

International Students in American Higher Education: A Quantitative Study Comparing Their Distribution from Both the Synchronic and Diachronic Perspectives and the Implications on Policy-Making

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Abstract

This study applies the Wilcoxon signed-rank test and Kruskal-Wallis test to explore the significant differences in international student populations among five American regions from both the synchronic and diachronic perspectives. The study found significant differences in international student populations among the five American regions in 2016. Further, Northeastern, Southeastern, and Midwestern regions had significantly larger international student populations in 2016 than in 2015, while Western and Southwestern regions did not. The variables of climate, geographic location, and the population of immigrants were found to be the main reasons for the distribution of international students. The findings suggest four potential strategies for promoting the internationalization of higher education and the enrollment of international students. The article concludes by recommending three areas for possible future research.

Keywords International students; Distribution; American higher education; American region

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Introduction

The internationalization of higher education is a global phenomenon. Studies by researchers in several countries have probed internationalization from various perspectives, (Stukalova, Shishkin, & Stukalova, 2015; Yeravdekar & Tiwari, 2016; Zakaria, Janjua, & Fida, 2016). The internationalization of higher education has been found to have positive impacts on a country's policymaking (Lau & Lin, 2017; Wadhwa & Jha, 2014). The growing number of international students makes the language of instruction an important element of education, and thus relevant policies such as equalizing the importance of several instruction languages on campus should be introduced to ensure education quality (Lau & Lin, 2017). Although the internationalization of higher education indeed brings about some benefits, there are some challenges, such as the commercialization of education and the loss of culture (Wadhwa & Jha, 2014). Therefore, countries, especially developing countries, should engage to introduce relevant policies to address the challenges. Further, the internationalization of higher education also contributes to institutional reform (Wadhwa, 2016). Since the internationalization of higher education is undergoing constant change, universities are challenged to keep pace with new developments. The relative attraction of a country to foreign learners has been found to be a manifestation of a country's soft power (Popa, 2014). According to Anisoara Popa (2014), soft power refers to the ability to shape the preferences of others by attraction and seduction. A country, therefore, has more soft power if it can attract more international students and exert an invisible, formative influence on them.

When examining the internationalization of higher education, the distribution of international students across the regions of a country, and the fluctuation of their populations by region are worth exploring for two reasons. On the one hand, international students contribute to the culture and curriculum diversity at the universities they attend (Lindsey Parsons, 2010; Sawir, 2013; Trahar & Hyland, 2011). Specifically, Erlenawati Sawir (2013) noted that international students brought a diversity of cultures that, in turn, facilitated the internationalization of the curriculum and facilitated domestic students learning about international culture. On the other hand, international students represent a considerable revenue source (Cai & Kivistö, 2013; Cantwell, 2015). International students paid about U.S. \$9 billion in tuition and fees to U.S. public universities in 2015 (Loudenback, 2016). This number would be significantly larger if private universities were taken into account. During the 2016-2017 academic year, international students studying at U.S. universities and colleges contributed U.S. \$36.9 billion to the U.S. economy and supported more than 450,000 jobs (NAFSA, 2018). Given the unquestioned cultural and financial benefits brought by international students, it would behoove policymakers at U.S. universities to have a better understanding of the drivers for international enrollment.

The U.S. is the world's largest destination for foreign students. In 2016, 1,043,839 international students studied in the U.S., a 7.1 percent increase over the previous year (Institute of International Education, 2016a). However, the distribution of international students is not balanced around the U.S., with some states enrolling far more international students than others. Even within the same state, some universities are more attractive than others to international students. This study aims

to explore the distribution of international students in the American higher education system, explain the reasons for the current distribution, and propose some policy implications.

Literature review

Studies on international students

The majority of the literature on international student focuses on their acculturation and adaptation to their new environment (Leong, 2015; Terrazas-Carrillo, Hong, & Pace, 2014). When international students have opportunities for social interaction and self-expression, they are more likely to adjust to another culture with the support of place attachments (Terrazas-Carrillo et al., 2014). Individual-level factors, such as language fluency and coping ability, affect international students' experiences and satisfaction levels, while environmental factors, such as culture and reception to the host society, shape the experiences of international students as well (Leong, 2015).

