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UNIVERSITY-LEVEL DEBT DIMINISHING THE PURPOSE OF PUBLIC HIGHER  
EDUCATION

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## **ABSTRACT**

This paper seeks to examine how the financial health of universities change as balances of long-term debt increase. The analysis consists of a case study of five flagship, public universities in the United States and then seeks to find similarities between the universities that can be attributed (in part) to additional long-term debt being issued. The five universities studied are: the Pennsylvania State University, the University of California, the University of Arizona, the University of Kentucky, and the University of Minnesota. The paper focuses on high-level factors affecting financial health such as operating profits/losses, total operating revenues and expenses, student tuition and fees, enrollment, and debt balances and payments. The primary analysis was conducted by analyzing audited financial statements for fiscal years 2010 through 2017 for each of the universities, and assessing changes in the factors mentioned above as long-term debt balances changed. The analysis concluded that large universities can maintain (and even improve) financial health while increasing outstanding long-term debt, but it comes at a cost to society. Out-of-state students have been admitted to state-funded universities at increasingly higher rates and low-income students are being intentionally discriminated against in the admissions process. These enrollment adjustments have been deemed ‘necessary’ by some universities as state funding decreases, but this claim is proven incorrect. Large universities are the key providers of education in America, and understanding what affects their financial health is essential to ensuring an efficient and lasting system for higher education.

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Finally, I would like to thank my parents who never stop supporting me and going out of their way to ensure I succeed at Penn State. Without their support, I cannot imagine how different my college experience and personal development would have been.

## Summary of Previous Literature

### 21<sup>st</sup> Century: The Importance of Education

Higher education is often considered the long-term means of tackling systematic issues facing a country. Since the end of World War II, developed nations around the world have steadily increased investments into the “public good” by encouraging larger portions of the population to receive an education. The goal of this movement is to economically compete on a global basis and continue furthering human technological advancement. Improving technology often leads to increased efficiency in important endeavors, e.g., agricultural production, space exploration, and communication technology. Education also allows humanity to better understand the universe in which we live. The Scientific Revolution, beginning with Nicolaus Copernicus’ heliocentric model of the universe (written about in *De Revolutionibus Orbium Coelestium*) and culminating with Sir Isaac Newton’s explanation of gravity in *Principia*, has led to some of the greatest discoveries and developments in history.<sup>1</sup> The taming of fire and creation of the wheel (amongst other tools) allowed humans to leap ahead of all other animals in survival ability, but the more recent study of natural science has led to an exponential improvement in humanity’s understanding of how the universe operates.

Due to the importance of higher education advancing knowledge of all kinds (whether aimed at improving leisure time, understanding of the universe, or technological advancement), it is imperative that education be perpetually accessible to the masses. This means that those capable of learning and hopeful of receiving an education need access to great instruction at a price point that promotes an equilibrium of degree-required employment and the population of adults with the right education and experience. This paper is going to focus on one area that impacts higher education’s financial health and price point: debt.

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<sup>1</sup> Robert Hatch, *The Scientific Revolution: A Timeline of Activities & Events – Copernicus to Newton*, (University of Florida, 2002).

## Improving Education: Budgets, Costs, and Revenues

The previous section focused on the importance of improving education, but there are competing theories for how improving the education industry should manifest. Two primary theories arguing why university costs have increased so much exist: the “Cost Disease” and the “Revenue Theory of Cost”. Both consider the “relationship between unit cost, educational quality, and the technology of service delivery” (technology is referencing the ways education is provided to students). A baseline agreement is necessary to accept before considering the competing theories; this agreement is: a university can only achieve higher quality if it is willing to pay higher educational costs per student (under restrictions of current technology).<sup>2</sup>

The Cost Disease highlights the fact that service industries (such as education, law, or civil safety) require additional man-hours in order for improvement to take place at a given ‘technological capacity’. In this instance, technology is not only referencing hardware and software, but also includes the means by which services are provided (e.g., a professor lecturing a class full of students or a lawyer preparing to present a case in front of a judge). For service industries, output (service results) value improves as additional *time* is invested into the service. Alternatively, manufacturing companies can improve the value of their output (a product) through a number of means ranging from improved automation to reducing costs of inputs. Archibald and Feldman explain these differences by noting “a half-hour haircut or hour-long university lecture should cost less in a poorer country, but a Toyota or a barrel of oil would not” (273).<sup>3</sup> The United States is a wealthy country whose service industries account for nearly 80% of the economy.<sup>4</sup> Labor costs are higher in wealthy nations whose citizens see infrastructure that presents the potential for an improved standard of living. The Cost Disease suggests that labor costs, especially within developed nations, drive the rising education costs.

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<sup>2</sup> Robert Archibald and David Feldman, *Explaining Increases in Higher Education Costs*, (The Journal of Higher Education, 271.

<sup>3</sup> Ibid., 273.

<sup>4</sup> Ibid., 273.

On the other hand, the Revenue Theory of Cost answers the question: given a university's revenue, what costs can the university incur to maximize educational objectives? Typically, this ends up being a percentage of revenue that is necessary to conduct each activity at a university. The basic interpretation of this theory necessary for the context of this paper is that to improve education quality per full-time equivalent (FTE) student, revenue per FTE student must increase as well. This can come in many forms, but "tuition revenue is probably the only type of revenue that institutions are not interested in maximizing" (276).<sup>5</sup> Maximizing revenue from tuition would mean charging increasingly higher rates to students which makes higher education's value proposition weaker. Alternatively, larger donations and state appropriations would always be more beneficial to an individual university (ignoring the costs to the state). Unfortunately for universities, state appropriations per student have been declining and donations are difficult to influence in any significant manner.<sup>6</sup>

The answer to which of these theories is most accurate is not necessary for this paper. Both make good claims and essentially lead to a similar conclusion: universities need to spend more per student for them to receive a greater educational experience. The issue that becomes relevant is how the university acquires the funds to provide a better education.

### **Funding Operations: Different 'Revenue' Streams**

Public higher education institutions have a few primary revenue sources, some of which bring in significantly more revenue, and some are more easily manipulated to produce more income than others. Typically, there are four major revenue sources for universities:

1. Students: the university charges for tuition, housing, and other fees;

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<sup>5</sup> Ibid., 276.

<sup>6</sup> Ramón Serna, *Understanding the Effects of State Oversight and Fiscal Policy on University Revenues: Considerations for Financial Planning*, (Planning for Higher Education, 2013), 96.

2. Government: federal and state governments provide appropriations, grants, and contracts for work/research;
3. Private: wealthy individuals give gifts (or donate money) and funds are often invested into the markets providing a return; and
4. Sales and Services: the university hosts activities in addition to educational endeavors that individuals (mostly students) pay for on or near campus.<sup>7</sup>

As discussed above, universities need to spend more (per FTE student) in order to increase the quality of education each student receives. These different revenue streams all factor into the primary operations of the university. Tuition can be adjusted relatively quickly and universities have seen massive tuition changes in recent years. Throughout the past two decades (1997-2017), public universities have increased tuition significantly more than private universities (which have increased tuition 154%):

1. Out-of-state tuition and fees at public universities have increased 194%;
2. In-state tuition and fees at public universities have increased 237%.<sup>8</sup>

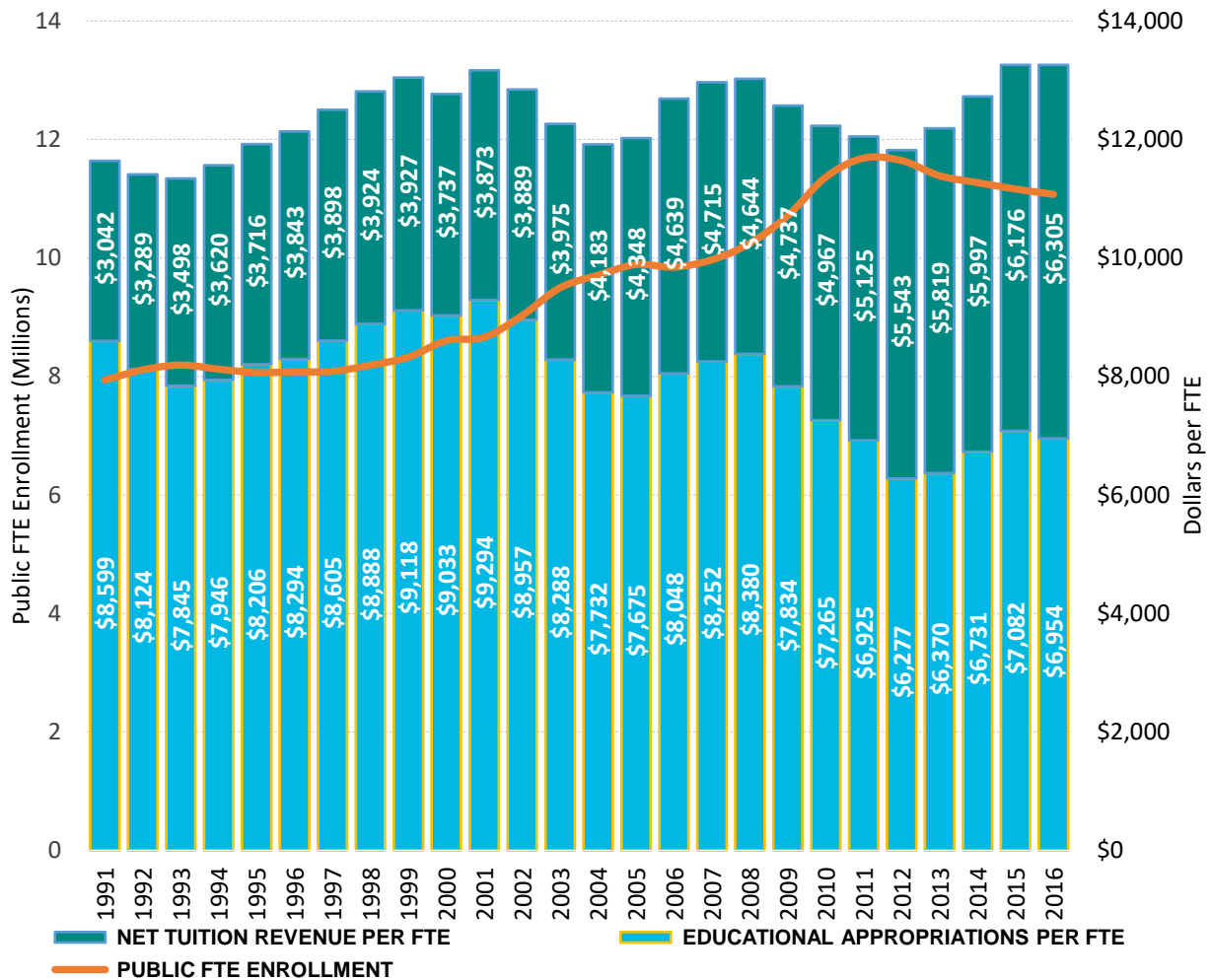
Since 1991, students' share of educational revenues (net tuition / total education revenues) has risen from 26.1% to 47.8% in 2016.<sup>9</sup> Students face nearly twice the burden of paying for an education, due to a combination of reduced government funding and increased tuition fees to offset reduced funding. In the foreseeable future, it is safe to expect tuition to continue rising throughout the country and student debt to accumulate with it, but tuition likely cannot rise at this rate indefinitely because the value of an education will decrease below the opportunity cost of attending university.

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<sup>7</sup> Ramón Serna, *Understanding the Effects of State*, 95.

<sup>8</sup> Briana Boyington, *See 20 Years of Tuition Growth at National Universities*, (U.S. News & World Report).

<sup>9</sup> *SHEF: FY 2016*, (State Higher Education Executive Officers), 22.



