The Impact of State Financial Support on the Internationalization of Public Higher Education: A Panel Data Analysis

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Levels of state appropriations to public higher education have not kept pace with rising enrollment and costs. Subsequently, internationalization may provide a lucrative revenue source for postsecondary institutions. This study employs an analysis of annual, state-level panel data of 50 states from 1990-2010 to address: How does state financing for higher education influence undergraduate international student enrollment at public four-year institutions? Results indicate statistically significant relationships between international undergraduate enrollment at public four-year institutions and revenue from state appropriations, tuition revenue, total revenue, nonresident tuition and fees, population between the ages of 18-24, and unemployment rates.

State funding provides the largest source of revenue for public postsecondary institutions (Aud et al., 2012). State governments provide financial support and guidance to public colleges and universities through appropriations and funding for capital projects, student financial aid, and oftentimes through assistance in setting tuition cost (Zumeta, 2004). This financial support can assist colleges and universities achieve greater financial stability and allow for increased college access. States also benefit from their investments through a more educated workforce, a healthier and more civically engaged population, increased tax revenues, and economic stability (Baum, Ma & Payea, 2010). However, since the 1980s the proportion of state financing to higher education has declined, with levels of state appropriations not keeping step with rising college enrollment and educational costs (Rizzo, 2006; Titus, 2009). Consequently, public institutions have sought to raise revenues using a variety of alternative strategies including increased tuition and privatization (Altbach & Knight, 2007; Zumeta, 2004). As states have lessened their financial support, internationalization may also provide a lucrative alternative revenue stream for postsecondary institutions. This study employs an analysis of annual, state-level panel data to address the impact of state financial support on the internationalization efforts of public higher education.

Internationalization and U.S. Higher Education

American postsecondary institutions create a host of globally focused goals and initiatives, which Scott (2006) cites as the development of an internationalization mission. The American Council on Education defines internationalization as "a strategic, coordinated process that seeks to align and integrate international policies, programs, and initiatives; and positions colleges and universities as more globally oriented and internationally connected," (Center for Internationalization and Global Engagement, 2012, p.3). U.S. colleges and universities are fulfilling the internationalization mission by sending students abroad at record rates, recruiting international students and scholars, partnering with foreign universities to offer joint degree programs, and developing international branch campuses (Lane, 2011). Internationalization can have many benefits including improvement of institutional recognition and prestige as well as financial gain (Altbach & Knight, 2007; Douglass & Edelstein, 2009).

International Student Enrollment in the United States

The enrollment of international students is a common method of internationalization in U.S. higher education. There are over 760,000 international students enrolled in U.S. colleges and universities (Institute of

International Education, 2011). In the years following 9/11, flows of international students into U.S. higher education decreased for the first time since 1971 (Lee & Rice, 2007). Yet in recent years, enrollment of international students has steadily increased with the U.S. remaining the destination for the largest number of international students worldwide (Institute of International Education, 2011; Lee & Rice, 2007). International students contribute to the knowledge economy and talent pool at the national and state level as well as help to enable cross-cultural communication and competence on college campuses (NAFSA, 2006). Attracting these students to the U.S. can also promote state and federal goals for foreign relations and economic development (Douglass & Edelstein, 2009; NAFSA, 2006).

An additional benefit of enrolling international students is financial gain as these students have become important to U.S. higher education and the economy at the national, state, and institutional level; contributing over $21.2 billion to the U.S. economy in 2010 (Institute of International Education, 2011). Colleges and universities may strategically use the enrollment of undergraduate international students to increase revenue, particularly because nonresident tuition rates can be 2.5 times that of resident tuition (Zhang, 2007). Furthermore, 81% of undergraduate international students in the U.S. use family and personal financial resources as the primary means for funding higher education (Institute of International Education, 2011). The internationalization of higher education and enrollment of international students in a climate of decreasing state financial support for higher education provides a context for this study.

