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The Effect of Decreased Government Funding on University Policy to Attract International Students

Lauren Elizabeth Gateley
lgateley@vols.utk.edu

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Haslam Scholars Program, University of Tennessee

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Abstract

The United States has maintained a dominant role in International Higher Education for decades. However, changes to public university budgets and difficulties in retaining international students after graduation has caused the United States to lose its grip in this industry. Data from 690 public 4-year or above institutions were accessed through the Integrated Postsecondary Education Data System (IPEDS) to measure the effect of decreases in state appropriations as a percent of core revenues on the number of international students enrolled each year from 2008-2018. After controlling for tuition and fees as a percent of core revenue, land grant status of the institution, and the presence of career placement services, a 1% decrease in state appropriations is associated with increased enrollment of international students by 2.52 individuals. This is statistically significant at the 1% level. These results highlight the need for universities to properly support international students on campus, as well as strategize ways to retain the human capital that results from educating these students.

Key Words: *higher education policy, international students, university funding, student visas*

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Chapter 1: Introduction

More employers worldwide are placing added value on the knowledge, skills, and competencies acquired in post-secondary schooling, making the quality of higher education that a country offers a potential economic advantage and allowing for enhanced global competitiveness (Adnett, 2016). As researchers have found ways to quantify more of the benefits associated with higher education attainment, their results indicate higher public returns on post-secondary education investment (Adnett, 2010). However, this effect is not unique to the United States. Policies at global levels have also begun to reflect a broader view of higher education investment as states and countries benefit significantly from having an educated population (Adnett, 2010; Beine et al., 2014).

According to Adnett (2010), a country's quality of labor is a critical determinant of its international competitiveness and growth potential. More specifically, the depth and quality of a country's higher education system is connected to the economy's ability to invent new products and exploit new production methods (Adnett, 2010). Parina (2021) reported that 23% of the billion-dollar companies operating in the United States were founded or cofounded by an international student. In addition, 62 of the world's leaders currently in power pursued their higher education in the United States. The countries receiving international students into their higher education institutions are only able to reap the economic benefits if those students become employed in the host country post-graduation and add educated labor to the domestic workforce (Parina, 2021). The need for these host countries to retain their international students post-graduation then becomes very relevant, and there is incentive for them to increase the quality of their education systems.

This study used data from the Integrated Postsecondary Education Data System (IPEDS) to examine the current climate for international students in the United States, addressing the research question: What is the effect of shifting responsibility for financing public higher education away from state education appropriations and toward tuition revenue from the enrollment of international students at public four-year universities in the United States?

Chapter 2: Literature Review

History of Higher Education Funding

Following World War II, an era often referred to as the Golden Age for higher education, there was significant support for higher education from state governments (Bound et al., 2019). During this time, America saw a transformation toward mass education with a large growth in the number of existing public universities and increased investments by states into research universities (Bound et al., 2019). Although many of these investments were made as an attempt to reintegrate veterans into the labor force (Pew Charitable Trusts , 2017), these efforts increased the production of knowledge and excellence, growing the amount of college educated labor in the country. In the 1960s alone, an 8% increase in both federal and state expenditures per student occurred, which resulted in increased access to U.S. higher education and made the country an international competitor in research innovation (Beine et al., 2014; Bound et al., 2019; Peercy & Svenson, 2016). Funding sources for public universities in the United States have shifted in recent years, as the amounts of state government allocated subsidies per student enrolled have continued to decline, a trend affecting the educational effectiveness and the research capabilities of these institutions (Bound et al., 2019).