**Figure 1. Public University Enrollments Increase as State Appropriations Decline and Tuition Rises**

From 1991-2006, student share of total educational revenue increased an average of 2.52% annually. This was primarily driven by average annual net tuition increases per FTE of 3.00% but exacerbated by an annual decrease in state appropriations per FTE of 0.74%.<sup>10</sup> State governments have made additional efforts to invest in student financial aid (instead of appropriations to universities) since the recession in 2008 hoping to compensate for rising tuition. This has driven universities to increase tuition as

<sup>10</sup> Ibid., 23.

students have more government support and universities are losing some they had grown to expect.<sup>11</sup> The government is consistently reducing the amount of money given per FTE student and occasionally reduces total funding for higher education – universities cannot expect increased government funding to drive expenses aiming to improve education quality.

Private gifts and endowments (which are usually invested to increase funds in the long-term) vary in importance for higher education institutions across the United States, but these investments do not typically increase annual income significantly. Additionally, large portions of endowment returns are often reserved for student aid which is used to offset tuition for students qualifying for aid, not university-related expenses. It is extremely challenging for universities to significantly increase contributions to endowment funds and even more challenging (and risky) to try to increase endowment returns.<sup>12</sup> The size and frequency of new donations are essentially uncontrollable in the short-term, and therefore private funds universities are not a viable source for universities to increase their budgets.

Increasing revenue from sales and activities is not a feasible solution to increase revenue with the aim of improving education quality. Sales and activities' income primarily comes from students paying for entertainment or memorabilia at their university, and most students do not have the additional disposable income to cause a significant increase to total revenue.<sup>13</sup>

Although the four above revenue streams are the largest sources of *income* for most universities, debt can be a massive source of *funds* to invest in a campus and educational resources. In recent decades, universities have issued significant amounts of long-term debt, sacrificing future earnings for the ability to spend more today or invest in projects that will provide additional revenue in the future. Of the five total

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<sup>11</sup> Ramón Serna, *Understanding the Effects of State*, 95.

<sup>12</sup> Denison, Fowles, and Moody, *Borrowing for College: A Comparison of Long-Term Debt Financing Between Public and Private, Nonprofit Institutions of Higher Education: Borrowing for College*, (Public Budgeting & Finance), 93.

<sup>13</sup> Ramón Serna, *Understand the Effects*, 94-96.

methods mentioned to increase a budget, tuition increases (which lead to additional student loans) and issuing long-term debt are the most viable methods.

### **Target Student Loans or University-Level Debt?**

It is nearly impossible to say preventing tuition from increasing is the best solution to improving the nation's higher education industry. Without increasing tuition, it would be extremely difficult for universities to *consistently* improve education offerings by training professors, investing in academic resources, investing in new research, etc. Therefore, there are two issues to target in order to ensure education continues to be affordable to the public: 1) student loans and 2) university-level debt.

Tuition increases have some immediate short-term side effects including students taking on additional student loans to afford attending college. At first glance, this seems to be the clear area of interest regarding the general population's accessibility to affordable education, but the student loan system in the United States would be very difficult to amend. Less than 1% of student loans stem from private institutions (\$7.8B outstanding compared to over \$1.3T worth of outstanding federal student loans), making this a legislative issue which would be extremely challenging to affect in the short-term.<sup>14</sup> Private institutions feel a greater need to make high-quality loans than the federal government. The objective of private organizations is simply different; private institutions need to ensure payback (and a return) by the debtors whereas the federal government is more interested in promoting the "greater good" and improving the United States' higher education industry to reflect societal goals.<sup>15</sup>

There are a couple of reasons why I want to avoid focusing on student loans. The first is that countless papers/articles suggesting countless solutions to the problem have already been written on the topic. I believe many options have been posited that would improve the current system, and few are

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<sup>14</sup> *Student Loan Debt Statistics for 2018*, (Student Loan Hero, 2018).

<sup>15</sup> *Mission*, (U.S. Department of Education).

receiving the backing necessary by governing agencies to cause any substantial change to the system. In the past 10 years alone (2007-2017), total outstanding student loan debt has increased by over \$900B to a total of \$1.49 trillion (over 150% growth).<sup>16</sup> Throughout the same period, in-state and out-of-state tuitions (at four-year public universities) rose by 65% and 56% respectively.<sup>17</sup>

It is common knowledge that student loans are a major problem in the United States. As universities charge increasingly higher tuition rates, more families cannot afford the full cost of an education. This leads to a greater percentage of students receiving student loans, and the amount of debt each student has at graduation is increasing as well.<sup>18</sup> Student debt is the second largest debt burden faced by American citizens behind only home-mortgages, yet the government is not taking necessary steps to mitigate the problems stemming from a student loan bubble, but individual universities (or university systems) can choose how to issue and utilize debt.<sup>19</sup>

### **University Long-term Debt: Implications**

Many universities in the United States issue long-term debt with the goal of making investments that will drive additional revenue in future years (by increasing enrollment and/or tuition), but this trend of universities accessing the capital markets is relatively new.<sup>20</sup> Between 2000 and 2006, the market for higher-education debt tripled to \$33 billion, mostly driven by larger issuances at universities with large endowments. In the past, colleges with low operating revenues (comparatively to other universities) were afraid of being able to afford interest payments; rich schools felt that they had no need for large sums of debt because they had huge endowments. Over time, investors began seeing the attractive collateral offered

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<sup>16</sup> *Student Loans Owned and Securitized, Outstanding*. (The Federal Reserve Bank of St. Louis, 2018).

<sup>17</sup> Briana Boyington, *See 20 Years of Tuition*.

<sup>18</sup> Adam Looney, *More Students Are Taking on Crippling Debt They Can't Repay – It's Time for Higher Education to Share the Risks*, (Brookings).

<sup>19</sup> Zack Friedman, *Student Loan Debt In 2017: A \$1.3 Trillion Crisis*, (Forbes).

<sup>20</sup> Charlie Eaton and Jacob Habinek, *Why American's Public Universities – Not Just Their Students – Have a Debt Problem*, (Scholars Strategy Network, 2013).

by campus buildings, taxpayers' support of state-owned universities, and various revenue streams. Universities could attract more customers (students) whose demand was relatively inelastic due to the increasing need of a college education.<sup>21</sup> Universities (public and non-for-profit) are able to issue tax-exempt debt, which tends to be very cheap compared to what many for-profit corporations are able to issue. Universities "can then invest the money they raise in the higher-yielding taxable market but, because of their non-profit state, avoid taxes", of which even the greatest hedge funds would be envious.<sup>22</sup> Universities are able to issue large sums of money with multiple possible intentions ranging from increasing investment yield to the construction/renovation of campus buildings to attract students.

University debt is becoming more relevant with each passing year. According to Moody's, "colleges and universities collectively owe \$240 billion", and within the past five years, public universities increased their share of the debt by 18% to \$145 billion.<sup>23</sup> At research universities, the problem may be escalating even more quickly. Between 2002 and 2010, "the total debt liabilities of public research universities increased by more than 50% to 26,615 per student – and debt service payments went up by more than 86%".<sup>24</sup> Universities engaging in large-scale research (typically larger universities) are experiencing huge increases in long-term debt – at the same time as state appropriations for research are declining.<sup>25</sup>

Overall, this new problem has been studied minimally (at least within published papers), especially when compared to the student loan crisis facing America, and a lot of the assertions are very speculative instead of analyzing data for causation (or significant correlation). Below I will note some of the claims various higher education stakeholders have made.

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<sup>21</sup> *University Bonds: An Education in Finance*, (The Economist, 2006).

<sup>22</sup> *Ibid.*

<sup>23</sup> Jon Marcus, *Why Colleges Are Borrowing Billions*, (The Atlantic, 2017).

<sup>24</sup> *Ibid.*

<sup>25</sup> Ramón Serna, *Understanding the Effects of State*, 96.

The most common reason stated for universities issuing increasing amounts of debt is to invest in ‘auxiliary services’ (a term used to represent collective facilities such as dorms, dining halls, stadiums, recreation centers, gymnasiums, etc.) and other construction/renovation.<sup>26</sup> Between January and August of 2017, universities spent \$8.4 billion on new construction and renovations which is a 10% increase from the previous year. Also, in each of the three years prior, universities spent about \$12 billion on construction and renovations.<sup>27</sup> Eaton and Habinek hypothesize that universities have increased spending on these areas in order to increase student tuition and fees revenue.<sup>28</sup> This is an interesting assertion because it would likely mean one of two things: 1) either enrollment can increase or 2) universities could be more selective of which students are admitted.

Universities having the ability to be more selective poses an interesting agency problem. Inside Higher Ed released a survey in 2011 that highlighted a 35% increase in four-year university efforts to target ‘full-pay’ students. This means that low-income students are being discriminated against.<sup>29</sup> As of 2014, the University of California system had over \$14.5 billion in debt (more than double the balance in 2005). The interest payments per student increased by over 86% in the same timeframe. This created an agency problem throughout the state. The state-funded universities within the University of California system were feeling pressure to find more students that would pay full tuition and also faced pressure to admit more out-of-state students that pay a higher rate of tuition. President Janet Napolitano, president of the University of California system, rebutted the assertion that this is a major fault of state-funded schools by citing that most state-funded schools have been forced into a “Hobson’s choice, and they all have reached the same decision: open doors to out-of-state students to keep the doors open for in-state students”.<sup>30</sup> State-funded universities

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<sup>26</sup> Jon Marcus, *Why Colleges Are Borrowing Billions*, (The Atlantic, 2017).

<sup>27</sup> Ibid.

<sup>28</sup> Jon Marcus, *Why Colleges Are Borrowing*.

<sup>29</sup> Josh Freedman, *Why American Colleges Are Becoming a Force for Inequality*, (The Atlantic, 2013).

<sup>30</sup> Stephanie Saul, *Public Colleges Chase Out-of-State Students, and Tuition*, (The New York Times, 2016).

are being forced to admit more out-of-state students so that they can continue operating. Rising university debt is likely a factor that is driving this need for a few reasons:

1. Universities need to show they can increase debt coverage to hold high bond ratings while maintaining efficient operations and providing a great education;
2. Increased debt service per student requires additional revenue to offset the additional expense; and
3. There are very few incentives for universities to ensure their students do not default on student loans, and out-of-state students paying higher rates are more likely to default on larger loans.<sup>31</sup>

University Debt is a relatively unstudied problem that has primarily developed throughout the past two decades. Enough concerns exist suggesting that it drives average tuition higher and is becoming a common mechanism of filling budget gaps that did not exist prior to the reduction in state funding. For these reasons, I believe long-term debt in higher education is an incredible concern for the future of the education industry.

This paper will analyze how the financial positions (based on the three financial statements) of universities change as long-term debt changes. I hypothesize that as long-term debt increases, universities increase auxiliary spending with the hopes of attaining greater enrollment and revenues from students. I believe that if long-term debt is spent primarily on auxiliary services, universities' financial health will worsen over time and lead to the misaligned incentives in higher education described by either:

1. Students might not have the opportunity to study what they desire;
2. Public universities must target more high-pay students instead of students within their state or low-income students who need an education to escape poverty.

The goal of this paper is to understand how debt affects a university so that future research can be conducted about how to best utilize debt (or not) to best serve universities' stakeholders. With proper attention to the

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<sup>31</sup> Doug Webber, *To Ease the Student Debt Crisis, Hold Colleges Responsible*, (FiveThirtyEight, 2017).

fundamental factors of a university's financial statements, changing financial health can be measured as the amount of outstanding debt in higher education increases.

## **Data Collection and Methodologies**

### **Methodology**

The primary analysis of this paper revolves around the changing features of universities' financial statements. Aggregated data for university debt is unavailable for high-level financial analysis (for both private and public universities) which means that a different approach had to be taken. I have chosen to do a case study involving five public, flagship state universities (and university systems). Aggregated information regarding every flagship state university was limited, but CollegeBoard tracks some through their Annual Survey of Colleges that contained annual records from 2010-2017 of: 1) in-state tuition, 2) out-of-state tuition, and 3) fall enrollment (all dollar values are in 2017 dollars).<sup>32</sup> Due to limited data, I decided to select two of the five universities being studied based on the availability of additional information:

- 1) Pennsylvania State University – being a student here and writing a thesis for the university's Schreyer Honors College may give me privilege to ask questions of university administration based on initial findings in data analysis. This may prove invaluable in finding causal relationships between University debt and other factors tracked in financial statements.
- 2) University of California – the University has been in the media more than any other university for criticism related to debt. The administration has spoken publicly on multiple occasions offering commentary for dealing with and how they choose to use long-term debt proceeds (seen in part under the 'University Long-Term Debt: Implications' sub-chapter).

