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Performance Measurement Indicators and Their Impact on Historically Black Colleges and Universities

Eric Rashad Williams
Walden University

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Walden University

College of Health Sciences and Public Policy

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Walden University
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Abstract

Performance Measurement Indicators and Their Impact on Historically Black Colleges
and Universities

by

Eric R. Williams

MPA, Walden University, 2015

BA, South Carolina State University, 2013

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Policy and Administration

Walden University

August 2022

Abstract

Accrediting agencies assess higher education institutions using performance indicators that are outdated and assessed incorrectly. This research uses various quantitative methods including multiple regression to provide data to understand the financial impacts of these indicators on mission driven historically Black colleges and universities (HBCUs). The research question guiding this research examined whether academic accrediting agencies', such as the Southern Association of Colleges and Schools, performance indicators affect state funding allocations for HBCUs. Resource dependence theory recognizes leadership in organizations is influenced by adverse external environmental factors. Mission-based achievement outcomes and funding tied to inappropriate outcomes create both internal and external institutional complications. This research was limited to 11 HBCU institutions in the United States, and as such, the research findings may not be generalizable to a larger population of educational institutions. However, the research methodology may be replicated in larger studies that include funding comparisons to predominantly White institutions. Results indicated a positive relationship between performance indicators, retention, and enrollment to state funding mechanisms with considerable differences between states that use state performance-based budgets and those that do not. This research is important for positive social change by informing public policy decision makers on the social equity implications of using inappropriate performance measures and helping them formulate and/or change policies on funding HBCUs at the state and federal level.

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Dedication

“A man’s dreams and ambitions can conquer that which does not weigh him down.”

~Eric R. Williams

This work is dedicated to the love of my life, Carmen, and our three children, Rion, Rylee, and Raylon. Their love, support, and encouragement over the past 7 years knew no bounds. This is also dedicated to all my family, friends and countless colleagues who were by my side throughout this journey. I am eternally grateful for you all. This is also dedicated to the next generation of scholars. This is just the beginning! I also dedicate this to a mentor who helped me in my walk with Christ and help to push me in a direction of stability, Deacon Frank Davis. You are truly an angel sent to do the work of the Lord. I am forever indebted to you! Thank you! I further dedicate this work to my family members, co-workers and friends who are no longer with us. Your inspiration, patience and love serve to a bigger picture that we all are just puzzle pieces to. In closing, I want to take this moment to pay homage to someone who is no longer with us, but inspired me to pursue my education, the late Mr. Franklin Pinckney of Waycross, Georgia. A wonderful man of God, educator, principal, board member, deacon, friend, brother, and mentor. This dissertation is for all those long conversations about education and what it takes to ensure little brown kids can have everything the world wants to take away. Thank you for your support; Farewell dear brother and you know I will see you on the other side.

Acknowledgments

As I peer back into the deep well of information that has been my life for the last 7 years, I stand humbled, yet determined to move into the next chapter of my life. I give all thanks to the Lord almighty because the word says in 1 Corinthians 15:58 – Therefore, my beloved brethren, be ye steadfast, unmovable, always abounding in the work of the Lord, forasmuch as ye know that your labor is not in vain in the Lord. I have not been unmoved by this because when I took myself out of the way and let God guide my footsteps, he is truly my all in all. Without understanding the importance of placing the Lord first, I would still be peering into a dark tunnel not knowing if a train was to come barreling from the other side. There are a lot of people who have been near and dear to this process with me. I would be remiss if I did not acknowledge them. To my dissertation chair, Dr. Cynthia E. Lynch, I thank you for your guidance throughout this journey, and for the countless hours you sacrificed to ensure I had a quality dissertation and help me persevere as a new researcher in this field. Words cannot describe the amount of wisdom you have imparted to me and the level of grace you have shown me over. And yes, finally, IT WAS NOT A TRAIN AT THE END OF THE TUNNEL!!! To the members of my dissertation committee, Dr. Michael B. Knight, and Dr. Lydia Forsythe. You all provided such perspectives to this research, and I want to say thank you for what you have done to strengthen my research. To all my friends who found it not robbery to push me to the next level, THANK YOU!! Your prayers and thoughts are greatly appreciated!

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Chapter 1: Introduction to the Study

The purpose of this research was to examine funding equity for American Historically Black colleges and universities (HBCUs) based on the standardized performance indicators used by the national education accrediting bodies to see if these performance indicators impact HBCU's funding prospects. This research is important and timely because most HBCUs rely on funds allocated through budget appropriations from their respective state legislatures. This research focused on HBCU institutions in the southern region of the United States and state-appropriated finances that support those institutions. By looking at state appropriations for public land grant HBCUs under the accrediting body of the Southern Association of Colleges and Schools (SACS), I sought to determine if there are significant differences in funding based on each of the institutions' higher education system structure.

This chapter includes a description of the dissertation's chapters. It provides the problem statement and summarizes the size and scope of the problem. This chapter also presents the purpose of the study, the research question, the hypothesis statements, and the major variables under investigation. Resource dependence theory (RDT) was used as a framework for the research. A description of the significance of the research, along with its limitations and assumptions, are also included in this chapter. The chapter concludes with the definition of terms used in the research and a summary of the chapter.

Chapter 2 provides a synopsis of the current literature on this subject to establish the relevance of the problem. The literature shows the need for Black colleges and universities to support the advancement of those less fortunate and the underlying issue

of dwindling funds. This chapter discusses literature on land grant colleges, appropriations, state governance models, and Carnegie Classifications. The Performance Results Act of 1993 and performance measurement indicators are also discussed. Chapter 2 concludes with a summary and introduction to Chapter 3.

The third chapter of this dissertation details the research design and methodology. It identifies the population studied and sampling procedures along with independent, dependent, mediating, and moderating variables investigated. This chapter also includes a description of the data source and describes the statistical tests that were applied to the data. This chapter also provides an explanation of data cleaning and screening procedures that were needed for the study and identifies threats to internal and external validity. The final section of this chapter addresses the ethical concerns and the IRB documents.

Chapter 4 describes the methodology and statistical analysis performed on the data. Chapter 5 presents the conclusion and the application of the research findings as a force for social equity in funding HBCUs in the future.

Background of the Problem

Title III of the Higher Education Act of 1965 (1965) defined HBCUs as: any historically Black college or university that was established prior to 1964, whose principal mission was, and is, the education of Black Americans, and that is accredited by a nationally recognized accrediting agency or association determined by the Secretary of Education to be a reliable authority as to the quality of training offered or is, according to such an agency or association, making reasonable progress toward accreditation. (p. 139)

These entities serve a vital function within the network of institutions of higher education. Their unique and robust programs develop Black and less fortunate communities. The literature shows a fundamental need for Black colleges and universities, but the negligence of those with administrative dominance over these institutions has caused them to stray from their primary focus on supporting less fortunate and Black communities (Jones, 2016). HBCUs function as a bridge to other institutions such as predominately White institutions (PWIs) and are a catalyst for the matriculation and graduation of many African American students. Majority institutions sometimes do not have the capacity to reach the African American population, and HBCUs are more effective at graduating this population of students (Arroyo and Gasman, 2014; Cantey et al., 2013; Jones, 2016).

The changing composition of higher education in the United States has led HBCUs to prioritize inclusivity, thus making them social change stations for the 21st century scholar practitioner (Bracey, 2017; Cantey et al., 2013). Students develop valuable skills and personal connections at HBCUs, facilitating positive social change.

World War II had a lasting impact on public higher education. Programs such as the GI Bill for education funding and federal Pell Grants made higher education available to a vast swath of Americans who never thought attending college was possible. Advances in higher education attainment, in turn, led to a burgeoning middle class from the 1950s to the 1980s (Simmons, 2014). Many states greatly expanded their land-grant institutions, created entirely new “public” universities, or added new campuses to existing ones to serve the growing population of students taking advantage of affordable

education (Bracey, 2017). However, funding for public higher education sharply declined in the 1990s for many reasons, including reduced federal appropriations for higher education, changing federal funding instrumentation (i.e., moving from grants-in-aid for specific programs to state block grants), and increased demands on state budget appropriations such as unfunded federal mandates, Medicare and Medicaid, and infrastructure repair (Arnett, 2015).

Coincidentally, the 1990s were the watershed moment that introduced the performance measurement movement. Acts such as the Government Performance Results Act of 1993 produced new performance-based budgeting, which I link to program funding in Chapter 2. However, as happens with many well-intended innovations, the performance measurement movement had unintended consequences. For example, treating citizens as customers for more than 25 years eroded the responsibilities long associated with citizenship, such as participating in elections, while encouraging behaviors such as voicing dissatisfaction. According to the United States Election Project (2016), only 59.7% of eligible voters cast their ballots in presidential elections of 2016.

For years, higher education has been disadvantaged by the demands of the education accrediting agencies' performance indicators. These indicators are often incorrect and poorly structured, resulting in continuously decreasing state funding (Montgomery and Montgomery, 2012). The indicators need to be assessed regularly, and new information should be shared with those in positions of power to offer a different perspective to legislative decision-makers.

Statement of the Problem

Performance measurement is predicated on outcomes or effectiveness indicators. But outcome indicators are often hard to articulate in human subject research, take a long time to show results, and are difficult to operationalize for data collection. Few in public administration have the skills and competencies needed to develop appropriate indicators. Even fewer in higher levels of agency or institution administration have the political will to implement the appropriate indicators. And, finally, most politicians (decision-makers) do not have the educational background or experience needed to understand the data put before them to make rational decisions based on the evidence rather than on their political ideology. As a result, education accrediting bodies' performance indicators, education legislation, whether new or dated, and state and federal government funding levels (Cantey et al., 2013; Coupet, 2017; Jones, 2016) negatively affect institutions of higher education, especially HBCUs.