Study Rationale

The purpose of this study is to understand how state funding to higher education may impact international student enrollment. Researchers have examined international student demand for U.S. higher education, but there is a dearth of research examining supply-side factors that lead to their enrollment (Altbach, 2004; Mazzarol & Soutar, 2002). Previous studies that have examined the impact of supply-side factors on nonresident students have often excluded international students from the analysis (for example Groen & White, 2004; Rizzo & Ehrenberg, 2004). With the high demand of a U.S. college education from international students, considering supply-side related factors such as state appropriations provides a broader understanding of international student enrollment based on institutions' enrollment capacity and decision-making. With decreasing proportions of state funding to higher education and increasing levels of internationalization strategies at postsecondary institutions, it is important that researchers begin to explore how these two factors may influence one another. Using annual state-level panel data from 1990-2010, this study examines factors that may lead to international student postsecondary enrollment; particularly how

undergraduate international student enrollment is affected by changes in state financing to higher education.

Theoretical Framework

Resource dependency theory is the framework used to inform this study. This framework highlights the relationship between organizations and their external environment, specifically organizations' dependence on their environment for critical resources and how organizations respond to changes in external resources (Johnson, 1998; Pfeffer & Salancik, 1978). Davis and Cobb (2010) outline the three main tenets of resource dependency theory as, "(1) social context matters; (2) organizations have strategies to enhance their autonomy and pursue interests; and (3) power is important for understanding internal and external actions of organizations" (p. 23). By controlling resource allocation, external constituencies can exert power as well as pressure organizations to adopt certain policies and practices (Pfeffer & Salancik, 1978). Conversely, organizations work to gain power and control over their resources, minimizing dependence on external constituencies (Pfeffer & Salancik, 1978). Resource dependency theory posits that, "organizations deprived of critical resources will seek new resources," (Slaughter & Leslie, 1997, p. 17). Organizations may attempt to reduce their dependency through strategies including mergers, diversification, and legal or political action (Hillman, Withers, & Collins, 2009).

Higher education researchers have used resource dependency theory to illustrate the impact that state financial support has on postsecondary institutions. For example, Leslie and Slaughter (1997) used this theory to address how decreasing state appropriations and increasing state accountability measures to public higher education leads to greater centralization of power on college campuses. Titus (2006) also used resource dependency theory in an empirical study to examine the impact of postsecondary institutions' financial context on student persistence. Yet, these studies do not address the global influence that this theory may have on the fiscal environment of public higher education. The current study draws upon resource dependency theory to understand how changes in state funding may push institutions to seek out alternative forms of revenue through internationalization, specifically tuition from the enrollment of undergraduate international students.

Research Design

This study utilizes resource dependency theory as well as analysis of annual, state-level panel data to address the research question: How does state financing for higher education influence undergraduate international student enrollment at public four-year institutions?

Description of Data

This study utilizes annual state-level panel data of 50 states from 1990-2010. Unlike cross-sectional and time-series data, panel data allows for analysis of several subjects over multiple time periods (Zhang, 2010). Thus, the conceptual advantage of this technique is the ability to consider both within-unit variation and across-unit variation (Zhang, 2010). Furthermore, higher education research often uses units of analysis that include differences which are difficult to collect or measure; yet omitting these variables can bias estimates (Zhang, 2010). The panel data method is advantageous in this context as it controls for these individual observed and unobserved differences (heterogeneity). Additionally, panel data provides greater statistical efficiency and more detailed data (Zhang, 2010). The main data source for this study is the Integrated Postsecondary Education Data System (IPEDS) administered by the National Center for Education Statistics (NCES). Other data was collected from sources including the U.S. Bureau of Census' Current Population Survey (CPS), the U.S. Bureau of Labor Statistics and the Bureau of Economic Analysis.