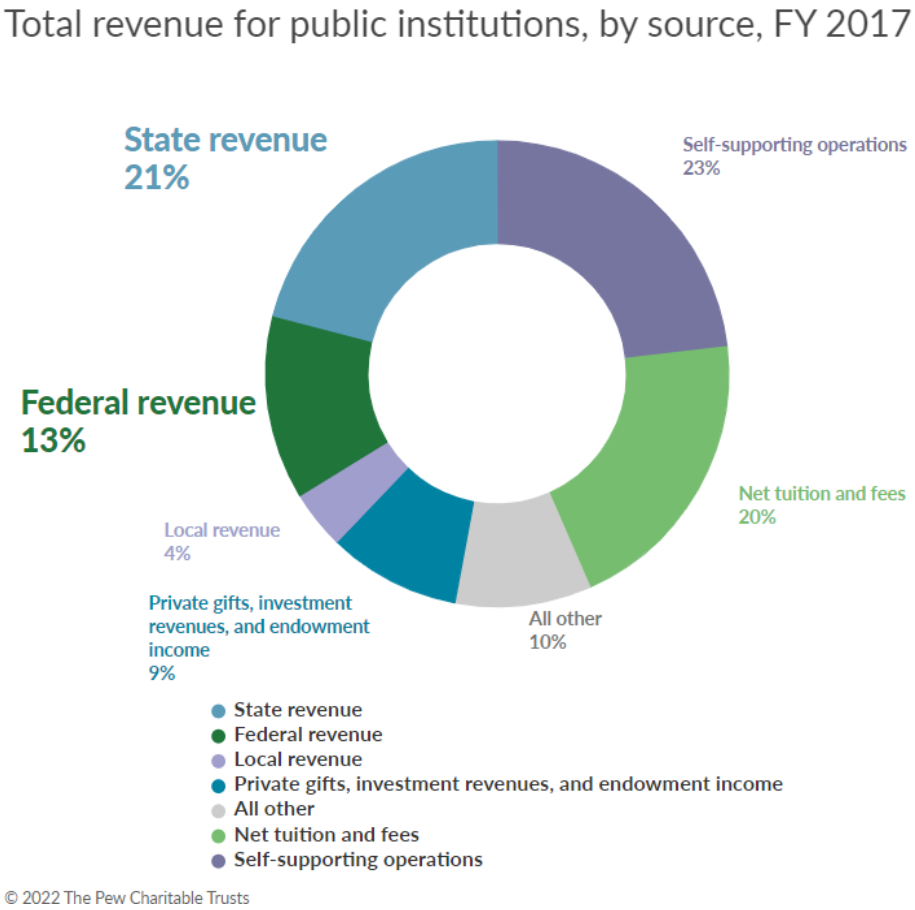
Between 1990 and 2018, constant dollar appropriations to higher education from state governments decreased by 16% (Bound et al., 2019). Public research universities saw a decline from about $9,000 in appropriations per full-time enrolled student in 1990 to around $7,600 in 2017. Most of this decline occurred in the past decade, leaving higher education institutions with the task of seeking alternate forms of funding for faculty salaries, research, and the cost of basic infrastructure (Sherry et al., 2010).

Economic downturns following the recessions of 1990, 2001, and 2008, as well as increased spending obligations for programs such as Medicaid, have restricted the budgets of state governments and contributed to this lack of funding for higher education in the United States (Bound et al., 2019). The downward trend also reflects a growth in full-time student enrollment relative to the number of working-class individuals and the overall increase in the costs of higher education for students (Beine et al., 2014). In other words, there are more full-time students per taxpayer in the United States despite variation among states in the changes on state appropriations over time (Beine et al., 2014; Bound et al., 2019). Coupled with the steadily increasing demand for higher education and commitment by the public to make collegiate opportunities more accessible for U.S. residents, combatting this funding issue has caused public research universities to seek out alternative forms of financial resources, primarily from tuition revenue (Beine et al., 2014; Bound et al., 2019; Sherry et al., 2010).

An Overview of University Budgets

Higher education institutions receive revenue from a variety of sources. According to Figure 1 below from Pew Charitable Trusts, the largest of these revenue sources on average in 2017 was self-supporting operations, which reflects the operation of campus services such as intercollegiate athletics, campus stores, and residence halls (Pew Charitable Trusts, 2017). The next two largest categories are of the most importance to this research: revenue from state appropriations and net tuition and fees. The balance between these two core areas of funding is affected by the amounts coming from federal governments and other sources and varies immensely between states.

Figure 1.



