' outcome, and their own model could avoid the conceptual isolation

pointed out by Pascarella and Terenzini (1991, 2005) and help researchers to get a bigger picture of the multiple forces that might be affecting students' outcome. Under this framework, there were two major aspects directly influencing the college student outcomes. One aspect was the precollege characteristics and experience, and the other aspect was the college experience. The college experience was constituted by organizational context and peer environment. Peer environment was defined as the individual student's experience both in classroom and curriculum and in the out-of-class environment. This study covered multiple institutional factors.

Studies on Retention and Graduation

There has been an abundance of studies on college retentions and graduation. Several studies were conducted in qualitative approaches (Little, 2014; Spradin, Burroughs, Rutkowski, Lang, & Hardesty, 2010; Krivoshey, 2014) and some others in quantitative approaches (Austin & Oseguera, 2000). Several studies focused on students' personal factors (Adelman, 2006; Conley, 2007; D'Amico et al., 2010; Therriault & Krivoshey, 2014) and some focused on institutional factors (Terenzini & Pascarella, 1980; Tinto, 1975; Tinus, 2004). Several studies focused on the general college student population (Harp, 2010; Stinson, 2015), and some focused on black and

Hispanic students (City College of San Francisco, 2002; Harmon, 2012, Little 2014). Very few studies focused on institutional factors influencing international students.

Qualitative studies on international students. Little (2014) conducted a race analysis on both the personal and institutional factors influencing persistence and retention of the black doctoral students in a public university. The researcher conducted this study on a focused group of 12 black doctoral students representing various academic programs, and interviews were conducted to identify the personal and institutional factors that promoted or impeded their persistence and retention. This study found that academically successful black doctoral students identified the following personal and institutional factors as those promoted their persistence and retention: Early academic preparation, consistent familial expectations, a spiritual purpose, student motivation, early academic research programs, faculty and peer mentorship, faculty of color interaction and representation, a welcoming and inclusive institutional climate and culture, and financial support. Personal and institutional factors impeded students' persistence, and retention included: the low representation of faculty and students of color, the lack of academic mentoring and guidance, scarcity of financial aid, and a non-inclusive or welcoming academic environment. The sampling of this study was small. A larger sampling would boost its generalizability.

Spradin, Burroughs, Rutkowski, Lang, and Hardesty (2010) had conducted a large-scale examination on academic literature, state policies, and some specific campus-based initiatives aimed at improving college access and completion. They focused primarily on the traditionally underrepresented college students. Spradin et al. found that though many studies covered the topic of college access and completion, there was a surprising paucity of comparable quality data across the U.S. Their literature review focused on Tinto's Student Integration Model (Tinto, 1975, 1987). Tinto argued that up to 75% of all college students' dropout decisions were non-academic in nature, and these factors could be summarized into three categories: financial, psychological and institutional. Spradin argued that there was a dearth of rigorous, detailed studies that focused on the cause of student attrition and potential remedies. Spradin made several recommendations, including expanding financial assistance, conducting rigorous and comprehensive research, improving data systems, tailoring programs to specific needs, targeting at non-residential and two-year colleges, targeting at at-risk students, and adopting a comprehensive strategy.

Krivoshey (2014) conducted an extensive search of online databases and websites focused on studies related to persistence indicators and college completion, using tools and resources including JSTOR, ERIC, and Google. Higher education experts with Association for

Institutional Research (AIR) were also interviewed to identify seminal research on the topic.

Krivoshey reported that there were several reasons for college students failing to complete, such reasons included a blending of individual, academic, and background characteristics with higher education institutions, as well as a transition between high schools to a wide range of settings, climates, and cultures that characterized colleges and universities. There were signs of risk that some students may not complete a degree, and these signs or indicators might allow institutions to provide targeted supports to students at risk. These measures might improve graduation rates.

Krivoshey put the indicators into three categories, namely student-level indicators, institutional indicators, and state persistence indicators. Under student-level indicators, there were more subcategories, including pre-college indicators, college indicators, and life experience indicators.

Under institutional indicators, there were two subcategories, which were quality of classroom instruction and institutional resources. Institutional resources were the number of financial resources devoted to the academic programs and supports within an institution. Another study suggested that academic support expenditures influenced the college graduation rates, and one percent increase in expenditures led to a quarter of one percent increase in graduation rate (Ryan, 2004). Under state persistence indicators for consideration, Krivoshey mainly provided some references that the state officials could use to take measures to improve college student

completion rates. These indicators covered many areas, including students' academic performance, participation in college-affiliated extracurricular activities, student-faculty interaction, availability and access to financial assistance, parental education background, institutional resources, and etc. Krivoshey also called for establishing a longitudinal data system, collecting more individual student data, and raised his concern that there would be a danger that the increasing pressure holding higher education institutions accountable for college graduation rates may bring about an unintended consequence of limiting students' access to higher education institutions.

Quantitative studies of persistence and graduation of the general student

population. Besides the qualitative studies conducted in the past, there were also studies used the quantitative approach. One influential national study was conducted by Austin and Oseguera (2000). Austin and Oseguera utilized the longitudinal retention data provided by 262 baccalaureate-granting institutions participating in the Cooperative Institutional Research Program (CIRP). In their study, four-year and six-year graduation rates were obtained in 2000 on 56,818 students who entered college as first-time, full-time freshmen in the fall of 1994. Austin and Oseguera reported that the four-year completion rates had been declining for virtually all types of students—men, women, and students from various racial/ethnic groups. Additionally,

the declines had been especially large in the public colleges and universities. Austin and Oseguera also reported that more than two-thirds of the variation among institutions in their graduation rates could be explained by the differences in their entering classes rather than the differences in the effectiveness of their retention programs. Therefore, in this sense, the comparison between institutions in their graduation rates could be misleading if the academic preparation and other characteristics of their students at the time of entry were not considered. Additionally, their report put forward several different formulas that were expected to be able to estimate college student graduation rates. Here were the formulas provided:

- Formula 1: High school grades (HSG)
Graduation rates = $-0.1051 + 0.0993 (\text{HSG})$
- Formula 2: HSG plus SAT score
Graduation rates = $-0.4663 + 0.0686 (\text{HSG}) + 0.000524 (\text{SAT Composite})$
- Formula 3: HSG plus SAT plus Gender
Graduation rates = $-0.5785 + 0.0630 (\text{HSG}) + 0.000559 (\text{SAT Composite}) + 0.0695 (\text{Female})$
- Formula 4: HSG plus SAT plus Gender plus Race
(-0.1327 if American Indian; -0.0559 if Puerto Rican; -0.0922 if Mexican American/Chicana/o; -0.0298 if African American; -0.0195 if Asian American) (Austin & Oseguera, 2005, p21-22)

These quantitative studies on the factors influencing college student graduation rates could be grouped into two categories, namely institutional factors and non-institutional factors.

Non-institutional factors. Previous studies on non-institutional factors had put these factors into four subcategories, which were pre-college factors, during-college factors, social factors, and life experience factors (Therriault & Krivoshey, 2014).

Precollege factors were closely related to college readiness, and these factors reflected the level of preparation a high school student needed to succeed in college. These factors included intensity of a student's high school curriculum (Adelman 2006), advanced placement (AP) results (ACT, 2009; Conley, 2007), final examination scores (Conley, 2007), high school GPA (Reason, 2009), and whether or not attended dual-enrollment courses (Berger et al., 2008; D' Amico et al., 2010; Hughes et al., 2005).

During-college factors were categorized into two groups, which were academic factors and social factors. Academic factors included whether students participated in remedial courses (Adelman, 1999; Conaway, 2009; Conley, 2007; D' Amico et al., 2010; ECES, 2004 & 2011), College GPA (Hu & St. John, 2001; Kahn & Nauta, 2001; Tinto, 1075; Titus, 2004), credits earned after first year of college (Adelman, 1999, 2006), credits earned over summer semesters (Adelman, 2006); studying as full-time students or part-time students (Adelman, 2006; Carroll,

1989), enrolling continuously or not (Adelman, 1999, 2006), withdrew or repeated in courses (Adelman, 1999, 2006), personal goals and commitments (Adelman, 2006; Kahn & Nauta, 2001; Pascarella & Terenzini, 1980; St. John, Hu, Simmons, Carter, & Weber, 2004; Tinus, 2004); and having obtained an associate degree (Adelman, 2006; Cejda & Kaylor, 2001; Hoachlander, Sikora, & Horn, 2003). Social factors included participation in extracurricular activities (Berger & Milem, 1999; Kuh et al, 2008; Pascarella & Terenzini, 1980; Titus, 2004) and student-faculty interaction (Berger & Milem, 1999; Pascarella & Terenzini, 1980; Tinto, 1957, 1997).

Life experience could have a direct effect on persistence and completion (Therriault & Krivoshey, 2014). Previous studies suggested that the following factors had a direct effect on student completion: financial conditions (Dowd & Coury, 2006; Nora, 1990; Swail, 2003; Voorhees, 1985), parental education background (Dowd & Coury, 2006; Sibulkin & Butler, 2005; Yakaboski, 2010), parental marital status (Raley & Kuo, 2011), on-job while enrolling in college (Raley & Kuo, 2011), and family and community support (Bean, 1980; Bean & Metzner, 1985; Bean & Vesper, 1990; Cabrera et al., 1993; Reason, 2009).