This study explored how higher education in general, but specifically HBCUs, have been affected by the accrediting performance indicators over the last 10 years. Some researchers argue that higher education institutions are being forced to fulfill education accrediting agencies' incorrect and outdated performance indicators (Montgomery and Montgomery, 2012). Public higher education has fallen victim to systemic defunding by both state and federal government budget appropriations due to these suspect performance indicators (Cantey et al., 2013). However, performance measurement indicators, when attached to a sound outcomes-based budget, can transform both the performance and the culture of an organization (Kline, 2019). These positions are not as

divergent as they appear. The key to using performance measurement indicators is to develop the correct indicators.

The seven national accrediting boards confuse process and output indicators for outcome indicators, which defeats the usefulness of the indicators. For example, “maintaining enrollment,” although an easy metric to obtain from every university registrar’s collected data, is a process indicator, not an outcome, and “graduation rates,” although easy to count, is an output measure (Boland and Gasman, 2014; Hillman and Corral, 2017; Jones, 2016; Montgomery and Montgomery, 2012; Ryan, 2004). Outcome measures are the mid-to-long term effects on the target population served by the mission statement of the institution (Lynch et al., 2017).

Purpose of the Study

The purpose of this research was to address this problem by providing data to public policy decision makers on the implications of using inappropriate performance indicators for funding higher education and to formulate and/or change policies on funding levels at institutions of higher education, especially HBCUs at the state and possibly the federal level. Information from the Integrated Postsecondary Education Data System (IPEDS) provided the selected institutional variables. The variables selected for this study were retention rates (independent), enrollment (mediating), and state appropriations (dependent) (Sav, 2010). Furthermore, the purpose of this study was to show the importance of constant review of indicators that affect an institution’s ability to secure funding through state and federal appropriations.

Research Question

This research is guided by the research question: Do academic accrediting agencies, such as the SACS's performance indicators, affect state funding allocations for HBCUs?

I hypothesized that performance indicators have an influence on funding appropriations. The null hypothesis is that there is no relationship between performance indicators and funding decisions. The alternate hypothesis is that there is a relationship between performance indicators and funding decisions. These hypotheses and variables were tested and measured to see if there is a statistically significant relationship through a correlational design that employs a bivariate analysis and multiple regressions.

Theoretical Framework

Resource dependence theory (RDT) was the framework for this research. This theory is used to describe how the behavior of leadership in organizations is influenced when adverse external environmental factors are introduced. Hillman et al. (2009) described RDT as environmental dependencies and explored operations and structures that may be affected by available resources. Johnson (1995) described RDT as those critical resources an organization needs to survive. Financial resources are the lifeblood of public institutions of higher education. Without the proper performance indicators to accurately capture mission-based student learning outcomes, tying education funding to inappropriate outcomes risks fostering both internal and external complications for these institutions.

Coupet (2013) argued that government resource dependence serves as a diminishing factor to the integrity of HBCUs due to the prolonged dependence on these

governmental structures to provide appropriations to land-grant institutions that fall victim to diversified revenue streams by way of their administrative frameworks (p. 355). Other authors (Fowles, 2014; Hillman et al., 2009; Johnson, 1995; Jones, 2016) articulated a connection between RDT as a theory and specific indicators that are assessed at higher education institutions, especially HBCUs, and the financial impact of those indicators when assessed. Essentially, these researchers found that there was a connection between the funding mechanism and the survival of these institutions to shift their focus to other sources of income, all the while governmental entities still have a significant authoritative stronghold on their sustainability as educational institutions. The theoretical framework is discussed in greater detail in Chapter 2.

Nature of the Study

This study used a quantitative approach. A purposive sample of HBCUs was pulled for this dissertation. Data for this research came from secondary data found in the IPEDS. This data set offered an enormous amount of information that was logged and coded into the appropriate variables for this research. The Statistical Package for the Social Sciences (SPSS) 26 was used to test the stated hypotheses. The convenience and accessibility of information and its readiness to be used in the statistical software made this data set an excellent source for this study. Retention rates (independent), enrollment (mediating), and state appropriated funding (dependent) were the variables of choice for this research. A correlational design provided rationality to the variables and offered results that indicated if there is a statistical significance when tested.

Operational Definitions

Educational policies, procedures, and practices: Published, implemented, and disseminated academic policies that adhere to principles of good educational practice and that accurately represent the programs and services of the institution (SASCOC, 2018, p. 91).

Enrollment: The annual full time enrolled (FTE) enrollment and headcount of unduplicated enrolled students is captured at each qualifying institution (Brown and Burnette, 2014; Wright-Kim et al., 2022).

Historically Black college and university (HBCU): Title III of the Higher Education Act of 1965 (1965) defines a historically Black college or university (HBCU) as:

any historically Black college or university that was established prior to 1964, whose principal mission was, and is, the education of Black Americans, and that is accredited by a nationally recognized accrediting agency or association determined by the Secretary of Education to be a reliable authority as to the quality of training offered or is, according to such an agency or association, making reasonable progress toward accreditation. (p. 139)

Institutional planning and effectiveness: The engagement of ongoing, comprehensive, and integrated research-based planning and evaluation processes that (a) focus on institutional quality and effectiveness and (b) incorporate a systemic review of institutional goals and outcomes consistent with its mission (SASCOC, 2018, p. 56)

Integrated Postsecondary Education Data System (IPEDS): A system of interrelated surveys conducted annually by the United States Department of Education's National Center for Education Statistics (NCES). IPEDS gathers information from all college, university, and technical and vocational institutions that participate in federal student financial aid programs.

Missing value: A number (or blank) in a cell in an SPSS data sheet that represents a missing response is called a system missing value; such values are excluded from computations.

Mission: The education of Black Americans; an open access and advancement of Black Americans, and a unique development for Black Americans socially and economically regarding less fortunate communities.

Public land-grant institution: An institution of higher education that was established through Congress and the state legislature as a result to the passing of the Morrill Acts of 1862 and 1890 (Association of Public and Land-grant Universities, 2019).

Retention rates: Rates that are determined by the percent of first-time degree seeking students who are enrolled at the beginning of one academic year and remain enrolled in the fall of the next academic year (Brown and Burnette, 2014; Serkan and Serkan, 2021).

Southern Association for Colleges and Schools (SACS): The regional body for the accreditation of degree-granting higher education institutions in the Southern states. It serves as the common denominator of shared values and practices among institutions in Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South

Carolina, Tennessee, Texas, Virginia, and Latin America and other international sites approved by the SACSCOC Board of Trustees that award associate, baccalaureate, master's, or doctoral degrees. The Commission also accepts applications from other international institutions of higher education.

State appropriations: A subset of funds that are derived from higher education agencies in states or the state legislatures responsible for allocating resources to institutions.

Statistical Package for the Social Sciences (SPSS): According to Warner (2013), SPSS is the statistical software package platform that offers advanced statistical analysis through text analysis and algorithms.

Student achievement: Student achievement identifies, evaluates, and publishes goals and outcomes for student achievement appropriate to the institution's mission (SASCOC, 2018, p. 64).

Assumptions

At the outset of this research, it was assumed that there would be sufficient access to the IPEDS, and that the data would be complete for each institution in the sample. Individual information from each institution would be selected, charted, and input in a statistical software that would manipulate this data for this study. It was understood that students have little to no formal training of nonparametric statistics; however, Warner (2013) suggested different approaches to the data surrounding nonparametric statistics.

Scope and Delimitations

There was an established boundary for the sample selected for this study due to the large population size of educational institutions listed in IPEDS. This is a purposive sample to reduce the sample size of institutions to a more manageable. However, Warner (2013) addressed the statistical analyses that offers insight on the data being assessed. Chapter 3 provides a detailed explanation of the total population to the sampling method used for this research.

Other theories in the field, such as critical race theory and organizational theory, were considered. While these theories are applicable to this topic, I chose RDT because its application to this subject remains underexplored. The findings may only be generalizable to the total population of HBCUs because other non-HBCU institutions do not meet the sample criteria for size in enrollment, having a stronger financial position, and being able to withstand legislative scrutiny. However, future research will be able to assess the statistical significance of those HBCU institutions that were not studied, and furthermore, the generalizability of those institutions was beyond the scope of this research.

Limitations

This research was limited to public HBCU institutions in the SACS-accrediting region of the United States, and as such, research findings can be generalized to a larger population of educational institutions.

No challenges were encountered using the IPEDS secondary data, as it is freely available to use. No unexpected permissions or agreement terms were needed. The

research process proceeded on time. Finally, sufficient data were available from the legislative bodies. If this topic is pursued by other researchers, interviews of staffers may contribute to understanding how legislators render decisions on appropriations for HBCUs.

While analysis results may be challenged, statistical significance between the several, independent/exploratory variables and the dependent variables were measured. This analysis resulted in value added to the variables assessed affecting educational funding. Care was taken to prevent potential biases that could result from errors caused by incorrect inputting of information in the data collection system, IPEDS.

Significance of the Study

Since 1993, performance measurement has been the accepted method of budget appropriations for the federal government as well as a great percentage of state budgets. It is the method used to award grants and evaluate programs in both government and nonprofits. Yet, more than 25 years later, it has become clear that performance indicators can do more harm than good when used incorrectly. This research is significant in that it shows the effectiveness of the execution of performance indicators and models the correct way to develop and use this powerful decision-making tool. The results of this study impact the awareness of how performance indicators are used for the accreditation of institutions of higher education.

HBCUs' higher education structure provide culturally significant value and a historical perspective for their students. In the current socio-political climate in the United States, HBCUs are more relevant than ever. By using HBCUs to demonstrate

healthy performance indicators, this research provides a positive alternative for funding and governance of these institutions. For example, governance models, as outlined by Minor (2004), linked decisions that are rendered to how the governance of the institution works. Finally, this research investigates how limited state level public funding resources are allocated to minority institutions of higher education and how performance indicators effect their mission-based results that are oriented for greater social change.

Summary of Chapter 1

The public higher education system in the United States benefits the American way of life by providing affordable access to education. Coupet (2013) stated the purpose of land-grant institutions is to provide an accessible opportunity for African American students by keeping tuition affordable. This research theorizes that the current economic issues confronting these institutions are due to misused indicators by accrediting agencies and they cause financial harm for HBCUs.

