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The Effect of Geographical Locations on College Tuition Across the United States

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Abstract

In this paper, we studied different causes for the fluctuations in this difference in cost in four major regions of the US, the Northeast, Midwest, West, and South. We found that higher education costs different amounts of money in different areas due to the lack of national regulation of higher education funding, which causes variance in the average cost of college tuition in different regions. Another factor that contributes to college tuition varying in price based on geographical location is the difference in tax rates because funding for higher education comes from state taxes, not federal. The overall extremity and deviation of higher education prices may deter people from obtaining a college education, which we determine to be crucial to obtaining higher-paying jobs and obtaining a job at all or force people to take out student loans, which we conclude to cause major issues for students later in their lives.

Literature Review:

College education or higher education serves as a driving force in many people's lives as it can help people find careers and career training. A college education provides people with long-term financial benefits, such as increased annual wages, depending on their level of education (Torpey, 2019). These financial benefits can vastly improve a person's quality of life as a whole (Oreoplous, Salvanes; 2011). In addition, a college education can help people have increased social mobility--a college degree is a ticket out of poverty. As with a college degree, people who are in the lowest quintile income group are more liable to move into the highest quintile of income groups (Haskins 2006). Obtaining adequate higher education has significant impacts on many lives, however, the endeavor to seek a sufficient college education comes at a great cost in the United States - tuition prices in the US are higher than even the highest tuition prices in many developed and developing countries. Out of the 35 countries in the *Organization of Economic Co-development* (OECD) study of 2017, the US had the highest tuition. Nevertheless, obtaining a college education is not as difficult for some people as it is for others. Wealthy people tend to have more college degrees than poorer people, as they are more likely to graduate (Bailey, Dynarski; 2011). Some people may only be able to attend college because they live in a place where tuition prices are subsidized, cheap, or free enough to sustain the fiscal boundaries of those who want to pursue advanced education.

However, for some, this situation is the exact opposite. In the modern-day, the college system in the United States, and the larger overall education system, is funded and handled by local and state governments

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(Department of Education). This explains the lack of tuition regulation on the national scale, with the US having local systems of colleges by state. Some examples of these state systems are the SUNY system in New York and the UC system in California. There is a lack of cohesion on the cost of tuition and other factors that vary from state to state. For example, college tuition in New York costs $19,306 on average in the fiscal school year of 2018- 2019 (US Department of Education IPEDS survey). In comparison, tuition in Georgia for the fiscal year of the 2018-19 school year was $10,081 (US Department of Education IPEDS survey). In addition, there can even be disparities between local governments within a state. For example, within New York State, in addition to the SUNY system, the CUNY system also exists for students in New York City. There is a lack of cohesion across different states in terms of colleges and the cost of colleges, as you can see in the contrast of the average cost of tuition to attend higher education institutions in the states of New York and Georgia. As a result of the lack of national regulation of college tuition and disparity between average tuition in different states, geography plays a major role in the cost of a college education.

The high average tuition prices in the United States as a whole and the geographical disparities described above can cause serious repercussions for students later in their lives. The differences in the cost of higher education impact students because they may have to pay for their education out of their own families' pockets, which can have detrimental impacts on their entire family. The staggeringly high price of tuition in the United States can drive many students to take out student loans. In the United States, about 1 in 6 Americans must undertake the burden of heavy student loans (Office of Financial Aid US GOV, June 2019). Student loans negatively affect students because the students will have to pay off their debt in the future. Subsequently, having outstanding debt can have negative effects on a student's future credit score, which can affect their ability to purchase homes, get jobs, and more. Furthermore, students may be required to attend college in a certain state, in which college tuition may cost more in order to gain the necessary experience for their desired field of work. If the state they are required to attend college in has a high tuition rate, this may prevent the student from attending this specialized college due to their inability to pay for it.

Therefore, the discrepancy in tuition cost across the regions of the US can have detrimental effects on many aspects of a student's future, including their financial security and job opportunities. Accordingly, geography affects these students' education and eventually, the rest of their lives in the form of their financial futures. The regions in this paper are organized by factors such as climate, geopolitics, and location. Keeping students out of fiscal ruin would benefit the United States as a whole in many different ways, such as making the economy more organized. With all of this in mind: In the scope of college tuition, can the prices vary from region to region, why so, and how does this affect students depending on where they are in the US?