Institutional factors. Some previous studies referred to institutional factors narrowly as the conditions, availability, and invested resources targeted at the learning environment. For example, the quality of classroom instruction and the availability of academic and social supports

to students (Therriault & Krivoshey, 2014). Many studies found that some characteristics of colleges and universities were related to college persistence and graduation rates (Bean, 1980; Berger & Milem, 1999; Terenzini & Pascarella, 1980; Tinto, 1975; Titus, 2004). In detail, those studies found the following institutional factors directly influenced college student graduation rates: quality of classroom instruction (Pascarella, Seifert, & Whitt, 2008), institutional resources (Ryan, 2004), and diversity and inclusion (Kim & Yeh, 2002). In my study, institutional factors were examined at a broad angle and included institutional factors already studied previously but separately. In my study, they were studied altogether.

The literature on the institutional factors included in this study

The institution being or not being a research institution. Joseph and Joseph (2000) took a sample of potential students from Indonesia and studied their choice criteria on institutions for overseas study. They used a 17-item questionnaire covering: the cost of education, accommodation at a reasonable cost, degree (content and structure) and a wide range of courses, reasonable entry requirements, specialist programs, physical aspects, facilities and resources, ideal location, and etc. After analysis, a model with five factors was found to be adequate to represent the data they collected. These five factors were academic resources, physical facilities, course and entry requirements, location, and general influences. Research universities were

perceived as being more prestigious than the non-research institutions. Research universities were usually thought to have more academic resources, offer more courses, better facilities, and have much bigger influences in the academic world than the non-research higher learning institutions (McLendon, Mokher, & Doyle, 2009).

Jacobs et al. (2010) advocated choosing a research university. They provided ten reasons why choosing a research university. They argued that there were more top faculty, more advanced courses, more possibilities of internship and working with experts on research, better facilities, and more graduate students to contact with. They also argued that research institutions were more internationalized. Additionally, they believed the faculty in research universities were more energized, and there were more opportunities for undergraduates to be admitted to graduate schools or professional schools. These ideas were included in a book series named *Professors' Guide*, and unfortunately, authors did not provide sources for their propositions. It is possible that research institutions might be able to enroll a larger number of higher-caliber international students since they are usually more recommended and more sought after. Therefore, this factor was included in my study.

Location of an institution. As discussed earlier in this dissertation, Joseph and Joseph (2000) found international students from Indonesia attached significant importance to the

location of the institution where they planned to study. In a similar study conducted on Korean international students and parents (Pawslow, 2014), location, together with reputation, ranking, and safety, were found to be important determining factors to Korean international students and their parents in making decisions on which institution to choose for overseas study.

Jian, Sandnes, Huang, and Huang (2010) conducted a similar study on two populations, one was international students from Taiwan, and the other was international students from Norway. They identified the following factors influential for both populations: university reputation, course relevance, low cost to study, location, advice, and advertisement. For both populations, location was ranked as the second most influential factor for engineering students.

The institution being or not being an HBCU or Tribal institution. According to the study conducted by City College of San Francisco (2002), the minority students earned 50% less bachelor's degrees than the white students. On a national scale, the graduation rates of HBCU had been only about 30%, which was half of the national average. It was also found that some factors attributed to low minority achievement, including poor economic circumstances, parents' educational level, racial prejudice/discrimination, and lack of quality educational resources. Harmon (2012) pointed out the only way to achieve the goal that America having the highest

proportion of college graduates in the world was to focus on underserved students who were the fastest growing student population, but their graduation rates had been the lowest.

Many international students are studying in HBCU and Tribal institutions, but regretfully there had been few studies focused on this group of students. My study included this category of institutions as a factor to examine if it played a role in the graduation rates of international students.

The percentage of full-time students among all student population. Harpe (2010) found that part-time students, minority students, lower-achieving students, students enrolled in associate degree programs, and those who dropped a portion of their classes in which they enrolled were more likely to withdraw from the institution prior to program completion, so they had much lower graduation rates. Stinson (2015) pointed out that national data indicated that residential college students had higher rates of persistence and completion than commuters did. Complete College America (CCA) (2011) discussed graduation rates of college students in the U.S. and highlighted challenges facing students at the time. It was reported that more and more students were working longer hours, attending college part-time, extending graduation further, and becoming overwhelmed by too many choices and too little instruction. In turn, their degrees

got left behind as time went on and other pressure began to take over jobs, relationships, marriage, children, mortgages, etc.

According to the U.S. visa policies, most international students are expected to be full-time students (USCIS, 2013). International students live both on campus and off campus. My study probed into the question if being a residential or a non-residential college would influence her international student graduation rates.

Institutional Selectivity. Shamsuddin (2016) used a restricted-access national dataset, and an instrumental variables approach to estimate the effect of selective colleges on the probability of bachelor's degree completion and found that 100-point increase in the average SAT score for admitted students was associated with an increase of 13% in the graduation rates. In another study, Gansemer-Topf (2006) focused on private baccalaureate liberal and general colleges and universities and examined the relationship between institutional selectivity, institutional expenditures, and retention and graduation rates. Gansemer-Topf found that institutional selectivity and institutional expenditures, specifically those that directly contributed to students' academic integration contributed significantly to retention and graduation rates. Regretfully these studies did not extinguish international students as a separate group, so my study included selectivity as one of the institutional factors to examine.

Percentage of international faculty among all faculty. One of the most frequently mentioned strategies for retaining students of color was hiring more faculty and administrators of color (Castle, 1993; Crosson, 1992; Gordon, 1997; Manzo, 1994; Kobrak, 1992; McNairy, 1996; Reyes, 1997; Walters, 1996). Opp (2002) found there was a positive relationship between faculty diversity and increased graduation rates for students of color by analyzing survey data from a national study of Chief Student Affairs Officers (CSAOs) on retention barriers and 1995 IPEDS Completions Survey Data. Several researchers and policymakers had argued that faculty and administrators of color served as role models and mentors for students of color (Biggs et al., 1998; Chavez & Maestas-Flores, 1991; McNairy, 1996; Miller, 1990; Rodriguez, 1994). Others suggested that the presence of faculty and administrators of color helped to create a more positive racial campus climate for students of color (Gordon, 1997; Manzo, 1994). According to Wood (2008), there was a positive correlation between the black faculty-student ratio and the graduation rates of black students. In 2014, Center for Community College Student Engagement published a special report, and this report also advocated that having more faculty and staff of color would be beneficial.

Dependence on tuition and fees. Harris (2011) examined the relationship between public higher learning institutions' fiscal resources and student persistence to degree completion.

Multiple regression was conducted to analyze the relationship between institutional level financial variables and graduation rates. While no significant correlation was found to exist between the credit ratings (PHG and UMG) and graduation rates, significance was found to exist between graduation rates and percent revenue from tuition and fees net discounts and allowances and auxiliary enterprise reliance in 2007, percent revenue from state operating grants and contracts, and percent revenue from investment income and auxiliary enterprise reliance in 2005. It had been argued for a while if international students were considered as cash cows in higher learning institutions in the background of shrinking state and federal appropriations (Grey, 2016; Matthews, 2014; Robertson, 2011; Wainwright, 2016).

Tuition difference between the low-income students and the average students and the percentage of students received Pell grants. According to Adams, Meyers, and Beidas (2016), the financial strain may, directly and indirectly, impact students' psychological symptoms and academic and social integration. They collected cross-sectional data using online survey software programs and found that perceived stress was important intervention target for reducing psychological symptoms and improving academic and social integration for undergraduate students. Therefore, low-income students were more likely to suffer from lower graduation rates. Dynarski and Scott-Clayton (2013) reported that lowering costs could improve college access

and completion, with a few exceptions. The first one was that the complexity of program eligibility and delivery appeared to moderate the impact of aid on college enrollment and persistence after enrollment. Second, for students determined to enroll, grants tying financial aid to academic achievement boosted college outcomes than grants with no strings attached.

Tuition difference between the low-income students and the average students and percentage of students received Pell grants could reflect the general financial situations of the student population and if one institution awarded more merit-based financial aids or more need-based financial aids. Though international students generally are not illegible for Pell grants (Federal Student Aid, 2018), my study considered it as an institutional climate factor and included it in as an institutional factor to examine.

The percentage of international students among all student population. There is a dearth of literature on studying the relationship between the international student percentage in the total enrollment and international student graduation rates. Most big state universities in the United States have an informal cap on international students at about 20% of the overall enrollment (Usher, 2018). A study (Garcia, 2013), focused on the Latino students, found that the relationship between the percentage of Latino student enrollment and the graduation rates of

Latino students was insignificant, but instead, the relationship between selectivity and Latino student graduation rates was significant.

Tuition. Atuahene (2013) conducted a study on the relationship between tuition and graduation rates among the Ghana institutions where there were both fee-paying students and tuition-free students. Ghana was faced with similar situations as the U.S., where higher education institutions were getting less and fewer funds from the government. Atuahene found that although the fee-paying scheme had some potential successes in revenue generation and enrollment expansion, there existed a graduation gap/disparity between tuition-paying and regular admits (non-tuition-paying students). Sanacore and Palumbo (2016) found some colleges engaged in unethical practices to balance their budgets through accepting first-generation low-income students who qualified for loans and government-backed financial aid but not providing their students with the services and programs they needed to achieve success. They considered these students as cash cows, but these students suffered from low graduation rates. Johnson (2014) reported that in California, most students came from low-income families, and in fact, almost 60% of the state's K-12 students qualified for free and reduced-price lunch programs. Without grants and scholarships, many low-income students would be unable to participate in the higher education system. Jackson (2017) found there was a correlation between students' SAT

scores and the tuition they paid. It was also found that effectiveness of tuition incentives on improving graduation rates had been decreasing (Hanover Research, 2014). This study included tuition in examining the relationship between institutional factors and international graduation rates.