State and Federal Funding

Public higher education institutions in the United States receive funding from both federal and state governments, although the money is funneled into the universities in different ways. Pew Charitable Trusts outlines the differences between these types of funding sources in their articles "Two Decades of Change in Federal and State Higher Education Funding" (2019) and "How Governments Support Higher Education through the Tax Code" (2017). Federal investments in education primarily take the form of grants for student tuition or research projects. Federal higher education funding increased by 24% between 2000 and 2015, with rapid growth observed in years following the economic recessions of 2001 and 2008 (Pew Charitable Trusts, 2019). Higher education funding programs that come from the federal government make up just 2% of the annual

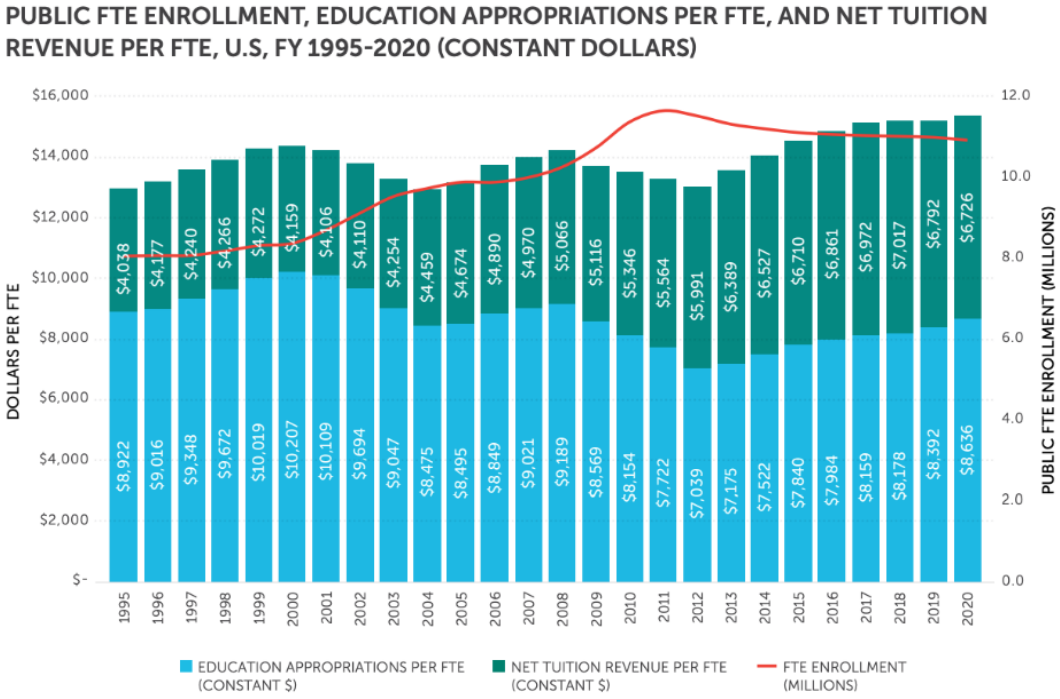
federal budget, yet those appropriations supplied an average of 13% of revenue for public universities in the United States in 2017 (Pew Charitable Trusts, 2019; Whitford, 2019).

When these figures are compared to the support from state governments, different trends are observed. This is because the majority of state allocated funds are spent on general operations for the universities and are channeled directly into institutional costs. Although state appropriations per fully enrolled student had increased for eight consecutive years in 2020 (Whitford, 2021), overall state spending on postsecondary education has been on a downward trend since 2000. This can be observed in Figure 2 from Inside Higher Ed which shows the amount of state appropriations and tuition revenue going to U.S. institutions, as well as the number of international students enrolled in the United States. State governments have been unable to fully recover from the economic effects of the recession periods and as a result, funding levels failed to return to pre-recession rates.

Despite being the third largest spending category on average for state budgets, higher education expenditures are often the first to see a decrease when recession relief efforts call for money to go elsewhere (State Higher Education Finance, 2021). It is important to note that these phenomena are measured at the national level, and each state and its institutions are affected by changes in federal and state appropriation levels in a unique way. Policymakers must consider many factors when making decisions about higher education funding including population size, tax capacity, and public service tax policies. These complex factors, coupled with the fact that most states do not track or report how these factors influence changes in higher education expenditures, highlight the need to know the environment in which funding policies are introduced. For example, states with high total taxable resources and high tax rates can support higher education in their state more comfortably than states with low tax rates.

State government behavior should be considered on a case-by-case basis, but certain factors are relevant for suppliers of higher education funding (state effort and capacity). One factor of high importance is the increase in the share of postsecondary education costs assumed by the students. This is known as the student share of higher education funding and is reflected in the percent of university revenue that is derived from tuition and fees. Reports released by the State Higher Education Executive Officers Association (SHEEO) and State Higher Education Finance (SHEF) in 2020 have identified an increased reliance on net tuition revenues by universities as a core revenue source as state appropriations fall short of the cost of higher education.