The literature reviewed in Chapter 2 offers additional insights into how institutions can lose control of their internal institutional governance through key administrative decisions, revisits performance indicators for their appropriateness, and examines policymakers' decision-making processes.

Chapter 2: Literature Review

Introduction

The impacts of performance measurement indicators on funding and how these indicators affect decision-makers in positions of legislative power is a highly researched topic. Higher education refers to secondary education in America, and its origins can be traced to 1636 when Harvard College opened as the primary education institution to prepare men for the clergy. Over time, higher education expanded to offer a vast variety of degree and professional training selections to create optimal employment for those entering the workforce upon graduation. For students to remain competitive in their chosen professions, their education and exposure to knowledge must be consistent across all educational institutions and their degree must be backed or guaranteed by a reputable accrediting body/agency.

This literature review included scholarly articles from the 1970s, mid to late 90s, and the 2000s to present. This chapter is a thorough review of the literature on the relevant topics for this research including RDT, land grant colleges, appropriations, state governance models, and Carnegie classifications. This chapter also includes performance measures, national statistics information and data sources, and a concise summary of how this research fills a gap in the current literature.

Resource Dependence Theory

The theory of choice for this study was RDT. Johnson (1995) suggested implementing “adaptive strategies” that foster organizational action and the association with political activity as a buffer strategy.

From the exchange perspective, an individual's behavior becomes externally controlled when others in that person's environment have power over him/her and make requests for behavior based on situations of asymmetric dependence. In relationships, such as this, the less powerful actor will often pursue activities which seek to minimize the effects of the power differential (Johnson, 1995, p. 2). Furthermore, the important concepts provide the foundation on which the resource dependence framework has been constructed. Although developed primarily at the individual level of analysis, the logic and rationale associated with each have been used by resource dependence theorists to explain behavior at the organizational level (Johnson, 1995, p. 3).

Other researchers supported Johnson's original position of the critical nature and assessment of this theory (Bennett and Law, 2020; Fowles, 2014; Hillman et al., 2009; Jones, 2016; Schmidt, 2020). For example, Schmidt (2020) argued that RDT offered an "alternative lens or instrument" through which the behaviors of public institutions could be assessed and explained. The theory suggested that the survival of an organization to produce operational funding for higher education institutions depended on the availability of external resources and evaluative instruments (Aparicio et al., 2021; Bennett and Law, 2020; Fowles, 2014; Johnson, 1995; Schmidt, 2020). Pfeffer and Salancik (2003) argued that understanding the organization's sole reliance on the external environment showed the need for policy makers to prioritize the demands of the stakeholders who provide the resources to the organization expounding from prior research of the late seventies. The internal dynamics of organizational behavior were not focused on because the external

environment is the ultimate focus of survival (Birdsall, 2018; Coupet and McWilliams, 2017; Hillman et al., 2009; Johnson, 1995; Zerquera and Ziskin, 2020).

Through this lens, the extent to which this theory uncovers the impacts of revenue and expenditures for public higher education institutions, especially HBCUs, leaves much to be discovered (Favero and Rutherford, 2020; Jones, 2016). Favero and Rutherford (2020), provided an understanding of the need for the theory to expound on the research finding that HBCUs received far less funding than predominantly White institutions (PWIs).

The general revenue of universities is heavily reliant on net tuition fees (tuition minus financial aid; Fowles, 2014; Wright-Kim et al., 2022). Increased dependency on tuition led many HBCUs to shift their focus to other student demographics, which leaves the mission of the institution in a vulnerable state because the institution is no longer focused on students of a lower socio-economic status or the ethnicity as an African American (Favero and Rutherford, 2020; Jones, 2016). Researchers such as Bennet and Law (2020), Coupet (2017), Fowles (2014), Hillman et al. (2009), Jones (2016), Rey and Powell (2015), Scott (2018), and Wright-Kim et al. (2022) applied this theory using variables such as graduation rates, degree attainment, and even job placement.

In this context, RDT provided a unique perspective that focused on institutional action through the scope of the institution's environment in its effort to procure essential resources from the environment (Bennett and Law, 2021; Rey and Powell, 2015). The RDT suggested that institutions are reliant on funds that are derived from sources other than tuition from students. Coupet (2017) expounded upon the notion that universities

would need to find ways to mitigate their sole dependence on government resources.

Thus, the research question for this study examined the external environment in RDT for external operational funding from state budget appropriations:

Do academic accrediting agencies, such as the Southern Association of Colleges and Schools' (SACS) performance indicators, affect state funding allocations for HBCUs?

Questioning funding dependencies sheds light on power imbalances that show how revenue providers exercise their institutional power over the dependent organization (Coupet, 2017). Wright-Kim et al., (2022) argued that HBCUs have fallen victim to limited resources and the inability to have a net effect on state or federal revenue resources. Institutions were left to increase their dependence on tuition dollars as a source of unencumbered income that can be used at the discretion of the university (Coupet, 2018; Fowles, 2014). Net price per institution is a metric that all colleges and universities look at to ensure payment is collected after financial aid and other aid is awarded.

Development of Land Grant Colleges

Various events such as the Hatch Act of 1887 and Morrill Acts of 1862 and 1890 were intended to support the nation's economy. They created and funded land-grant institutions in all 50 states and the District of Columbia to conduct agricultural experiment programs. However, they also contributed to the molding of public HBCUs (Coupet, 2013, 2017; Scott, 2018). According to Main et al. (2019), the end of the Civil War in 1865 necessitated the existence of these institutions, not just for the educational advancement of African Americans but also to economically contribute to the

reconstruction of the south and to support prosperity in the country. The climate of the new republic was focused on generating revenue for the country and providing access to for opportunity for the newly freed slaves by way of a federal mandate (Coupet, 2013, 2017; Minor, 2004; Scott, 2018).

The belief was that land created potential wealth to the country. The Morrill Act (1861) provided every state and territory 30,000 acres per member of Congress of federal land to sell and raise funds to establish and support colleges dedicated to teaching practical skills like agriculture, military science, and engineering (Main et al., 2019). Even though the country's plan to sell the land was an unsuccessful, the land was used to generate equality for all men. Minimal amounts of revenue were generated, but legislators and policymakers upheld the *ideal* of land use, thus creating land grant colleges. The creation of land grant colleges was rationalized as the use of land for public profit (Key, 1996; Main et al., 2019).

At the time the land-grant colleges were created, most African Americans were not able to fast-track into the workforce unless they were educated and had a sense of stability. Most states viewed the granting of land for the creation of educational institutions as a pocket of untapped wealth that would assist in stabilizing the economy. With stabilizing the economy, most states sought to create similar agriculture-based institutions that African Americans could attend (Main et al., 2019; Ryan, 2004). For example, Louisiana developed two land-grant educational institutions: Louisiana State University (1853), for predominantly White students and Southern University and A and M College (1890) for persons of color. Southern University grew to become the only

university to have its own historically Black university system with campuses in Baton Rouge, New Orleans, and Shreveport and an independent Law School located in Baton Rouge.

Mission of HBCUs

The development of HBCUs was largely due to the changing attitude of investing in education as a financial investment for the state (Coupet, 2013; Miller et al., 2021). HBCUs make a unique and vital contribution to not only American society, but also to the United States economy (Boland and Gasman, 2014; Favero and Rutherford, 2020; Jones, 2016; Miller et al., 2021). HBCUs changed the landscape of higher education and represented the birth of a higher education system for African Americans (Coupet, 2013; 2017; Miller et al., 2021). The most important aspect of HBCUs is their mission to provide affordable higher education to public constituents. While this is a noble endeavor, it proved to be a big challenge to public universities for African Americans with rising costs of tuition fees, and higher administrative costs (Coupet, 2013, 2017; Miller et al., 2021; Ruppert, 1994). Ensuring costs remain affordable (Crawford, 2017; Mitchell, 2013; Scott, 2018), and students receive a quality education must remain the focus of their missions while also focusing on the funding component (Favero and Rutherford, 2020; Jones, 2016; Miller et al., 2021; Minor, 2004; Rey and Powell, 2015).

HBCUs exist to provide opportunity and advancement to a disadvantaged population who would not be able to receive a quality education at other higher education systems (Cantey et al., 2013; Coupet, 2013, 2017; Miller et al., 2021; Scott, 2018). In recent years, HBCUs have found themselves having to readjust their missions and even

though stakeholders are opposed to these changes, raising questions about whether the new mission and image changes the culture and history of these institutions.

Jones (2016) stated that a mission of serving the students least likely to access higher education is skewed by the performance outcomes of the institution, which in turn limits the resources and the funding structure (Favero and Rutherford, 2020; Miller et al., 2021). Research has shown where HBCUs were the last to receive funding necessary to recruit, retain, and graduate students of color because of competing desired outcomes of legislative decision-makers (Arroyo and Gasman, 2014; Coupet, 2013; Fowles, 2014; Schmidt, 2020).

Policy Creation for Higher Education

As previously mentioned, with the creation of land grant colleges from the Morrill Act of 1862 and 1890, policymakers and legislative officials were able to aid African Americans to obtain a quality education not previously afforded to them (Bracey, 2017; Coupet, 2013; 2017). There are currently 107 HBCUs in the United States including public, private, 2-year and 4-year institutions, medical schools, law schools, technical, and community colleges. Federal funding for HBCUs is less than 3% of all the funds allocated to higher education annually. Funds allocated to HBCUs under Title III, Part B, strengthen historically black colleges, university programs, and are funneled through the US Department of Education (IPEDS, 2019).

Through the political process, lawmakers assert “operational control” over institutions of higher education, which could influence the use of funds (Coupet, 2017).

The gravity of this means funds can be diverted away from an institution and negatively impact the efficiency of the organization (Key, 1996; Miller et al., 2020).

The policy creation process emphasized the historical context of the policymakers' deliberations. In some instances, the community or external factors played a significant role in the motivation of the mechanics of land grant institutions and tend to broaden the scope of the response of higher education in the African American community (Key, 1996; Scott, 2018). The Higher Education Act of 1965 was pivotal legislation that strengthened educational resources (Fester et al., 2012) and introduced Pell grants for students through a reauthorization of the Act in 1972 (Boland and Gasman, 2014; Coupet, 2017; Ruppert, 1994; Wright-Kim et al., 2022). Researchers have sought meaningful ways to affect the behavior of decision-makers and their counterparts to align with the preferences of the public while promoting the need for HBCUs in the 21st century (Arroyo and Gasman, 2014; Main et al., 2019).