The percentage of total institutional spending on instruction/student services and the percentage of overall institutional revenue went to scholarships. Ryan (2004) examined the impact of institutional expenditures on 6-year cohort graduation rates at 363 Carnegie-classified Baccalaureate I and II institutions and found a positive and significant correlation between instructional and academic support expenditures and cohort graduation rates. According to Gansemer-Topf and Schuh (2006), the more an institution contributed its spending on instruction and academic support, the higher the graduation and retention rates would be for the overall student population. Additionally, Webber and Ehrenberg (2010) specifically studied the relationship between spending on student services and graduation rates and found a positive correlation between the two.

Studies on College Loan Debt

Student loan debts is a grave issue. There is a paucity of studies on international student loan debt, but there were many studies on American student loan debts. Many findings could possibly apply to international students. The first recorded education loan in the U.S. was made about 60 years ago (Galloway& Wilson, 2005). The impetus for student loans was the 1965 Higher Education Act, and after 1992, U.S. witnessed a fast growth of student loans (Heller, 2008). The overall student loan debt Americans owed had reached \$1.48 trillion by January of 2018 (Student Loan Hero, 2018). Many believed it cast a long shadow over the economy, delayed home purchases, crimped consumer spending, and inhibited business formation. According to a joint study conducted by National Student Assistance and National Association of Realtors (2017), student loan Debt impacted many people's important decisions. It was also found that borrowing negatively affected student persistence in both private and public higher learning institutions (Confer & Somers, 2000; Paulsen & St. John, 2002).

Most international students pay out-of-state tuition (Redden, 2015). According to the Open Doors Data (2017), China and India have been the Top 2 countries of origin for international students in the U.S. Unfortunately, average GDP per capita is much lower in both these two countries than the USA. It is more challenging for them to obtain the funds to study in the States,

and it is also more difficult for them to pay back such high student loan debts unless they find high-pay jobs, which is not easy in their home countries. Student loan debt is a severe problem for international students as it is for domestic students.

Student loan debts are handled differently in different countries. Different countries handle student loan debt differently (Usher, 2005). Many developed countries, Austria and Canada for example, subsidize student loan debts while the borrowers are still in school, while other countries do not. While during repayment, some countries use income-contingent systems, meaning that borrowers would only need to pay a certain percentage of their income each month, or there is a cap on income and borrowers would not need to repay the debts before their incomes reach this cap. For example, Australia sets this cap at \$A 35,000 and Canada sets it at around \$C 24,000. Some countries even forgive student loan debt after the borrowers have been repaying for a certain number of years. For example, Germany will forgive people's student loan debt after they have been repaying for 20 years and the Netherlands will forgive after 15 years. Regrettably, major international student source countries, like China and India, do not have these programs. Most international students from these countries have to go to commercial banks to borrow the loans and pay back in full without income caps or forgiveness. The India government offers some interest subsidy through the Central Sector Interest Subsidy program, but it is only

offered to the lowest income families, and unfortunately, there had been reports that a hefty sum of these subsidies failed to reach students at all (Prabhakar, 2017).

Student loan debt affects students' learning. Kono et al. (2015) attempted to identify the risk factors that might affect the mental health status of the international students, and they conducted a survey using a self-administered questionnaire. Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale. Students were divided into two groups. The first group received scholarships and the second group did not. Association of social-demographic characteristics with depression symptoms was examined. Among the total sampled population of 726 students, 480 responded, and 207 had depressive symptoms. As a result, it was found that 43.1% of the total sample had displayed depressive symptoms. Logistic regression analysis was conducted, and results indicated that quality of sleep, amount of exercise, and housing conditions were statistically associated with the risk of developing depressive symptoms. Researchers concluded that although the inversion of the cause and effect was yet to be ascertained, students who were unsatisfied with their housing conditions, quality of sleep, and less exercise needed more attention. Though this study was conducted in Japan, the findings should shed light on the international students in the U.S, as both two countries are developed countries, and GDP per capita has been close.

Another study (Hogan, Bryant, & Overmyer-Day, 2013) was conducted in the U.S., and this study explored relationships among debt, undesirable academic behaviors and cognitions, and academic performance, through surveys of 338 students in a public university, replicating two past measures of credit card debt and creating new measures of students' delinquency, undesirable academic cognitions or behaviors, and academic performance. This study suggested that students' financial status was related to how they allocated time and energy in college, as well as how well they performed in classes and how much they learned. Though this study did not focus on International students, the relationship between debt and study outcomes could likely be found among international students too.

Student loan debt affects the society. Houle and Warner (2017) examined the claim that student debt was leading to a rise in boomeranging, meaning returning home to live with parents. Data they used were from the National Longitudinal Survey of Youth 1997 Cohort and discrete time-event history models. This study obtained four findings. Student loan debt was not correlated with boomeranging in the complete sample. The correlation differed by race, so the link between student debt and returning home was stronger for black than for white youth. Degree completion was a strong predictor of returning home. Those who failed to attain a degree

had an increase in returning home. Findings suggested that rising debt had created new risks and may reproduce social inequalities in the transition to adulthood.

Student loan debt influences not only the student generation but also retirees. Edwards (2017) reported that there was a rapid rise in older Americans taking on student loans. There were two main causes. The first was that parents and grandparents were co-signing loans to support the younger generation. The second was that older Americans were increasingly taking student loans for themselves. The number of Americans age 60 and older were carrying student debt quadrupled in the past decade, and they were the fastest-growing group of student borrowers and owe, on average, \$23,500 (U.S. Consumer Financial Protection Bureau, 2017). According to the same source, this group carried \$66.7 billion in student debt. This phenomenon is by no means unique in the U.S., it also exists in the major countries of origin for international students, like India (Thomas, 2017). For India, most student loan debt owed by the senior citizens was because of co-signing. It is a heavy blow to their well-being since they generally do not have high incomes, and in India, the interest rate on a student loan is higher than 10% on average (Bandyopadhyay, 2016). If taking a negative multiplier effect into account, it is safe to state that student debt is affecting the whole society.

Few studies on international students' debts could be found, but there had been a few studies on domestic student debts. Most of these studies focused on students' characteristics and their impact on the number of debt they owed. These characteristics studied included but not limited to financial literacy, family assets, and race (Hira, 1992; Robb, Moody, & Abdel-Ghany, 2012). There were also some studies focused on the minority students, but not international students (Looney, 2011; Luna-Torres, McKinney, & Horn, 2018). It was found that students in different types of institutions might rack up different amounts of debt. American Institutes for Research (2013) found that there was a correlation between institutional characters and student debt. They also found that overall racial/ethnic differences in undergraduate debt were larger in Science, Technology, Engineering, and Mathematics (STEM) fields than in the Social, Behavioral, and Economics (SBE) fields.

Williams, Benson, Bain, and Dicks (2016) found that different countries made different policies on student loans, their repayment, and interest levels, and they also found that the interest rate on a student loan in the U.S. was higher than that of Australia, Sweden, and Netherland, but lower than New Zealand, and Canada. This study did not include many countries of origin for international students, like China and India, but international students from China

and India constituted the largest groups in the international student population in the U.S. (Open Doors Report, 2017).

Since different countries have different ways and policies to provide loans to students who study overseas, it is impractical to seek a formula that is able to calculate the debts that different international students from different countries have after finishing school in the States. It is only practical to seek the average debt an international student will have after finishing school in the U.S.

Past studies on Factors Influencing the Amount of Student Loan Debt. American Institutes for Research(2013) used the 2007-08 National Postsecondary Student Aid Study Data and found that for students attending public research institutions, SBE degree seekers were more likely to accumulate debt and almost twice as likely to accrue more than \$30,000 in debt as STEM majors. Across all types of institutions, underrepresented minority students obtaining STEM bachelors' degrees were likely to accrue more than \$30,000 in undergraduate debt than other students. The disparity in private research or doctoral institutions was particularly large, with 43% of underrepresented students accruing more than \$30, 000 in undergraduate debt and only 17% of non-underrepresented students accruing the same amount in undergraduate debt.

Webber and Rogers (2014) examined the characteristics of 1,399 four-year not-for-profit U.S. institutions and found significant differences in the 2010 federal student loan default rates by several important institutional factors, including admissions yield, geographic region, percentage of minority students, institution control (private vs public), endowment, and expenditures for student services.

Studies on the Amount of International Student Loan Debt. Few studies were found focused on the amount of international student loan debt. Due to the diversity of international students in countries of origin, it is difficult to extract exact numbers from existing data sets.

A study of the financial circumstances of domestic and international students in Australia's universities was conducted by Center of the Study for Higher Education in the University of Melbourne in Australia in 2013. This study used data gathered by Australian Survey Research (ASR, 2012) for Australian university students' finances and a survey undertaken by the Center for the Study of Higher Education in 2006. The instrument used in the 2012 study of student finances was based on the previous instrument with many additional items, including those for international students. According to this study, the average debt an international undergraduate student in Australia had was Au \$65,135, and the average cost of attendance in Australia was Au \$21,332. Therefore, the ratio was around 305.34%.

The cost of attendance, international student composition, and living costs are comparable in two countries between the U.S. and Australia (Unicurve, 2016), but there are two major differences between the two countries which might result in international students graduating with different amount of loan debt. The first one is that most undergraduate programs that do not require research in Australia are three-year programs, while most American undergraduate programs are four-year programs (Studying-in-Australia.org, 2018). The other major difference is though both counties allow international students to work up to 20 hours per week, international students in the U.S. can only seek on-campus job opportunities, while their counterparts in Australia can seek job opportunities both on-campus and off-campus (StudyinAustralia.gov.au, 2018). Therefore, though the debt ratio of Australian international students could be used as a reference, it could not be directly used to estimate debt of international students in the U.S.