Figure 2.



Public FTE enrollment, education appropriations per FTE, and net tuition revenue per FTE, U.S., FY 1995-2020 (Constant dollars) Image credit: SHEEO

Shift of Focus in Funding Reliance

Within the United States, public research universities exist in a unique mixed market and compete directly with private entities for students, faculty, and research support. Yet, in exchange

for funds provided by state governments, public universities are mandated to provide collegiate opportunities to in-state U.S. residents (Peercy & Svenson, 2016). Competition for students and faculty at the national and international level are therefore constrained by the incentives tied to state funding (Bound et al., 2019). The opportunities for the local population typically are manifested in preferential treatment in admissions and tuition rates that fall below the actual cost of instruction (Bound et al., 2016). This provides an incentive to increase the number of students who pay the full out-of-state tuition rate, which includes domestic students attending a university outside their state of residence, as well as international students (Bound et al., 2016, 2019). Given that the demand for higher education from well-qualified out-of-state domestic students is relatively low and the pool of well-qualified, degree-seeking students from abroad is continually growing, institutions are more likely to explore international student attraction policies (Bound et al., 2016).

Universities in the United States are considered uniquely entrepreneurial because of their dependence on both private and public funding. There is an increased focus by these entities on societal pressures because they are becoming more and more dependent on private donations (Peercy & Svenson, 2016). Therefore, a university's image and the need to play a significant role in society have become extremely important. For example, many research universities have turned to providing both education and health care to attract more funding from both the state and private donors. There are critics who describe the U.S. higher education system as too costly, providing too little benefit at a price very high for students, many of whom are graduating underemployed. These critics also claim that there are too many expenditures related to campus expansion and bureaucracy among university elites (Peercy & Svenson, 2016).

Many states decide the number of appropriations per full-time student in their budgets by the amount left after more highly prioritized expenditures have been made. These include expenditures on elementary and secondary education, programs such as Medicaid, and correction facilities in the United States (Bound et al., 2019). In addition to this fiscal pressure on state budgets, other non-monetary factors have led to the decline in the willingness of state legislatures to support public universities.

International Students in the United States

International students make up about 5.5% of the full-time enrolled (FTE) college students across the United States (Pew Charitable Trusts 2019), contributing over $48 billion dollars to the U.S. economy in 2019 (Parina, 2021). Over 1 million of the 5.3 million international students studying across the globe in 2019 were enrolled at U.S. colleges and universities (Parina, 2021). The United States has many attractive characteristics which make it a desirable destination for almost 23% of all international students. These include its reputation for high-quality institutions and professors, its diverse population and prominent areas of foreign culture, and the ability to find work in the U.S. labor force after graduation (Parina, 2018, 2021). There are international students enrolled in almost every U.S. state, with the top three being California, New York, and Texas (Parina, 2021).

According to the U.S. Department of State website (2022), there are two valid visa types available for international students: F or J. To study at an accredited U.S college or university as a full-time student, a type F is required, while type J is required for student exchange programs. Visas typically last 5 years and must be renewed every two years. Holders can apply to have the status of their visa changed if they marry a U.S. citizen or are offered employment in the United States. Acquiring a visa requires a lengthy online application and an interview before a candidate

can be approved. Institutions must be certified by the Department of Homeland Security's Student and Exchange Visitor Program or by the Department of State Bureau of Educational Affairs to accept these students.

International Student Mobility

Data on public and private economic returns on investment in higher education has been collected for U.S. universities regarding both human capital and research and development contribution. Adnett (2010) found that international students have a significant and positive impact on the rate of innovation in the United States, as measured by the contribution to research and development. In turn, this innovation is largely driving technological improvements which have themselves been the major source of U.S. productivity growth in recent years. Competitive success in the economy of global knowledge requires developed countries to increase their human capital as well. As a result, policies to attract and retain high-quality international students have now become a key element of many developed countries' economic strategies.