Accreditation Bodies

Colleges and universities in the United States are accredited through seven private, nongovernmental organizations that were created on the 1800s specifically to review higher education institutions and programs (Fester et al., 2012). The role of the accreditation bodies/agencies is to serve as the supervisory body overseeing institutions that provide students with degrees (Cantey et al., 2013). Other countries use their governmental bodies as overarching supervisory committees. The purpose of accreditation was to create a set of standards for all institutions of higher learning to be held to and encourage schools to be the best they can be (Birdsall, 2018; Rutherford and

Rabovsky, 2014;). Further, accreditation aims to ensure accountability of schools and degree programs to boost public trust and confidence (Crawford, 2017). Federal and state funds, but most importantly, student loans and grants, are conditioned on the educational institution being “accredited” by one of these accrediting organizations.

With the passing of the Government Performance and Results Act (1993), the use of performance measurement predicated on measurable outcomes for effectiveness became widespread (Lynch et al., 2017). However, often these measures miss the mark for what they are intended to measure, are hard to decipher, or are difficult to operationalize for data collection. More importantly, few administrators in higher education have the skillset or competencies to implement appropriate indicators, which has led to a shift in accrediting performance indicators specifically at HBCUs over the last ten years (Sav, 2010). Andrews et al. (2016) posited that accrediting agencies’ performance indicators were often incorrect and outdated, and result in systemic loss of funding from state and federal government budget appropriations.

Southern Association of Colleges and Schools Commission on Colleges
The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) is one of seven regional accrediting member organizations in the United States in the Council for Higher Education Accreditation (CHEA, 2020). It is a private, nonprofit, voluntary organization founded in 1895 in Atlanta Georgia. The association, (also known as SACS) is autonomous in governing themselves through a delegate assembly. Its mission is to improve the effectiveness of institutions through the enhancement of quality education by ensuring that standards are established and met to

address the needs of society and students attending those educational institutions (SASCOC, 2018). It serves as the common denominator for schools in states in the southern regions that award associate, baccalaureate, master's, or doctoral degrees. Some of the key indicators for school performance used by SACS are 1) the mission statement is appropriate to higher education, 2) there are sufficient resources for programs, 3) services to sustain and further accomplish the mission are provided, 4) educational objectives are clearly specified and consistent with the mission, and 5) there is evidence indicating the objectives are achieved successfully.

These indicators are applied to the inputs, processes, outputs, and outcomes indicators (Mati, 2018). Indicators are developed and can be amended and approved through a peer-review process by other institutions within the association. Essentially the accreditation process acknowledges the institution's commitment to the mission of enhancing quality of education through assessment and improving the governing structure that supports total growth and development of the institution and students. The performance indicators are applied to each member institution. This process is representative, responsive, and appropriate for all associated institutions and requires commitment and engagement from each institution (SASCOC, 2018).

However, it is often noted that national accrediting boards defeat the usefulness of the measures by confusing process and output indicators for outcome measures (Favero and Rutherford, 2020; Ortagus et al., 2020; Ruppert, 1994; Sav, 2010). One example was the "maintaining enrollment" outcome indicator. You could obtain this information from the registrar's office on any university campus however, this data outlines the process and

not the outcome. The same is articulated for “graduation rates.” Albeit this is an easy measure to count, but it is also an output measure (Birdsall. 2018 Boland and Gasman, 2014; Hillman and Corral, 2017; Miller et al., 2021; Montgomery and Montgomery, 2012; Ryan, 2004). As discussed earlier, the clear understanding of the intended outcomes is missed when you view just these indicators. You would need to look beyond this data to other indicators. SACS pay particular attention to the areas of enrollment (Brown and Burnette, 2014; Ruppert, 1994; Ryan, 2004; Wright-Kim et al., 2022), retention rates (Brown and Burnette, 2014; Coupet, 2018; IPEDS, 2019; Serkan and Serkan, 2021), and graduation completion rates (Hillman and Corral, 2017; IPEDS, 2019; Miller et al, 2021; Montgomery and Montgomery, 2012; Ryan, 2004; Wright-Kim et al., 2022).

Appropriations

State Appropriations

According to (Fowles, 2014; Schmidt, 2020) research explained the decline in state support due to economic downturns such as the great recession of the late 2000s or adoptions of expenditure limits that create “crowd-outs” by higher priority programs or initiatives. Higher education appropriations were often the first line of spending that is cut or eliminated in discretionary spending (Fowles, 2014; Schmidt, 2020).

Unfortunately, there was a paucity of literature and data that can help policy makers understand the mechanisms that need to be put in place for funding higher education institutions (Fowles, 2014; Schmidt, 2020). While state funding has fluctuated, institutions’ resilience has helped them rebound and stay above water (Hillman et al.,

2014; Tandberg and Laderman, 2018). Understanding the funding inequalities showed how each state operates (Coupet; 2017; Mutakabbir and Parker, 2021).

Federal Appropriations and Other Allocated Resources

Federal funding for higher education has a limited role in the overall fiscal stability of an individual institution. The federal Department of Education usually funnels funding to the states and the states distribute it (Coupet, 2017; Mutakabbir and Parker, 2021). Other federal resources that make up the pool of resources for institutions of higher learning funding go directly to individual institutions in the form of grants such as the Service Learning Grants the Obama administration offered in 2008-2012 and 2017.

Federal funding also comes in the form of loans and grants to individual students. Although it is understood that institutions of higher learning are funded by various entities other than just state appropriations and student tuition, they are beyond the scope of this study, but could be a focus for other researchers to fill in the gap in the literature (Coupet, 2017; Delaney and Hemenway, 2021).

State Governance Models

Colleges and universities subsidize public higher education costs in many ways. There is significant research on states that have adopted performance-based funding models or have had such models and discontinued them (Hillman et al., 2014; Miller et al., 2021). For the sample of institutions in this study, 6 states use two and four-year performance funding (Florida, Kentucky, Louisiana, Mississippi, Tennessee, and Virginia.); 2 states use performance funding for two-year colleges and universities (North Carolina and Texas); and the remaining 3 states have no performance funding models in

place Alabama, Georgia, and South Carolina) (Birdsall, 2018; Boland and Gasman, 2014; Hillman and Corral, 2017; Hillman et al., 2014; Hillman et al., 2015; Jones, 2016; Miller et al., 2021).

Policymakers who are increasingly better educated and understand program evaluation and policy analysis, shifted the responsibilities from the federal to state levels of government through performance measures (Coupet, 2017). While no specific performance indicators are established, there is a generic accepted set of indicators that state and federal entities review to understand if education institutions are functioning in the best manner (Ryan, 2004; Wright-Kim et al., 2022).

While this is intended to create an opportunity to make improvements in reporting and identify the cause of any change in the results that are being reported, there is a difference between functioning effectively or functioning efficiently. In the field of education, it is always better to err on the side of effectiveness. An institution can always look for better efficiencies once they know their programs are effective for fulfilling this mission.

Indicators can become outdated and need to be revisited for efficiency purposes (Coupet, 2017; Ruppert, 1994). There is always a possibility of misinterpretation and misuse of data that could encourage negative funding decisions; however, the use of verified performance indicators can usually mitigate the problem (Ryan, 2004; Sarrico, 2022). Many researchers argued that performance measures provide a greater accountability and help stimulate a high quality of public service to policymakers in their need to justify government programs and fund higher education institutions (Birdsall,

2018; Brown and Burnette, 2014; Favero and Rutherford, 2020; Fester et al., 2012; Huisman and Stensaker, 2022; Jones, 2016; Minor, 2004; Ortagus et al, 2020; Tandberg and Hillman, 2014). Performance measurement is mission driven, evidenced based, results oriented, outcome and customer focused (Favero and Rutherford, 2020; Hillman and Corral, 2017; Huisman and Stensaker, 2022; Jones, 2016; Miller et al., 2021; Montgomery and Montgomery, 2012; Osborne and Gabler, 1993; Ruppert, 1994). The literature showed that there are two forms of performance funding issued over the past 30 to 40 years; performance 1.0 and 2.0 funding models (Birdsall, 2018; Dougherty and Reddy, 2013; Ortagus et al., 2020; Ruppert, 1994; Rutherford and Rabovsky, 2014). Recently, a newly developed performance 3.0 has been implemented.

Carnegie Classification

The Carnegie Classifications was an identifiable framework that categorized the structure and level of education offered by the higher education entity. This system assisted higher education research efforts to classify institutions -- not rank them by quality (Carnegie Classification of Institutions of Higher Education, 2020). The Carnegie Classifications is an important organizing tool for this research. Each institution is given a classification based on a set of parameters. There are six classifications: Basic Classification, Undergraduate Instructional Program, Graduate Instructional Program, Enrollment Profile of Institutions, Undergraduate Profile, and Size and Setting (Carnegie Classification of Institutions of Higher Education, 2020; IPEDS, 2019).

Each classification is designed to show the framework of each classification and its unique function. Carnegie Classification of Institutions of Higher Education (2020)

and IPEDS (2019) both classify educational institutions in in the United States in a “consistent structure” It is based on the information that is reported by each institution. (Carnegie Classification of Institutions of Higher Education, 2020).

Performance Results Act of 1993

The 1990s fostered and cultivated a movement that was affectionately known as the performance measurement movement (Favero and Rutherford, 2020; Ortagus et al, 2020; Ruppert, 1994). The Government Performance Results Act of 1993 (GPRA), required program results to be linked specifically to performance-based budgeting (Clark, 2013). Budget appropriations were soon required to receive any public funds (Favero and Rutherford, 2020; Hillman et al., 2014; Ortagus et al., 2020). Inspired by the Reinventing Government (REGO) movement, then-President Bill Clinton instituted the National Performance Review (NPR). This initiative was led by then Vice-President Al Gore. The first NPR report, described federal, state, and local governments that were “not simply broke, but broken” (National Performance Review, 1993).