A body of literature examines the mobility of international students (Bessey, 2012; González, Mesanza, & Mariel, 2011; Oleksiyenko, Cheng, & Yip, 2013). Donata Bessey (2012) found that when making decisions about which country to go to, international students tend to favor countries closer to home. Similarly, González et al. (2011) juxtaposed several elements that had impacts on international students' choice of destination, such as country size, cost of living, distance, educational background, university quality, the host country language, and climate. Since international students bring money and emerging talents to a country or region, governments have introduced preferential policies to encourage the mobility of international students (Oleksiyenko et al., 2013).

Another line of literature elaborates on international students' mobility choices after graduation (Han, Stocking, Gebbie, & Appelbaum, 2015; McGill, 2013). Jenny McGill (2013) discovered that scholarship aid, occupational practical training, and temporary work visa application were significantly correlated to a graduate's choice of residence of whether or not to remain in the U.S. after graduation. Further, Han et al. (2015) stated that the increasing global competitiveness in science, technology, engineering, and mathematics (STEM) education and the complex, restrictive nature of U.S. immigration policies were driving international STEM students out of the U.S.

Despite the abundant literature on international students' mobility, there is a dearth of literature examining the distribution of international students in each region in the U.S. However, some agencies (e.g., the Institute of International Education) are doing research in this field and publish reports on the origin and distribution of international students in the U.S. every year. Beginning with this data, this study applied two quantitative research methods to examine the significant differences or relationships among them: the Wilcoxon signed-rank test and the Kruskal-Wallis test.

Quantitative research methods

Traditional statistics are grounded upon such assumptions as independence, normality, and homoscedasticity. However, when these assumptions cannot be met, researchers either change the nature of the study so that the data meet the needed

parameters or use nonparametric tests (Corder & Foreman, 2014). Statistical models are nonparametric if they cannot be written in terms of a finite-dimensional parameter, and the main hypotheses tested in them involve the probability distribution of elements of data homogeneity, randomness, and independence (Nikulin, Vilijandas, & Julius, 2011). Generally, for examining significant differences, nonparametric tests can perform two classes of analysis: pairwise comparisons and multiple comparisons (Derrac, García, Molina, & Herrera, 2011). Pairwise statistical procedures perform individual comparisons between two participants or organizations. Through comparing the *p*-value obtained from the analysis with the preset acceptable confidence level, it is possible to determine if one participant or organization is significantly different from the other. To carry out a comparison that involves more than two participants or organizations, multiple comparisons tests should be used.

In spite of the different terms, the underlying ideas of parametric and nonparametric tests have a lot in common. Therefore, many of the nonparametric tests have their parametric counterparts, as is summarized in Table 1. It is clear from the table that only two types of nonparametric tests do not have parametric counterparts: the Chi-square test and Fisher exact test, as well as the Runs test.

Table 1. An overview of the nonparametric tests and their parametric counterparts

Type of analysis	Non-parametric test	Parametric equivalent
Comparing two related samples	Wilcoxon Signed-rank test and sign test	<i>t</i> -Test for dependent samples
Comparing two independent samples	Mann-Whitney U-test and Kolmogorov-Smirnov two-sample test	<i>t</i> -Test for independent samples
Comparing three or more related samples	Friedman test	Repeated measures, analysis of variance (ANOVA)
Comparing three or more independent samples	Kruskal-Wallis H-test	One-way ANOVA
Comparing categorical data	Chi-square test and Fisher exact test	None
Comparing two rank-ordered variables	Spearman rank-order correlation	Pearson product-moment correlation
Comparing two variables when one variable is discrete dichotomous	Point-biserial correlation	Pearson product-moment correlation
Comparing two variables when one variable is continuous dichotomous	Biserial correlation	Pearson product-moment correlation
Examining a sample for randomness	Runs test	None

Note: Adapted from Corder & Foreman (2014)

Although parametric tests are, to an extent, more popular in quantitative analysis, given their widespread use in the existing literature, nonparametric tests have their own advantages. As Myles Hollander, Douglas Wolfe, and Eric Chicken (2013) noted:

Although at first glance most nonparametric procedures seem to sacrifice too much of the basic information in the samples ... the nonparametric procedures are only slightly less efficient than their normal theory competitors when the underlying populations are normal (the home court of normal theory methods), and they can be mildly or wildly more efficient than these competitors when the underlying populations are not normal. (p. 1)

In this article, two kinds of nonparametric tests, the Wilcoxon signed-rank test and the Kruskal-Wallis test, are used. According to Stuart-Hamilton (2007), the Wilcoxon signed-rank test refers to the “nonparametric test of two matched groups’ differences on the same dependent variable. The test analyzes the differences between the scores of paired members of the groups, which are ranked by size. The test is the nonparametric equivalent of the paired t-test” (p. 282). When the normality assumption cannot be met, the Wilcoxon signed-rank test is an ideal choice for researchers to compare and find out the significant differences between two matched groups. However, when there are more than two independent groups and the normality assumption cannot be met, researchers must resort to the Kruskal-Wallis test for comparing significant differences among groups.