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Materials

Department of Labor Statistics Website: The Department of Labor Statistics offers publications having to do with job outlook, and the economy of each state this is used in this report to offer insight into states economy, budgets, as well as things such as employment which offers insight on how the amount of money each region of the country has an impacts college education.

Unemployment Rates: While differing tuition prices do play a consequential role in the budgetary costs of a student's education, unemployment rates play a major role in the college economy. Over the years, the government has become actively involved in subsidizing the students who are at a significant financial disadvantage but not necessarily completely. Tuition rates become worse if the overall family income is depleted. Acquiring accurate unemployment rates allows us to have grounds for determining which states' households are at greater financial risk. According to data from the U.S. Bureau of Labor Statistics (BLS), earnings increase, and unemployment decreases as educational attainment rises. If students are not able to attain this higher education, they are at higher risk of being unemployed as well. So, in essence, the relationship between college education and unemployment rates can be causal, with one impacting another with more effect. The only exception, in this case, would be the students who study out-of-state, who have to be counted as a separate data set because their costs are generally higher than those programs offered at their local colleges.

Tuition Rate: The United States, like many countries, has still not eliminated tuition, which is the cost that the student is individually liable to attend college. Though the cost of tuition varies based on whether the institution is private or public, and if you are an instate or out of state student. It varies across locations. It tells us what the costs for students individually are in each region. Tuition is a telltale sign of what the outcome is for students and how college affects them. It is offered on account of correlation to factors such as debt, as it can affect student economic outcome and long term quality of life. However, tuition at its finest point in this paper is used to connect correlations across different data points and help us gain an understanding of the cost of education across the nation.

College Debt: The Institute for College Access and Success provides data on average student debt by state, and this data was calculated by finding the mean student debt by region. This statistic is also dependent upon private or public college (or out-of-state education), and through analyzing the college debts we can attain useful information about relationships in college debt across many scenarios. For example, if we would like to see the average income per household in a given area compared to the college debt of a student, we could express these amounts as ratios and analyze it this way. Another way we can scrutinize college debt with respect to tuition prices is to analyze the funding for each state as well as the work status of the college applicants to check their fiscal boundaries for each respective region mentioned in the research paper.

State Higher Education Funding: As a result of revenue loss from federal funding for higher education, tuition for most colleges increases periodically. The average of the funding for higher education in each state was derived from countless sources and later divided for each region. According to *U.S News,* the average per-pupil spending was 11.2% lower than what it was back in 2008. This website allowed us to analyze the differences in funding from one region to another. The statistics provided in the report tie the annual college debt collected from each state into an average sum. Since the United States lacks a national system to distribute funding for higher education, college tuition varies based on geographic location. Each of the four regions displays various expenditures that differentiate based on tuition. The tuition costs can be compared to the higher education funding as they both have a positive correlation.

Annual Taxes: Through reliable results from *USA Today,* we were able to receive archival data on each of the states and the annual taxes that are imposed on the average American citizen living within that state. Through deep analysis of each sector of America, being the Northeast, the South, The Midwest, and the West, we broke each part of the US into certain categories based on a key amount of states in that region. For example, the calculation for the Midwest took 13 states, while the calculation for the South accounted for 15 states overall. After finding these key annual taxes in each state, we averaged them out for the given regions, which allowed us to come to a final mean of how much an average citizen within each sector of the United States would be taxed. This would allow us to analyze how expensive it is to live in one region of the US compared to another and cross-reference those results with findings on college tuition in those certain geographic regions. We can conclude that annual taxes helped in some ways to compare which regions may be far more expensive and heavy to study in, those regions being the Northeast and the Midwest.

Methods

We researched several data points which consisted of the average regional data for tuition in the United States, higher education funding, unemployment rate, college debt, and annual taxes. The states with higher education funding were researched based on the four regions that make up the United States. We analyzed graphs and articles that consisted of higher education funding by each of the 50 states. It was then averaged and calculated in order to find the overall funding per region which allowed us to assess the correlation between increased funding based on the regions. The average regional data for the tuition rates found within the states was researched, explored, and then compared to the funding. This enabled us to see how the various tuition rates across each region affect the outcome of a student's education and income.