Treating citizens as customers encouraged a consistent check on the quality and assurance that the REGO initiative was performing at optimal levels. Over the next decade, the adoption of performance indicators to measure program delivery ultimately affected federal programs, including higher education, all state programs and nonprofit organization receiving federal grants (Van de Walle and Bouckaert, 2003; Wright-Kim et al., 2022). The intent was to make government more transparent and accountable to the citizen-customer with long-term goals achieved by agencies over an extended period (Favero and Rutherford, 2020; Ortagus et al, 2020; Ruppert, 1994). It shifted focus from

program outputs (events and activities) to program achieved outcomes (the long-term effects on the population served by the program's objectives and mission to quantitatively measure efficiency and effectiveness) (Favero and Rutherford, 2020; Hillman et al., 2014; Montgomery and Montgomery, 2012; Ortagus et al, 2020).

Osborne and Gabler (1993) respectfully coined a unique slogan introduced earlier in the study of "mission driven- results oriented". The Performance Results Act of 1993 birthed indicators to evaluate performance that the accreditation agencies embraced and applied to test educational institutions' effectiveness (Martin and Sauvageot, 2011; Rutherford and Rabovsky, 2014; Ruppert, 1994). The passing of the 2010 Modernization of the Government Performance Results Act (MGPPRA) now requires strategic plans to accompany the performance budget.

As mentioned, the mission of the institution should drive the indicators that it collects data on and provides to policy makers for funding (Birdsall, 2018; Brown and Burnette, 2014; Huisman and Stensaker, 2022; Montgomery and Montgomery, 2012; Rutherford and Rabovsky, 2014; Ruppert, 1994). The use of indicators was to make funding decisions make sense to policy makers and attach their decisions to metrics (Huisman and Ryan, 2004). Funding distribution policies are put in place to bring rational, and objective decision-making, show progress toward mission fulfillment, and incentivize progress in specific areas (Montgomery and Montgomery, 2012; Tandberg and Hillman, 2014; Ryan, 2004).

Institutional characteristics are focused on Title III funding efforts in implementing policy at the federal and state level (Favero and Rutherford, 2020;

Montgomery and Montgomery, 2012; Ortagus et al., 2020; Ryan, 2004). However, the current literature suggests that performance funding has not been significantly implemented by states for budget appropriations (Dougherty and Reddy, 2011; Favero and Rutherford, 2020; Hillman and Corral, 2017; Ortagus et al., 2020; Ryan, 2004; Zerquera and Ziskin, 2020).

Performance Measurement Indicators

Some researchers believe that higher education institutions are forced to fulfill the education accrediting agencies' performance indicators (Huisman and Stensaker, 2022; Montgomery and Montgomery, 2012; Star et. al, 2016). These indicators, often “incorrect” and “outdated” thus led to ineffective rulings from policymakers on state funding allocations (Mati, 2018; Montgomery and Montgomery, 2012; Sarrico, 2022). Public higher education is victim to systemic defunding of budget appropriations at the state and federal government levels due to the use of suspect performance indicators used by the accrediting institutions (Cantey et al., 2013; Scott, 2018). However, good performance indicators, attached to outcomes-based budgets, can transform an organization based both on performance and culture (Kline, 2019; Rey and Powell, 2015; Scott, 2018).

Outcome measures as stated by Lynch, et al., (2017), are the mid-to-long term effects on the target population served by the mission statement of the institution. Star (2016) assessment:

Assessment which speaks on how performance-based data can be converted and applied as “actionable” performance-based knowledge. This enables users to

comprehend, manage, and expand upon what is measured. With this knowledge accessible to the public, you know the intent of the agencies, they identify their resources, and periodically report their progress (p.5).

Favero and Rutherford (2020), tested basic indicators that aligned specific states and focused on the indicators that institutions use consistently while others vary from one state to another. Rates were researched of graduation and how this variable affects the overall population served by the institution (Coupet, 2018; Ruppert, 1994; Ryan, 2004). Ryan (2004) tested several models to refine the test to determine if institutions are functioning adequately to accomplish progress toward its mission fulfillment.

The key to using performance measurement indicators is in developing the correct indicators and actioning them at the appropriate time. Using new “accountability” structures, many states’ find themselves part of a new movement to report indicators of performance and achieve completion of the associated policy goals (Birdsall, 2018; Favero and Rutherford, 2020; Hillman et al, 2014; Ortagus et al., 2020; Tandberg and Hillman, 2014). Having the ability to show improvement using objective indicators enhances an institution’s chances in competing for more appropriations (Boland and Gasman, 2014; Lingo et al., 2021; Minor, 2004; Ortagus et al., 2020).

National Center of Education Statistics

The National Center for Education Statistics (NCES) is the primary federal entity that collects and analyzes data related to education in the United States and other nations (U.S. Department of Education, (2019). NCES under the United States Department of Education and the Institute of Education Sciences. NCES fulfilled a Congressional

mandate to collect, collate, analyze, and report complete statistics on the condition of American education; conduct and publish reports; and review and report on education activities internationally (Boland and Gasman, 2014; de Brey et al., 2021; Fowles, 2014; Lingo et al., 2021; Montgomery and Montgomery, 2012; Ryan, 2004, Sav, 2010).

Integrated Postsecondary Education Data System

The Integrated Postsecondary Education Data System (IPEDS) collects data from all primary providers of postsecondary education and are established as the core postsecondary education data collection program for NCES (IPEDS, 2019). The IPEDS system is a series of interrelated surveys that collects annual institution-level data in areas such as enrollments, program completions, faculty, staff, finances, and academic libraries (U.S. Department of Education, 2019).

IPEDS data are released and made publicly available on a preliminary, provisional, and final basis. The IPEDS data provided an analysis of funds appropriations for each institution, instances of funding measures that work empirically, and revealed rigid funding rules that hinder institutions' allocations (Kim et al, 2019; Sav, 2010). This data system allows researchers to select specific variables for each selected institution and levels of government funding (Favero and Rutherford, 2020; Rutherford and Rabovsky, 2014). Because of the longevity, depth, and breadth of the IPEDS data set, research articulates disparities between funding of PWIs and HBCUs (Ryan, 2004). Purposive sampling and nonrandom matching based on designated characteristic comparison variables such as higher education data reporting on financial aid, student access, outcome data, enrollment, program completion, faculty information, student

information, and institutional financial data can prove useful (Boland and Gasman, 2014; Montgomery and Montgomery 2012; Wright-Kim et al., 2022) to analyze the socioeconomic factors of graduation rates.

Fowles (2014) researched how the characteristics of the institution are captured over a specific time. Other researchers captured institutional data for two-year and four-year institutions (Coupet, 2013; Coupet, 2017; Fowles, 2014; Hillman and Corral, 2017; Kim et al., 2019; Miller et al., 2021; Ryan, 2004; Sav, 2010; Schmidt, 2020).

Understanding the trends of funding equity implications (Jones; 2016), the performance funding designs (Ruppert, 1994) and implementations of these models vary in a wide range of performance indicators; including mission differentiated policy goals that affect outcomes based on enrollment at HBCUs with changes in state appropriations across the country (Hillman and Corral, 2017). HBCUs facing unexpected problems due to decline in enrollment and the introduction of new, costly programs through accountability and assessment measures along with the decline in state and federal funding (Montgomery and Montgomery, 2012) leads to the augmentation of the institutions mission to service a demographic. Several of these studies serve in other capacities as it relates to specific indicators under investigation in this research.

Favero and Rutherford, (2020) and Miller et al., (2021) argued missions being targeted and under scrutiny due to dwindling enrollment numbers and graduation rates being affected by faulty state funding policies and argues that policy exploration is critical to institutions that differentiate in enrollment goals and funding sources that have attached to financial incentives to desired outcomes such as increased diversity and

graduation rates (Coupet, 2013; 2017; Crawford, 2017; Hillman et al., 2014, 2015; Kim et al, 2019; Miller et al., 2021; Schmidt, 2020; Wright-Kim et al., 2022).

Summary of Chapter 2

Chapter 2 was instrumental in breaking down of the major themes that are associated with this study. The literature associated with RDT, land-grant colleges, appropriations, state governance models, and Carnegie classifications were discussed in detail. This chapter also includes performance measures, national statistics information, and a concise summary of the information above. All literature reviewed here was associated with and has a distinctive tie-in to the performance measures and the performance indicators associated with funding at the state and/or federal level. Specific indicators already researched on this topic are categorized and used to illustrate the remaining important variables that were discussed in chapter 3-methodology.

There is still a gap in the literature associated with specific performance indicators used by the accrediting bodies. Many authors argued that there is not enough information on the subject matter. The performance that this research focuses on in chapter 3 is retention rates. This will add to the body of knowledge and fill a recognized gap in the literature. Most of the scholarly research focuses on other variables and used this as a mediating variable and not a primary independent variable.

Chapter 3 of this dissertation is the methodology. It discusses the sampling method and the various variables under investigation and how these variables are used to present data at the appropriate time. This section includes a description of each variable, an explanation of the data source, and a description of the independent, mediating, and

dependent variables. Furthermore, this section describes the statistical techniques to be applied to the data. Chapter 3 focuses on the design that was chosen, and the methods used to examine the connection of specific indicators and if there is a statistical significance and impact on the sample population to fill the appropriate gap in the literature.

Chapter 3: Research Method

Introduction

The impacts of state funding (performance-based funding or non-performance-based funding) for higher education were determined by analyzing the change in performance measurement indicators at 4-year, public, land-grant HBCUs. The purpose of this research is to address the implications inappropriate performance indicators (required and used by accrediting agencies) have on how policy decision makers render funding decisions and the affects those decisions have on these institutions.

It is believed that inappropriate use of performance indicators for funding higher education institutions, especially HBCUs, leads to the formulation and/or changes in policies on funding levels at the state and possibly the federal level (Sav, 2010). This study demonstrates the importance of continuous review of indicators that can and do affect an institutions' ability to secure funding through state and/or federal appropriations. The sections of this chapter include the research design and rationale; methodology; data collection procedures; operationalization of constructs; data analysis; threats to validity; and the summary.

