Trends in International Student Choices and Motivations in the U.S.

Abstract

This project looks to determine and analyze the potential causes of various patterns in the experiences and motivations of international students in the United States over the past decade. visualize in several ways the distribution of international students across regions of origin from 2009 to 2019, the different indicators in countries of origin that may influence how many international students study in the U.S., the distribution of international students' fields of study, and the distribution of their primary sources of funding.

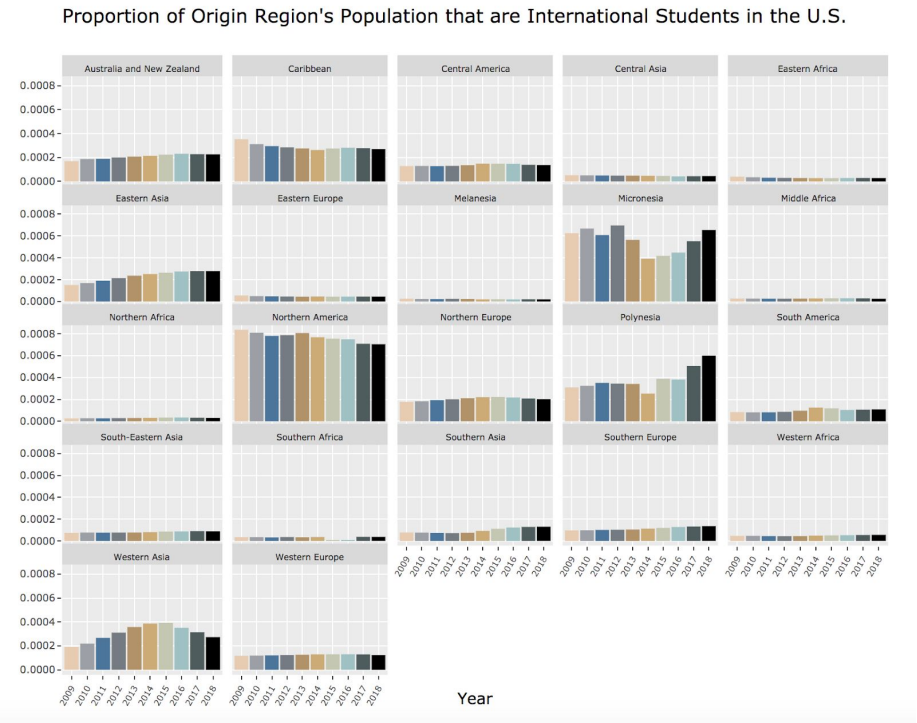
Background

The United States currently has the world's largest international student population, hosting about 1.1 million of the 4.6 million Internationals students enrolled worldwide in 2017. Since the 1950s, this number has experienced steady growth. In the 2016-2017 school year, international students constituted 5 percent of the total population enrolled in U.S. higher education. Despite previous trends of growth, the number of international students newly enrolled at a U.S. institution dropped for the first time in recent years in fall 2016. A national survey of staff at more than 500 U.S. higher education institutions showed a 7 percent decline in new international student enrollment in fall 2017, according to the Migration Policy Institute. Survey participants attributed the drop to a combination of factors including visa delays and denials, the costs of U.S. higher education, the shifting social and political climate, notably after the election of President Donald Trump, competition from institutions in other countries, and prospective students' concerns about securing a job in the United States after graduation.

Methods

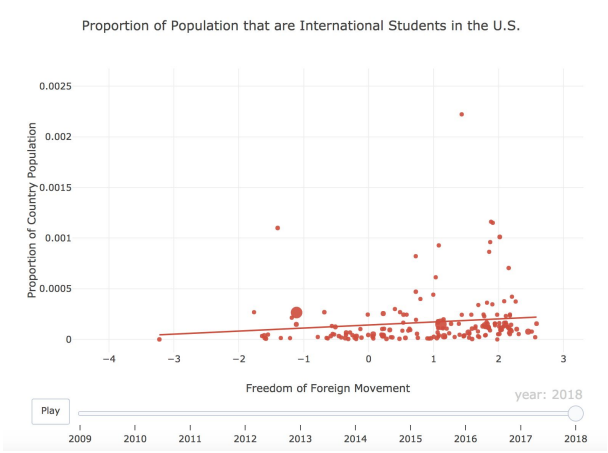
I used data from the Institute of International Education, the World Bank, and Varieties of Democracy. IIE dataset tracked the number of international students in the U.S. and their countries of origin throughout the last decade and also provided the numbers I used to visualize the distribution of primary funding sources and fields of study. The World Bank dataset provides hundreds of statistics for different country indicators, including Gross Domestic Product per capita and population. The Varieties of Democracy dataset measures democracy in different countries by hundreds of factors, including my variables of interest: educational equality, freedom of academic and cultural expression, and freedom of foreign movement. I used the World Bank package in R to assign country codes to each of the countries in the various datasets. Doing helped with joining the various datasets so that there was a standardized way of formatting each country since country names can sometimes be written differently depending on the dataset.