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Tuition varieties across the nation help us comprehend the true cost of education. Additionally, the average college debt per region was conducted through a series of analyzing data entries from each state. We categorized the statistics derived from our research with the public and private colleges or institutes. With this protocol, we were able to retain information about the relationships between college debt and higher education funding. Students all over the nation are affected by debt because of the lack of resources to overcome these high costs in each region. All these aspects regarding higher education holistically demonstrate why tuition varies from region to region. Hypothetically, if unemployment rates were to rise, and more tax dollars were re-distributed for unemployment assistance or if citizens were taxed more to assist unemployment, it would affect tuition rates, and ultimately be a deciding factor for whether or not some individuals decide to go to college. And this contributes to a cycle, as statistically evident in 2018, 18.6% of college dropouts suffered from unemployment, and the numbers still tend to be inauspicious in 2020. The point is, that all the data points are interconnected and bring each other changes for the better or for the worse depending on individual prioritizations of where the money is distributed, and to the extent of fundings for different purposes comparatively for the economy.

Results

Average college tuition: Colleges and universities located in the Northeast had the highest tuition for both in-state, and out-of-state students with the Midwest, West, and South regions following behind it respectively. College tuition varies not just geographically, but over periods of time because several economic factors are attached to tuition like money allocated from taxes will determine state higher education funding. An important factor that must be taken into consideration when talking about the economy is population. The Northeast tends to have a denser population, resulting in the necessity for more money to be allocated for things like strong public transportation, and as a consequence, less money may be left for state higher education funding.

Average higher education funding: These tuition rates are interrelated to the regional higher education funding applied to the states across this nation as each region represents the federal and state money put into the various colleges and universities. In the Northeast, the higher education funding averaged a total of $5.06 billion whereas if compared to the West, the funding was $6.15 billion. This difference in the total averaged funding is important as it shows how the variety in geographical locations affect the rates of funding towards said higher education. The Midwest region has a similarity to the Northeast with approximately $5.42 billion and the Southern region has an average of $6.66 billion. This data that was calculated and critically analyzed is a result of the states' decisions to allocate funding to higher education institutes. With that in mind, this is the research from the United States, 2017, data entries that are subject to change if compared to the funding of today. According to the presented graphs, in 2018-2019, increases in college tuition rates and college debt of students are prevalent in all four regions of the country. This is the result of the different amounts of funding distributed to colleges and universities. In 2017, federal spending on major higher education programs totaled $74.8 billion, state investments amounted to $87.1 billion, and local funding was $10.5 billion.

Average college debt: The Northeast region has the highest average college debt, at $34,953, followed by the South at $28,075, followed by the Mid West at $27,535, and finally the West at $22,234. What these results tell us is that on average, students in the Northeast region of the US have far more college debt than students in the South, Midwest, and West. The South and Midwest are relatively close together, but the gaps between the Northeast and any other region and the gaps between the West and any other region are considerable. The reason why college debt is highest in the Northeast is because the average cost of tuition is the highest there. There is a direct correlation between high tuition and high student loan debt, so in the regions with the highest average tuition, students tend to have more student loans, and in the regions with the lowest average tuition, students have the lowest average student debt. In addition, it is important to note that the average student debt in every region is higher than the average cost of tuition.

Average Annual Income Tax: The most expensive region in America to live in when accounting for income tax is surely the Midwest. With an average statewide income tax that is $9028, it outmatches all of the other regions when it comes to annual income taxes. This is a correlating factor between how expensive it may be for students to live in certain states while also managing to pay and attend college. We see that average college debt for students after they leave school in the Midwest is $27,535, a hefty price to pay. However, it seems that Northeastern schools are just as notorious to have to pay for, while annual income taxes lag behind students from the Midwest at $6,000 a year, the Northeast has the highest post-college debt amongst all students. At the same time, schools in the Northwest are highly competitive, as they include the nation's premier Ivy League Schools and MIT. As a result, it seems that even if there is no direct correlation between average annual income tax and college tuition, it does fare that the higher the average annual income tax in a given region, the higher the college debt for that region. Overall, regional income tax has no direct correlation with a region's college tuition either.

Unemployment Rate: Unemployment rate is led by the West, followed by Northeast, South, and Midwest respectively. Needless to say, unemployment is a factor that can contribute to which college an individual goes to or if they even go to college. However, an overlooked part of unemployment is one of its causes for many Americans--dropping out of college. Statistically speaking, 18.6% of college dropouts suffered from unemployment in the year of 2018. As the value of a college degree increases for almost every job, landing jobs becomes harder for the demographic consisting of college dropouts, highschool graduates, and highschool dropouts due to the increase in competition as education, and experience are the primary factors considered for employment in the United States.