Chapter 3 Methods

The concept of internationalization resonates in many aspects of American life including higher education (Crow & Dabars, 2015). At campuses across the nation, internationalization is “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003, p. 2). Internationalizing their campuses is part of the development strategies for most higher education institutions (Skinkle & Embleton, 2014). One important tactic for internationalizing a college or university is to admit and enroll students from other countries. Findings in the research literature support the notion that international students enrich domestic students' educational experiences, improve their cross-cultural competences, and infuse the campus culture with inclusiveness and diversity (Jenkins, Harris, Krumm, & Curry, 2012; Wainwright, 2016). Shaping a student population to include students from other countries is important, particularly since not every domestic student in the U.S. can afford to nor is willing to study abroad (ACE, 2017).

The research questions for this study were:

1. What is the relationship between an institution's socio-cultural characteristics and international student graduation rates?

2. What is the relationship between an institution's structural variables and international student graduation rates?
3. What combination of variables, if any, produces the best statistical relationship with international student graduation rates?
4. What is the relationship between an institution's socio-cultural characteristics and international student debts?
5. What is the relationship between an institution's structural variables and international student debts?
6. What combination of variables, if any, produces the best statistical relationship with international student debts?

This study used quantitative methods to investigate the relationship between two types of institutional variables and two dependent variables. Two independent variables were structural variables and socio-cultural variables and the two dependent variables were international student graduation rates and international student loan debt. The hypothesis was that there were no statistical relationships between the institutional variables and international student graduation

rates and student loan debt. The data source was Integrated Postsecondary Education Data System (IPEDS).

Two separate Multiple Linear Regression analyses were conducted to examine the relationship between the institutional variables and international student graduation rates and between the institutional variables excluding cost of attendance (COA) and international student loan debt. According to Pearson (1908), the general purpose of multiple regression was to learn more about the relationship between several independent or predictor variables and a dependent or criterion variable. Multiple regression analyses were useful to test the hypothesis of this study.

The main statistical tool used in this study was SPSS version 22, and the major calculation and sorting tool used was Microsoft Excel 2013.

Variables

Socio-cultural variables. Among the socio-cultural variables tested were the percentage of full-time students attending an institution, the admissions selectivity of the institution, and the percentage of international faculty among all faculty on campus. Other socio-cultural factors included in the study were whether or not the institution was a Historically Black College and University (HBCU) or a Tribal institution, and the percentage of international students among all student population.

Structural variables. The first structural variable was whether the institution is or is not a research institution. The second was the location of the institution, which was defined as whether the institution was located in an urban/suburban area or in a rural/small town area. Other variables included how much the institution depended on tuition and fees, as well as the percentage of the overall institutional revenue going to scholarships, cost of attendance (COA), tuition difference between low-income students and the general student population (i.e., average tuition difference), percentage of total institutional spending on instruction and student services, and the percentage of students receiving Pell grants.

Data Source

Integrated Postsecondary Education Data System (IPEDS) was the data source of this study. IPEDS is an online data system using data from annual surveys conducted by the National Center for Education Statistics (NCES), a unit of the U.S. Department of Education. Annual completion of IPEDS surveys is mandatory for all institutions that participate in any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965 (National Center for Education Statistics, 2018). These data were made available to students and parents through the College Navigator college search Web site and to researchers and others

through the IPEDS Data Center. The IPEDS data is one of the most comprehensive and authoritative sources of data on higher education available to the public. Another benefit of using IPEDS data is the consistency of reporting standards, which makes a multi-year study possible and more reliable.

Sample and data extraction

Relevant data from 799 four-year public post-secondary institutions in the U.S. reporting data to the IPEDS Data Center was included. Five years' data (2009-2014) on international student graduation rates, international student debt, and relevant institutional variables was selected. Institutions whose relevant data sets were incomplete were excluded. After excluding these institutions, data from 298 institutions were finally used for analysis. In statistical analysis, the five-year averages were used. Listed below are the descriptions of the independent variables, including both categorical and continuous:

Non-Research Institutions vs. Research Institutions. There were more non-research institutions than research institutions in the sample. Among the 298 four-year public institutions included in this study, 123 (41.3%) were research institutions. According to the IPEDS data (2017), 41.4% institutions were research institutions among all public 4-year institutions. The selected sample matched closely to the institutional information reported by IPEDS.

Table 1

Research Institutions and Non-Research Institutions in Selected Sample

Value Label	Value	Frequency	Percent
Not research institution	0	175	58.72
Research institution	1	123	41.28
Total		298	100.0

HBCU or Tribal Institutions. HBCU is the abbreviation for Historically Black Colleges and Universities. According to NCES (n.d.), HBCUs were established before 1964 with the intention of primarily serving the African American communities, but also allowed admission to students of all races. Most HBCUs were created in the aftermath of the American Civil War and are located in the former slave states, though a few notable exceptions exist. According to American Indian Higher Education Consortium (1999), Tribal colleges and universities are mainly minority-serving higher education institutions, distinguished by being controlled and operated by American Indian tribes. They have become part of American Indians' institution, with a mission to pass on their own cultures. As of 1994, they have been authorized by Congress as land-grant colleges.

Among the 298 institutions whose data were included in this study, there were 12 HBCU or Tribal institutions, which constituted 4.03% of the overall number of institutions in this study. The percentage of HBCU and Tribal institutions among all U.S. institutions was 6.4% (NCES, 2017). There is no significant difference between the percentage of HBCU and Tribal institutions in the sample and in the total population ($t=1.7, p=0.1, df=7419$).

Table 2

HBCU or Tribal in Selected Sample

Value Label	Value	Frequency	Percent
B or T	1	12	4.03
Not_B or T	0	286	95.97
Total		298	100.0

Notes: B or T stands for HBCU or Tribal institutions

Location. There were 89 (29.9%) institutions located in town or rural settings and 209 (70.1%) in city or suburban settings. This study adopted the NCES Locale Classifications and Criteria in determining the location of an institution (NCES, n.d.).

Table 3

Location

<i>Value Label</i>	<i>Value</i>	<i>Frequency</i>	<i>Percent</i>
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Town/Rural	0	89	29.87
City/Suburb	1	209	70.13
<i>Total</i>		298	100.0

Selectivity of the institution in admission. In this study, selectivity was calculated as the percentage of applicants who were admitted by an institution. For example, if an institution had a total number of applicants up to 1,000, and admitted 500 of these applicants, its selectivity would be calculated as $500/1000$, which is 50%. A bigger percentage here stands for lower selectivity, since a higher percentage means the institution accepted more applicants. More selective institutions are usually associated with having more prestige (Lucido, 2011).

Dependence on tuition. Dependence on tuition was calculated as the percentage of revenue from tuition and fees within the overall institution's annual revenue. Generally, for public institutions, dependence on tuition could reflect the level of appropriations received from state governments. In other words, if an institution relies more on tuition and fees, it is highly likely that that institution receives fewer state appropriations. (Kapp, 2010) Whereas, since institutions may have other sources of revenue, dependence on tuition could be jointly influenced by other sources of revenue, as well.

Statistics of the other variables. Average international student graduation rates of the institutions in the sample were 52.2% ($SD = 16.1\%$). This was slightly lower than the overall graduation rates among all 4-year public institutions, which was 58% in 2014 (NCES, 2017). The average international student loan debt was \$139,788.35 ($SD = \$30,431.76$), which was high compared with the average household incomes in China and India. Average international faculty percentage was 3.5% ($SD = 2.7\%$). The standard deviation was large compared to the average faculty percentage indicating that the percentage of international faculty varied considerably among institutions, but the percentage was low in general. Average full-time student percentage was 83% ($SD = 11\%$), indicating most students in the institutions in this sample were full-time students, but non-full-time students could be sizable in some institutions since the standard deviation was as large as 11%. Average tuition dependence was 28% ($SD = 9\%$), indicating tuition had been one of the important sources of revenue for sample institutions. This was likely a reflection of the fact that federal and state appropriations to public institutions have been shrinking considerably. Average selectivity among sample institutions was 66.2% ($SD = 15.8\%$). The average percentage of revenue used as scholarships in these institutions was 17% ($SD = 7.6\%$). Average out-of-state COA in these institutions was \$32,200 ($SD = \$7,000$), which was rather high compared with the median household income in the U.S. According to the Peter G.

Peterson Foundation (2018), the median household income in 2015 was \$57,230 in 2015 and \$59,039 in 2016. High tuition and fees frequently triggered the Return on Investment (RoI) discussion about the value of a college education (Urgo, 2010). The average difference in tuition paid by the low-income students and average students was \$4,570 ($SD = \$1,620$). The average percentage of revenue dedicated to instruction and student services was 42% ($SD = 1\%$), indicating that institutions invested a similar portion of their revenue on instruction and student services. The average percentage of international students among total enrollment was 5% ($SD = 4\%$), indicating the total international student population in 4-year public institutions was generally low and there was a sizable difference in the international student percentage among different institutions. The average percentage of students receiving Pell grant student aid was 36.2% ($SD = 14.1\%$).

Table 4

Overall Descriptive Statistics (N=298)

Descriptive Statistics		
Variables	Mean	Std. Deviation
GradRate	52.2%	16.1
Debt	\$139,788.3 5	\$30,431.76
NRAFacultyPCT	.035	.027
FullTimeSsPCT	.83	.11
TuitionDepend	.28	.09
Selectivity	66. 2%	15.8%
ScholarshipPCT	.17	.076
COA	\$32.2K	\$7.0K
AverageDiff	\$4.57K	\$1.62K
Instr_ServPCT	.42	.10
InterSsPCT	.05	.04
PellPCT	36.2	14.1

Notes: GradRate=graduation rates; NRAFaculty PCT=NRA faculty percentage; FullTimeScPCT=full time students percentage; TuitionDepend = dependence on tuition and fees; ScholarshipPCT = percentage of scholarship in the overall institutional revenue; BackorTribal = HBCU and tribal institutions; AverageDiff = average tuition difference; Instr_ServPCT= percentage of instructional and student services expenditure in overall institutional revenue; InterSsPCT = percentage of international students in the overall enrollment; PellPCT = percentage of students received the Pell grants

Procedures

Two separate regression analyses using stepwise procedure were conducted. The first one had the international student graduation rates as the dependent variable and the second one had international student loan debt as the dependent variable. The socio-cultural and structural institutional factors were the independent variables. In the second analysis, international student loan debt was the only dependent variable, and there was one less independent variable, which was COA. Since the debt was calculated on the basis of COA, the correlation must equal to 1. Therefore, tuition and fees were excluded as an independent variable in the second regression analysis.