Table 1
Dependent and Independent Variables, Data Years 1990-2010

Variables	Sources
Dependent variable	
Enrollment of first-time, first-year international students at public four-year institutions	Integrated Postsecondary Education Data System (IPEDS)
Independent variables	
Institutional revenue from state appropriations per FTE at public four-year institutions	IPEDS
Institutional revenue from tuition per FTE at public four-year institutions	IPEDS
Total institutional revenue per FTE at public four-year institutions	IPEDS
Average non-resident tuition and fees at public four-year institutions	IPEDS
Enrollment of non-resident, non-international first-time, first-year students at public four-year institutions	IPEDS
Gross state product per capita	US Department of Commerce
Population between the ages of 18 and 24 years	U.S. Census Bureau – Current Population Survey
Unemployment rate	US Bureau of Labor Statistics

Variables

The dependent variable is enrollment of first-time, international freshmen at public four-year institutions, which was retrieved from the Integrated Postsecondary Education Data System (IPEDS). IPEDS data classifies international students as nonresident aliens within their dataset and define nonresident aliens on their website as, "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" (http://nces.ed.gov/ipeds/).

Additionally, the control variables are: public four-year institutional revenue from state appropriations per full-time equivalent enrollment (FTE) (IPEDS); public four-year institutional revenue from tuition per FTE enrollment (IPEDS); total public four-year institutional revenue per FTE enrollment (IPEDS); average non-resident tuition and fees at public four-year institutions (IPEDS); enrollment of first-time non-resident, non-international freshmen at public four-year institutions (IPEDS); state population between the ages of 18-24 years (U.S. Bureau of Census); gross state product per capita (U.S. Department of Commerce); and state unemployment rates (U.S. Bureau of Labor Statistics). Table 2 provides descriptive statistics on each of the variables used in this study.

Table 2
Descriptive Statistics for All Variables Used in the Study, Data Years 1990-2010

Variables	Observations	Mean	SD	Range
Dependent variable				
Enrollment of first-time, first-year international students at public four-year institutions	1050	293	369	3-2,387
Independent variables				
Institutional revenue from state appropriations per FTE at public four-year institutions	1050	$6,897	$2,303	$2,259-$19,667
Institutional revenue from tuition per FTE at public four-year institutions	1050	$4,607	$2,211	$1,266-$16,570
Total revenue per FTE at public four-year institutions	1050	$24,644	$8802	$9,031-$56,798
Average non-resident tuition and fees at public four-year institutions	1050	$9,379	$4,039	$2,602-$22,503
Enrollment of non-resident, non-international first-time, first-year students at public four-year institutions	744	2,595	1,697	98-9,737
Gross state product per capita	1050	$34,943	$9,213	$17,392-$65,476
Population between the ages of 18 and 24 years	1050	550,084	612,930	41,735-3,930,313
Unemployment rate	1050	5.43%	1.78%	2.3%-13.7%

Full-time equivalent enrollment (FTE) was calculated by adding one-third of the number of part-time students (undergraduate and graduate) to the number of full-time students (undergraduate and graduate). Next, the total revenue, revenue from state appropriations, and tuition revenue were each divided by the calculated FTE enrollment in order to generate the variables: public four-year institutional revenue from state appropriations per FTE, public four-year institutional revenue from tuition per FTE, and total public four-year institutional revenue per FTE. Additionally, IPEDS collects data on the state of residence of first-time, first-year students in even-numbered years before 2000 and every year

since then. Thus, data on the control variable, enrollment of first-time non-resident, non-international freshmen at public four-year institutions, was not available in 1991, 1993, 1995, 1997, and 1999.