The Kruskal-Wallis test is a nonparametric method for testing whether samples come from the same distribution (Gregory & Foreman, 2009). The result of a Kruskal-Wallis test will only indicate whether at least one sample stochastically dominates one other sample, or, in other words, whether one sample significantly differs from another sample. It will not reveal which group significantly differs from another. To address this issue, some researchers (Elliott & Woodward, 2007; Green & Salkind, 2010) proposed using the multiple pairwise nonparametric comparisons and adjusting the significance level used for the decision criteria using a Bonferroni-type adjustment. This is not a big issue since the IBM SPSS has already provided the function to perform pairwise comparisons in the Kruskal-Wallis test.

Promotion of the internationalization of higher education

How institutions promote the internationalization of higher education comprises another major body of literature. Most studies are conducted in Asian countries, including Japan (Yonezawa, Akiba, & Hirouchi, 2009), South Korea (Cho & Palmer, 2013), and Singapore (Daquila, 2013) and elaborate on the role of government in the internationalization of higher education and the implications on policymaking. Since the enrollment of international students is an indispensable part of the internationalization of higher education, a higher-degree of internationalization will possibly bring a larger number of international students. In North America, Melody Viczko and Clara Tascón (2016) found that the Canadian federal government endeavored to own and drive the internationalization of higher education as a diplomatic venture, while the provincial and territorial approach to internationalization was minimized by the federal approach. Accordingly, Roopa Desai Trilokekar (2010) pointed out that there had been a narrowing of vision in Canada, a focus on only short-term objectives and limited dialogue between academics and the government,

which challenged the policy development of the internationalization of Canadian higher education.

There is a dearth of literature regarding the policymaking that promotes the internationalization of American higher education. Part of the reason might be that the U.S., the largest destination for foreign students, already has a highly internationalized and industrialized higher education system. However, as noted earlier, the distribution of international students in the U.S. is not balanced, with some states enrolling much more students than others. Even within the same states, different universities have varying international student populations. Therefore, it is necessary, especially for those states and universities that have less international students, to understand the current situation of international student distribution and introduce appropriate policies.

Methods

Research questions

The four questions that guided the current study are: 1) Did the distribution of international students in the U.S. in 2016 differ significantly in each region? 2) Did the distribution of international students in each region of the U.S. significantly differ in 2016 and 2015? 3) What are the reasons for the current distribution of international students? 4) What are the policy implications of promoting the enrollment of international students?

Participants

The data used in the current study were about the distribution of international students in each state of the U.S. All the data were publicly available and obtained from the official website of the Institute of International Education (IIE) (Institute of International Education, 2016b). Fifty states and the District of Columbia were included in the study, and they were further divided into five regions according to the standards of the National Geographic Society (2012), Northeast, Southwest, West, Southeast, and Midwest.

Computer software

The computer software used in the study for nonparametric tests was IBM SPSS 22.0. Wilcoxon signed-rank tests and Kruskal-Wallis tests were performed in the study.

Data analysis

To answer the first research question, whether the distribution of international students in the U.S. in 2016 significantly differed in each region, several steps were followed. First, the population of international students in each state in 2016 was collected. Further, each state was grouped into one of the five regions and a set of coding systems was generated. "1," "2," "3," "4," and "5" were used to code the Northeast, Southeast, Southwest, West, and Midwest, respectively. If the results of the Kruskal-Wallis test showed that one region had a significantly larger international student population than the others, pairwise comparisons would be performed to identify which two regions were significantly different.

To answer the second research question, whether the distribution of international students in each region of the U.S. in 2016 significantly differed from 2015, the populations of international students in each state in 2015 and 2016 were collected. The same coding system was adopted in the Wilcoxon signed-rank test, which was performed five times to examine whether each region had a significantly larger international student population in 2016 compared to 2015. The reason why this study only compared the data between 2016 and 2015 was that international student populations have, generally, increased fast during the past ten years. Thus, the results would always be significant when comparing the current data with the numbers from three or five years ago.