Datasets downloaded from IPEDS Data Center. The EasyGroup option was taken to choose public 4-year institutions in the U.S. There were 799 public 4-year institutions in total available from IPEDS. The IPEDS Variable option was taken to choose variables that could be

directly or indirectly used to calculate the values of the 13 independent variables and dependent variables that are included in this study. For example, international student graduation rates and whether an institution is an HBCU or Tribal institution could be directly obtained from the IPEDS; while other variables like the percentage of international faculty had to be calculated by subtracting the numbers of Non-Resident Alien faculty numbers from the total faculty numbers. Five-year's data from 2010 to 2014 were extracted.

Datasets were cleaned and institutions whose data were incomplete were excluded.

Some institutions' information were not complete in the IPEDS data center. For example, several institutions lacked one or multiple years' worth of data for some of the variables covered in this study. These institutions were excluded from the final sample. As a result, of the 799 four-year public institutions, 298 institutions that had complete data in IPEDS for all necessary variables in this study were included. Finally, data from these 298 institutions were exported into an Excel compatible file.

The Excel calculation functions were used. Calculations were used to obtain the values of the independent variables that were not directly provided but obtainable through calculation. For each variable, the five-year average was obtained and put into SPSS.

Cleaned and calculated data were imported into SPSS for multiple regression analysis.

Campus settings were categorized into two subcategories, which were coded as 0 and 1. “Zero” stood for the town and rural setting and “one” stood for city and suburb setting. Whether an institution was an HBCU or Tribal institution was dummy coded as 0 and 1. “Zero” stood for not being an HBCU or Tribal institution, and “one” stood for being an HBCU or Tribal institution. Whether an institution is a research institution was also dummy coded with “Zero” standing for not being a research institution and “one” standing for being a research institution.

Stepwise multiple regression analysis. Stepwise procedures were conducted to examine the relationship between the 13 independent variables and international student graduation rates and international student loan debt. In the procedures to analyze the relationship between the independent variables and the international student loan debt, COA was excluded.

Chapter 4 Results

The concept of internationalization resonates in many aspects of American life including higher education (Crow & Dabars, 2015). At campuses across the nation, internationalization is “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003, p. 2). Internationalizing their campuses is part of the development strategies for most higher education institutions (Skinkle & Embleton, 2014). One important tactic for internationalizing a college or university is to admit and enroll student from other countries. Findings in the research literature support the notion that international students enrich domestic students' educational experiences, improve their cross-cultural competences, and infuse the campus culture with inclusiveness and diversity (Jenkins, Harris, Krumm, & Curry, 2012; Wainwright, 2016). Shaping a student population to include students from other countries is important, particularly since not every domestic student in the U.S. can afford to nor is willing to study abroad (ACE, 2017).

The research questions for this study were:

1. What is the relationship between an institution's socio-cultural characteristics and international student graduation rates?
2. What is the relationship between an institution's structural variables and international student graduation rates?
3. What combination of variables, if any, produces the best statistical relationship with international student graduation rates?
4. What is the relationship between an institution's socio-cultural characteristics and international student debts?
5. What is the relationship between an institution's structural variables and international student graduation debts?
6. What combination of variables, if any, produces the best statistical relationship with international student debts?

Multiple linear regression using stepwise procedure analyses were conducted to explore the relationship between the two groups of institutional variables and the two dependent variables. The independent variables included the percentage of full-time students attending an institution, the selectivity of the institution, the percentage of international faculty among all faculty, whether or not the institution was an HBCU or a Tribal institution, the percentage of

international students among all student population, whether the institution is or is not a research institution, the location of the institution, how much the institution depended on tuition and fees, the percentage of the overall institutional revenue going to scholarships, COA, average tuition difference, percentage of total institutional spending on instruction and student services, and the percentage of students receiving Pell grants. The two dependent variables were international student graduation rates and international student loan debt. This chapter reports the results of the analyses.

Multiple Linear Regression on International student Graduation Rates

All the independent variables were statistically correlated with international student graduation rates, with all p values smaller than .05. Among these independent variables, tuition and international student graduation rates had the highest correlation coefficient r value ($r = .54$), while HBCU or Tribal had the lowest r value ($r = .10$). The following variables had a negative correlation with international student graduation rates: COA, selectivity, and percentage of institutional revenue going to scholarships, the percentage of institution revenue going to instruction and student services, and the percentage of students receiving the Pell grants. The other variables had a positive correlation with international student graduation rates.

Table 5

Multiple Regression Outputs

Variables	GradRate	Value
NRAFacultypCT	Pearson Correlation	.190
	<i>p</i> -value	<.001***
FullTimeSsPCT	Pearson Correlation	.427
	<i>p</i> -value	<.001***
TuitionDepend	Pearson Correlation	-.122
	<i>p</i> -value	.018
Selectivity	Pearson Correlation	-.186
	<i>p</i> -value	.001
ScholarshipPCT	Pearson Correlation	-.422
	<i>p</i> -value	<.001***
BlackorTribal	Pearson Correlation	.100
	<i>p</i> -value	.042
COA	Pearson Correlation	.542
	<i>p</i> -value	<.001***
Research	Pearson Correlation	.418
	<i>p</i> -value	<.001***
Location	Pearson Correlation	.293
	<i>p</i> -value	<.001***
AverageDiff	Pearson Correlation	.403
	<i>p</i> -value	<.001***
Instr_ServPCT	Pearson Correlation	-.465

	<i>p</i> -value	<.001***
InterSsPCT	Pearson Correlation	.335
	<i>p</i> -value	<.001***
PellPCT	Pearson Correlation	-.478
	<i>p</i> -value	. <.001***

Note. GradRate=International student graduation rates; NRAFaculty PCT=NRA faculty percentage; FullTimeScPCT=full time students percentage; TuitionDepend = dependence on tuition and fees; ScholarshipPCT = percentage of scholarship in the overall institutional revenue; BackorTribal = HBCU and tribal institutions; AverageDiff = average tuition difference; Instr_ServPCT= percentage of instructional and student services expenditure in overall institutional revenue; InterSsPCT = percentage of international students in the overall enrollment; PellPCT = percentage of students received the Pell grants

Model Summary

Final model achieved the highest R^2 value and Adjusted R^2 value, which was .47 and .46 respectively. This model contained the following predictors: COA, the percentage of students receiving the Pell grant, percentage of revenue used in the institution and student services, full-time student percentage, and location. The Cohen's f squared effect size of this model was 0.84, which was bigger than 0.35. Therefore, the effect size of model 5 was large.

According to the final model, $F(5, 297) = 51.009$ and the p value was smaller than .001; therefore, we could reject the null hypothesis. The relationship between the predictors in the

model and international student graduation rates did not happen by chance, and the linear combination of the predictors can predict the international student graduation rate.

All the predictors in the final model had p values less than .05. To be more specific, the p values for COA, Pell receiver percentage, instruction and service expenditure percentage were all smaller than .001 and the p -value for full-time student percentage was 0.001 and the p -value for the location was .007. VIF values ranged from 1.22 to 1.64, indicating that multicollinearity was not an issue in this model.

Table 6

Coefficients

Model	Unstandardized Coefficients		t	Sig.	Correlations		Collinearity Statistics	
	B	Std. Error			Zero-order	Partial	Part	VIF
(Constant)	38.37	8.46	4.54	.000				
COA	5.46	1.26	4.35	.000	.542	.247	.19	1.64
PellPCT	-.27	.06	-4.83	.000	-.478	-.272	-.21	1.31
Instr_ServPCT	-39.666	7.56	-5.25	.000	-.465	-.294	-.22	1.22
FullTimeSsPC	23.483	7.009	3.35	.001	.427	.192	.14	1.36
T Location	4.517	1.663	2.72	.007	.293	.157	.12	1.23

Among the statistically significant factors, the percentage of revenue spent on instruction and student services had the biggest unique contribution (semi-partial correlation value equaling

to -.224), then followed by the percentage of students receiving Pell grants, COA, full-time student percentage, and location. To be more specific, with higher COA and full-time student percentage, international student graduation rates will be higher. Interestingly, when the percentage of students receiving Pell grants and the percentage of revenue spent on instruction and student services increased, international student graduation rates would decrease. When the location of a higher learning institution is city and suburb, the international student graduation rates will go up.

It is also noteworthy that expenditure percentage on instruction and student services exerted a negative influence on the international graduation rates. It was opposite to the findings of Ryan (2004), Gansemer-Topf and Schuh (2006), and Webber (2010). Breaking down the percentage of revenue spent on instruction and service provided more insight into this issue.

Correlation between Instructional Expenditure and Student Service Expenditure.

According to the Pearson Correlation analysis report, the r value was .81 ($p < .001$). Instructional Expenditure and Student Service Expenditure were positively and significantly correlated, which means if an institution spent more on instruction, it also tended to spend more on student services.

Multiple Linear Regression on International Student Loan Debt

COA was excluded in the multiple regression analysis on the international student loan debt since the debt was calculated based on COA in the current study. The remaining 12 institutional variables were included in the multiple linear regression analysis.