Resource dependency theory as a theoretical framework suggests that international student enrollment may act as an alternative revenue stream in times of decreasing state support. Therefore, public four-year institutional revenue from state appropriations per FTE is included as a control variable. Institutional revenue from tuition per FTE is included as an additional control variable. This analysis assumes that tuition is not fully demand driven in public postsecondary institutions due to state subsidization and thus public institutions do not necessarily change tuition cost due to increasing/decreasing international student enrollment. The literature highlights the importance of tuition cost as international students often personally pay that expense (Institute of International Education, 2011), which informs the use of average non-resident tuition and fees at public four-year institutions as a control variable. Additionally, the control variables state populations between the ages of 18-24, gross state product per capita, and state unemployment act as exogenous variables, each having been cited in higher education research as having an impact of the level of state financing for postsecondary education (Layzell & Lyddon, 1990; Rizzo, 2006; Titus, 2009).

Description of Quantitative Method

This study utilizes a two-way fixed effects model. This model was selected based on both judgment and statistical tests. Through the use of individual states as the unit of analysis, it was expected that unobservable factors within the states would bias the variables, which is a characteristic consistent with the fixed-effects model. Furthermore, because this study uses time-variant variables on a sample of units, a fixed effects method would typically be most appropriate. To verify these judgments, a Hausman specification test was implemented to determine whether a fixed effects or random effects model should be used. The results of this test indicated a p-value of 0.0000, rejecting the null hypothesis that the random effects model is preferred; therefore, a fixed effects model was selected.

Because the fixed effects model utilizes ordinary least squares regression (OLS), several statistical tests were conducted next in order to determine whether the assumptions of OLS regression were met. The assumption that the variance of the error term is constant across all combinations of independent variables (homoscedasticity) was tested using a modified-Wald test. This test resulted in a p-value of 0.0000, indicating that there is fluctuation in the variance of error terms (groupwise heteroskedasticity) and that the assumption was violated. A second assumption of this model is that there are no systematic patterns to the

errors (serial autocorrelation). A Woolridge test was conducted to test this assumption, which resulted in a p-value of 0.0000 and a rejection of the null hypothesis that no serial autocorrelation is present. Next, a Pasaran cross-sectional dependence test was conducted to determine whether the fixed-effects assumption that error is uncorrelated between groups has been met. This test resulted in a p-value of 0.0000, rejecting the null hypothesis that this assumption has been met and indicating the presence of cross-sectional dependence (also called spatial correlation or contemporaneous correlation). The presence of heteroskedasticity, serial autocorrelation, and spatial correlation were corrected through the use of two statistical techniques, Prais-Winsten regression (P-W) with panel-corrected standard errors (PCSE). PCSE are used to correct the heteroskedasticty violations as well as the contemporaneous correlation. By incorporating P-W regression, serial autocorrelation could be corrected without the loss of many time periods.

Finally, a two-way fixed effects model was used in order to include time-fixed effects or time dummies in the model. A two-way fixed effects model suggests that there are unobserved time specific factors that affect all individuals (e.g. states) in the same period (Zhang, 2010). In order to determine the appropriateness of this model, Stata was used to run the *testparm* command, a joint test to determine if the dummies for all years were equal to zero. This test resulted in a p-value of 0.0000, indicating that the inclusion of time-fixed effects is appropriate.

The structural model for this study is estimated as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 X_{it} + \beta_3 X_{it} + \beta_4 X_{it} + \beta_5 X_{it} + \beta_6 X_{it} + \beta_7 X_{it} + \beta_8 X_{it} + \mu_i + \boldsymbol{\lambda_t} + \varepsilon_{it}$$

Where Y_{it} is the dependent variable (enrollment of first-time, international freshmen at public four-year institutions); β_0 is the intercept coefficient; β_1 is the coefficient for institutional revenue from state appropriations per FTE; β_2 is the coefficient for institutional revenue from tuition per FTE; β_3 is the coefficient for total institutional revenue per FTE; β_4 is the coefficient for average non-resident tuition and fees; β_5 is the coefficient for enrollment of first-time non-resident, non-international freshmen; β_6 is the coefficient for state population between the ages of 18-24 years; β_7 is the coefficient of gross state product per capita; β_8 is the coefficient for state unemployment rates; X_{it} represents each of the control variables; i and t are indices for individual states and time; μ_i are the unobservable characteristics; λ_t is the time-specific fixed-effect; and ε_{it} is the error term.