Based on the results of the quantitative tests, this study attempted to uncover the reasons for the current distribution of international students and propose the policy implications on enrollment promotion, which answered the third and fourth research questions.

Results

Table 2 demonstrates the data concerning the population of international students in each state in 2016.

Table 2. The distribution of international students in each American state in 2016

State	International student population	State	International student population	State	International student population
California	149,328	Maryland	18,304	Arkansas	5,665
New York	114,316	Minnesota	14,941	Rhode Island	5,409
Texas	82,184	Oregon	14,382	Delaware	5,052
Massachusetts	59,436	Connecticut	13,564	New Hampshire	4,506
Illinois	50,327	Wisconsin	13,449	Idaho	4,501
Pennsylvania	48,453	Iowa	12,711	Hawaii	4,295
Florida	43,462	Colorado	11,346	West Virginia	4,150
Ohio	37,752	Washington, DC	11,120	New Mexico	3,767
Michigan	33,848	Kansas	10,351	Mississippi	3,533
Indiana	29,219	Oklahoma	10,330	North Dakota	2,571
Washington	28,624	Tennessee	9,094	Nevada	2,518
Missouri	24,171	Alabama	8,561	South Dakota	1,981
Arizona	22,212	Utah	8,302	Montana	1,735
New Jersey	21,228	Kentucky	8,043	Vermont	1,712
Georgia	21,122	Louisiana	7,835	Maine	1,396
Virginia	19,549	South Carolina	6,253	Wyoming	1,157
North Carolina	18,884	Nebraska	5,910	Alaska	488

The distribution of international students in fifty states and Washington, DC., were included in this table. California, New York, and Texas had a much larger population of international students than other states, with each hosting 149,328, 114,316, and 82,184 international students, respectively. The mean of the population is 20,452, and only the first fifteen states had larger population of international

students than the mean. The population of international student in 22 states was between 10,000 and 50,000; 24 states hosted less than 10,000 international students. It is obvious from Table 2 that the distribution of international students was unbalanced. California's international student population was 300 times larger than Alaska's. Table 3 presents the distribution of the 50 states plus Washington, DC, in the five regions of the U.S.

Table 3. The five regions of the U.S.

Region	States included in the region
Northeast	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
Southeast	Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, District of Columbia, West Virginia
Southwest	Arizona, New Mexico, Oklahoma, Texas
West	Alaska, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, Wyoming,
Midwest	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin

The results of the Kruskal-Wallis test showed that there was a significant difference in the population of international students among these five regions ($p < 0.05$) (see Table 4). And the effect size of the test was 0.538, suggesting that 53.8 percent of the variance of the distribution of international students can be attributed to the grouping variable of region.

Table 4. The results of the Kruskal-Wallis Test

N	Test statistics	DF	Sig.
51	9.959	4	.041*

Note: *Correlation is significant at the 0.05 level (2-tailed).

Since the results of the Kruskal-Wallis test were significant, several pairwise comparisons were needed to examine the specific significant differences in the distribution of international students among these five regions. The results of the pairwise comparisons showed that a significant difference exists between the Western and Midwestern region (see Table 5).

Table 5. The significant results of pairwise comparisons

Sample 1-Sample 2	Test Statistics	SE	Adj. Sig.
West-Midwest	-19.540	6.351	.021*

Note: *Correlation is significant at the 0.05 level (2-tailed).

Because the test statistics were negative and the median population of international students in the Western region was 4,398, while it was 24,171 in the Midwestern region, it can be concluded that more international students were significantly distributed in the Midwestern region compared to the Western region ($p < 0.05$).

After examining the significant difference in the distribution of international students in each region of the U.S. in 2016, the next step was to explore whether the international student population in each region was significantly larger in 2016 than in 2015. A Wilcoxon signed-rank test was conducted five times to compare the pop-

ulation of international students between 2016 and 2015 in the Northeast, Southeast, Southwest, West, and Midwest, respectively. The results of the Wilcoxon signed-rank test are summarized in Table 6.