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Discussion:

From household to household, where money goes for certain expenses like homes, cars, etc, varies, but college tuition is a reflection of regional economies throughout the United States. Several aspects of the economy are tied to how much Americans pay for tuition which is why one cause can lead to several results, as the government needs to allocate, and distribute money for healthcare, public transportation, the military, and much more. The average of the funding distributed to higher education per region plays a major role in college tuition across the U.S. The tuition rates are dependent on the funding each college or university receives from the government. Public institutions get most of their funding from state governments and private colleges receive theirs from private tuition and donations. It becomes a problem when there is a lack of sufficient funding allocated to a variety of states in a region, this would increase the tuition rates for the colleges.

In certain cases, colleges respond to funding cuts by significantly increasing the tuition fees and thus creating a struggle for students to receive the proper education they deserve. It is a question still prevalent today, on how we can strive towards a nation that assigns the right funding to each region in order to prevent higher tuition fees than there is already. During the process of conducting analysis of our archival data, we noticed that regions such as the South and the West had higher funding given to the states and as a result the tuition fees were distributed fairly. Regardless of the federal benefits like financial aid, scholarships, and grants/loans, it is more important than ever to address the primary issue of providing better funding in order to prevent student dropouts and increased student debt. Due to the different prices of tuition across the different regions in the United States, students in these regions take out student loans at different rates and amounts depending on where they are attending college. The high cost of college in the United States as a whole forces many students to take out student loans because they cannot pay for the price of tuition upfront. Student loans take an average of 20 years to pay off (Hanson, 2020), in part because they are often very large sums of money to begin with, but also because the average interest rate for college loans is just under 6%, which means that students have to pay off even more money.

These factors combine to create an issue, that students are left with outstanding student loan debt for a considerable portion of their lives. Having outstanding debt can negatively affect students' whole lives because if they are unable to pay it off, it can be detrimental to their credit score. Having a bad credit can limit a person's ability to purchase a car, have a credit card, buy a home, get hired, start a business, and more. Students in regions where college tuition costs more on average tend to have to take out more student loans, therefore, the negative effects of having student loan debt affect these students more strongly. Based on this, we can

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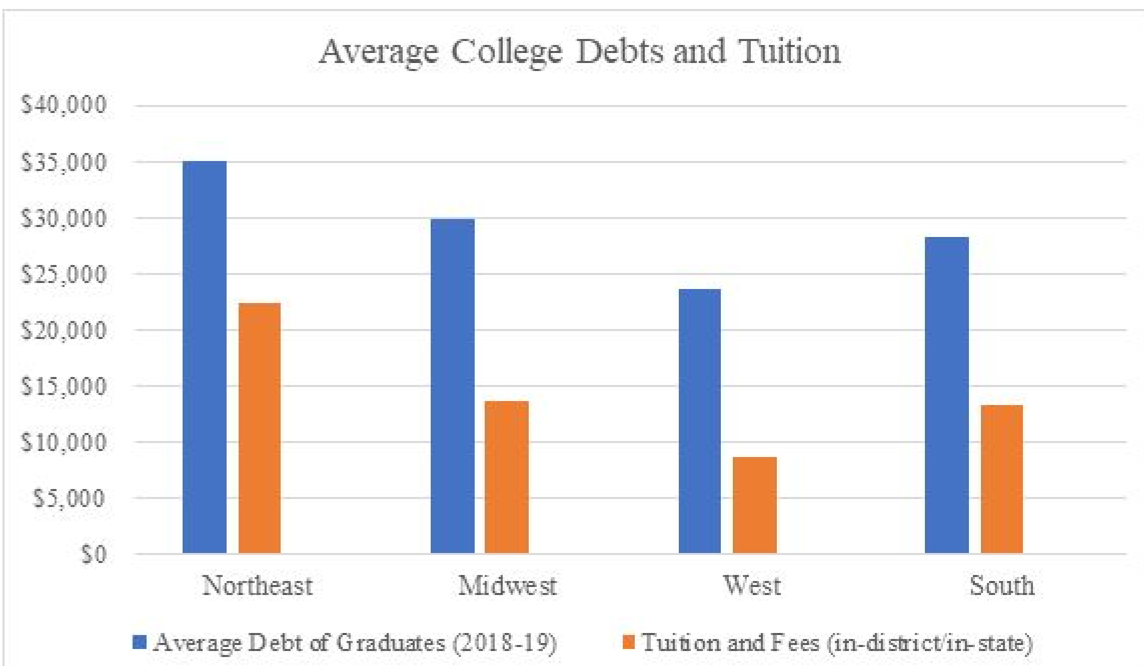
conclude that the fluctuating price of college based on geographical location impacts the amount of student loan debt students have, which can have damaging effects on their lives for a long time even after they leave college. Unemployment rates in each region can tell researchers the effects of college tuition, and other costs of higher education. This is due to the fact that affordability of college can impact if students finish college. College debt is greatly tied to unemployment in the U.S as individuals with college degrees are prioritized over those that lack education. High paying jobs, and jobs in general are increasingly becoming more competitive for non-college graduates to achieve because experience is the only other factor considered into employment.