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<sup>32</sup> *Tuition and Fees at Flagship Universities over Time*, (CollegeBoard).

The remaining three universities were selected by having a top 10 (out of 50 flagship universities) increase in enrollment and either a top 10 or bottom 10 increase in tuition (either in-state or out-of-state). See Table 1 below to see these universities and the growth rates that led to their selection.

**Table 1. Case Study Universities: Rationale**

<b>School</b>	<b>Rationale</b>
Pennsylvania State University	Access to administration, home university
University of California	Dominates news for university long-term debt
University of Arizona	In-state tuition & Enrollment top 10 increase (5-year)
University of Kentucky	Out-of-state & Enrollment top 10 increase (5-year)
University of Minnesota	Out-of-state & Enrollment bottom 10 increase (5-year)

After the universities were selected, the three financial statements (Statements of Net Positions; Statements of Revenues, Expenses, and Changes in Net Position; and Statements of Cash Flows) were gathered for the respective years that the CollegeBoard data represented (2010-2017). The goal of this analysis is not to evaluate the financial positions of universities, but rather to assess the *changing* financial positions of universities as debt totals and obligations (such as interest expense) change.

## Case Study: Individual Analysis

### Pennsylvania State University

*All information not explicitly cited comes from the Pennsylvania State University Audited Financial Statements for fiscal years (FY) 2010-2017.<sup>33</sup>*

The Pennsylvania State University (PSU) is an old land grant university, intended to provide a liberal and practical education. Money given to the university (historically) was proportional to the number of farmers and industrial workers whom resided in the state. The funds originally provided to PSU for the construction and establishment of the university were intended to create an institution that would serve residents of the state and give them a path to succeeding in their professions.<sup>34</sup>

The Pennsylvania State University had very high out-of-state enrollment rates between 2010 (30.9%) and 2017 (41.9%), with a 46.4% growth rate (from 11,679 students to 17,094) for total out-of-state students throughout the seven-year period. For a university that was created under the premise of benefitting local workers in Pennsylvania, this is an incredibly high rate.

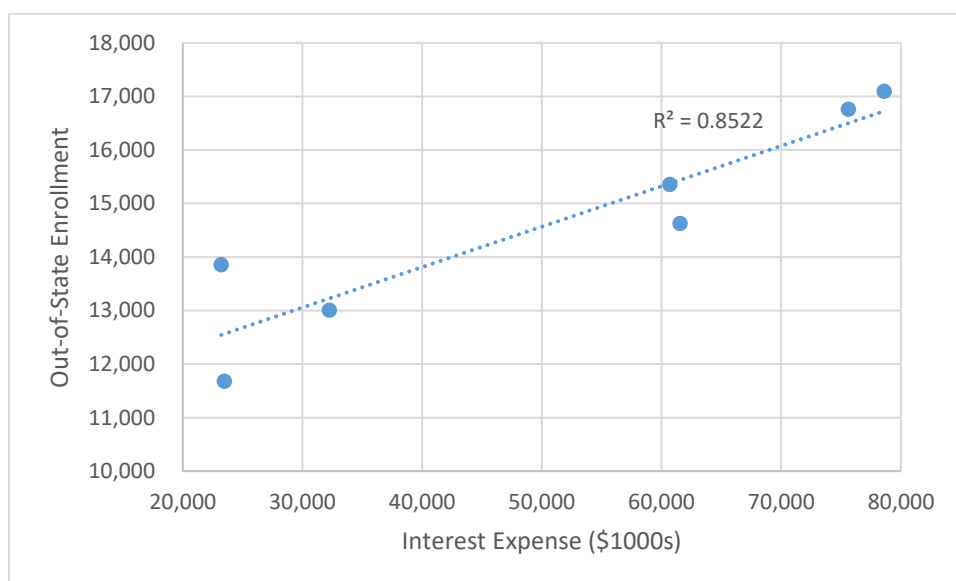
In addition to having an incredibly high out-of-state enrollment rate, PSU also experienced massive growth in its interest expense. Beginning with about \$23.5 million in 2010, interest expense increased by 143.8% to \$78.6 million in 2017. Regressing out-of-state enrollment (FTE students) against interest expense yields a 60.5% R-squared, but one outlier is clear. In 2015, out-

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<sup>33</sup> *Audited Financial Statements*, (Pennsylvania State University).

<sup>34</sup> Dustin Miller, *Land-Grant University FAQ*, (Association of Public & Land-Grant Universities).

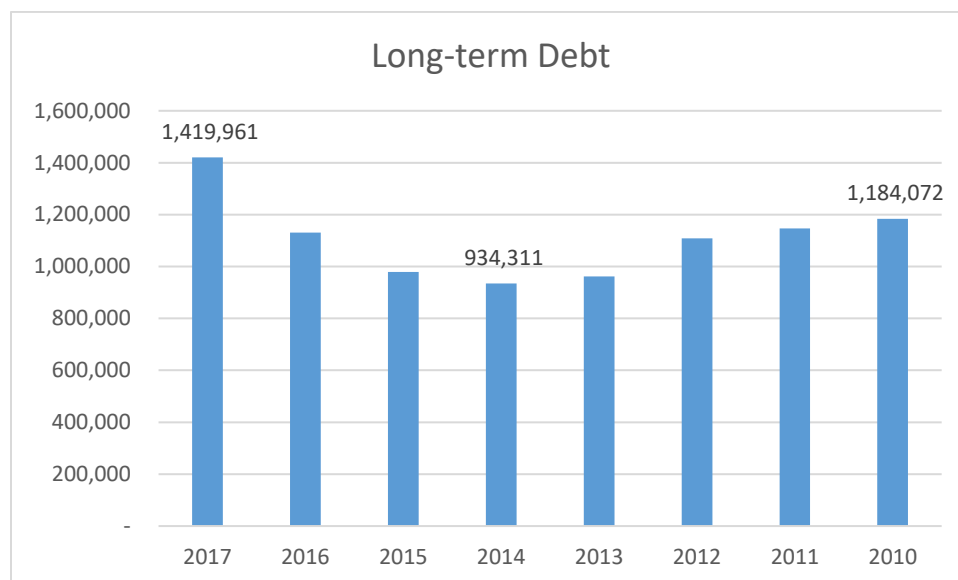
of-state enrollment continued to rise, but interest expense declined by 57.5% from the previous year (followed by a 192.8% growth into 2016). Clearly PSU felt a need to reduce interest expense this year due to other factors because long-term debt rose by 4.8% between 2014 into 2015. If the outlier (2015) is excluded, interest expense and out-of-state enrollment have an R-squared of 85.2%, meaning 85% of out-of-state enrollment can be attributed to the growth interest expense (see Figure 2).



**Figure 2. Pennsylvania State University: Out-of-State Enrollment versus Interest Expense**

The Pennsylvania State University's long-term debt grew by only 18.8% between 2010 and 2017, but the growth followed an unusual path. After 2010, long-term debt dropped until 2015 before rapidly increasing through 2017. See Figure 3 to see the changing balance of outstanding debt over time. A decline in long-term debt is inconsistent with the claims previous

literature made about large universities financial structures, but it is possible the university wanted to take on a more conservative financial structure following the 2008 recession.<sup>35</sup>



**Figure 3. Pennsylvania State University: Annual Balances of Long-term Debt**

The Pennsylvania State University nominally increased its operating profit between 2010 and 2017 by 17.5%, but operating profit as a percentage of operating revenue declined. Operating revenue grew by 39.9% whereas operating expenses grew by a larger 41.7%. PSU is maintaining a roughly \$400 million operating profit without significant changes to long-term debt (about 3.2% average annual growth). The Pennsylvania State University has strong financial health, and likely does not need to increase its balance of long-term debt substantially in order to continue its successful operations.

<sup>35</sup> Bob Meister, *Debt and Taxes: Can the Financial Industry Save Public Universities?* (University of California Press).

## University of California

*All information not explicitly cited comes from the University of California Annual Financial Reports for fiscal years (FY) 2010-2017.<sup>36</sup>*

The University of California system (UC) has been in the media far more than other American flagship universities for comments related to its capital structure (the mixture of debt and equity used to fund operations and finance assets). Alumni have commented that they refuse to donate money to the University regardless of generations of family member attendance because “the prestigious University of California system gave favorable admissions treatment to thousands of higher-paying out-of-state and foreign students, to the detriment of Californians.”<sup>37</sup> This is when President Napolitano claimed the University was forced into admitting additional out-of-state and international students because they could not afford to keep the in-state enrollment rate at such a high percentage with state support declining.<sup>38</sup>

Not only is the University adjusting to accept a higher percentage of non-in-state students, its debt obligations are increasing rapidly. The University of California has over \$19.5B in outstanding long-term debt as of June 30<sup>th</sup>, 2017. This has caused annual interest expenses to increase by 56.6% since 2010 to an incredible \$3,327.58 per student (see Table 2 below). The \$19.5B debt value excludes the \$104M in debt (and interest payments) associated with the medical center which is covered in full by the center’s revenues (but still important to understand the financial structure). University debt levels are incredibly important because they have fixed commitments whereas revenues are not guaranteed to cover these expenses.

**Table 2. University of California: Interest Expense per Student**

	<u>2010</u>	<u>2017</u>	<u>% Change</u>
Students	179,245	216,747	20.92%
Interest Expense (1000s \$)	\$460,474.00	721,243	56.63%
<b>Interest Expense / Student (\$s)</b>	<b>\$2,568.96</b>	<b>\$3,327.58</b>	<b>29.53%</b>

<sup>36</sup> *Annual Financial Reports*, (University of California).

<sup>37</sup> Stephanie Saul, *Public Colleges Chase*.

<sup>38</sup> *Ibid*.

Overall, the University of California has a strong financial standing that could arguably be stronger than it was in 2010 (the beginning of the analysis period). Although total debt has increased by 57% over the period (with a similar increase in interest expense), operating losses have actually decreased by 4.3% over the period to \$5.3B (maxing out in 2016 at \$6.7B). This is likely driven by the 86.5% increase in student tuition and fees (net). The increase in tuition and fees is driven by three primary factors: 1) total enrollment increase; 2) an increase in out-of-state enrollment rate; and 3) a significant increase in cost of attendance, especially a weighted average considering in-state versus out-of-state students. See Table 3 below for primary drivers of the increase in student tuition and fees.

**Table 3. University of California: Enrollment versus Cost of Attendance Comparison**

	<u><b>2010</b></u>	<u><b>2017</b></u>	<u><b>% Change</b></u>	<u><b>Change in % of Total</b></u>
<b>Enrollment Analysis</b>				
In-State	168,622	179,530	6.47%	-11.24%
Out-of-State	10,623	37,217	250.34%	11.24%
Total	179,245	216,747	20.92%	
<b>Cost of Attendance</b>				
In-State	\$31,054	\$36,989	19.11%	
Out-of-State	\$53,933	\$65,003	20.53%	
Weighted Average	\$32,409.93	\$41,799.20	28.97%	

Tuition and enrollment are clearly the biggest drivers for revenue from student tuition and fees. By running a multiple-factor regression of out-of-state tuition and enrollment (the independent variables) against total student tuition and fees, the adjusted R-squared is 94.4%. This means that nearly 95% of the variability associated with student tuition and fees, at least throughout this seven-year period, can be predicted by out-of-state tuition and enrollment. Out-of-state students are a major force in driving the improving financial position of California, but what factors have the greatest influence over the massive growth in out-of-state enrollment?