Institutions in the United Kingdom, Australia, and Canada have all invested heavily into international recruitment activities (Parina, 2018). These activities include university presidents traveling overseas to promote their schools, costly international marketing campaigns, and paying experienced staff to support these students (Parina, 2018). These efforts are often accomplished through partnerships with private international companies that specialize in recruiting international students (Parina, 2018, 2021).

The global expansion of higher education has been seen as a threat to the continued economic and technological dominance of the most developed economies (Adnett, 2010). Adnett (2010) reports that various American businesses and interest groups have pointed to the growth of overseas higher education as a risk to the U.S. national competitiveness and even national security.

Their argument is that a major part of U.S. economic competitiveness has been built upon its ability to attract and retain international students. Beine et al. (2014) explains that because the U.S. higher education system is considered the world leader, it benefits from the worldwide increased supply of students. Not only does the country gain additional fees and revenue from international students, but a large proportion of successful international students are likely to remain in the United States after completing their studies. These immigrants, as a result of their U.S. higher education, sustain a competitive advantage in the sectors of the U.S. economy that require university-educated and highly skilled individuals.

Attracting International Students

By attracting foreign students, universities are not only able to further diversify their demographics, but also bring in more money to the university because international students tend to pay higher fees compared to in-state domestic students (Adnett, 2016). Higher education provided to foreign students is one important platform allowing host countries to spread cultural, economic, and political norms to individuals from other countries. There is also added value in the fact that these students will become familiar with the customs and the culture of the country while they are studying.

Drawing from data from the Organization for Economic Cooperation and Development (OECD), Beine et al. (2014) were able to identify factors which impact the flow of students into foreign countries for higher education. About 50% of international students choose to attend universities in just five countries: the United States, the United Kingdom, Germany, France, and Australia. In 2019, more than 1 million of the 5.3 million international students across the world were studying in the United States (Parina, 2021). From a human capital perspective, migration is considered an investment in the individuals themselves, and the decision to move is made in order

to open up more job opportunities and to increase expected income in the future. The countries that send the most students to the United States are China, India, South Korea, Saudi Arabia, and Canada, with students from China and India making up approximately 50% of total U.S. foreign enrollment (Parina, 2021).

Migration for education often takes place because of a lack of highly reputable education institutions in the home country, and according to Beine et al. (2014), the quest for higher income is the main determinant of student migration. The United States is an attractive destination for international students due to the paid value of skill in the labor market and because of the large number of U.S. universities. The presence of other individuals of the same nationality also tends to act as a magnet for international students (Beine, et al., 2014).

International Student Experience

Many university faculty and staff see the value in a diverse student population and work each day to recruit foreign students to US campuses. The attraction of international students to the United States also continues to become a high priority for universities due to contributions to revenue and the amount of human capital in the country, so the educational experience of these students cannot be ignored. Stein and De Andreotti (2016) examined the link between recruitment of international students and these students' experiences with racism.

In their research, they outlined the dominant global images related to Western culture and education which includes Western nations being at the top of the global hierarchy of humanity and Western higher education being a valuable product in the international market for higher education. Their claim was that the desire and ability for Western countries, such as the United States, to recruit international students is rooted in the idea of Western supremacy over the global South and other regions of the world. They argued that it is extremely important to document the

individual experiences of racism at the institutional and interpersonal levels during their studies in these Western countries in order to better understand how they are received by their universities and by the new culture in general.

The goal of the internationalization of public research universities should not be simply because there is an increased number of mobile foreign students that can financially benefit Western universities. Social factors must also be considered. Because of the constraints that public universities must follow due to receiving state government subsidies, they must prioritize domestic student enrollment while still attracting and educating international students. As Shih (2017) suggested, the degree to which international students and their high tuition rates are able to cross-subsidize educational opportunities in the United States may lead to these students being treated as economic assets rather than human beings. For U.S. universities to continue this cross-subsidization of domestic student tuition with international student tuition, they must begin to prioritize providing valuable and inclusive experiences for their international students.