When researching annual income taxes across a given region, there was no direct correlation between a region's income tax and how expensive or not expensive college tuition was in that pertained region. However, there was a slight correlation between annual income tax and college debt following a student's graduation from an undergraduate college. It seems that in regions such as the Midwest and Northeast, the increase in annual income tax saw a considerable increase in debt within that given region following graduation. All of these factors together combine to each play either a significant or non-significant role in college tuition.

Figure 1. Average student college debts with comparison to tuition and fees pertaining to region, 2018-2019



Note: The independent variable in figure 1 would be region, which would vary the average college debt and tuition.

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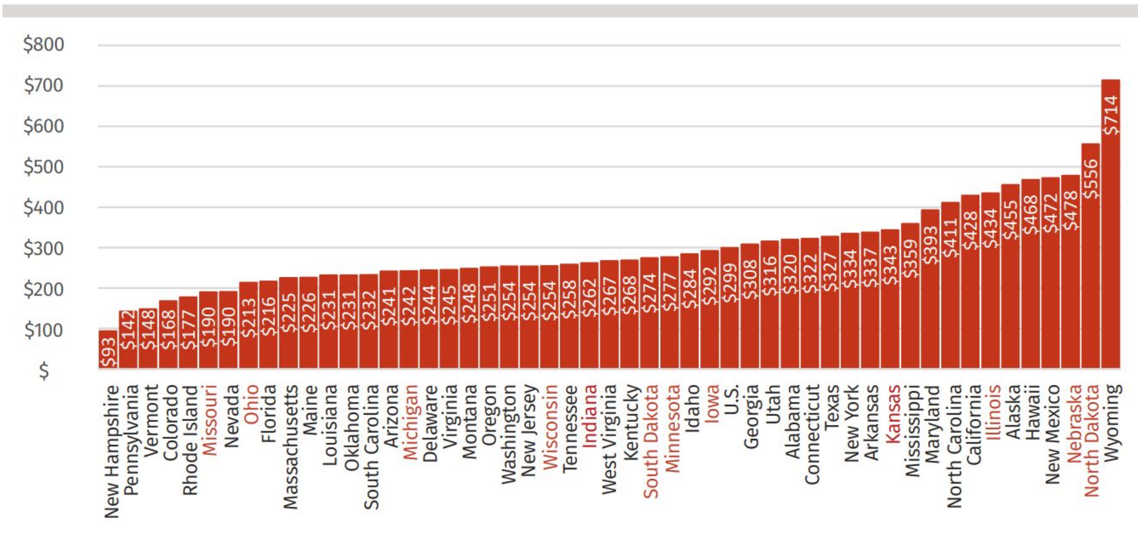
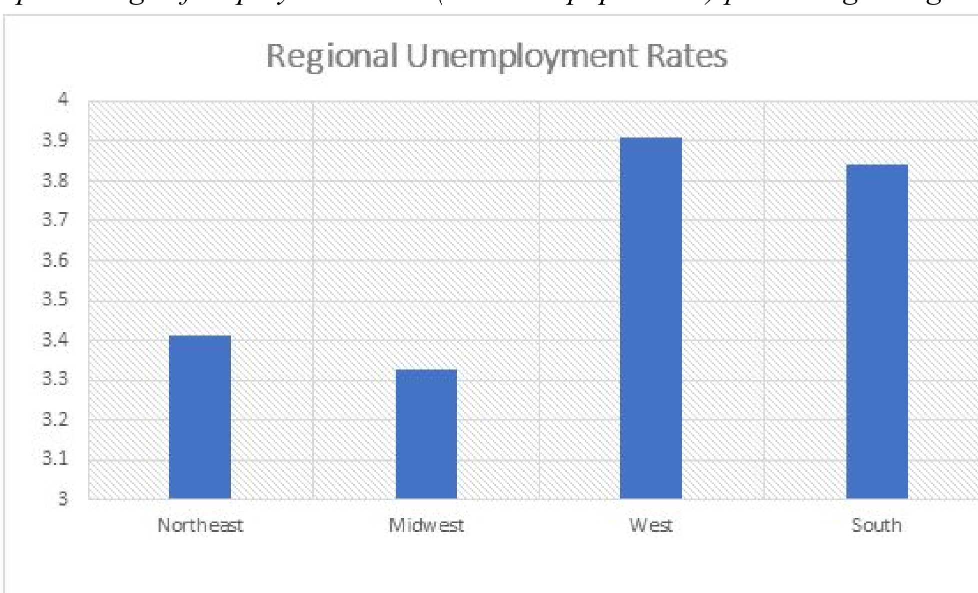
Figure 2. Higher education support per capita, by state. Fiscal 2017