The University has seen incredible growth in its non-resident enrollment (250% over seven years). The 56.6% increase in interest expense as well as the 15.5% reduction in state funds for operations must have factored into the decision to increase high-pay enrollment at UC. By running a multiple-factor

regression with the independent variables interest expense and state funds for operations, the analysis found an adjusted coefficient of determination (adjusted R-squared) of 79.5%. The university's admissions decisions (at a macro-level) are essentially slave to these two factors, and the admissions decisions carry heavy influence over the university's operating revenues. Student tuition and fees account for 26% of California's operating revenues (excluding the medical center's activities), which are directly influenced by the university's admissions decisions. Indirectly, interest expense and state funding have a huge impact on the financial success of the University of California.

The key takeaway here is that UC has a strong financial structure and is handling its debt efficiently, but certain stakeholders are paying the price of financial strength. Operating losses are decreasing, but at the expense of students, particularly those in-state. The core target market of a state-university are in-state high school students. Although the number of in-state students has increased in the past seven years, it is decreasing as a percentage of total enrollment. The University of California is lessening its value to key stakeholders in order to maintain operations and continue serving all customers.

## University of Arizona

*All information not explicitly cited comes from the University of Arizona Comprehensive Annual Financial Reports for FY 2010-2017.<sup>39</sup>*

The University of Arizona (UA) was selected as part of the analysis because it had the fifth greatest increase for in-state tuition of flagship state universities and the tenth largest increase in enrollment (both for the five year period Fiscal Years 2010-2015).<sup>40</sup> UA has seen an incredibly high increase in ‘student tuition and fees, net’ (of scholarship allowances) of 98% over the past seven years. This is an average increase of approximately 10% annually. An average net increase in tuition and fees of 10% is significantly higher than standard CPI (inflation) increases of roughly 2.5 – 3.0% which makes a secondary education unattainable for lower income people who cannot receive enough in grants and loans. Over the same period, total long-term debt increased by over 35%. When regressing student tuition and fees based on long-term debt, the adjusted R-squared is 89.9% for the FY 2010-2017. Although direct causation cannot be determined, a significant portion of the variability in revenue from students can be attributed to the increase in long-term debt. Something worth noting is that interest expense per student actually decreased by around 1% throughout the same period. This makes it seem like the University utilized a bond structure with a high duration, minimizing interest payments in the short-term.

It is interesting to note how these values change on a per-student basis as well. For this analysis’ purposes, this paper only considers FTE (taking 12+ credit hours) undergraduate students. The University of Arizona has not published the FTE student information for 2017-2018 at this time, and therefore the analysis is limited to FY 2010-2016. See Table 4 for a summary of the information before recognizing some of the implications:

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<sup>39</sup> *Comprehensive Annual Financial Reports*, (University of Arizona).

<sup>40</sup> *Tuition and Fees at Flagship*.

Table 4. University of Arizona: Debt Metrics per Student &amp; Increase in Student-driven Revenue

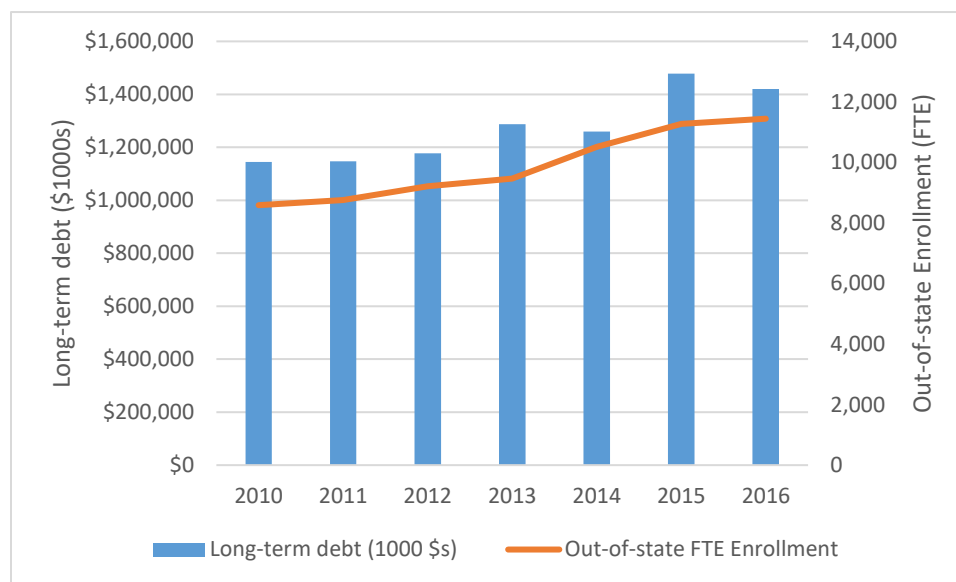
	<u>2016</u>	<u>2010</u>	<u>% Change</u>
Interest Expense (1000s \$)	51,253	45,077	13.70%
Undergraduate Enrollment (FTE)	30,933	26,971	14.69%
<b>Interest Expense / Student (\$s)</b>	<b>\$1,656.90</b>	<b>\$1,671.31</b>	<b>-0.86%</b>
Long-term debt (1000s \$)	1,419,747	1,145,073	23.99%
<b>Long-term debt / Student (\$s)</b>	<b>\$45,897.49</b>	<b>\$42,455.71</b>	<b>8.11%</b>
Student tuition and fees, net (1000s \$)	608,679	329,586	84.68%
<b>Net tuition &amp; fees / FTE Student (\$)</b>	<b>\$19,677.33</b>	<b>\$12,220.01</b>	<b>61.03%</b>

Interest expense did not increase by quite as much as long-term debt, and per student it actually decreased. As mentioned before, this likely is caused by the structure of the long-term debt and duration. What is concerning here, is the rapid increase in net tuition and fees per FTE student. 61% over a six-year period is nearly criminal to students and families who assist in paying (not to mention the growth is even more exacerbated in FY 2017 – the % change from 2010-2017 was 98%). The increase in long-term debt per student is not alarming by itself, especially as state appropriations for the University of Arizona has declined by over 25% since 2010, but the increase in tuition (and fees) to offset additional expenses and decreased funding is worrisome.

With all of this being said, the operating financials of the university have improved over the 7-year timeframe. In 2010, the University's operating loss as a percentage of operating revenue was 47.76%. Since then, UA has improved this figure to 32% for FY 2016. When analyzing operating revenues, they have also increased rapidly throughout the period. Operating revenues have increased by an impressive 50.57% throughout the seven years (seemingly heavily influenced by the increase in long-term debt, shown by the adjusted R-squared of 86.6%). This relationship is likely explained by the investments the University has made with the cash raised from the capital market proceeds.

The University of Arizona's enrollment has been shifting demographics slowly throughout the past seven years. While out-of-state tuition has risen faster than in-state tuition to help offset the decrease in state appropriations, a greater percentage of out-of-state students are also being admitted to the University.

In-state students as a percentage of total FTE enrollment decreased from 68.16% to 63.00% between 2010 and 2016. During the same period, out-of-state enrollment increased by 33.27% (in-state enrollment increased by only 6.01%). See Figure 4 below for a comparison of long-term debt to out-of-state enrollment (adjusted R-squared from 2010-2016: 83.66%). Analysis stopped in 2016 due to enrollment by residency being unavailable for FY 2017.



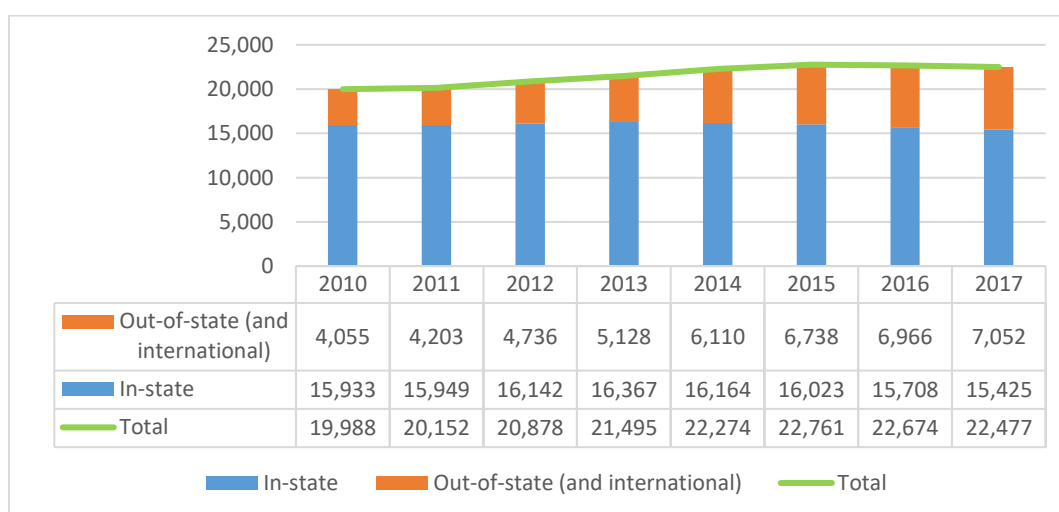
**Figure 4. University of Arizona: Long-term Debt versus Out-of-state Enrollment**

The University of Arizona seems to have used its long-term debt efficiently over the past seven years. Operating revenues have increased by 50.6% while the total operating loss has actually decreased by 1%. UA's out-of-state enrollment as a percentage of total enrollment has only increased by approximately 5%, a negligible amount when considering state appropriations have declined by over 25%. The University seems to maintain a strong financial position without making significant adjustments to its campus demographics. The area that UA may find challenging is limiting tuition increases in the future. In-state and out-of-state tuition saw unnatural growths between 2010 and 2017 with 26.4% and 33.5% respectively which is unsustainable without the educational value increasing comparatively in the future.

## University of Kentucky

*All information not explicitly cited comes from the University of Kentucky Financial Statements for FY 2010-2017.<sup>41</sup>*

The University of Kentucky (UK) was selected as part of this analysis because it had the fifth largest growth of out-of-state tuition and the seventh largest increase in enrollment (both for the five year period FY 2010-2015). This implies that despite tuition increases, more students were attracted to the University. During these five years, UK's out-of-state tuition rose 25.4% from \$19,849 to \$24,892 (if you consider 2010-2017, the University's out-of-state tuition rose an astounding 40.34% to \$27,856).<sup>42</sup> Throughout the seven-year period, UK's out-of-state enrollment increased by 73.9% despite the incredibly high tuition increase for these students. This suggests that the University was able to appeal to more out-of-state students regardless of increasing the cost of attendance. Inconsistent with the University appealing to more students is the fact that in-state enrollment dropped by 3.19% during the same seven-year period (leading to a total enrollment increase of 12.45%). See Figure 5 for an in-depth look at how enrollment changed at the University of Kentucky between 2010 and 2017.