Limitations of the Study

This study is limited by the amount of publicly available data in the datasets. For example, prior to 2000 the NCES-sponsored Integrated Postsecondary Education Data System (IPEDS) only collected undergraduates' state of residence in even years. Thus data on the control variable, enrollment of first-time non-resident, non-international freshmen, is incomplete. To account for this missing data, the analysis was only run on years with complete data. Therefore, the analysis uses a total of 744 observations, rather than 1,050 observations. Furthermore, the lack of extensive longitudinal data on other factors relevant to this study presents a limitation. For example, some states have restrictions on the percentage of international undergraduate students that can be enrolled at public postsecondary institutions (Douglass & Edelstein, 2009). Yet, complete longitudinal data on state and/or institutional policies restricting enrollment of international students is not available across all states. Including the existence of these policies as a control variable may have provided a richer analysis of the data; however, because of the high level missing data on these policies, it was not included as a variable.

This study is limited by its scope of providing a state-level analysis of international undergraduate student enrollment. IPEDS data is reported at the institutional level and to conduct this analysis the data has been aggregated to the state level. This creates the potential for loss of within-institution variation regarding state financial support and thus care must be taken in interpretation of the findings. Additionally, this analysis does not take into account the impact of institutional-level and student-level variables, such as student quality and institutional selectivity. It is important to note that these institutional- and/or student-level variables may also impact international student enrollment. However, the bias of these omitted variables is reduced through use of the panel data model, which controls for observed and unobserved differences (heterogeneity).

Results

The results of the two-way fixed effects analyses using Prais-Winsten regression with panel corrected standard errors are provided in Table 3. This regression technique provided an R^2 of .952 and a Prob > F= 0.00, illustrating that the results used to explain international undergraduate student enrollment are robust. Six variables are statistically significant in this model: institutional revenue from state appropriations per FTE (β = -.219, $p < .05$); institutional revenue from tuition per FTE (β = -.203 $p < .05$); total institutional revenue per FTE (β =. 235, $p < .05$); average non-resident tuition and fees at public four-year institutions (β = -.772, $p < .000$); population between the ages of 18 and 24 years

(β = .977, p < .000); and unemployment rate (β = -.201, p < .000). These results reflect each variable being log-transformed before the analysis was conducted.

Table 3
Fixed-Effects Model with Prais-Winsten Regression and Panel Corrected Standard Errors

Variables	Coefficient	P value	Panel-Corrected Standard Error
Log revenue from state appropriations per FTE	-.219	.023*	.096
Log revenue from tuition per FTE	-.203	.025*	.091
Log total revenue per FTE	.235	.019*	.100
Log non-resident tuition and fees	-.772	.000***	.280
Log enrollment of non-resident, non-international first-time, first-year students	.026	.306	.025
Log gross state product per capita	-.772	.053	.145
Log population between the ages of 18 and 24 years	.997	.000***	.025
Log unemployment rate	-.301	.000***	.082

R-squared = .952
Prob > F= 0.00
*p< 0.05, **p< 0.01, ***p< 0.001

This analysis illustrates that enrollment of undergraduate international students at public four-year institutions has a significant negative relationship with institutional revenue from state appropriations and institutional revenue from tuition. Every 10% increase in state appropriations per FTE corresponds with a 2.2% decrease in international student enrollment and a 10% increase in tuition revenue per FTE is associated with a 2% decrease in international undergraduate student enrollment. Conversely, the relationship between total institutional revenue and international undergraduate student enrollment is positive. A 10% increase in total revenue per FTE is associated with a 2.4% increase in international undergraduate student enrollment. Average non-resident tuition and fees has a significant negative relationship with international undergraduate student enrollment. A 10% decrease in non-resident tuition and fees is associated with a 7.7% decrease in international undergraduate student enrollment. The relationship between international undergraduate student enrollment is positively associated with the state population between the ages of 18 and 24, with a 10% increase in the population of 18 to 24 year olds associated with a 9.8% increase in international undergraduate student enrollment. International student enrollment has a significant negative relationship with state unemployment rates. A 10% increase in unemployment is associated with a 2% decrease in international undergraduate student enrollment.