The Role of Institutions

Institutions that do not address the unique needs of international students may leave these students feeling unfulfilled and exploited. When more attention is paid towards creating a healthy environment for international students, they may develop new outlooks, increase their self-esteem, and mature as a result of their independent life in another culture. Sherry et al. (2010) suggested that international students can experience many challenges as a result of language barriers, cultural barriers, struggles with academics, financial difficulties, racial discrimination, loss of social support, alienation, and homesickness. Problems may occur in adjusting to a new culture and because the lives that they left behind in another country continue without them. They may struggle with the death of a friend or family member, or even with various political developments

that take place in their homeland. When there is insufficient commitment on the part of an educational institution to provide equal opportunity and support for all students, international students may receive a lower quality educational experience while being exploited financially, with little ability to defend themselves due to language barriers and the lack of resources for these students on campus (Sherry et al., 2021; Shih, 2017; Stein & De Andreotti).

Universities that focus only on the academic needs of international students ignore important social factors in their potential success or failure in the new educational environment. A welcoming university and community environment is one that recognizes all of the unique needs of international students and provides them resources for maintaining good mental health, supports success in the classroom, and facilitates interactions with domestic students from which international students can continue to learn and grow (Beine et al., 2014; Sherry et al., 2010). English-language proficiency is vital to the success of international students for both the academic and social adjustment of international students. A lack of English proficiency may be the single greatest barrier felt by international students since it affects both their ability to academically succeed and engage socially with other students. In addition, teaching strategies which emphasize conversational English and classroom participation may particularly disadvantage international students whose experiences in the classroom have been more passive and whose training in English prior to attending the university was focused mainly on written proficiency rather than conversational skills (Sherry et al., 2010).

Chapter 3: Methodology

Rationale for Selected Method

Public data on university and state budgets, as well as the demographics of enrollment at U.S. higher education institutions are reported each year to the Organization for Economic Cooperation and Development (OECD). The abundance of higher education statistics allows for research on every type of college or university. However, the focus of this research was on 4-year and above public universities. The rationale for this is that 4-year public institutions are a top destination for international students (Parina, 2021), and limiting the study to this institutional type allowed for a reasonable scope of data from which conclusions could be drawn.

A quantitative study was designed to investigate the relationship between the decrease in state appropriations as a percentage of core revenues and the number of international students enrolled at public, 4-year universities in the United States. This type of research design combines time-series and cross-sectional data into a panel structure. The appropriate economic estimation method for this type of data is a two-way fixed effects model (Wooldridge, 2021). In this kind of regression analysis, unit-specific and time-specific changes are captured. This allows for a linear model to be created which estimates the effects of the decrease in state appropriations for each university in the sample over time.

Data Source and Rationale for Selected Method

University-level panel data was accessed for free online from the Integrated Postsecondary Education Data System (IPEDS). IPEDS Data Center is a public collection of data from surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). Every institution that participates in federal student aid programs is required to report data on enrollments, program completions, graduation rates, faculty and staff, finances,

institutional prices, and student financial aid. All information used in the model is gathered from 690 public, 4-year or above higher education institutions over a time span of 11 years: 2008-2018.

Research Design

Certain university characteristics determine the attractiveness of their campus as a destination to international students. Using the review above of the relevant literature on higher education and international student mobility, the most important characteristics were selected as variables to serve as controls for the model. First, "*TuitionFees*," or the percentage of core revenues derived from tuition and fees for each institution, was determined to be relevant to control for in the analysis. The dollar amount paid by students to attend an institution can play a role in deciding in which college to enroll, and this influence should be excluded from the estimation. Although the previously mentioned shift of focus in university budgets from reliance on state appropriations to tuition and fee revenue could be identified by including this variable, the purpose of this study was to examine only the effects from the change in state appropriations levels.

The second control variable selected was "*LandGrant*." This variable indicates the land grant status of an institution, which is of importance when judging its education quality. It accounts for the effect of additional government-based funding to which institutions have access, as well as for the increase in attractiveness to foreign students due the impact of this status on both the reputation of the university and its research and development capabilities.

The third control variable selected, "*CareerServices*," indicates whether career placement services are offered to students who attend their institution. For many international students, the desire to obtain a postsecondary degree in the United States stems from the perceived high value of being an educated member of the U.S. labor force. Therefore, this variable controls for whether

the institution plays a role in the ability for these students to become employed post-graduation. These three control variables ensure the model is measuring the true effects of the independent variable of interest, which is the percentage of core revenues represented by state appropriations in each university budget, on the dependent variable: the number of international students enrolled at each university.

Procedures

A description of the data set and analysis was submitted to the Director of the Human Research Protection Program at the University of Tennessee. The data were determined not to include human subjects research of any kind as defined by federal law, and therefore was exempt from IRB review.