Table 6. The results of Wilcoxon signed-rank test for the five regions

Region	Median population		N	Test statistics	SD	Standardized statistics	Sig.
	2016	2015					
Northeast	13,564	11,897	9	3.000	8.441	-2.310	.021*
Southeast	8,561	8,104	15	7.000	17.60	-3.01	.003**
Southwest	16,271	15,182.5	4	.000	2.739	-1.826	.068
West	4,501	4,592	11	30.00	11.25	-.267	.79
Midwest	14,195	13,594.5	12	9.000	12.75	-2.35	.019*

Notes: *Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).

The median population of international students in the Northeastern region was 13,564 in 2016 and 11,897 in 2015. Since the test result was significant ($p < 0.05$), it can be concluded that in the Northeastern region, the population of international students in 2016 was significantly larger than that in 2015. The effect size of the test was 0.545, which means that 54.5 percent of the variance of the distribution of international students can be attributed to the year 2015 and 2016.

For the Southeastern region, the median population of international students was 8,561 in 2016 and 8,104 in 2015. Given the significant test result ($p < 0.01$), it was clear that in the Southeastern region, the population of international students in 2016 was significantly larger than that in 2015. And the effect size of the test was 0.549.

The median population of international students in the Southwestern region was 16,271 in 2016 and 15,182.5 in 2015. Since the test result was not significant ($p > 0.5$), the population of international students in 2016 was not significantly larger than that in 2015 in the Southwestern region.

For the Western region, the median population of international students was 4,501 in 2016 and 4,592 in 2015. The population of international students in 2016 was not significantly larger than that in 2015 in the Western region due to the insignificant test result ($p > 0.05$). It is worth noting that there was even a decrease in the international student population in the Western region.

The median population of international students in the Midwestern region was 14,195 in 2016 and 13,594.5 in 2015. Given the significant test result ($p < 0.05$), it can be concluded that in the Southeastern region, the population of international students in 2016 was significantly larger than that in 2015. The effect size of the test is 0.48.

The above Kruskal-Wallis test and Wilcoxon signed-rank tests provided the answers to the first and second research questions. For the first question, there was a significant difference in the distribution of international students in the five regions of the U.S. The Midwestern region had a significantly larger international student population than the Western region. It was worth noting that for the Western region, California was the outlier. It obviously had more international students than other

states in the region. Therefore, the mean population of international students in the Western region was greatly influenced by California. However, in a nonparametric analysis, median, instead of mean, is taken into account. Therefore, the large difference between the median international student population between the Western and Midwestern regions resulted in the significant test results.

For the second question, Northeastern, Southeastern, and Midwestern regions had significantly larger international student populations in 2016 than those in 2015. Western and Southwestern regions, meanwhile, did not have significantly larger international student populations in 2016 than in 2015.

Discussion

Although a significant difference in the population of international students existed only between the Western and Midwestern regions, the distribution of international students was unbalanced among each state of the U.S. Generally, states in the eastern coastal areas had larger international student populations than states in the west, with California and Texas being the two exceptions. The third research question was about the reasons for the current distribution of international students, which can be attributed to the following two points: 1) climate and geographic location, and 2) the population of immigrants.

The top three states that hosted most international students were California, New York, and Texas. These three states were all located in coastal areas with a comfortable climate. In addition, there were large cities in these states such as Los Angeles and San Francisco in California, New York City in New York state, and Houston in Texas, which provided not only more career opportunities but a variety of entertainment as well. Therefore, it was normal that these states were more attractive than others for international students. Conversely, some states were either located in remote areas (e.g., Alaska) or less populated states (e.g., North Dakota), therefore, less international students chose to go to these states.

The other reason that accounted for the unbalanced international student population among different states was the population of immigrants. It was not uncommon for international students to cluster in places where there were many immigrants from their own countries. This would facilitate international students in the process of adapting to a new environment and provide them with a familiar cultural atmosphere. A significant correlation was found between the population of immigrants and international students in each state. Yuan Yao and Yonghong Tong (in press), in a GIS study examining international students' distribution in the U.S. higher education, calculated the Spearman coefficient for the correlation of the populations of immigrants and international students in each state in 2015. The results ($r = 0.876$, $r^2 = 0.767$, $p < 0.01$) indicate that the population of immigrants and international students were highly correlated.