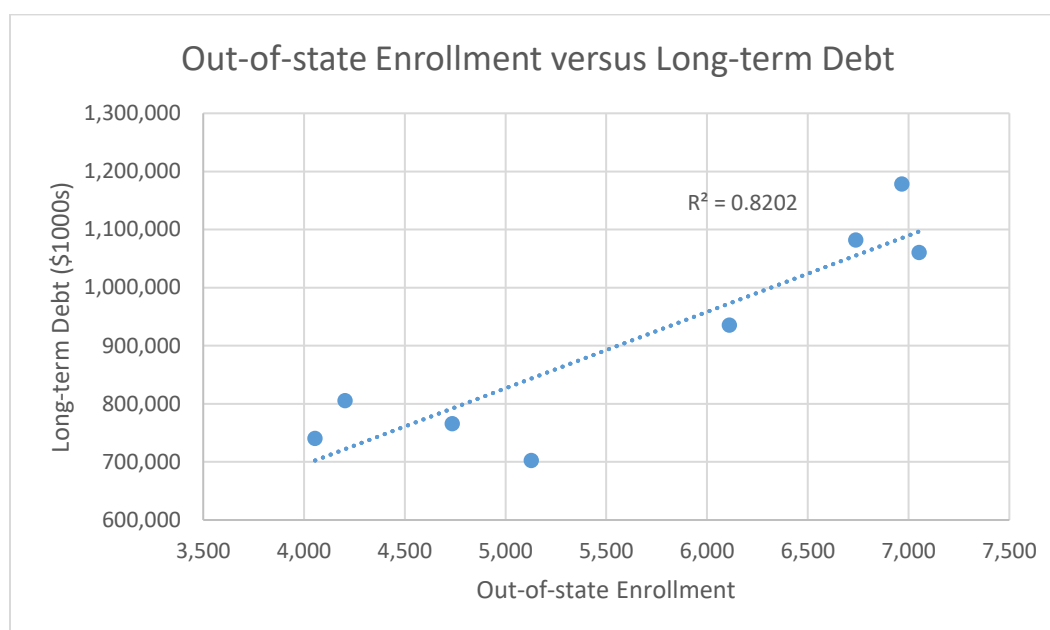


**Figure 5. University of Kentucky: Enrollment Breakdown by Residency**

<sup>41</sup> *Financial Statements and Investor Information*, (University of Kentucky).

<sup>42</sup> *Tuition and Fees at Flagship*.

Something must have prompted the University to accept a reduced number of in-state students in exchange for more out-of-state students (while the mission of most public schools is to provide an affordable education for students from the state). From the data contained in the Statement of Revenues, Expenses, and Changes in Net Positions, it appears to be a substantial increase in debt servicing payments. Although the adjusted R-squared between these two variables is only 32.4%, the adjusted R-squared between long-term debt and out-of-state enrollment is 79.0%, meaning that long-term debt can explain 79% of the variability in out-of-state enrollment (see Figure 6 below for the relationship between out-of-state enrollment and long-term debt).



**Figure 6. University of Kentucky: Out-of-state Enrollment versus Long-term Debt**

Debt levels directly influence the (long-term) interest expense (regardless of the financial structure of the bonds' yields) UK must pay, and therefore it is likely that the expectation of increasing debt service has influenced the University's admissions strategy.

Over the course of seven years, the University of Kentucky's operating loss as a percentage of operating revenue decreased from 21.4% in 2010 to 11.32% in 2017 (with a low of 6% in 2015). This 47% drop is excellent because universities must become more self-reliant as states reduce funding to their flagship state universities.

A concerning point for the University of Kentucky is that its interest expense increased by 84% while student tuition and fees only increased by 64%. Although student tuition and fees still covers interest expense by a large margin, UK likely cannot continue sacrificing state residents' admissions in exchange for increasing the admissions for non-residents. The percentage of in-state students dropped by over 11% between 2010 and 2017 to under 70%; if this ratio continues to drop, the state will provide even less money to the university and the University of Kentucky will receive public backlash for not providing for its key stakeholders.

## University of Minnesota

*All information not explicitly cited comes from the University of Minnesota Financial Statements for FY 2010-2017.<sup>43</sup>*

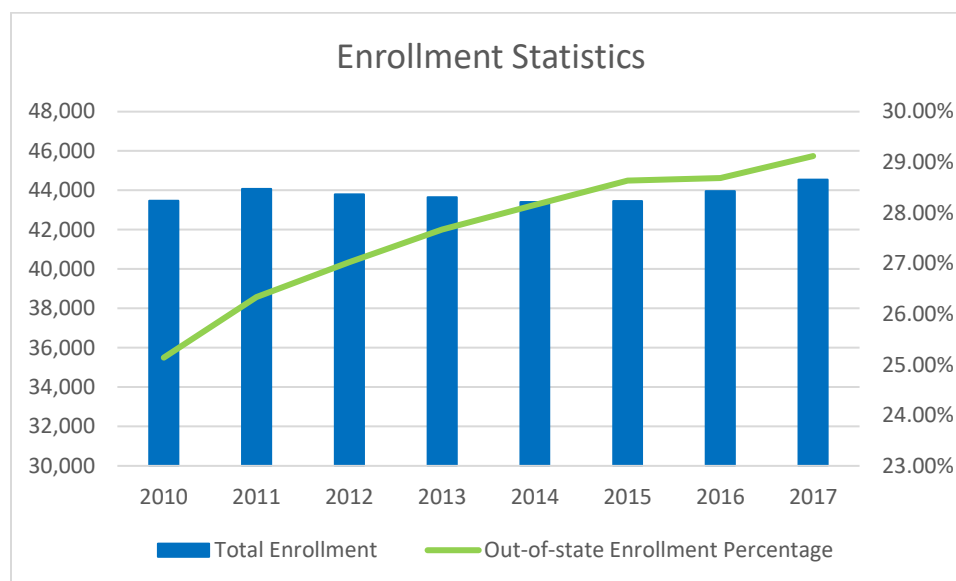
The University of Minnesota (UM) was selected because it had the seventh lowest growth of in-state tuition and the ninth lowest growth in enrollment (both for the five year period FY 2010-2015).<sup>44</sup> Barring other factors, one would assume that if tuition growth was low compared to competitors, enrollment growth would be comparatively high. University of Minnesota is an exception to this natural assumption which is why this paper analyzes its changing financial position.

Although UM experienced small changes for in-state tuition and enrollment between FY 2010 and 2015, the University had a large increase for out-of-state tuition and enrollment. While in-state tuition only rose 3.2% over the five years (in-state enrollment dropped by 4.7%), out-of-state tuition grew by 22.9% (out-of-state enrollment increased by 13.9%). The University saw an opportunity to charge out-of-state students an increasingly higher rate while maintaining enrollment growth. Unfortunately, without significantly increasing housing capacity, that meant reducing the number of state residents able to attend UM. With total enrollment increasing by a measly 0.25%, the University of Minnesota pursued revenue growth opportunities from non-residents instead of its core stakeholders. See Figure 7 below to see how enrollment remained stagnant while an increasing ratio of non-residents became enrolled in the University of Minnesota.

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<sup>43</sup> *Financial Statements*, (University of Minnesota).

<sup>44</sup> *Tuition and Fees at Flagship*



**Figure 7. University of Minnesota: Changing Enrollment Demographics**

The University of Minnesota chose an interesting approach to deal with increasing long-term debt balances and interest expenses. Between FY 2010 and 2017, long-term debt increased by 53.2% to nearly \$1.5 billion; interest expense increased by 65.5% to over \$51 million annually. Over the same period, student tuition and fees (net) increased by 34.4% to about \$775 million annually. See Table 5 to see how these different financial components changed on a per-student basis.

**Table 5. University of Minnesota: Debt Metrics per Student & Growing Student-driven Revenue**

	<u>2017</u>	<u>2010</u>	<u>% Change</u>
Interest Expense (1000s \$)	51,107	30,876	65.52%
Undergraduate Enrollment (FTE)	44,544	43,471	2.47%
<b>Interest Expense / Student (\$s)</b>	<b>\$1,147.34</b>	<b>\$710.27</b>	<b>61.54%</b>
Long-term debt (1000s \$)	1,464,976	956,364	53.18%
<b>Long-term debt / Student (\$s)</b>	<b>\$32,888.29</b>	<b>\$22,000.05</b>	<b>49.49%</b>
Student tuition and fees, net (1000s \$)	774,827	576,363	34.43%
<b>Net tuition &amp; fees / FTE Student (\$)</b>	<b>\$17,394.64</b>	<b>\$13,258.56</b>	<b>31.20%</b>

The nominal dollars are interesting because it brings the discussion closer to reality. The annual interest expense per student increased by over 60%. Long-term debt per student has also increased by nearly 50%.

These two debt figures are worrisome together because as long-term debt balances increase, so do interest payments. In the long-run, long-term debt cannot grow indefinitely without comparable growths in revenue; this seven-year period saw a much lower growth (compared to the debt growth) in operating revenues of 20.4%. The approach UM took to maintain financial proficiency was interesting because it both helped and hurt its key stakeholder: students in Minnesota hoping to attend college. It helped because in-state tuition increased by only 3.2% between 2010 and 2015, whereas it hurt because in-state enrollment actually declined by 4.7%. It is possible that tuition could not increase because demand was weaker during those years, but I believe that the near 14% increase in out-of-state enrollment shows a more strategic decision. Administration saw an opportunity to increase out-of-state tuition significantly (nearly 23%) while also admitting more out-of-state students to increase total revenue without increasing tuition paid by Minnesota residents.

The balance that a public university has to strike between performing its primary duty (educating state residents) and operating with financial efficiency is a challenging one. In the short-term, the University of Minnesota seems to have done a good job of mitigating these considerations. The new challenge facing the University is to increase operational revenues with the goal of offsetting increases in debt servicing as interest and principal payments continue to rise in the future.

## Case Study: University Comparison

This section will compare the financial qualities of each university that was analyzed in the case study analysis. Each of the factors assessed is relevant to compare how long-term debt affects the financial health of a university. The factors will all be analyzed on an individual basis for what they imply, with an overall assessment of each universities financial health being addressed at the end of the section. Each will be analyzed individually because an experiment was not conducted to control for outside variables. That being said, I will present the information in an order that the variables may build on each other and I can suggest hypotheses about how one affects another. In addition, the “rank” column of each table reflects the data in order from largest to smallest values for 2017 unless otherwise stated.

### Increasing Total Long-Term Debt

Although a university’s total long-term debt does not mean much without considering other variables, there is a clear outlier amongst these universities that starts a worthwhile discussion. The University of California has about 15x the amount of outstanding debt as each of the other universities analyzed. See Table 6 below for the comparison of each university’s long-term debt.

**Table 6. Rising Balances of Long-term Debt at Flagship Universities**

<b>Long-Term Debt (\$1000s)</b>	<b>Rank</b>	<b>2017</b>	<b>7-Year % Change</b>	<b>Average</b>
Pennsylvania State University	3	1,469,393	18.84%	1,152,798
University of California	1	19,690,203	57.08%	16,435,093
University of Arizona	2	1,548,735	35.25%	1,308,025
University of Kentucky	5	1,060,200	43.17%	908,688
University of Minnesota	4	1,464,976	53.18%	1,287,306

Each university (other than UC) has roughly \$1-1.5 billion in outstanding long-term debt. Interestingly, the University of California’s debt grew by the most of all the universities despite having the most by a significant margin in 2010. The University has received a lot of (seemingly warranted) criticism

about its debt levels in recent years. Throughout the past 7 years, the UC system has added over \$7 billion in outstanding debt, still more than four times the total outstanding debt of any other university analyzed. The debt level sparks a concern simply by comparing the University to its peers.

### **Long-Term Debt per Student (Undergraduate, FTE) Drives Increased Expenses**

To better compare the liability between universities, this paper analyzes the long-term debt per student. Unsurprisingly, the University of California still has the greatest debt burden per student, but this metric establishes a baseline for comparing the universities. See Table 7 for the long-term debt per FTE student of each university.

**Table 7. Long-term Debt per FTE Student Growth**

<b>Long-Term Debt / FTE Students</b>	<b>Rank</b>	<b>2017</b>	<b>7-Year % Change</b>	<b>Average</b>
Pennsylvania State University	4	35,984	10.07%	29,214
University of California	1	90,844	29.90%	84,335
University of Arizona	3	44,095	3.86%	43,807
University of Kentucky	2	47,168	27.32%	41,877
University of Minnesota	5	32,888	49.49%	29,384

With over \$90,000 in debt per student, the University of California nearly doubles even the second ranked university for this metric. Surprisingly, UC also increased its debt burden per student by the second most of the studied universities (behind only the University of Minnesota which had by far the least amount of debt in 2010 so a large growth rate is not surprising). On the other hand, the University of Arizona which had the second most debt per student in 2010, saw the least amount of growth by a significant margin. Keeping the ratio of long-term debt per student from growing too rapidly may be a good strategy for many administrations to consider. As noted in the Summary of Previous Literature, tuition is the easiest revenue stream for a university to increase.<sup>45</sup> If debt is increasing at a similar rate to the number of students, then in

<sup>45</sup> Ramón Serna, *Understanding the Effects of State*, 95.

most instances, (small) tuition adjustments would be a relatively easy means of mitigating the risk of rising payments related to long-term debt.