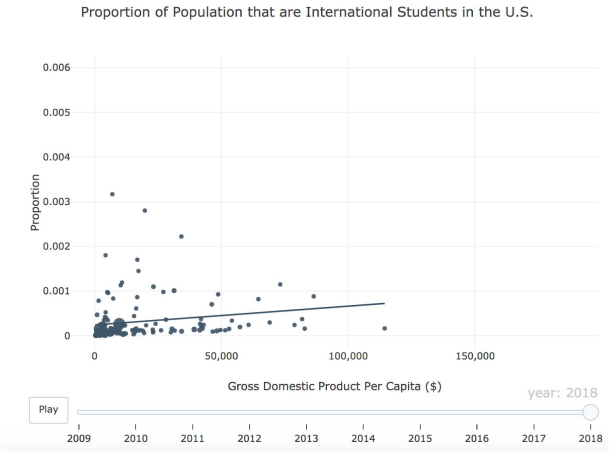
Results

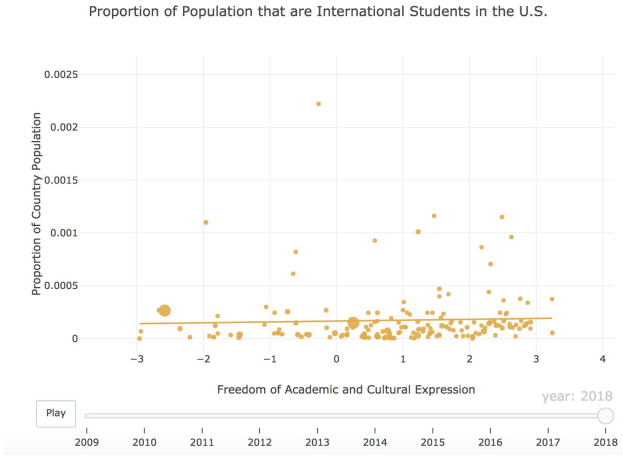


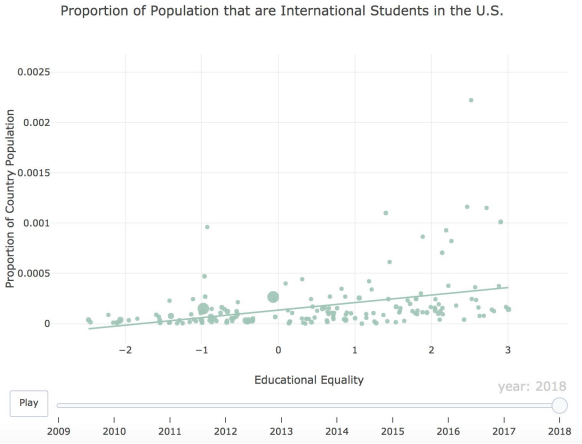
The plot above indicates that the origin regions with the highest proportion of international students in the U.S. are North America and Micronesia. This makes sense because North America only includes Canada where a large proportion of its population are international students in the U.S., its neighboring country. Canada is also linguistically, culturally, and socioeconomically similar to the U.S., so barriers for Canadian international students are minimal. Micronesia, which is a subregion of Oceania composed of thousands of small islands, has a high proportion of international students in the U.S. because its population itself is already quite small at around 100,000. This also explains the variability of the proportion over the past decade.

Though East Asia includes China, which has the highest number of international students in the U.S., it does not have the highest proportion of international students because its population is also the largest in the world. I calculated the proportion instead of raw numbers for this very reason, so that countries with already large populations wouldn't skew and bias the visual representation.