According to the final model, 61% of the variance of international student loan debt can be accounted for by the linear combination of the average difference between tuition and fees paid by low-income students and the average tuition and fees paid by all students, the institution being or not being a research institution, location of the institution, percentage of full-time students, dependence on tuition and fees, percentage of revenue invested in instruction, and spending on student services ($R^2=.61$). The Cohen's f squared effect size of model 7 was 1.49, which was bigger than 0.35, and therefore, considered to be large.

According to the ANOVA result, $F(3, 290) = 64.266, p < .001$ indicating that the relationship between the variables included in the final model and debt did not happen by chance. The linear combination of those predictors can significantly predict international student loan debt.

According to the result, there were no collinearity issues. Most VIF values were around 1.3, and the biggest VIF value was 2.1, well below 3.

Table 7

Coefficients Report on the Relationship Between the Institutional Variables and International Student Debt

Model	Unstandardized Coefficients		T	Sig.	Collinearity Statistics
	B	Std. Error			VIF
(Constant)	103805.62	13433.96	7.73	.000	
AverageDiff	7.12	.85	8.40	.000	1.50
Research	18530.92	2962.03	6.26	.000	1.71
Location	9328.08	2720.26	3.43	.001	1.24
FullTimeSsPCT	23488.32	11536.22	2.04	.043	1.39
TuitionDepend	82031.50	15269.22	5.37	.000	1.63
Instr_ServPCT	-78599.53	16475.56	-4.77	.000	2.19
Selectivity	-301.71	79.61	-3.79	.000	1.26

Note: For all variables in Model 7, $VIF < 2.2$. AverageDiff stands for the average tuition and fees difference between low-income students and the average tuition and fees paid by all students. FullTimeSSPCT stands for the percentage of full-time students among all enrolled students. TuitionDepend stands for the percentage of an institution's revenue coming from tuition and fees. Instr_ServPCT stands for the percentage of an institution's revenue invested in instruction and student services.

Among the included institutional factors, the percentage of revenue used on instruction and student services and selectivity were negatively related with debt. When a higher percentage of institutional revenue was spent on instruction, international students might have lower student loan debt. International students in more selective higher learning institutions also had lower

student loan debt. When institutions invested more in instruction and student services, international students would have lower student loan debt. When selectivity increased, international students would have less debt. On the contrary, when the average tuition and fee difference between the low-income students and average students, the percentage of full-time students, and tuition dependence went up, international students would have higher student loan debt. International students in research institutions and institutions located in city and suburban settings had more student loan debt.

Summary

Regarding the research questions on international student graduation rates, it was found that:

RQ1. Among the socio-cultural variables, the percentage of full-time students was statistically related to international student graduation rates. Other socio-cultural variables were not statistically related to international student graduation rates. When the percentage of full-time students increased, international student graduation rates also increased.

RQ2. Among the structural variables, COA, the percentage of students receiving the Pell grants, expenditure on instruction and student services and the location of institutions were

statistically related to the international student graduation rates. When COA increased, international student graduation rates increased. But, when the percentage of students receiving the Pell grants and expenditure on instruction and student services increased, international student graduation rates decreased. When the location of a higher learning institution was city and suburb, international student graduation rates increased.

RQ3. In combination, the percentage of full-time students, tuition and fees, the percentage of students receiving the Pell grants, expenditure on instruction and student services, and the institution's location produced the best statistical relationship with international student graduation rates.

Regarding the research questions on international student loan debt, it was found that:

RQ1. Among the socio-cultural variables, the percentage of full-time students and selectivity were statistically related to international student loan debt. Other socio-cultural variables were not statistically related to international student loan debt. When the percentage of full-time students increased, international student loan debt also increased. But, when selectivity increased, international student loan debt decreased.

RQ2. Among the structural variables, the percentage of revenue devoted to instruction and student services, the average tuition and fees differences between the low-income students and the average tuition and fees of all students, the institution being or not being a research institution, the location of the institution, and tuition dependence were statistically related to international student loan debts. When the percentage of revenue went to instruction and student services increased, international student loan decreased. But, when the average tuition and fee difference between the low-income students and the average tuition and fees of all students, and increased, international student loan debt increased. When an institution was a research institution tuition dependence or when an institution was located in a city or suburb setting, international student loan debt increased.

RQ3. In combination, the percentage of full-time students, selectivity, the percentage of revenue went to instruction and student services, average tuition and fees differences between the low-income students and the average tuition and fees of all students, the institution being or not being a research institution, the location of the institution, and tuition dependence produced the best statistical relationship with international student loan debt.

Chapter 5 Summary, Implications and Recommendations

The concept of internationalization resonates in many aspects of American life including higher education (Crow & Dabars, 2015). At campuses across the nation, internationalization is “the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education” (Knight, 2003, p. 2). Internationalizing their campuses is part of the development strategies for most higher education institutions (Skinkle & Embleton, 2014). One important tactic for internationalizing a college or university is to admit and enroll student from other countries. Findings in the research literature support the notion that international students enrich domestic students' educational experiences, improve their cross-cultural competences, and infuse the campus culture with inclusiveness and diversity (Jenkins, Harris, Krumm, & Curry, 2012; Wainwright, 2016). Shaping a student population to include students from other countries is important, particularly since not every domestic student in the U.S. can afford to nor is willing to study abroad (ACE, 2017).

The research questions for this study were:

1. What is the relationship between an institution's socio-cultural characteristics and international student graduation rates?

2. What is the relationship between an institution's structural variables and international student graduation rates?
3. What combination of variables, if any, produces the best statistical relationship with international student graduation rates?
4. What is the relationship between an institution's socio-cultural characteristics and international student debts?
5. What is the relationship between an institution's structural variables and international student graduation debts?
6. What combination of variables, if any, produces the best statistical relationship with international student debts?

There were few publications on international student graduation rates and student loan debt. This fact alone is an alarm that international students have been neglected in the academic world, and more studies on this population are needed (Hagedorn & Mi-Chung, 2005; Pei, Li, & Hagedorn, 2017). This study provided insights into the research questions on international student graduation rates and student loan debt by analyzing the data extracted from IPEDS.

International Student Graduation Rates

According to the analysis, among the socio-cultural variables, the percentage of full-time students was statistically correlated with international student graduation rates. And among the structural variables, cost of attendance, the percentage of students receiving the Pell grants, expenditure on instruction and student services, and the location of institutions were statistically correlated with the international student graduation rates.

Whether a higher education institution is a research institution or not was not statistically correlated with the international student graduation rates. While some people think that research institutions are more prestigious and therefore the international students these higher learning institutions enrolled academically perform better and graduate faster than international students in non-research institutions (Mattern, Shaw, & Marini, 2013), multiple regression analyses results did not support this assumption with regard to international student graduation rates. One reason why being a research institution or not was not a valid predictor of international student graduation rates might be that international students enrolled in research institutions were not more qualified than international students enrolled in non-research institutions. Many non-research higher learning institutions have been marketing themselves actively overseas, and they also invest heavily in international students (Saul, 2016). Comparatively, some research institutions might invest less in both recruiting international

students and student services dedicated to international students on campus, which could add to institution type was not a valid predictor. Additionally, previous research found that public universities had lower graduations rates than liberal arts universities and colleges (Anstine, 2013). This study's findings showed that decision makers cannot simply assume that their institutions would achieve higher international student graduation rates solely on the basis that their institutions are research institutions. Efforts made during the process may make a difference.

The location of an institution was statistically correlated with international student graduation rates. Studies in the past (Joseph & Joseph, 2000; Pewslow 2014) found that international students from Indonesia and Korea attached great importance to the location of the university or college in choosing where to study overseas, and this study found location was a valid predictor of international student graduation rates in the public 4-year institutions. If an institution was located in a city or suburban setting, the graduation rates of international students would be higher. This is particularly useful for institutions with multiple campuses with different campus settings. Top administrators in these institutions should consider if readjusting the international student admission quotas (if there is any) could increase their overall international student graduation rates.

Whether an institution was an HBCU or Tribal institution was not statistically related to international student graduation rates. What is also noteworthy is that HBCU and Tribal institutions generally have a lower percentage of international students ($p < 0.05$, $f_{(12,286)} = 1.33$). If HBCUs or Tribal institutions recruit more international students, the situation might be different. Then, these institutions might need to look closely at the instruction and services they offer to international students, as it was found in this study non-research institutions might also achieve high international student graduation rates.

The percentage of full-time students was statistically and positively correlated with international student graduation rates. The higher percentage of full-time students that an institution had, the higher graduation rates the international students would achieve. This finding coincided with the previous findings on the influence of the percentage of full-time students on the overall graduation rates as discussed in the literature review. Though it might make no sense to increase the percentage of full-time students just to improve international student graduation rates, since there are more non-traditional domestic students who are likely to choose to be part-time students (Signature Report, 2011). However, percentage of full-time students could be used as an indicator and the administrators of an institution with a higher percentage of part-time students should make extra efforts to improve international student graduation rates.

An institution's selectivity was not statistically correlated with international student graduation rates in that institution. International students in less selective colleges might achieve graduation rates as high as those institutions with higher selectivity. This finding is a reminder that while college preparedness of freshmen is important, in terms of achieving higher graduation rates, efforts made from many other aspects while students are on campus are also very important to boost students' graduation rates. These other aspects may include classroom experiences, out-of-classroom experiences, and curriculum experiences.

The percentage of international faculty at an institution did not statistically influence international student graduation rates. This finding is useful because many institutions are endeavoring to diversify their faculty. The rationale of such endeavors was that having diversified faculty could create a sense of belonging for all students (Mcmurtrie, 2016). Findings in this study indicated that increasing the percentage of international faculty might not work on improving international student graduation rates. This could partially be explained by the features of the transitional period these faculty members were in. Perhaps, many of these international faculty were trying to fit in the new environments themselves. Many were likely under great pressure to conduct research and get published and some were working hard to

improve their English proficiency if English was not their first language. They might choose to spend more time with the domestic faculty or students rather than with international students.