One of the primary issues of increasing long-term debt is the natural increase in interest payments that takes place. If the interest payment per student rises too quickly, a university must begin cutting other costs or increase revenue streams from non-student sources in order to manage debt servicing. See Table 8 below for a summary of each university's position regarding interest expense per student.

**Table 8. Interest Expense per Student, Developing Concern**

<b>Interest Expense (\$1000s) / Student</b>	<b>Rank</b>	<b>2017</b>	<b>7-Year % Change</b>	<b>Average</b>
Pennsylvania State University	2	1,925	210.20%	1,194
University of California	1	3,328	29.53%	3,232
University of Arizona	4	1,459	-12.69%	1,623
University of Kentucky	3	1,561	64.01%	1,295
University of Minnesota	5	1,147	61.54%	980

Unsurprisingly, the University of California has the greatest interest expense per student due to its large amount of long-term debt per student. The larger growth rates of the Pennsylvania State University, the University of Kentucky, and the University of Minnesota are what is concerning here. Each of these universities interest expense per student is increasing rapidly, particularly PSU. Such quick changes in a university's required expenditure is worrisome because most revenue sources cannot be adjusted quickly to account for the increased expense. Although PSU and UM are the only two universities analyzed to have had operating profits for a majority of the years between 2010 and 2017, if interest expenses per student continue to rise near these rates, additional revenue from students (increased enrollment or tuition) likely would not offset the expenses. The University of Arizona saw very little change in its overall interest expense between FY 2010 and 2017. It is likely that the University deferred interest payments in the short-term for increased payments as its debt gets closer to maturity. This would enable the University to invest the raised capital now without requiring a significant return before the increased debt service expenses took effect.

### Out-of-State Enrollment and Long-Term Debt per Student

Limiting the increase in outstanding debt to a rate similar to enrollment growth may be an effective means of mitigating risk, but these flagship universities seem to be increasing enrollment disproportionately between state residents and nonresidents. Figures 8 through 12 showcase this trend.

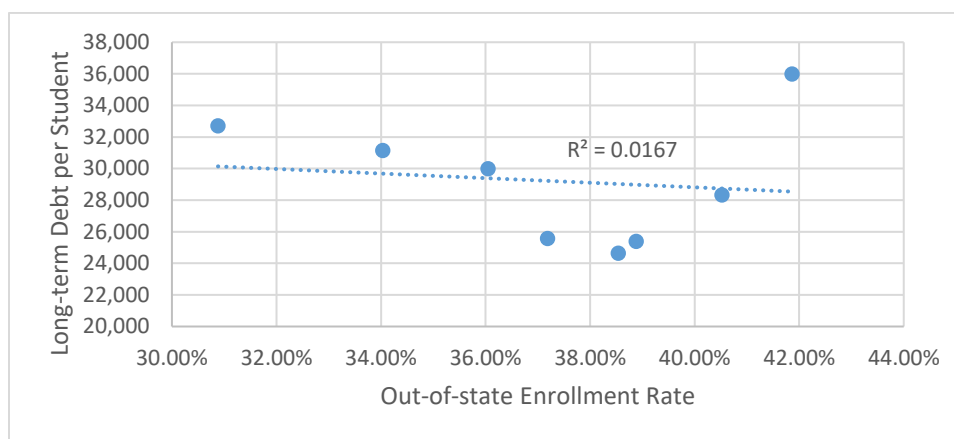


Figure 8. Pennsylvania State University: Long-term Debt per Student versus Out-of-state Enrollment

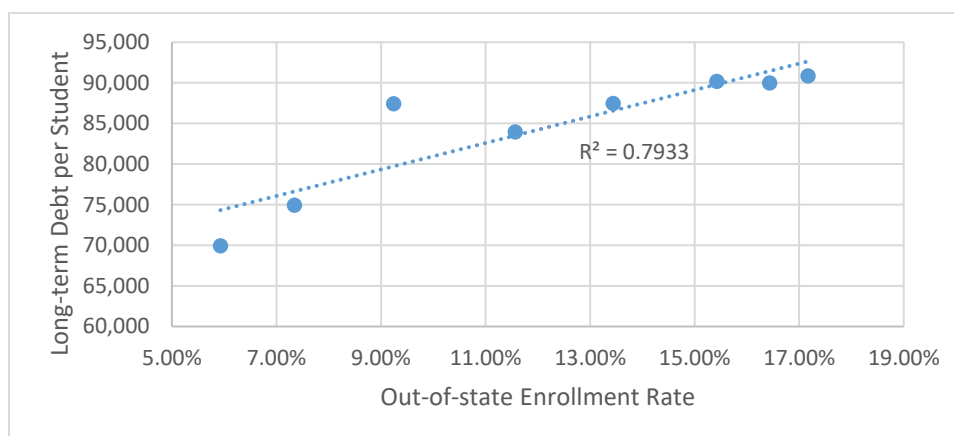
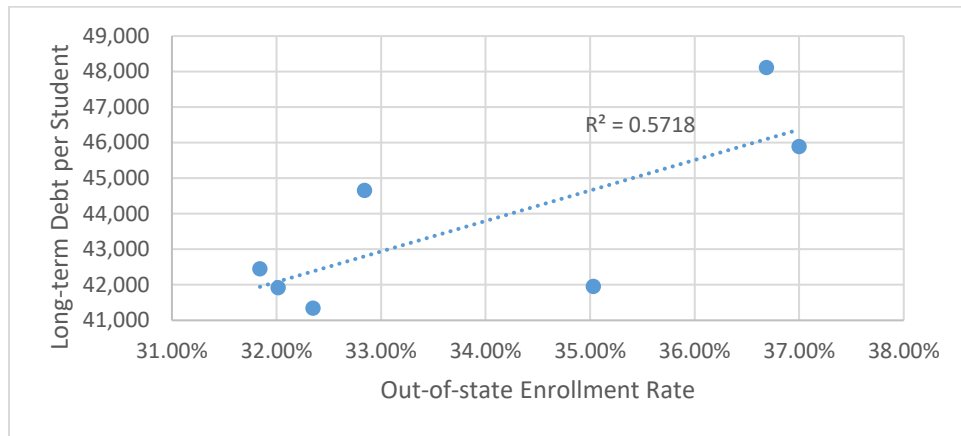
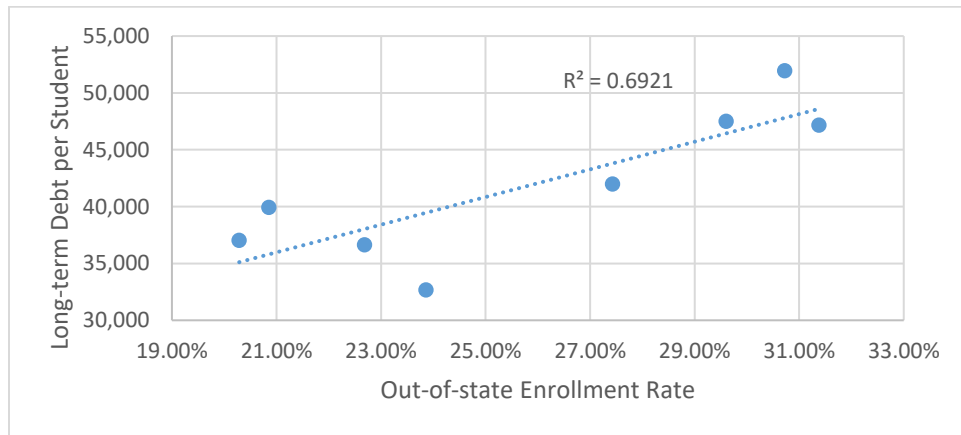


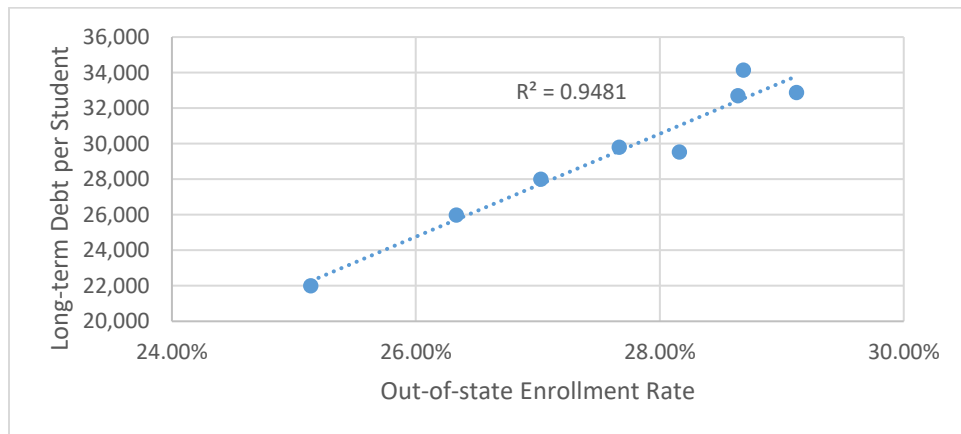
Figure 9. University of California: Long-term Debt per Student versus Out-of-state Enrollment



**Figure 10. University of Arizona: Long-term Debt per Student versus Out-of-state Enrollment**



**Figure 11. University of Kentucky: Long-term Debt per Student versus Out-of-state Enrollment**



**Figure 12. University of Minnesota: Long-term Debt per Student versus Out-of-state Enrollment**

My initial assumption would be that as long-term debt increases, the out-of-state enrollment percentage would also increase. This is because out-of-state students pay a higher tuition rate which would

help offset the increased interest and principal payments of greater outstanding debt. By analyzing Figures 8 through 12, you can see that out-of-state enrollment generally increased with long-term debt (the University of Minnesota having the greatest level of predictability). The coefficients of determination for each university show (as expected) that other factors also contribute (and are correlated with) an increase in out-of-state enrollment percentages, but long-term debt is a large indicator with four of the universities.

The Pennsylvania State University, the greatest outlier, has had strange long-term debt changes since 2010. The balance of outstanding debt actually dropped for four years before rising for the next three. This shows that at PSU there is little-to-no correlation (for this seven-year period) between out-of-state enrollment rates and long-term debt per student.

The University of Arizona, the other outlier, experienced strange enrollment trends between 2010 and 2017. While the out-of-state growth rate has exceeded the FTE undergraduate enrollment growth rate each year (only for FY 2010-2016 because enrollment by residency is unavailable for FY 2017), the rates increase in a staggered manner (typically alternating between medium and low-growth). Interestingly, UM's total long-term debt does not increase steadily or even each year; between FY 2010 and 2017, the University of Arizona had a drop in total debt twice. The University likely has a number of other factors affecting the amount of long-term debt on the balance sheet and the different levels of enrollment that cannot be determined from the condensed financial statements.

## **Analysis Implications with Related Readings**

Many of the variables analyzed in the case study portion of this paper were assessed at a high-level over a limited period of time. Additionally, control universities were not analyzed that could compare the changing balance of liabilities to a university (or universities) that did access the capital markets between 2010 and 2017 – this is partially due to a lack of accessible information regarding universities’ long-term debt across the United States; each university would require an individual analysis. These limitations cause the findings of this paper to not be entirely conclusive, but many strong relationships were noted that are worth consideration. These relationships (and single-factor analyses) often have greater implications than simply looking at values would suggest. This chapter will discuss the most important implications and address previous literature for context, perspective, and additional data points to consider in the analysis.