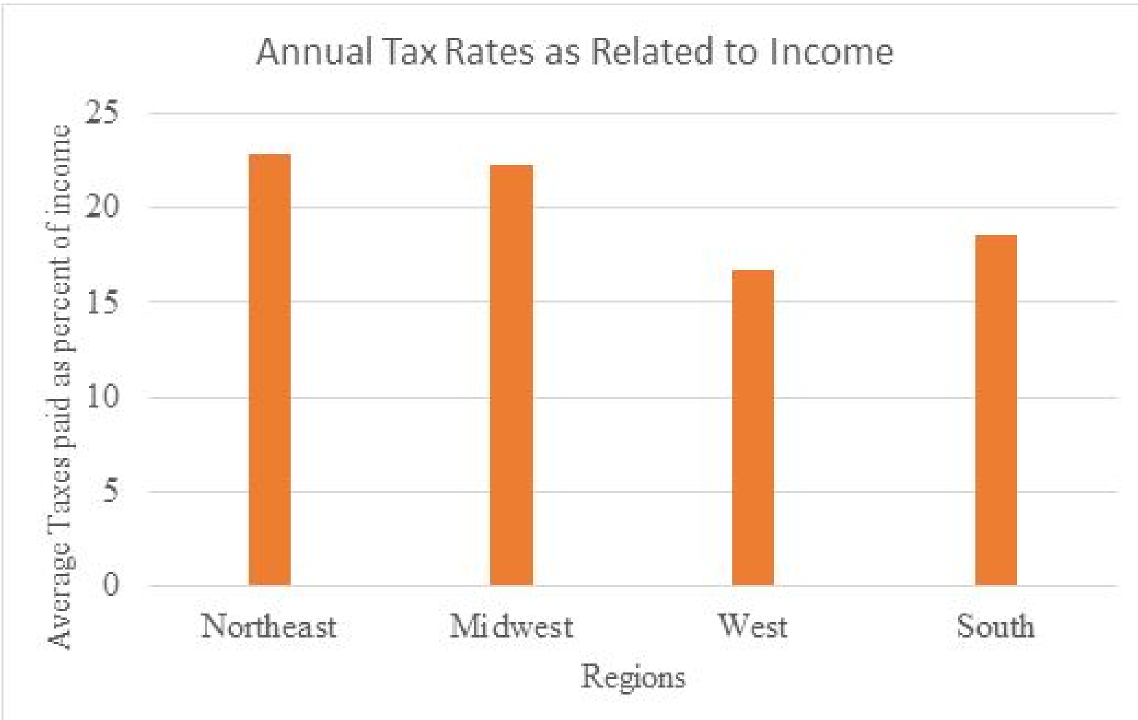
Note: The independent variable in figure 2 would be state, which would vary the higher education funding of each region.

Figure 3. Average percentage of employment rates (based on population) pertaining to region, 2019.



Note: The independent variable in figure 3 would be region, which would vary the unemployment rate of each region.

Figure 4. Annual Tax Rates as percentage of income for every household in that region. 2019, June



Note: The independent variable in figure 4 would be region, as this would affect the tax rate (taken out of income of the respective region, which is the dependent variable

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