An institution's dependence on tuition and fees was not statistically correlated with the international student graduation rates of that institution. Some people were worried that since recruiting international students could increase institutional revenue, and some institutions depended more on tuition and fees, that institutions might lower their requirements and admit less prepared international students, resulting in lower international student graduation rates (de Wit, 2016). The findings of this study indicated this assumption was not correct. Institutions on average did not perform badly in international student graduation rates when they depended more on tuition and fees. Therefore, as long as the institutions paid due attention to their international students, international students would not be likely a burden on their overall graduation rates. On the contrary, international students likely contributed to easing their dependence on tuition and fees (Cantwell, 2015).

The percentage of an institution's revenue going to scholarships was not statistically correlated with international student graduation rates in that institution. This finding indicated that more financial assistance to the general student population did not help international students to graduate faster. The IPEDS does not provide scholarship data going

directly to international students. Available scholarship data are the overall scholarships that institutions provide to all students. There is a possibility that most of the scholarships institutions provide were awarded to domestic students and fewer went to international students. Therefore, international student graduation rates were not statistically influenced by these scholarships. There is another possibility, which is that those international students who received scholarships did not feel as much pressure to graduate sooner than their peers who did not receive scholarships. Most international students pay out-of-state tuition or even out-of-state tuition plus a surcharge, so it is costly to study in the U.S. (Redden, 2015); therefore, without scholarships, the natural choice of an international student might be to graduate as quickly as possible to save costs. But, if they received scholarships, this pressure might become much less, and they may not feel the urgency to graduate sooner.

The percentage of international students in an institution's student population was not statistically correlated to international student graduation rates. Some people argued that there exists a saturation point in the enrollment of international students (Redden, 2016). For example, the Saudi government had a list of U.S. institutions that they thought were saturated and therefore refused to provide funding to send any more Saudi students to those institutions. In this study, from a sample of 289 four-year public institutions, we did not see that the percentage

of the international student population would statistically influence international graduation rates. Therefore, institutions who had been capping the enrollment of international students in fear of saturation might need to reconsider their capping policy. At least from the view of international student completion, an arbitrary cap does not make much sense. However, many institutions are now trying to increase the diversity of international students and their goal is to have more countries and cultures represented in their international student population. Whether it makes any sense to restrict the admission of international students from a certain country is worthy of further study.

Cost of attendance (COA) was positively correlated with international student graduation rates. According to the analysis, higher COA was associated with higher international student graduation rates. While this finding should not be used as a ground to raise the COA of international students, this finding makes sense from the view of the international students and their families. Graduating sooner means more money saved for international students and their families. Currently, most institutions charge international students out-of-state tuition, and some even charge a surcharge beyond out-of-state tuition (Redden, 2015). Though higher COA did not reduce international student graduation rates, it might make an institution who does so less attractive, since international students do shop around. Institutions that charge

high out-of-state tuition might need to reconsider their policies. Higher tuition and surcharges might turn away many international students.

The average tuition difference between the low-income students and the average students was not statistically correlated with international student graduation rates.

Basically, the tuition difference between the low-income students and the average students reflected to what extent the institution provided financial aid based on need. The bigger these differences were, the more financial aid went to the low-income students. As mentioned in the literature review, studies found that financial aid to low-income students could reduce drop-out rates and improve graduation rates for the overall student population. But for the international students, as discovered by this study, this variable was not statistically correlated to international student graduation rates. The vast majority of financial aid at the undergraduate level was only awarded to domestic students (Department of Education, 2018). Only a few outstanding international undergraduates might have been awarded some financial aid, but this did not exert a statistical influence on the overall international student population.

Percentage of the total institutional spending on instruction and student services was negatively correlated with international student graduation rates. Though the Pearson Correlation analysis indicated that if an institution invested more in instruction, it also tended to

invest more in student services, increasing the overall investment on instruction and student services as a whole did not mean both will get more funds in the same proportion. In fact, cutting investment on student services had happened on many campuses (Eisen, 2009). Since the multiple regression analysis indicated that those efforts exerted a negative influence on international student graduation rates, it meant that these expenditures did not benefit international students on improving graduation rates.

The reason for the discrepancy between the previous research findings and findings of this study might be the special characteristics of international students as a group since the previous studies only focused on students as a whole and did not differentiate international students from the whole student body. Zhao, Kuh, and Carini (2005) found international students as a group were less engaged in out-of-the-classrooms activities than the American students. Similarly, Lee (2013) reported that international students utilized much fewer institutional resources than the American students. Additionally, Forbes-Mewett and Nyland (2012) reported that while international students generally utilized much fewer institutional resources than American students, institutional administrators were also reluctant to invest in international student services, since these relevant departments had little bargaining power. In a combination, these two aspects showed that that the overall institutional investments on instruction and student

services might not have been translated into more investments in student services that international students could directly benefit from. Or, institutions did not invest heavily in international student services at all. Therefore, though more investments in instruction and student services usually boosted the graduation rates of students as a whole, it was negatively associated with improving international student graduation rates.

This finding shall not be used as an excuse for not investing properly in international students' instruction and services, but it serves as a reminder that administrators should work together with faculty and staff to encourage international students to utilize available resources.

Percentage of students receiving the Pell grants was negatively correlated to international student graduation rates. The Pell grants are generally need-based and are mostly awarded to U.S. citizens (Kantrowitz, 2012). Though generally international students did not have access to the Pell grants, they were indirectly influenced by the percentage of students receiving the Pell grants and it was a negative influence. According to Nicholas (2015), low-income students graduated from college at lower rates than their more affluent classmates. Therefore, it makes sense that in institutions where more students received Pell grants, graduate rates were lower on average. One possible explanation for why international student graduation rates followed this trend is that international students enrolled in an institution are under the

influence of its culture. Therefore, if a large number of the domestic students took more years to degree completion, international students may just have followed suit. In such a case, administrators need to change the culture first in order to improve international student graduation rates.

On the whole, COA, the percentage of students receiving Pell grants, the percentage of the total revenue spent on instruction and student services, location, and the percentage of full-time students were the factors statistically correlated with international student graduation rates. An equation obtained from the multiple regression in this study is:

$Y=38.365+5.461X_1-0.269X_2-39.666X_3+23.483X_4+4.517$ (if location is city and suburb). (Note:

$X_1 = \text{COA}$, $X_2 = \text{the percentage of student receiving the Pell grants}$, $X_3 = \text{the percentage of revenue spent on instruction and student services}$, $X_4 = \text{the percentage of full-time students}$, $Y = \text{international student graduation rates}$).

International Student Loan Debt

Seven institutional factors were statistically correlated with international student loan debt. They were the percentage of revenue spent on instruction, average tuition and fees difference between the low-income students and the average tuition and fees paid by all students, the institution being or not being a research institution, the location of the institution, the

percentage of full-time students, tuition dependence, the percentage of institutional revenue spent on instruction and student services, and selectivity. Two other institutional factors were negatively correlated with international student loan debt: the percentage of revenue spent on instruction and student services and selectivity.

Two institutional factors were negatively correlated with debt. The percentage of revenue spent on instruction and student services, as well as institutional selectivity, were negatively correlated with international student loan debt. Many institutions expanded international student enrollment to balance their budget, but they did not invest enough in international students in both instruction and student services (Higher Education Marketing, 2017). When not properly served by institutions, international students rack up more debt. They might be more likely to spend more of their own money to purchase the services they want but that are not provided by their institutions. For example, they might need to buy more books, pay to hire tutors and seek more expensive accommodation.

Selectivity had a negative correlation with debt. Generally, high selectivity is associated with institutional prestige. Prestigious institutions usually have higher revenue, which enables them to provide more scholarships and more services to students (Jin & Whalley, 2007). This might help reduce international student loan debt. Another possible factor might be that students

were more prepared academically in more selective institutions and they could graduate faster (Shamsuddin, 2016). Shorter study duration usually means less living costs, thus resulting in less debt.

Institutional factors positively correlated with international student debt. Average tuition and fees difference between low-income students and the average tuition and fees of all students, the institution being or not being a research institution, the location of the institution, the percentage of full-time students, and tuition dependence were all positively correlated with international student debt. When the value of these variables increased, international students had more debt.

When an institution provided more merit-based financial aid, the average tuition and fees difference between the low-income students and the average tuition and fees paid by all students would be smaller, and according to this study's regression analysis, their international students would rack up less debt. This is a factor that an institution could control, unlike some of the other factors that are harder to change or control. Merit-based financial supports were found effective to improve student persistence (Zhang, 2011) and the analysis in this study also found it helpful to international students to reduce debt. Therefore, administrators might need to rethink their financial aid policies, particularly the role that merit-based aid plays or should play.

The location of an institution is hard or nearly impossible to change. But for institutions having multiple campuses, the finding of this study might be useful. Though relocating campuses is hard, it might be feasible to readjust the enrollments of different campuses. The regression analysis in this study indicated that being located in city or suburban areas was positively correlated with higher international student debts. If more students enrolled in campuses in rural or town areas, they might rack up less debt.

Enrollments are increasing for non-traditional students and commuter students (Florida Department of Education, 2016; Keller, 2013; O'Brien, 1992). Therefore, in the long run, the percentage of full-time students will decrease gradually. Since there is a positive correlation between the percentage of full-time students and international student debts, in the future, international student debt might get some relief. But meanwhile, tuition and fees have been growing year by year, which might offset this relief.