## **Out-of-State Enrollment Rising in States’ Flagship Universities**

Public universities in the United States receive funding from the respective states in which they operate. These funds primarily come from taxpayers (both residents and companies) and the federal government.<sup>46</sup> Funds coming from taxpayers are intended to be used by the state government to benefit state residents. Funds coming from the federal government on the other hand, are intended to be used to achieve the mission of the U.S. Department of Education (ED). The ED has a few primary missions under Public Law 96-88 of October 1979 (which established the ED). “Under this law, ED’s mission is to:

1. Strengthen the Federal commitment to assuring access to equal educational opportunity for every individual;
2. Supplement and complement the efforts of states, the local school systems and other instrumentalities of the states, the private sector, public and private nonprofit educational research institutions, community-based organizations, parents, and students to improve the quality of education;
3. Encourage the increased involvement of the public, parents, and students in Federal education programs;

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<sup>46</sup> *What Are the Sources of Revenue for State Governments?*, (Tax Policy Center).

4. Promote improvements in the quality and usefulness of education through Federally supported research, evaluation, and sharing of information;
5. Improve the coordination of Federal education programs;
6. Improve the management of Federal education activities; and
7. Increase the accountability of Federal education programs to the President, the Congress, and the public.”<sup>47</sup>

The most notable goals within this list (of those pertaining to this paper) are numbers 1 and 2. The ED is committed to ensure equal access to educational opportunity and supporting the efforts of universities to improve the quality of education. These are the obligations of the government and state universities related to enrollment, but these obligations are not being met.

A state university has an obligation to serve the taxpayers within the state that supports its funding. This includes adults whose children’s meet admissions criteria even though the tuition revenue is not as high as out-of-state students with lower SAT scores and GPAs. Despite being the university with the lowest out-of-state enrollment rate, the University of California receives a lot of public criticism on this topic. The issue is that many examples of neglecting admissions obligations (by the University) exist despite the university having low out-of-state enrollment rates. Shelly Tan’s daughter was turned down by her top three University of California (UC) choices in 2017 despite having both standardized test scores and a high school GPA above the 90<sup>th</sup> percentile.<sup>48</sup> This instance showcases perfectly what is happening at state universities across the United States. Out-of-state enrollment rates increasing is not terrible in-and-of itself; the issue arises when it is at the expense of state residents who are exchanged for an out-of-state student simply for the purpose of maximizing revenue. Recall the President Napolitano (of UC) explicitly said that out-of-state students were being admitted to increase revenue (she claimed this is necessary due to state funds decreasing which will be addressed later).<sup>49</sup> The changing enrollment demographics deals with finances, but states or universities (or both) are not meeting necessary obligations to their stakeholders.

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<sup>47</sup> *Mission*, (U.S. Department of Education).

<sup>48</sup> Teresa Watanabe, *UC Proposes Its First Enrollment Cap – 20% - on Out-of-State Students*, (Los Angeles Times).

<sup>49</sup> Stephanie Saul, *Public Colleges Chase*.

The increasing enrollment of out-of-state students is not the only admissions issue that long-term debt has impacted; selective universities are also enrolling a disproportionate number of high-pay students. Part of what is driving this issue is the lack of knowledge about selective universities and a student's degree of qualification. Low-income students whom are not surrounded by a "critical mass" of high-achieving students interested in selective universities often do not know they are qualified for excellent universities because nobody, not even teachers, mentions them. Universities are not providing necessary information to many low-income students (although it has been proven that they perform as well as high-income students) and a major issue has caused this: most universities' "finances are currently designed around enrolling a disproportionately high number of high-income students" (i.e., students who do not require financial aid).<sup>50</sup> As mentioned earlier, the Inside Higher Ed survey found that 35% of admissions directors (particularly at public universities) targeted more high-pay students. This is because the primary method to deal with financial challenges (according to over 70% of university CFOs), was to increase net tuition dollars (by either increasing out-of-state enrollment or increasing the enrollment of high-pay students).<sup>51</sup> This is a terrible trend that needs to be addressed by individual public universities (due to their obligation to serve resident stakeholders) and the U.S. Department of Education (due to its mission of "assuring access to equal educational opportunity for every individual").<sup>52</sup>

### **Changing Demands with Reduced State Appropriations**

Although this paper did not directly analyze state funding compared to long-term debt, I will refute the claim that some universities (including UC) require long-term debt to invest in projects that the state would have previously funded. In reality, higher tuition is covering (and more) the decrease in state appropriations provided to universities. Net "revenues from tuitions exceeded by 20% the funds public

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<sup>50</sup> Josh Freedman, *Why American Colleges*.

<sup>51</sup> *Ibid.*

<sup>52</sup> *Mission*, (U.S. Department of Education).

universities lost due to cut-backs in appropriations from state governments”.<sup>53</sup> Eaton and Habinek explain that public research universities have increased auxiliary services expenses by 22% whereas instructional spending increased by only 11% (for 2002-2010). Auxiliary spending tends to be for the improvement of dormitories, commons (and dining halls), and recreational centers. They believe that universities are accessing the capital markets in order to invest in projects that will incentivize additional applications and provide space for additional students with the objective of increasing total tuition dollars.<sup>54</sup> It is difficult to assess the strategic reasons for investing in the refurbishment or construction of auxiliary services at a university, but investing into these improvements requires sacrificing investment into additional research, professors, and other assets directly used to improve students’ education. Regardless, the increase in tuition revenue has more than offset the decrease in state appropriations, and the seven-year rates of change suggest that student tuition and fees will continue to rise faster than state appropriations will drop (see Appendices A through E).

Personally, I agree with the sentiment that universities investing in auxiliary services is a strategic decision intending to increase enrollment and increase revenue. One could argue that economies of scale apply to a university, meaning additional students will have a lower cost-basis per student and resulting in a more efficient education process at a larger university (barring external factors). I would contend that these investments are not future-thinking and ignore some key trends affecting the higher education industry in the United States. The standard age demographic of college students (18-24) is declining in number throughout the United States and the economy has seen massive improvement since 2009 driving students older than 24 to return to the workforce as job prospects return. These trends have caused “2.4 million fewer people [to] enroll in higher education in the academic year” ending in spring 2017 than were enrolled in fall 2011.<sup>55</sup> Although it is possible to attract students that otherwise would have attended smaller universities (ignoring the possibility that those students chose a small school due, in-part, to its size), I

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<sup>53</sup> Charlie Eaton and Jacob Habinek, *Why America's Public Universities*.

<sup>54</sup> Ibid.

<sup>55</sup> Jon Marcus, *Why Colleges Are Borrowing*.

perceive the investment as a lazy choice that follows the decision-making of other similar universities with the goal of not falling behind in statistics (or qualitative factors) students use to decide which university to attend. Students enjoy seeing new, spacious, and glamorous buildings when they visit campuses; regardless, the number of students entering public universities in the U.S. has been declining for years. Investment into educational resources that directly benefit professors, students, and the university with better learning opportunity or reduced overhead costs (such as technology allowing fewer, excellent teachers to teach larger class sizes) may be a better use of debt.

### **University Size**

This study solely analyzed flagship universities, all of which are large enterprises with tens of thousands (if not more) of students. This is a major limitation to assessing how long-term debt impacts a university and it likely proves the idea that economies of scale are a major asset in utilizing long-term debt effectively. The University of California has seen declining operating loss as a percentage of operating revenue (Appendix B) which would imply that the University is utilizing its funds efficiently to improve operations. UC experienced a 41% decline for this metric, the second largest of any university studied (UK being first), but it also had operating revenues and losses about 10 times those of UK. Howard Bunsis from Eastern Michigan University contends that larger universities borrow at lower interest rates, and their incredibly large endowments (especially when compared to small universities) often can offset the cost of borrowing. On the other hand, less wealthy schools utilizing debt for auxiliary services who do not experience the expected increase in enrollment will be hard-pressed to handle the increase in expenses without increasing tuition proportionately to the debt incurred (which would make the investment seem misguided).<sup>56</sup> Larger universities have an advantage in accessing the capital markets effectively as well as making adjustments to operating revenues and expenses to cover increased debt servicing.

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<sup>56</sup> Ibid.

## Conclusion

### Summary

In short, increasing balances of long-term debt have many effects on universities ranging from expense adjustments to altering enrollment. The most obvious and common effect that is seen across each of these universities (and all flagship universities)<sup>57</sup> is that tuition increases. This is in-part due to the decrease in funds provided by states,<sup>58</sup> but also is strongly correlated with increases in long-term debt. Students' share of educational revenues has increased well beyond the decline in state funding, and long-term debt is a strong indicator of the rise in revenue.

Four of the five universities analyzed experienced an improvement in 'operating gain (loss) as a percentage of operating revenues' (PSU being the one experiencing a decline) which contradicts many of the concerns posed in previous literature about increasing balances in long-term debt. Although three of the universities ran operating losses throughout each of the seven years (PSU and UM typically profited), the losses remained relatively constant whereas operating revenues increased. The University of Minnesota had the lowest increase (excluding PSU) at 20.4% and the University of California had the greatest increase at 62.5%. This proves that universities are capable of utilizing debt to improve financial health and operations, but it needs to be assessed for smaller universities and over a longer period of time.

Based on previous literature, I expected increasing balances of outstanding debt to cause significant hardship on universities. Although financially that was not proven through this analysis, the purpose of government-funded universities seems to be challenged in recent years. Each of the five universities experienced significant increases in both tuition and out-of-state enrollment. State universities have a

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<sup>57</sup> *Tuition and Fees at Flagship.*

<sup>58</sup> Ramón Serna, *Understanding the Effects of State*, 95.

responsibility to serve the residents of their respective states, and public universities nationally have a responsibility to act as a force for equality. Discriminating against low-income students for the sake of improved profitability directly contradicts the goal of the U.S. Department of Education to use institutions of higher education as an equalizer that can reduce the effects of factors that hinder an individual from escaping poverty.

### **Recommendations for Future Research: Shortcoming of This Analysis**

Throughout the planning and early stages of conducting analysis, the primary issue with conducting analysis was finding large data sources containing information pertaining to universities across the country. Very few sources held information for many universities, and the information available was very basic (e.g., tuition rates, enrollment, total faculty, etc.). One of the potential issues of this is that universities report information in different ways (likely in formats that their auditors recommend and understand). Considering all of this, there should be a system in place to collect financial information of universities at an aggregated level that allows analysis to be conducted across the entire higher education industry. Institutions that teach young adults are so important to the future of the world; there needs to be more centralized bodies in charge of collecting and assessing data for these institutions so that issues can be identified as they arise and before they are irreversible. Currently, universities would be hard-pressed to accept significantly more low-income students (even if only 50% of qualified students were low-income) due to their current financial structures.<sup>59</sup> This type of issue could be identified if information was more readily available to researchers interested in the health of the education industry.

Many of the findings in this paper suggest that long-term debt alone does not lead to financial issues (although other consequences were identified) for universities, but this analysis solely assessed large universities. Future analysis should be conducted on smaller universities to see how long-term debt impacts

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<sup>59</sup> Josh Freedman, *Why American Colleges Are Becoming a Force for Inequality*

financial health. Three of the universities in this study consistently ran operating losses, but endowments and additional services (such as medical centers and government-sponsored research laboratories) would yield enough revenue to cover the losses. Smaller universities likely will not have large endowments or infrastructure enabling them to offset operational losses. Private universities do not receive the same level of government support (although it is dropping for public universities), and cannot be supported by state funds when losses are taken. Without understanding how comparatively small and privatized universities operate under debt constraints, much of the supply of higher education in this nation could be endangered.

Analyzing different data sets and different universities is definitely an important step to understanding higher education as a whole, but this individual analysis could have been improved with additional time and resources. One of the interesting questions that I originally intended to answer was: “what do universities choose to spend their raised capital on, and why did they choose to spend it on that?” This is an incredibly challenging question to answer for a number of reasons. Long-term debt often increased annually instead of seeing large issuances whenever major projects were undertaken. Also, strategic plans often outline improvements universities hope to make, but often these are targeted to areas (such as social impact) that are difficult to measure through financial analysis. In order to understand the answer to this question better, conducting interviews with budgeting administrators would provide a future researcher the opportunity to identify where spending is taking place, why that was chosen, and how successful past projects turned out. Some of these areas of spending are likely not intended to improve the bottom line of a university, and this study did not consider those projects. Interviews could be the immediate next step to understand how debt is used in a strategic manner at universities.