Data from 720 different universities were downloaded from IPEDS Data Center and stored in a secure file in Stata, a widely used data manipulation software. The raw data were then cleaned by removing missing and repeated observations. If one of the selected universities did not have numerical data for each variable across every year in the time range, then it was removed. This allows for the most accurate estimate of causal effects between state appropriations and international student enrollment. A slightly smaller sample of 690 universities resulted, and their data were used in the regression for a total of 7590 observations.

Dummy variables were created for both the land grant and career services data. Dummy variables are used when a variable indicates the absence or presence of categorical effects in regression models. In this case, a value of 0 for *landgrant* means that a university is not a land grant institution, while a value of 1 signifies land grant status. Similarly, a value of 0 for *careerservices* represents the lack of career placement services, and a value of 1 indicates the university does provide counseling or mentoring of some kind to support the employment process

post-graduation. The equation below was developed to estimate the effect of the decrease in state level appropriations as a percentage of university core revenues on the number of international students enrolled by a university. The main specification is given by

$$\text{IntStuEnr}it=\beta 0+\beta 1(\text{-}S\text{tateApp})it+\beta 2\text{TuitionFees}it+\beta 3\text{LandGrant}it+\ \beta 4\text{CareerServices}it+\gamma t+\varepsilon it$$

The coefficient of interest is $\beta 1$ and it measures the average effect of a 1% decrease in state appropriations on the number of nonresident students enrolled each year. Cluster standard errors are estimated from using panel data due to the fact that some observations in the data set are related to each other. These errors are included in the model using the term εit in the equation. The null hypothesis is that $\beta 1$ is equal to 0. The alternative hypothesis is that $\beta 1$ is not equal to 0.

Chapter 4: Results

Tables 1 and 2 display the summary statistics for each variable in the regression. The variable of interest has a mean of 29.92, a minimum of 0, a maximum of 83, and a standard deviation of 12.86 (Table 1). The number of nonresident or international students enrolled each year is the dependent variable, with a mean, minimum, maximum, and standard deviation of 346.4503, 0, 5586, and 644.64, respectively (Table 1).

Table 1

Summary statistics for public, 4-year U.S. universities 2008-2018.

Variable	Mean (std. dev)	Range
Enrollment of International Students	346.4503 (644.6356)	0-5586
Percent of Core Revenues from State Appropriations	29.92003 (12.86128)	0-83
Percent of Core Revenues from Tuition & Fees	28.99763 (13.79906)	0-80
Land Grant Status	.1115942 (.3148873)	0-1
Career Placement Services	.8948617 (.3067518)	0-1

Figures come from the data on 690 different universities for a total of 7590 observations.

State appropriations are negatively correlated with the enrollment of international students, meaning as they decrease, the number of international students increases (Table 2). It is also important to note the percentage of core revenues from tuition and fees is positively correlated with international student enrollment. This demonstrates how as a larger portion of core university funding comes from tuition and fees, and a smaller portion comes from the state, more international students are recruited to these universities.

Table 2

Variable	intstuern	stateapp	tuition	land grant	careerservices
IntStuEnr	1.0000				
StateApp	-0.1665	1.0000			
TuitionFees	0.0776	-0.2634	1.0000		
Landgrant	0.2018	-0.1659	-0.1649	1.0000	
CareerServices	0.1155	0.0976	0.1086	-0.0204	1.0000

Regression Analysis

The main results are on Table 3. Column 1 contains the naïve regression. Each subsequent column is used to control for the percentage of revenues from tuition and fees, land grant status, and career services provided. Without controlling for these three control variables, the fixed effects model estimates that, on average, a 1% decrease in state appropriations as a portion of core revenues will increase the enrollment of international students by 8.3 (9) individuals, all else constant (Table 3). This coefficient is significant at the 1% level, meaning 99% of the results from the sample data occurred because of the effects of the included variables, rather than by chance. After controlling for tuition and fees, land grant status, and career placement services, the estimate shows that on average, a one percent decrease in state appropriations will increase the enrollment of international students by 2.52 (3) individuals, holding all else constant (Table 3). This coefficient is also significant at the 1% level.