Conclusions

In this study, state-level panel data was used to examine how international undergraduate student enrollment at public four-year institutions is affected by state funding. Using resource dependency theory as a guide, several conclusions can be drawn from this research. The results of this research suggest that lower levels of state appropriations are associated with higher enrollment of international students. This negative relationship between international student enrollment and state appropriations aligns with the concept of resource dependency theory, which highlights that as external constituencies (e.g. state government) constrain resources, organizations (e.g. colleges and universities) will seek out alternative resources (Pfeffer & Salancik, 1978; Slaughter & Leslie, 1997). In this case, the alternative resource would be tuition revenue gained from increased international student enrollment. These results are also in alignment with the literature on internationalization in higher education, which suggests that colleges and universities may enroll international undergraduates as a source of revenue (Douglass & Edelstein, 2009; Institute of International Education, 2011).

The results highlighting the inverse relationship between international student enrollment and tuition revenue parallels that between international student enrollment and state appropriations. As overall tuition revenue decreases, enrollment of international students increases, which may help to fill the tuition revenue gap. Like with the previous results on the relationship between international student enrollment and state appropriations, these results suggest that colleges and universities may enroll international undergraduates in part as a source of revenue (Douglass & Edelstein, 2009; Institute of International Education, 2011). Conversely, the results indicate a positive relationship between total institutional revenue and international student enrollment. This finding suggests that international student enrollment is not only a means for increasing tuition revenue or mitigating decreases in state financial support. Instead international student enrollment may also be driven by other reasons, which the literature states can be the desire to increase institutional quality or pursue an internationalization mission (Altbach & Knight, 2007; Douglass & Edelstein, 2009).

The negative relationship between non-resident tuition and fees and the enrollment of international students is not surprising given the number of choices that international undergraduate students have for higher education in the United States and even worldwide as well as the fact that most of these students are paying tuition themselves or through the help of family (Institute of International Education, 2011; Lee & Rice, 2007). Thus, as the tuition becomes higher than international students are willing to pay, they are likely going to select another institution and that institution may not be in the same state or even the same

country. Yet, it is also possible that the international student response to changes in tuition and fees differ by type of institution and institutional selectivity (Zhang, 2007), a factor that was not accounted for in this study.

Implications for Research

Researchers should consider a number of additional variables that would provide a deeper understanding of states' impact on international student enrollment and/or internationalization in higher education. Some of these variables include policies on restrictions of the percentage of international undergraduate students that can be enrolled at public postsecondary institutions as well as political and historical factors among states, which may also affect universities' enrollment decisions regarding international students (Douglass & Edelstein, 2009). Including these variables may require researchers to collect primary data, as some of these variables are not currently available longitudinally in traditional datasets.

A second implication stemming from this study would be for researchers to conduct an institutional-level panel data analysis on international student enrollment. This state-level analysis does not take into account the impact of institutional-level and student-level variables, such as student quality and institutional selectivity. Institutions often enroll international students to improve their reputation and the level of international student enrollment is generally higher at more highly selective institutions (Altbach & Knight, 2007). An analysis at the institutional level would provide a means of incorporating these variables in order to examine the factors that influence the enrollment of international students beyond tuition revenue.