### **Recommendations for Future Research: Separate from this Analysis**

Another unrelated area of study that should be assessed is the effect of the interest rate environment on university investments. The entire study period was after the 2008 recession, and interest rates remained

near historical lows throughout much of the analysis period. This likely could have prompted universities to issue additional debt with the hope of investing into more projects with positive return possibilities than typically possible. Many for-profit corporations take advantage of this strategy; this relationship in the higher education industry should be assessed to determine if it is successful and if it is a safe practice in an industry that cannot fail without the future of the United States being put into jeopardy.

An interesting question arose during my preliminary research that lasted throughout my analysis of these flagship universities: “why are there still separations for in-state and out-of-state tuition rates?” What prompted this thought was that different public universities have significantly better programs for certain degrees, and a lot of students are interested in getting an experience away from home during their collegiate years. The in-state versus out-of-state program makes going to a state university elsewhere much more expensive. Yes, there are great benefits to state residents if they choose to attend one of the state-funded universities in their state, but they are also punished if they want to go elsewhere. It would be interesting to research if a systematic model could be developed where more funding flows from the federal government for public universities (or states pay the federal government a portion of taxes for education purposes), and students had the ability to attend any public university in the country for a cost that was more balanced between in-state and out-of-state rates. In an age of technology where travel has become very simple (albeit expensive), students should have the opportunity to study what they want and where they want to do it at an affordable rate.

## Appendix A: Pennsylvania State University – Summary Financials

	7 Year Change	Average Annual Change	7 Year Average
<b>Enrollment (undergraduate)</b>			
State Resident	-9.18%	-3.49%	24,740
Non-state Resident	46.36%	2.00%	14,741
<b>Total</b>	<b>7.97%</b>	<b>-1.27%</b>	39,481
<b>Long-Term Debt</b>			
Total	18.84%	3.17%	1,152,798
Interest Expense	143.84%	3.96%	51,100
<b>Operating Revenues and Expenses</b>			
Student tuition and fees, net	31.97%	4.05%	1,582,612
Federal	7.65%	1.14%	472,227
State	-15.41%	-1.93%	295,469
Total Operating Revenues	39.90%	4.94%	5,080,392
Instruction	30.23%	3.88%	1,197,674
Total Operating Expenses	41.72%	5.14%	4,683,285
<b>Operating Profit</b>	<b>17.49%</b>	<b>5.24%</b>	<b>397,107</b>
<b>Operating Profit as a % of Operating Revenue-</b>	<b>-16.02%</b>	<b>0.22%</b>	<b>7.90%</b>

## Appendix B: University of California – Summary Financials

	7 Year Change	Average Annual Change	7 Year Average
<b>Enrollment (undergraduate)</b>			
State Resident	6.47%	0.91%	170,126
Non-state Resident	130.98%	12.80%	8,884
Non-resident International & unknown	370.68%	25.22%	15,020
<b>Total</b>	<b>20.92%</b>	<b>2.76%</b>	194,030
<b>Long-Term Debt</b>			
<b>Total</b>	<b>57.08%</b>	<b>4.11%</b>	<b>16,435,093</b>
Interest Expense	56.63%	6.99%	-628,283
<b>Operating Revenues and Expenses</b>			
Student tuition and fees, net	86.45%	9.40%	3,478,998
Federal	3.90%	0.60%	3,246,718
State	-15.52%	-2.14%	483,058
Total Operating Revenues	62.51%	7.20%	22,331,804
Salaries and wages	53.96%	6.37%	12,086,815
Total Operating Expenses	46.19%	5.65%	27,666,169
<b>Operating Loss</b>	<b>-4.29%</b>	<b>1.08%</b>	<b>-5,334,364</b>
<b>Operating Loss as a % of Operating Revenue</b>	<b>-41.10%</b>	<b>-5.75%</b>	<b>24.39%</b>

### Appendix C: University of Arizona – Summary Financials

	7-Year Change (Green if 6 years)	Average Annual Change	7-Year Average
<b>Enrollment (undergraduate)</b>			
State Resident	6.01%	0.99%	19,152
Non-state Resident	33.27%	4.96%	9,895
<b>Total</b>	<b>14.69%</b>	<b>2.32%</b>	<b>29,806</b>
<b>Long-Term Debt</b>			
Total	35.25%	4.64%	1,308,025
Interest Expense	13.70%	2.20%	-48,181
<b>Operating Revenues and Expenses</b>			
Student tuition and fees, net	98.35%	10.33%	485,357
Grants and contracts	29.76%	6.11%	456,642
Total Operating Revenues	50.57%	6.13%	1,207,806
Instruction and academic support	68.84%	7.96%	619,143
Student services and scholarship	26.16%	4.37%	99,214
Total Operating Expenses	33.87%	4.27%	1,681,391
<b>Operating Loss</b>	<b>-1.09%</b>	<b>0.14%</b>	<b>-473,586</b>
<b>Operating Loss as % of Operating Revenue</b>	<b>-34.31%</b>	<b>-5.14%</b>	<b>39.92%</b>

### Appendix D: University of Kentucky – Summary Financials

	7 Year Change	Average Annual Change	7 Year Average
<b>Enrollment (undergraduate)</b>			
State Resident	-3.19%	-0.45%	15,964
Non-state Resident	73.91%	8.38%	5,624
<b>Total</b>	<b>12.45%</b>	<b>1.71%</b>	<b>21,587</b>
<b>Long-Term Debt</b>			
<b>Total</b>	<b>43.17%</b>	<b>6.18%</b>	<b>908,688</b>
Interest Expense	84.43%	10.45%	28,060
<b>Operating Revenues and Expenses</b>			
Student tuition and fees, net	64.84%	7.41%	273,585
Grants and contracts	6.17%	1.48%	299,889
<b>Total Operating Revenues</b>	<b>56.61%</b>	<b>6.69%</b>	<b>2,187,778</b>
Education and general	6.81%	1.08%	1,054,237
Depreciation	48.72%	5.92%	129,271
<b>Total Operating Expenses</b>	<b>43.64%</b>	<b>5.37%</b>	<b>2,491,669</b>
<b>Operating Loss</b>	<b>-17.07%</b>	<b>4.22%</b>	<b>-303,891</b>
<b>Operating Loss as a % of Operating Revenue</b>	<b>-47.05%</b>	<b>-1.71%</b>	<b>14.52%</b>

### Appendix E: University of Minnesota – Summary Financials

	7 Year Change (Green if 6 years)	Average Annual Change	7 Year Average
<b>Enrollment (undergraduate)</b>			
State Resident	0.35%	0.05%	2013.5
Non-state Resident	15.84%	2.13%	0.275963594
<b>Total</b>	<b>2.47%</b>	<b>0.35%</b>	<b>43,794</b>
<b>Long-Term Debt</b>			
<b>Total</b>	<b>53.18%</b>	<b>6.50%</b>	<b>1,287,306</b>
Interest Expense	65.52%	7.94%	-42,912
<b>Operating Revenues and Expenses</b>			
Student tuition and fees, net	34.43%	4.38%	703,350
Grants and contracts	20.68%	2.79%	845,924
<b>Total Operating Revenues</b>	<b>20.43%</b>	<b>2.72%</b>	<b>2,077,554</b>
Instruction	22.25%	2.95%	742,913
Depreciation and amortization	23.08%	3.22%	192,889
Scholarships and fellowships	22.23%	2.97%	55,061
<b>Total Operating Expenses</b>	<b>26.47%</b>	<b>3.47%</b>	<b>3,164,217</b>
<b>Operating Loss</b>	<b>-285.02%</b>	<b>18.11%</b>	<b>135,238</b>
<b>Operating Loss as a % of Operating Revenue</b>	<b>129.87%</b>	<b>14.29%</b>	<b>6.61%</b>

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# CHRISTOPHER MCFALLS

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## EDUCATION

**The Pennsylvania State University | Schreyer Honors College**  
*Smeal College of Business | Bachelor of Science in Finance*  
Dean's List 8/8 Semesters

**University Park, PA**  
*Class of 2018*  
GPA: X.XX/4.00

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## PROFESSIONAL EXPERIENCE

**The Shidler Group | Shidler Investment Company, LLC**  
*Acquisitions Analyst*

**Kennett Square, PA**  
*May 2017 – Aug 2017*

- Analyzed investment opportunities for hotel and office properties ranging from \$30-\$400MM in value to provide property bid recommendations emphasizing price targets and acquisition risks
- Conducted sensitivity analyses by assessing supply and demand trends for hotel rooms and office space, analyzing employment drivers and potential risks, and underwriting expectations of CMBS ratings and prices
- Optimized capital structures for property refinancing by adjusting ground rent payments to balance debt service coverage, coupon price, and classes of subordination to attract additional investors, minimize cost of capital, and increase total financing of acquisitions
- Collaborated with originators and brokers to issue CMBS for a portfolio of 21 leasehold and 1 fee simple interest in select-service hotel properties, raising a total of \$204 million to increase investment frequency

**The Boeing Company | Boeing Commercial Airplanes**  
*777 Estimating and Pricing Analyst*

**Seattle, WA**  
*May 2016 – Aug 2016*

- Produced three comprehensive business case estimates and presented to senior management to provide support for strategic decision-making by highlighting areas of concern and cost drivers of major initiatives
- Presented a cost-savings plan for in-fleet airplanes that saved over \$120K in recurring costs per airplane leading to total savings of approximately \$19MM and the decision to modify a warranty agreement
- Assessed the success of fully bundled rates used for estimates by comparing past forecasts to then-year actuals and identified an allocation error that led estimates to understate costs by 15%

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## LEADERSHIP EXPERIENCE

**Alpha Kappa Psi Professional Co-Ed Business Fraternity**  
*Vice-President of Membership*

**University Park, PA**  
*Oct 2015 – Apr 2017*

- Coordinated with an executive board of seven to implement new initiatives addressing various concerns about the fraternity such as organizational structure, membership demographics, and the on-campus brand
- Managed seven chairs across three positions to optimize recruitment, new member education, and the training of inductees to augment professionalism and provide skills to positively represent the brotherhood
- Developed an improved recruit interview and member-selection process leading to increasing the amount of information collected about potential recruits and shortening the selection process by 25%
- Serving as one of two Inductee Educators for the Fall 2017 semester

**Schreyer Consulting Group**  
*Executive Board | Director of Career Development*

**University Park, PA**  
*Dec 2015 – Dec 2017*

- Arranged events with professionals from consulting firms to educate members about consulting as well as the unique recruiting process and skills necessary to succeed in the industry
- Organized workshops for interview preparation on topics including networking, case interviews, behavioral interviews, and resume-writing designed to prepare underclassmen for the recruiting process

**Lion Tutors, LLC**  
*Finance Tutor*

**University Park, PA**  
*Jan 2016 – Dec 2016*

- Instructed two-hour weekly reviews of course material, applicable examples, and student questions by providing explanations at multiple degrees of complexity to ensure all students understood the material
- Tutored three individuals during the semester by coordinating schedules and applying different styles of explanation to cater to different learning styles and background knowledge of the subject

**Wall Street Boot Camp**  
*Participant*

**University Park, PA**  
*Jan 2015 – Apr 2015*

- Selected from an applicant pool of over 300 students to participate in a 40-student training program with weekly information sessions taught by current and former Wall Street professionals

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## AWARDS & INTERESTS

- **Case Competitions:** 1<sup>st</sup> place in Smeal's Ethics in the Workplace (2016) | 2<sup>nd</sup> place in PwC Challenge (2015)
- **Interests include:** tennis, squash, podcasts, hiking, strategy games, education, leisure reading, and Philadelphia sports