The fourth research question asked for the potential policy implications of promoting the enrollment of international students. Due to the varying degrees of internationalization, different universities and states in the U.S. need various strategies to address the issue. Since China is also a country that faces an urgent need to promote the internationalization of higher education, it is necessary and beneficial to

learn from its strategies for promoting the internationalization of higher education, which will finally lead to the increase of the international student population. Existing studies concerning China's strategies can be generalized into four levels (Bai, Zhang, & Ye, 2010; Wang, 2007; Yan & Guo, 2009).

Level-one strategy is appropriate for those universities that are less developed in international exchanges. Some public community colleges might be grouped into this genre. For these colleges, the internationalization of teaching, research, and social service is not very important. What is urgent is the cultivation of internationalization concepts among the faculty members and students, so that graduates from these universities can meet the expectations of society and be adaptive to a new environment.

Level-two strategy is appropriate for those local private universities that have just begun the process of internationalization. The short-term target for these universities is to find out and maintain their own character while actively engaging in international affairs. Some possible methods include establishing partnerships with foreign universities and institutions and having co-operation on issues such as teaching, research, and social services. The long-term goal for these universities is to broaden the co-operation with overseas universities and institutions and improve the breadth and depth of internationalization.

Level-three strategy is appropriate for those public research universities that are already domestically prestigious. These universities not only have realized internationalization within their own specialized fields but also actively co-operate with overseas universities and institutions. For this level, the most important step is to establish overseas branches directly. The core concepts of level-three strategy include the following: 1) exploring potential overseas education markets, 2) establishing overseas branches and understanding the development trends of first-class international universities, and 3) promoting their own international status through collaboration with overseas universities and institutions.

Level-four strategy is appropriate for the first-class universities that are in obvious advantageous positions in their own research fields. The goal for these universities is to realize the comprehensive internationalization of education, research, and social services, establishing an effective co-operation network around the world. These universities normally set up overseas branches and involve a considerable number of overseas staff into their internationalization procedures. To fully implement this strategy, an independent institution is needed to co-ordinate all the foreign affairs with each foreign country. All the overseas branches can be integrated into a relatively coordinated organization and the overseas resources and information can be better utilized.

Of all the four strategies, it seems that the level-two strategy is the most urgent. Public community colleges do not have the need for internationalization, while public research universities or elite private research universities already enjoy a good international reputation. Only those local private universities that have just begun the process of internationalization are in need of active engagement in various activities to promote the development of internationalization. Not only universities but also state governments are responsible for introducing policies and establishing platforms to create more opportunities for local universities. This is especially necessary for those states that re-

side in the Western and Southwestern regions, since these regions saw no significant increase in the population of international students from 2015 to 2016. Through following the aforesaid four strategies level by level, it is reasonable to believe that those local private universities can promote the level of internationalization gradually.

Conclusion

This study compared the distribution of international students in the American higher education system using quantitative research methods from both the synchronic and diachronic perspectives. The four research questions proposed at the beginning of the article were answered.

For the first research question, there was a significant difference in international student population among the five American regions. Generally, more international students were distributed in the Midwestern region than in the Western region. For the second research question, Northeastern, Southeastern, and Midwestern regions had a significantly larger international student population in 2016 than in 2015; however, Western and Southwestern regions did not have a significantly larger international student population in 2016 than in 2015. For the third research question, there were two reasons for the current distribution of international students: 1) climate and geographic location, and 2) the population of immigrants. For the last research question, four strategies that were conducive to the promotion of higher education internationalization were proposed that would finally lead to an increase in international student enrollment. State government and different universities can apply the results of the study to promote the enrollment of international students who not only bring a diversified academic contribution to American higher education but boost the local economy as well.

Limitations and suggestions for future research

Time and capital expenditure limits constrained this study in two ways. First, only the population of international students was examined. If more detailed data could be obtained, such as their majors and degree levels, it would be possible to design a more sophisticated study that looked at additional factors for student choices by region. Second, only the data within these two years were analyzed. The conclusion of the study could have been more reliable and powerful if more data within the past five or ten years were available.

There are three directions for future research. The first future research direction is to explore the distribution of international students in different majors, i.e., whether there are more international students in social science areas or the science, technology, engineering, and mathematics (STEM) area. Through comparing the population of international students in different majors within the past three or five years, a general trend of the change of international students' choices can be predicted. The second future research direction is to make an association of the fluctuation of the international student population in each state with its local education and economy development since international students' contribution to American society is worth exploring. The third research direction is to investigate the costs and benefits of the four strategies through empirical studies.

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