Tuition dependence might grow year by year as long as the state and federal appropriations constantly shrink (Baker, 2017; Kapp, 2010). Therefore, international student debt is continuing to increase. Unless state governments decide to increase their funding to higher education, this tendency is hard to reverse.

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Appendix A

IRB Approval

AUBURN UNIVERSITY INSTITUTIONAL REVIEW BOARD for RESEARCH INVOLVING HUMAN SUBJECTS REQUEST FOR EXEMPT CATEGORY RESEARCH

For information or help completing this form, contact: THE OFFICE OF RESEARCH COMPLIANCE, 115 Ramsay Hall
Phone: 334-844-5966 e-mail: IRBAdmin@auburn.edu Web Address: <http://www.auburn.edu/research/vpr/ohs/index.htm>

Revised 2/1/2014 Submit completed form to IRBsubmit@auburn.edu or 115 Ramsay Hall, Auburn University 36849.

Form must be populated using Adobe Acrobat / Pro 9 or greater standalone program (do not fill out in browser). Hand written forms will not be accepted.

Project activities may not begin until you have received approval from the Auburn University IRB.

1. PROJECT PERSONNEL & TRAINING

PRINCIPAL INVESTIGATOR (PI):

Name Gang Liang Title Graduate Student Dept./School EFLT/Higher Edu
Address 502 Perry Street, Auburn AU Email gzl10015@auburn.edu
Phone 334-247-1366 Dept. Head Sheri Downer

FACULTY ADVISOR (if applicable):

Name David DiRamio Title Associate Professor Dept./School EFLT
Address 4096 Haley Center
Phone 334-844-4460 AU Email diramdc@auburn.edu

KEY PERSONNEL: List Key Personnel (other than PI and FA). Additional personnel may be listed in an attachment.

Name	Title	Institution	Responsibilities
<u>Gang Liang</u>	<u>Researcher/Diss</u>	<u>Auburn University</u>	<u>Secondary Data Analysis</u>
<u>David DiRamio</u>	<u>Supervisor/Advisor</u>	<u>Auburn university</u>	<u>Secondary Data Analysis</u>

KEY PERSONNEL TRAINING: Have all Key Personnel completed CITI Human Research Training (including elective modules related to this research) within the last 3 years? YES NO

TRAINING CERTIFICATES: Please attach CITI completion certificates for all Key Personnel.

2. PROJECT INFORMATION

Title: Institutional Factors Influencing International Student Graduation Rates

Source of Funding: Investigator Internal External

List External Agency & Grant Number: _____

List any contractors, sub-contractors, or other entities associate with this project.

List any other IRBs associated with this project (including those involved with reviewing, deferring, or determinations).

FOR ORC OFFICE USE ONLY

DATE RECEIVED IN ORC: _____ by _____ APPROVAL # _____
DATE OF IRB REVIEW: _____ by _____ APPROVAL CATEGORY: _____
DATE OF ORC REVIEW: _____ by _____ INTERVAL FOR CONTINUING REVIEW : _____
DATE OF APPROVAL: _____ by _____
COMMENTS:

1 of 3

3. **PROJECT SUMMARY**

a. Does the research involve any special populations?

- YES NO Minors (under age 19)
 YES NO Pregnant women, fetuses, or any products of conception
 YES NO Prisoners or Wards
 YES NO Individuals with compromised autonomy and/or decisional capacity

b. Does the research pose more than minimal risk to participants? YES NO

Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests. 42 CFR 46.102(i)

c. Does the study involve any of the following?

- YES NO Procedures subject to FDA Regulation Ex. Drugs, biological products, medical devices, etc.
 YES NO Use of school records of identifiable students or information from instructors about specific students
 YES NO Protected health or medical information when there is a direct or indirect link that could identify the participant
 YES NO Collection of sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior or use of alcohol
 YES NO Deception of participants

If you checked "YES" to any response in Question #3 STOP. It is likely that your study does not meet the "EXEMPT" requirements. Please complete a PROTOCOL FORM for Expedited or Full Board Review. You may contact IRB Administration for more information. (Phone: 334-844-5966 or Email: IRBAdmin@auburn.edu)

4. **PROJECT DESCRIPTION**

a. **Subject Population** (Describe, include age, special population characteristics, etc.)

Integrated Postsecondary Education Data System (IPEDS) from the National Center for Education Statistics (NCES) under the United States Department of Education's Institute of Education Sciences (IES) is a system of interrelated surveys conducted annually, consisting of twelve interrelated survey components that are collected each year. The completion of all IPEDS surveys is mandatory for all institutions that participate in, or are applicants for participation in, any federal financial assistance program authorized by Title IV of the Higher Education Act of 1965. The subject population is constituted by institutions.

b. Describe, step by step, all procedures and methods that will be used to consent participants.

- N/A (Existing data will be used)

- c. **Brief summary of project.** (Include the research question(s) and a brief description of the methodology, including recruitment and how data will be collected and protected.)

International students enrich domestic student' educational experiences, improve their cross-cultural competences, and infuse a campus culture of inclusiveness and diversity, and meanwhile, international students bring considerable revenue to the host institutions and local economy. The purpose of this study is to determine whether some identified socio-cultural factors and structural factors are related to international students' graduation rates.

Research questions are as follows:

1. What is the relationship between an institution's socio-cultural variables and international students graduation rates?
2. What is the relationship between an institution's structural factors and international students graduation rates?
3. What combination of variables, if any, produces the best statistical relationship with international students graduation rates?

Data are from IPEDS Data Center, which is an existing and public dataset, and participants identity remains anonymous. Information may be used in presentation, professional meeting, and/or published in a professional journal. Data will be analyzed using SPSS.

- d. **Waivers.** Check any waivers that apply and describe how the project meets the criteria for the waiver.

- Waiver of Consent (Including existing de-identified data)
 Waiver of Documentation of Consent (Use of Information Letter)
 Waiver of Parental Permission (for college students)

- e. **Attachments.** Please attach Informed Consents, Information Letters, data collection instrument(s), advertisements/recruiting materials, or permission letters/site authorizations as appropriate.

Signature of Investigator Gang Liang 数字签名: Gang Liang
日期: 2018.01.30 16:13:13
0907 Date 01/22/2018

Signature of Faculty Advisor David DiRamio Digitally signed by David DiRamio
Date: 2018.01.31 08:34:08Z Date _____

Signature of Department Head _____ Date _____

Appendix B

SPSS Outputs

Regression on International Student Graduation Rates R Square and F Change

Model	R		Change Statistics				
	Square	Adjusted R Square	R Square Change	F Change	df1	df2	Sig. F Change
1	.29	.29	.29	122.94	1	296	.000
2	.38	.38	.09	41.66	1	295	.000
3	.44	.43	.06	29.22	1	294	.000
4	.45	.44	.02	8.50	1	293	.004
5	.47	.46	.01	7.38	1	292	.007

Note. 1. Predictors: (Constant), COA

2. Predictors: (Constant), COA, PellPCT

3. Predictors: (Constant), COA, PellPCT, Instr_ServPCT

4. Predictors: (Constant), COA, PellPCT, Instr_ServPCT, FullTimeSsPCT

5. Predictors: (Constant), COA, PellPCT, Instr_ServPCT, FullTimeSsPCT, Location

Regression on International Student Graduation Rates Anova Outputs

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22550.87	1	22550.87	122.94	.000 ^a
	Residual	54294.89	296	183.43		
	Total	76845.75	297			
2	Regression	29269.02	2	14634.51	90.74	.000 ^b
	Residual	47576.74	295	161.28		
	Total	76845.75	297			
3	Regression	33570.63	3	11190.21	76.02	.000 ^c
	Residual	43275.12	294	147.19		
	Total	76845.75	297			
4	Regression	34791.03	4	8697.76	60.60	.000 ^d
	Residual	42054.72	293	143.53		
	Total	76845.75	297			
5	Regression	35827.32	5	7165.46	51.01	.000 ^e
	Residual	41018.43	292	140.47		
	Total	76845.75	297			

a. Predictors: (Constant), COA

b. Predictors: (Constant), COA, PellPCT

c. Predictors: (Constant), COA, PellPCT, Instr_ServPCT

d. Predictors: (Constant), COA, PellPCT, Instr_ServPCT, FullTimeSsPCT

e. Predictors: (Constant), COA, PellPCT, Instr_ServPCT, FullTimeSsPCT, Location

f. Dependent Variable: GradRate

Correlation between Instructional Expenditure and Student Service Expenditure SPSS Output

		InstrSpendAVG	ServSpendAVG
InstrSpendAVG	Pearson	1	.81**
	Correlation		
	Sig. (2-tailed)		.00
	N	298	298
ServSpendAVG	Pearson	.81**	1
	Correlation		
	Sig. (2-tailed)	.00	
	N	298	298

Note. **. Correlation is significant at the 0.01 level (2-tailed). InstrSpendAVG=percentage of revenue spent on instruction; ServSpendAVG=percentage of revenue spent on student services

T-test Analysis of the Percentage of International Students between the HBCU or Tribal

institutions and the Overall Institutions

	HBCU or Tribal	<i>n</i>	<i>M</i>	<i>SD</i>	<i>S.E. M</i>
International Student Percentage	0	12	.03	.02	.01
	1	286	.05	.04	.00

Note. Zero stands for being an HBCU or Tribal institution. One standing for not being an HBCU or Tribal institution.

Independent Samples Test

		Levene's Test of Equality of Variances		t-test for Equality of Means				
		F	P	T	df	p	M Dif.	S.E. Dif
Intel Students Percentage	Equal variances assumed	1.33	.250	-1.45	296.00	.148	-.02	.01
	Equal variances not assumed			-2.23	13.49	.043	-.02	.01

Note. $p = .043$