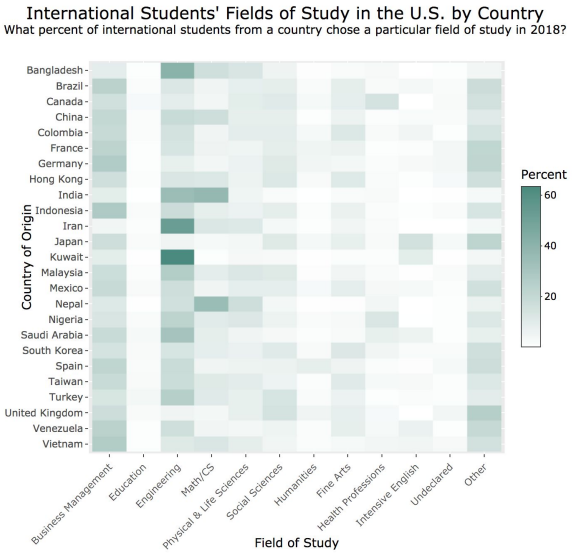




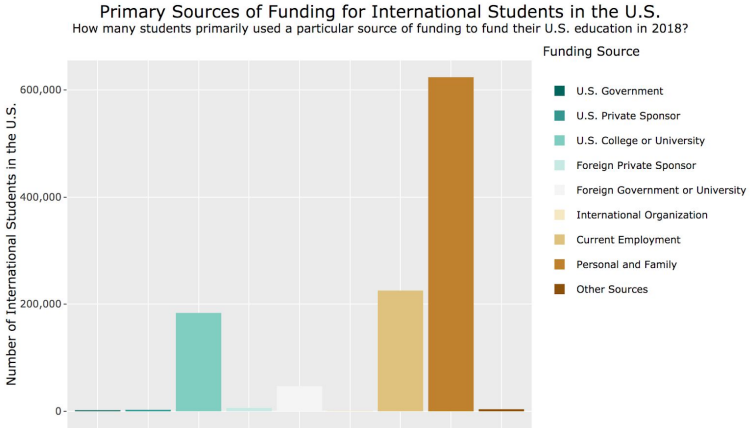


The regression line for each of the indicator plots models a linear relationship between the proportion of a country's population that are international students in the U.S. and the indicators gross domestic product per capita, freedom of academic and cultural expression, educational equality, and freedom of foreign movement. Each of the four regression lines has a positive slope, indicating that there is at least a minimal positive correlation between the indicators and the proportion of a country's population that are international students in the U.S. The regression line with the steepest slope is the one that explains the proportion as a function of GDP per capita. This may be due to the fact that the more prosperous a country is, the more likely its citizens are able to afford the increasingly exorbitant costs of studying abroad in the U.S. The regression line with the flattest slope is the one that explains the proportion as a function of freedom of academic and cultural expression, revealing that there is little to not correlation between the two variables. I had assumed that there would be a more extreme positive correlation because limits on free cultural and academic expression could hinder access to and suppress desires for Western education. It made sense that the correlation between freedom of foreign movement and the proportion would be positive because countries that have more lax emigration laws would allow for more movement of international students out of the country. On the other hand, I was surprised by the positive slope of educational equality regression line because I had assumed that the more accessible education is in a country, the less likely it is many students would want to leave that country for the U.S. However, it's likely that there is a positive relationship because students in countries with accessible basic education would be likely to want to

continue that education at U.S. higher education institutions whereas countries with many children who already don't have access to basic education would be very unlikely to pursue higher education in the U.S.



This heat map visually represents the distribution of fields of study among international students in the U.S. from particular countries of origin. The darker the cell the higher the percentage of international students from a country (y axis) who chose a certain field (x axis). The heat map indicates that the overall most popular fields of study among the represented major sending countries of international students to the U.S. are Engineering and Business Management. The cell at the intersection of Engineering and Kuwait is the darkest one of the whole graph. Engineering constitutes 63.5 percent of the chosen fields of study of international students from Kuwait. Based on the density of color in the heat map cells, Science, Technology, Engineering, and Math fields appear to be noticeably more popular than fields in the Arts and Humanities among international students. After graduating, STEM international students are eligible for an extended 36-months of Optional Practical Training, during which students can pursue valuable internships and work experience before students return to their home countries.



The most popular primary source of funding among international students in the U.S. in 2018 was Personal and Family, followed by Current Employment, and U.S. College or University. Most full-time international students have F-1 status, which allows for part time, on-campus employment. In addition to financial aid, funding from U.S. college or university also includes teaching and research assistantships, which are often federal government research grants disbursed to the student through the institution. The least popular was International Organizations, which can include the United Nations, World Health Organization, and other organizations that offer aid. They, however, require you to be in your home country when you apply and can be very competitive.

Conclusion

This project utilized data visualization to illustrate various patterns in international student movement and choices as well as potential variables that affect these patterns, including a country of origin's economic growth and level of democracy. One limitation of this project is that my models do not control for various particularities of different countries of origin, including language barriers or governmental regime, so it's difficult to argue a strong correlation between an indicator and proportion of international students. While I have identified general trends in this project, in the future, I would like to control for these differences to more definitively ascertain correlation and map out more specific moments in history – such as controversial elections, new legislation, and natural disasters – to observe the effect of these moments on trends in international student movement.