Therefore, with existing data the null hypothesis that $\beta 1$ is equal to 0 is rejected. The decrease in state appropriations has a statistically significant effect on the enrollment of international students. To test the significance of the coefficients, t-tests are utilized. The

coefficients on tuition and fees are statistically significant at the 5% level, the coefficients on land grant status is significant at the 1%, and the coefficients on career services were significant at any level. The intercept is significant at the 1% level in the naïve regression and when including control variables.

Table 3

	(1)	(2)	(3)	(4)
PerRevStateAppropriatios	-8.344 *** (1.855)	-2.505 *** (.914)	-2.505 *** (.914)	-2.523 *** (.913)
PerRevTuitionFees		.0662 ** (.0266)	.0662 ** (.0266)	.0662 ** (.0266)
LandGrantStatus			-173.6 *** (20.49)	-182.0 *** (22.21)
CareerServices				22.18 (17.68)
Intercept	596.1 *** (70.92)	-29.2271 (28.40)	144.3883 *** (43.76)	130.9076 *** (44.23)

Note: *PerRevStateAppropriatios*= State appropriations per FTE as a percentage of core revenues; *PerRevTuitionFees*= percentage of core revenues derived from student tuition and fee payments; *LandGrantStatus*= whether the institution has land grant status; *CareerServices*= whether career placement services are offered to students.

*, **, *** significant at the 10%, 5%, and 1% level, respectively.

Chapter 5: Conclusion

Reaping the Economic Benefits of International Student Enrollment

This paper has connected the decrease in state government allocated subsidies per full-time student enrolled in public research universities to the increased number of international students being recruited to these schools. Analysis was completed on how the value of having an educated labor force and a high amount of human capital in a country provides both economic and social benefits for the United States and sets them apart from other countries with strong higher education systems.

Brain Drain and Gain

The immigration of individuals for the purpose of acquiring skills and human capital is directly related to the "brain drain" and the "brain gain" phenomena. An unbalanced expansion of international higher education may contribute to a brain drain from less developed countries to more advanced economies. "Brain drain" is defined as the depletion of existing human capital stock in an origin country due to students remaining in the country in which they receive their education rather than returning to their country of origin (Adnett, 2010). Its counterpart, "brain gain" is the perspective of the receiving country in which there is an incentive for uneducated individuals to become educated and to take advantage of higher returns of higher education abroad. Adnett (2010) found that the brain drain and gain effects are not solely due to this desire for individuals in developing countries to be educated. Rather, it also stems from the rich countries constantly trying to improve their education systems and policies in order to receive the economic benefits within their country by attracting international students and retaining them in their workforce post-graduation (Adnett, 2010).

Although current immigration policies in the United States cap the number of international students who enter the country to complete a post-secondary degree, the number of these students will continue to grow, and universities need to be ready. The environments created for these international students have lacked support for the social, financial, and academic needs of these students, and this is where a gap in the literature on this topic exists. More emphasis should be placed on the progress of university policy related not only to the recruitment and retention of these international students post-graduation, but also on the actions taken by these institutions to ensure that international students feel included, valued, and successfully educated.

Limitations

The limitations of this research include the time range of the data presented, as well as type of institutions included in the analysis. The statistics used are recent and relevant. However, understanding the external environment in which they were produced is key to proper analysis. The data used do not include pre-recession appropriation levels from 2007, which would have better captured the effect of the economic collapse on the higher education system. The trends observed in the reallocation of university budgets began as a result of changes in federal higher education funding following the recession (Pew Charitable Trusts , 2019).

Although public, 4-year institutions are the most common destination for international students, 2-year universities also receive small portions of state appropriations. Four-year institutions received more in state operating appropriations than 2-year institutions (Whitford, 2021). This has a negative effect on student outcomes, specifically access to higher education, and highlights an under-supported segment of the population.

Proper Support of Foreign Students

Although foreign students can serve as an important source of revenue for U.S. universities, they should not be treated simply as economic assets that the country gains. In order for U.S. universities, and the nation as a whole, to continue reaping the benefits of a diverse student population, in which international student tuition can cross-subsidize domestic student costs, they must abandon the Western ideology of supremacy and begin to properly value all students on their campuses. To accomplish this, more research on university policy trends and the personal experience of international students' needs to be conducted to facilitate better understanding of the mutually beneficial relationship between these individuals and U.S. universities.

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