Third, future research should continue to address issues of internationalization in higher education. This study creates a number of additional questions that can be addressed in future research: As state governments find postsecondary institutions enrolling higher numbers of international students, do they choose to lessen state financial support? To what extent does the revenue gained by international enrolling international students exceed the costs of their recruitment and retention? Do institutions become more sophisticated in analyzing the benefits and costs of alternative revenue streams as they become less dependent on state resources? To what extent do non-financial factors drive international student enrollment (e.g. desire to increase institutional quality or pursue an internationalization mission)? The panel data method provides researchers the opportunity to explore internationalization topics in higher education both across units and time periods. Potential research topics to consider include examining other benefits states and/or institutions gain from enrolling more international students outside of added fiscal revenue; the role of international students in STEM degree production; the impact of state funding on

the enrollment of international students at community colleges; outcomes of state and institutional financial support for international students at the graduate and/or undergraduate level; and the impact of international student visa policies on educational outcomes and economic development.

Implications for Policy

The results of this study provide a variety of implications for state policymakers regarding the internationalization of higher education and international student enrollment. State governments often develop higher education policy that prioritizes the needs of their state residents (Douglass & Edelstein, 2009). Yet, states continue to expect postsecondary institutions to find alternative sources of revenue outside of appropriations (Rizzo, 2006). With decreases in state appropriations coinciding with increases in international student enrollment, states should support the revenue-building opportunity of international student enrollment through policy. More than 22 states have resolutions stating that international students are an important source of cultural exchange, yet most of these resolutions are not backed by formal policy (Douglass & Edelstein, 2009). Douglass and Edelstein (2009) suggest that states view public colleges and universities as global assets, with states creating policies that support institutions in "actively recruiting, enrolling, and supporting international students," (p. 17).

Policymakers should develop state strategies for increasing international engagement and visibility among public postsecondary institutions. Although state governments may not be able to allocate large resources across their entire state system of higher education, specific colleges and universities can targeted to amplify their internationalization missions and market for international students. Strategies for increasing international student enrollment can also be linked to wider state goals such as improved international relations and economic development (Douglass & Edelstein, 2009). Although the concept of internationalization is often a lesser priority in times of economic crisis, it is important for state governments realize that supporting the internationalization of higher education can provide benefits to their economy and the financial well being of their postsecondary institutions.

This study illustrates that increased non-resident tuition and fees can weaken levels of international student enrollment. Therefore, in order for states to compete for these students who have a variety of options of college enrollment both in the U.S. and worldwide, it will be important for governments and institutions to provide financial support for undergraduate international students. This can include grants, but also loans or subsidized part-time work programs. Financial support can be provided at targeted institutions and/or in targeted academic programs, such as STEM where there is typically an international

student pipeline. This may lessen the tuition revenue from these students in the short run; however, in the long run these strategies can increase international student enrollment, which can then more significantly contribute to tuition revenue.

Another strategy is for policymakers to pay greater attention to the price elasticity of international students at public colleges and universities in setting non-resident tuition price in order to avoid deterring international students due to cost. In order to continue to generate revenue, tuition should be set at a rate that is both competitive internationally and still higher than the real costs of the degree program for domestic students. Additionally, because authority for setting tuition prices is not uniform across all states, I recommend that states consider adopting a governance structure of statewide governing boards that have tuition setting responsibility for all sectors of higher education. This can allow states to set tuition policies that align with the development of a collective state strategy for internationalization and international student enrollment.

Lastly, it is important for state policymakers to realize that they do not have to support international students at the expense of state residents. State policy can focus on increasing enrollment and/or degree production rates in both domestic and international populations. There are a variety of states and institutions that restrict the enrollment of international students through maximum enrollment percentage policies (Douglass & Edelstein, 2009). These policies weaken the ability to create strategies that support internationalization as well as restrict institutions from reaping the financial and other benefits of enrolling international students. Instead, policymakers should develop a strategic approach that meets the access needs of growing state populations as well as includes capacity for growing the number of international students (Douglass & Edelstein, 2009). This will create a means of supporting the internationalization of higher education and provide institutions with the ability to generate revenue in a time of decreasing state financial support.

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