Research Design and Rationale

Independent Variable

According to Warner (2013), the independent variable is the variable projected to cause the predicated relationship or change between two related variables. Since the purpose of this research is to determine if performance indicators effect funding decisions, specific performance indicators were identified as the independent variables.

This study concentrated on identifying how current performance indicators selected impact funding decisions for HBCUs.

Retention rates served as the independent variable. If there is a high retention rate, most decision makers would look at this as a positive trend for the institution. A lower retention rate would trigger decision makers to reassess an institution and make decisions based on the information provided to them and the decisions ultimately might not be beneficial to the institution. Warner (2013) suggested the use of additional variables to support the main variable to bring clarity to the analysis of a complex concept.

Dependent Variable

According to Warner (2013), the dependent variable is the variable that the action is applied to and is changed due to the action. As discussed in the previous paragraph, the purpose of this research is to determine if funding was affected by the independent variable, retention rates. For this study, funding served as the dependent variable. Funding was collected by reviewing the state appropriations for each state sampled and the corresponding HBCU. To further explain the dependent variable, state appropriations was the selected indicator for funding allocations.

Mediating Variable

Enrollment was a mediating/moderating variable that assisted the independent variable, retention rate. As these indicators are required by all the accrediting bodies, they are used consistently by every institution in the sample, the data for them were collected and uploaded to IPEDS. Each state was assessed according to the governing, coordinating boards, agencies, or the state legislatures (Ruppert, 1994). The independent and

mediating variables were categorized under a main heading of student achievement in the SACS manual.

Methodology

Population

The target population, described in Chapter 1, is 4-year, public, land-grant HBCUs in the southern region of the United States under the direct supervision of the Southern Association of Colleges and Schools (SACS). The approximate target population size was discussed, and the sampling procedures were detailed below.

Sampling and Sampling Procedures

To identify a sample size of this nature, the satisficing (or purposive) method was used to determine a final sample population of 11 institutions for this study (Brown, 2004). According to Brown (2004), the satisficing method is a decision-making strategy that aims for an adequate result rather than an ideal outcome. The sample for this research was higher education institutions in the Southern region of the United States that satisfied the following criteria:

1. HBCUs with a student population ranging from 1,000-15,000 students.
2. Complete data spanning 10 academic years from 2010-2019.
3. Limited to 4-year academic programs.
4. Located in the SACS region.
5. Public, land-grant institution, and
6. Fully accredited by SACS with no pending infractions.

Using the criteria above, an aggressive exclusion strategy was implemented on the IPEDS data set to eliminate all institutions not meeting all the criteria, resulting in a sample of eleven institutions. As previously mentioned, the IPEDS was used for this study. Each year, all higher education institutions report institutional data to the NCES, which provided the institutional data for a purposive sample of universities (Sav, 2010). This database includes university profiles on critical variables such as: graduation, retention rates, enrollment numbers, and total operating budget including state appropriations, etc. (Ginder et al., 2019).

Information that was logged in IPEDS was available for immediate use in the form of excel sheets, charts, graphs, and other executable forms of statistical figures. Data from IPEDS were collected for this research in three stages (1. Fall, 2. Winter, and 3. Spring). The data were reviewed and validated in three release stages: 1. Preliminary Data, 2. Provisional Data, and 3. Final (Revised) Data. The IPEDS data log showed there were 6,642 institutions (public and private) and 73 administrative offices comprised of PWIs, HBCUs, and other institutions that were 2 and 4-year colleges and Universities (National Center for Education Statistics, 2019).

This study specifically focused on HBCUs in the United States therefore public and private PWIs and administrative offices were excluded. This reduced the sample size from 6,715 educational institutions total to 101 HBCUs. However, this sample included public and private institutions as well as two and four-year HBCUs located in the United States. As this study focused on budget allocations from state legislatures, private HBCU institutions were excluded. Two-year HBCUs were also excluded, as this study is

interested only 4-year institutions, reducing the number of institutions to be in the sample to 19 designated institutions. The final elimination criterion of only HBCU institutions in states accredited by SACS identified eleven institutions in the following states: Alabama (Alabama A and M University), Florida (Florida A and M University), Georgia (Fort Valley State University), Kentucky (Kentucky State University), Louisiana (Southern University and A and M College at Baton Rouge), Mississippi (Alcorn State University), North Carolina (North Carolina A and T State University), South Carolina (South Carolina State University), Tennessee (Tennessee State University), Texas (Prairie View A and M University), and Virginia (Virginia State University). Eleven HBCUs met all the selection criteria and were selected and tested. The criterion selection function within IPEDS narrowed the selected search of institutions and pulled data for the selected institutions. IPEDS provided detailed levels of appropriations data including state and federal budgets, bequests, gifts, or any other specified monetary donation awarded to each participating institution. However, in this study, only state appropriations would be used for the sample.

Correlational research design was most useful for this study. The variables that were selected for the study were quantitative, ordinal, and used either Pearson's r or Spearman r as the appropriate bivariate analyses for this study. The collected data were measured and analyzed in statistical software to see if there was a statistically significant relationship between the dependent and independent variables and the mediating variables to answer the research question: Do academic accrediting agencies, such as the

Southern Association of Colleges and Schools' (SACS), performance indicators affect state funding allocations for HBCUs?

A longitudinal study of 10 years from 2010 to 2019 was analyzed in SPSS to see if there is a predictive trend in the data. This research design is consistent with other research in the field of assessment at colleges and universities in the United States that use statistical analysis to determine if there is an impact on the dependent variable by the independent variable (Boland and Gasman, 2014; Jones, 2016; Ruppert, 1994; Ryan, 2004; Sav, 2010). The resulting sample size of 11 institutions allowed a nonparametric analysis of the data.

Warner (2013) addressed the effect of a small sample size and statistical power: There is no agreed-on standard about an absolute minimum sample size required in the use of parametric statistics. The suggested guideline states: Consider nonparametric tests when N is less than 20, and definitely use when N is less than 10 per group. Whether the method used to make predictions and compare means across groups is Median, Wilcoxon Rank Sum Test, Friedman One-Way ANOVA by ranks, or Spearman r , one of these tests can analyze for a very small n . If $N < 20$ per group and especially $N < 10$, nonparametric analysis may be more appropriate. (p. 24)

A nonparametric analysis was appropriate for this study because the number of institutions in the sample is fewer than 20. A Spearman r , according to Warner (2013), captures significant association between ranks, which is usually indicated by interpreting the data presented and ranking the information. Once the information was

ranked, it was assessed to see if there was a monotonic relationship between the independent variable and the dependent variable. A monotonic relationship between the two variables would show (1) if the value of one variable increases, then the other variable increases and (2) if the value of one variable decreases, then the other variable also decreases.

Data Collection Procedures

Permission was sought through Walden's Institutional Review Board. Data collection procedures were conducted electronically by downloading the data from IPEDS with permission from the NCES. This is considered secondary data as it was not obtained directly from each educational institution. Performance measurement data are listed as student's achievement metric in the SACS manual; however, it was captured as aggregated data and percentages in IPEDS. Data were captured for a period of 10 years from 2010 to 2019 for each 4-year, public, land-grant institution included in the sample for the study. Data were saved in excel file format until they were ready to be uploaded into SPSS at the appropriate time.

The IPEDS data were retrieved from the internet. As stated above, the data in IPEDS were collected in three stages. The IPEDS provides the institutional data for the purposive sample of eleven universities in this research. Reliability of the study is assessed by the information examined from IPEDS and the validity of those data in IPEDS is assessed by the NCES. As discussed earlier, there were several nonparametric tests to analyze data presented including: Median, Wilcoxon Rank Sum Test, Friedman One-Way ANOVA by ranks, or Spearman r (Warner, 2013). However, most of the

nonparametric tests listed here could not be used to provide analysis for this study due to the very small number of cases that meet the sample criteria in this study. Most parametric tests require an N of more than 20 cases (Warner, 2013). Warner (2013) suggested the Spearman r nonparametric tests is the most useful statistic for this sample size.

Performance based funding (PBF) was assigned to two categories, PBF states and non-PBF states. PBF is the basis by which state legislatures apply performance indicators to allocate resources to their higher education institutions or higher education agencies. States that use PBF include Florida, Kentucky, Louisiana, Mississippi, North Carolina, Tennessee, Texas, and Virginia. Non-PBF states include Alabama, Georgia, and South Carolina. States that hold all their 2 and 4-year; colleges and universities accountable for performance-based funding metrics are Florida, Kentucky, Louisiana, Mississippi, Tennessee, and Virginia.

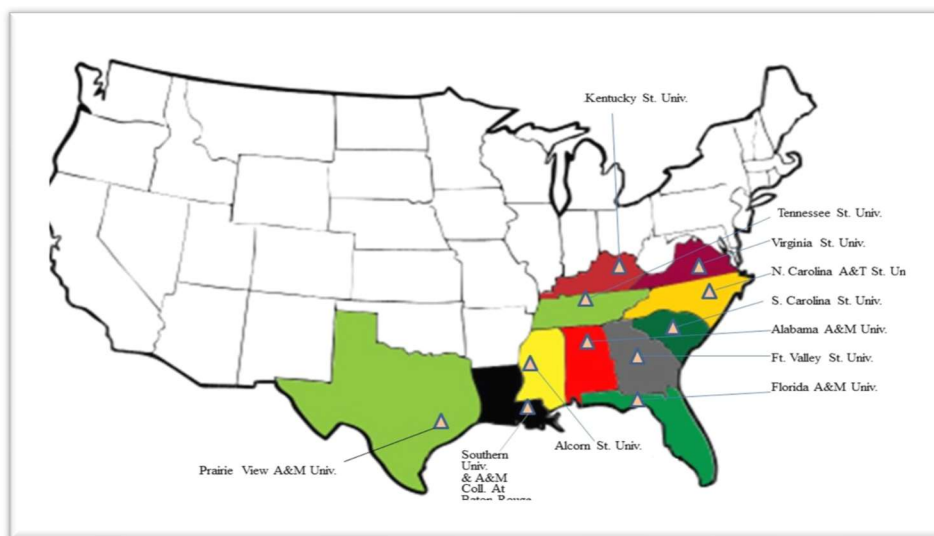
Although North Carolina and Texas were PBF states, they only applied performance-based funding metrics to two-year community colleges. Therefore, for the purpose of this study, North Carolina and Texas were categorized non-PBF states along with Alabama, Georgia, and South Carolina. Whether PBF was used for funding allocation was not the primary concern for this study. However, knowing if using PBF produces more consistency in state budget allocations could prove to be very beneficial for the development of good performance indicators in the future. Once the analysis was

executed in Chapter 4, the trends for the two categories are represented in graph format.

Figure 1 showed the location of each 4-year, public, land-grant institution.

Figure 1

Location of 4-Year, Public, Land-Grant Institutions



Source: Alfred, A. (2016). *The impact of shifting funding levels on the institutional effectiveness of historically Black colleges and universities* [Doctoral dissertation, Florida Atlantic University]. ProQuest Dissertations Publishing.

Operationalization

The longitudinal span of data for 10 years, the simplistic analysis of performance measurement indicators, and the use of states with or without performance-based funding, defined the uniqueness of the variable selection and the scope of study outlined earlier. The data set provides the possibility to assess the independent variable, retention rates, for each of the 11 institutions and further determines if there was a statistical

significance of change over time related to the dependent variable, state appropriated funding for each institution. The dependent variable listed for this study is funding.

Specifically, the focus was on the rate of state appropriated funding changes with the application of the independent variable, student retention rates. An additional mediating variable, enrollment, showed if there are significant changes in retention rates, whether they increased or decreased over the 10-year time span. Increases or decreases in enrollment would produce a positive or negative effect on the retention rate.

Retention Rates

Retention rates were determined by the percent of first-time, degree seeking students who enrolled at the beginning of the academic year and remain enrolled in the fall of the next academic year (Brown and Burnette, 2014; Serkan and Serkan, 2021). This information is reported to IPEDS for full-time and part-time student cohorts for all educational institutions. This information was pulled and assessed from IPEDS, so an accurate representation of student information could be categorized (IPEDS, 2019).

Enrollment

Enrollment was the annual Full Time Enrolled (FTE) headcount of unduplicated enrolled students captured at each qualifying institution (Brown and Burnette, 2014). Data collected from institutions were entered into IPEDS where it was accessed to select the specify the years of interest for each institution (IPEDS, 2019).

State Appropriations

State budget appropriation funding was operationalized as funds higher education agencies received from the state or the state legislature. State budget allocation

committees were responsible for allocating resources to institutions based on their approved policy or budget outlines for the fiscal year. This study analyzed data obtained from the IPEDS concerning funding.

Data Analysis

Data analysis for this study, was done using SPSS version 26.0 statistical software package. This was the primary statistical software used to analyze and perform a bivariate analysis. As discussed previously, the IPEDS data source interrelated surveys conducted annually by the United States Department's National Center for Education Statistics (NCES). Annual data spanning ten years (2010-2019) were captured from IPEDS for the independent variable retention rates; the mediating variable enrollment; and dependent variable state appropriations would be selected for 4-year, public, land-grant institutions for the 11 states. Before the analysis process began, all data were checked thoroughly to ensure the information transferred correctly from the IPEDS excel documents into SPSS.

While the limited sample size is insufficient to generalize to the total population of public universities or even to the larger set of public HBCUs, it can serve as sufficient evidence for further study. This study provides opportunities for other researchers to expand beyond the scope of this work and the associated research question.

The data was used in a correlational design to assess the effect of two performance indicators (retention rates) and (enrollment) on funding (state appropriations) in each state for a period of 10 years. Further analysis was done to determine if there is a significant positive or negative change over the ten-year period. As stated in Chapter 1, this design is guided by the research question: Do academic

accrediting agencies, such as the Southern Association of Colleges and Schools' (SACS) performance indicators affect state funding allocations for HBCU's?

Hypothesis

H₀: There is no relationship between performance indicators and funding decisions.

H₁: There is a relationship between performance indicators and funding decisions.

A clear understanding of the sample population was assessed through descriptive statistical analyses. Measures of central tendency (means, medians, and other percentiles) and dispersion (standard deviations, ranges) were computed to test the sample to obtain a clear understanding its relationship to the population (Warner, 2013). The strength and direction of the relationship between retention rates and state appropriations was conducted through bivariate correlational analysis. Enrollment, the mediating variable, was used to showcase the number of students at each university in the sample and how the retention rate was affected at each sampled institution. The relationship between retention rates and state appropriations based on the states that use the PBF model and those do not, was also tested.

As previously discussed, the dataset included all 4-year, public, land-grant institutions with a Carnegie classification of size and setting based on enrollment with data from multiple years for each institution. These data had both quantitative and time-series components.

Threats to Validity

Reliability and Validity

Although the data for this study were obtained from a reliable source, the integrated postsecondary education database system, it is secondary data, and some reliability factors were addressed. Running a simple log of variables on the sample institutions showed that all data was listed for each institution. This reinforced existing relationships and characterized the sample and not the population. According to Warner (2013), nonparametric statistics outliers normally have little impact on the results. External validity assesses the nature of the data to be generalized back to the total population. Generalizability argues how the research can be broadly applied beyond the scope of the study, not only to the total population, but possibly to another subset of institutions that follow similar sampling criteria.

The wholeness of the information obtained from IPEDS played a crucial role for internal validity of the statistical analysis of the data. First, the data was obtained from an authorized site for the specified years 2010-2019; second the IPEDS data were retrieved for each 4-year, public, land-grant institution that falls within the SACS accreditation district; and, lastly, it is always the responsibility of the of each institution submitting their data, to verify the information that was submitted, which assisted with the validity of the dataset. As noted, there were no threats to the construct or statistical conclusion validity.

Summary of Chapter 3

Chapter 3 discussed in detail, the study's design, and rationale; methodology; the population; procedures for use of archival data; data collection procedures; instrumentation and operationalization of constructs; data analysis; hypothesis, and threats to validity. As stated, this study employed a correlational design to test the significance of the independent and dependent variables. Chapter 4 will provide a detailed analysis of the descriptive statistics for this research for academic years 2010—2019 and the findings of the research design described in this chapter. Furthermore, chapter 4 will provide inquiry if additional analysis is needed for a more robust study.

Chapter 4: Results

Introduction

The purpose of this study was to examine funding equity for American HBCUs based on the standardized performance indicators used by the national education accrediting bodies to see if their performance indicators impact HBCU's funding prospects.

RQ: Do academic accrediting agencies, such as the Southern Association of Colleges and Schools' (SACS) performance indicators affect state funding allocations for HBCUs?"

H_0 : There was no relationship between performance indicators and funding decisions.

H_1 : There was a relationship between performance indicators and funding decisions.

This chapter described the data collection procedure and addresses any discrepancies in the data, for example, how missing data were handled. It also included a discussion on how representative the sample was of the total population of HBCU and detailed descriptive statistics for the unit of analysis. The descriptive statistics described the characteristics of the sample HBCU institutions and the individual variables that affect them. The final items in this chapter were hypothesis testing I using cumulative percentages to describe the data collected and hypothesis testing II using a correlational design implementing a bi-variate analysis to control for other contextual variables. In addition to the test for association, an analysis of the relationship between the dependent

variable state appropriations and multiple independent variables were conducted using simple and multiple regressions. The chapter ends with a summary.

Data Collection

The data for this dissertation were secondary data collected on May 03, 2021, from the IPEDS. IPEDS was the core postsecondary education data collection program for NCES. The data are available for researchers at <https://nces.ed.gov/ipeds/use-the-data>.

Data were collected for a 10-year period to test if there are any significant differences in funding based on performance indicators. One discrepancy was discovered in the IPEDS data described in Chapter 3. At the time of this research, IPEDS had only posted data up to academic year 2018-2019. As stated in Chapter 3, the study was originally intended to collect 10 years of data from academic years 2010-2011 to 2019-2020. The data collection period explained in Chapter 3 was adjusted accordingly. Therefore, data were retrieved for the academic year 2009-2010 to 2018-2019 using the same system and did not require additional IRB approval.

Public land-grant HBCUs are unique. Their missions reflect their intended purpose to serve an under-served population and matriculate and graduate students with hopes of finding good paying jobs and making a decent living. As expressed by former president, George Bush, “At a time when many schools barred their doors to black Americans, these colleges offered the best, and often the only, opportunity for a higher education.” (U.S. Dept of Ed., 1991).

As stated earlier in this dissertation, the sample for this research was 11 institutions that met the criteria for the study. Studies showed that a majority of the

HBCUs today have shifted their focus of being mission driven to being results driven (Jones, 2016). The early mantra of performance measurement was “mission driven, results oriented” (Thompson, 1994). For decades, the accrediting agencies have applied blanket metrics on all educational institutions for assessing performance without filtering them through the prism of the institution’s mission. Bypassing the core mission of HBCUs renders the picture the metrics portray of the institution inaccurate. Decisions that follow can negatively impact the institution. To be sure, outcome indicators are difficult to capture and often involve a considerable lag time. Adjusting the metrics to accommodate each institution is difficult, time consuming and perhaps expensive for the accrediting agencies and the universities. However, continuing to measure output data for outcome results, misses the important point of the HBCUs’ mission to change lives.

As dependency theory suggests, when the original rationale for the creation of these institutions is overlooked, they readjust their missions to satisfy their key funders. The focus of these institutions is now financial survival dependent on tuition dollars instead of funding from the state, which compromises their historical mission of making education affordable for an underserved population of students. Students find it necessary to take on additional work responsibilities to meet their desired goal of having a decent education and entering the workforce to make a living. The primary focus of the institutions has now shifted to fulfilling the accrediting agencies demanded results so that the institution can survive rather than on meeting the needs of the disadvantaged population they were created to serve.

A purposive sample was used to eliminate other higher education institutions so that this study could specifically focus on a subset of only HBCU institutions based on the sampling criteria listed. The sample for this research was higher education institutions in the Southern region of the United States that satisfied the following criteria:

7. HBCUs with a student population ranging from 1,000-15,000 students.
8. Complete data spanning 10 academic years from 2010-2019.
9. Limited to 4-year academic programs.
10. Located in the SACS region.
11. Public, land-grant institution, and
12. Fully accredited by SACS with no pending infractions.

The total population of HBCUs in the United States is 101. Based on the selection criteria, 82 institutions (81%) were excluded. The remaining 19 institutions (19%) were reduced again by excluding all land-grant institutions that were not in southern region and accredited by SACS. Eleven (57%) land-grant institutions remained to constitute the sample to be analyzed.

The SACS region oversees a total 79 HBCU land grant institutions. The 11 land-grant institutions in the sample represented 13% of the SACS region HBCU population. According to Frankfort-Nachmias and Leon-Guerrero (2015), the viability of the sample can be understood from the population if a careful subset is selected and through that subset, the findings can be generalized to the characteristics of the population based on the sample. The 11 land-grant institutions in the sample are identified and confirmed generalizable to the total population of 101 HBCUs and is further confirmed based on the

purposive sampling (Brown, 2004) used in Chapter 3 (Frankfort-Nachmias and Leon-Guerrero, 2015). Because the pulled sample was specific to HBCUs and met all the criteria, the findings are relevant to the total population of HBCUs.

State Funding Categories

As discussed in Chapter 3, the institution sample was grouped into two categories, institutions in states where the legislatures used PBF to allocate state funding, and those in states that do not. Table 1 outlines states that are performance-based budget states and non-performance-based budget states.

Table 1

State Funding Method

| Performance based budget states | Non-performance based budget states |
|---------------------------------|-------------------------------------|
| Florida | Alabama |
| Kentucky | Georgia |
| Louisiana | North Carolina |
| Mississippi | South Carolina |
| Tennessee | Texas |
| Virginia | |

Table 1 showed that 6 (55%) of HBCU institutions are in PBF states including Florida (FAMU), Kentucky (KYSU), Louisiana (SU), Mississippi (ALCORN), Tennessee (TNSU), and Virginia (VSU). Table 1 also showed that 5 (45%) of HBCU institutions are in non-PBF states, including Alabama (AAMU), Georgia (FVSU), North Carolina (NCAT), South Carolina (SCSU), and Texas (PVAMU). Table 1 identified the institutions that make up the sample population. Data were collected for the independent variable, retention rates, and the dependent variable, state appropriations for each

institution. Additionally, other explanatory variables were used to make the analysis more robust.

Performance Based Budget States

Tables 2-6 displayed the institutional full-time retention rate, equivalent undergraduate enrollment, and state appropriations for the states using performance-based budgets and their respective institutions. Each table was labeled wave 1 and wave 2. The term wave is simply a way of presenting the information to the reader in a block of time. Wave 1 displayed information for years 2009 to 2013 and Wave 2 displayed information for years 2014-2018.

Table 2 provided data for Alcorn State University (ALCORN) located in Mississippi. Of note in this table is the retention decreased from 70% to 69% from 2009 to 2010. However, despite a 1% decrease to retention from the previous year, undergraduate enrollment increased from 2,706 to 3,001 students, which was an 11% increase. But state appropriations seem to only consider the retention rate for the overall performance because the state funding from 2009 to 2010 decreased from \$28,089,072.00 to \$27,286,834.00, which is roughly a 3% decrease to the state appropriation from the previous year.

Table 2

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Alcorn State University (ALCORN), 2009-2018

| | | | ALCORN | |
|------|------|----------------|---------------------------------|------|
| | | | Performance Based Funding State | |
| 2009 | 2010 | Wave 1 2011 | 2012 | 2013 |
| | | | | |

| | | | | | | | | | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 70% | 2,706 | 69% | 3,001 | 67% | 3,200 | 69% | 2,990 | 68% | 2,939 |
| State Appropriation \$28,089,072.00 | | State Appropriation \$27,286,834.00 | | State Appropriation \$27,669,368.00 | | State Appropriation \$26,908,256.00 | | State Appropriation \$27,525,932.00 | |
| 2014 | | 2015 | | Wave 2 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 76% | 2,778 | 76% | 2,664 | 72% | 3,045 | 75% | 3,124 | 73% | 3,216 |
| State Appropriation \$30,105,034.00 | | State Appropriation \$30,785,095.00 | | State Appropriation \$28,988,610.00 | | State Appropriation \$25,780,038.00 | | State Appropriation \$24,493,815.00 | |

Total appropriations for higher education in the state of Mississippi in fiscal year 2009 was \$849,013,054. This is roughly 17% of the total state budget, which was \$5,023,672,577. Appropriations specifically for ALCORN totaled at \$28,089,072.00, which is 3% of the total higher education appropriations for 2009-2010.

Table 3 provided data for Florida Agricultural and Mechanical University (FAMU). Again, looking at academic years 2009 to 2010, retention increased from 78% to 81%, which is roughly a 4% increase in retention over the previous year. Note that in addition to the retention rate increase, enrollment also increased from 10,173 students to 11,300, which was an increase of 11% in undergraduate enrollment that year. The state appropriations in 2009 to 2010 also increased from \$99,934,358.00 to \$107,901,006.00, which is roughly an 8% increase to state appropriations from the previous year.

For the fiscal year 2009, total appropriations for higher education in the state of Florida was \$21.3 billion. This is roughly 32% of the total state budget, which was 65.5

billion dollars. Appropriations specifically for FAMU totaled at \$99,934,358.00, which was less than 1% of the total higher education appropriations for 2009-2010.

Table 3

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Florida A and M University (FAMU), 2009-2018

| | | | | | FAMU | | | | |
|--------------------------------------|---|--------------------------------------|---|--------------------------------------|---|--------------------------------------|---|--------------------------------------|---|
| | | | | | Performance Based Funding State | | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 78% | 10,173 | 81% | 11,300 | 79% | 10,720 | 80% | 9,654 | 82% | 8,668 |
| State Appropriation \$99,934,358.00 | | State Appropriation \$107,901,006.00 | | State Appropriation \$97,822,294.00 | | State Appropriation \$77,458,589.00 | | State Appropriation \$100,403,573.00 | |
| | | | | | Wave 2 | | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 81% | 8,096 | 85% | 7,793 | 83% | 7,443 | 83% | 7,655 | 81% | 7,779 |
| State Appropriation \$112,364,678.00 | | State Appropriation \$96,671,280.00 | | State Appropriation \$108,917,186.00 | | State Appropriation \$103,219,776.00 | | State Appropriation \$110,215,670.00 | |

Table 4 provided data for the institution Kentucky State University (KYSU). For example, from 2009 to 2010 retention increased from 52% to 54%, which is roughly a 4% increase over the previous year. In addition to the increase in retention, undergraduate enrollment increased from 2,166 students to 2,239, which is a 3% increase. The state appropriations for 2009 to 2010 also increased from \$24,630,377.00 to \$25,363,422.00, which was roughly a 3% increase from the previous year.

Table 4

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Kentucky State University (KYSU), 2009-2018

| KYSU | | | | | | | | | | |
|---------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|---------------------|
| Performance Based Funding State | | | | | | | | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | State Appropriation |
| 52% | 2,166 | 54% | 2,239 | 50% | 2,115 | 45% | 1,971 | 52% | 1,830 | \$24,630,377.00 |
| | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | \$23,537,402.00 |
| | | \$25,363,422.00 | | \$24,660,001.00 | | \$23,537,402.00 | | \$23,537,400.00 | | |
| Wave 2 | | | | | | | | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | State Appropriation |
| 44% | 1,555 | 60% | 1,236 | 60% | 1,341 | 68% | 1,389 | 56% | 1,372 | \$23,429,600.00 |
| | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | \$26,462,300.00 |
| | | \$23,429,600.00 | | \$26,729,600.00 | | \$26,462,300.00 | | \$25,749,000.00 | | |

The total appropriations for higher education in the state of Kentucky for fiscal year 2009 was \$1,218,234,575, or roughly 14% of the total state budget, which was \$8,403,856,111. Appropriations specifically for KYSU totaled \$ 24,630,377.00 or 2% of the total higher education appropriations for 2009-2010.

Table 5 provided data for Southern University and A and M College (SU) located in Louisiana. For example, from 2009 to 2010 retention decreased a little more than 1% from 72% in 2009 to 71% in 2010. Enrollment also declined from 6,233 to 6,150, which was a decrease of 1% in undergraduate enrollment. State funding from 2009 to 2010 also decreased from \$41,836,516.00 to \$37,697,492.00, which was roughly a 10% decrease of the state appropriation from the previous year.

Table 5

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Southern University and A and M College (SU), 2009-2018

| | | | | | | SU | | | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|
| | | | | | | Performance Based Funding State | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 72% | 6,233 | 71% | 6,150 | 70% | 5,707 | 69% | 5,113 | 67% | 5,208 |
| State Appropriation \$41,836,516.00 | | State Appropriation \$37,697,492.00 | | State Appropriation \$34,959,980.00 | | State Appropriation \$33,590,301.00 | | State Appropriation \$36,217,894.00 | |
| | | | | | | Wave 2 | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 70% | 5,211 | 65% | 5,214 | 62% | 6,504 | 64% | 4,994 | 64% | 5,563 |
| State Appropriation \$28,773,297.00 | | State Appropriation \$30,018,777.00 | | State Appropriation \$27,453,191.00 | | State Appropriation \$26,484,226.00 | | State Appropriation \$25,609,753.00 | |

Total appropriations for higher education in the state of Louisiana, for fiscal year 2009 was \$3,042,867,954. This was roughly 10% of the total state budget, which was \$28,986,756,552. Appropriations specifically for SU totaled at \$41,836,516.00, which was a little over 1% of the total higher education appropriations for 2009-2010.

Table 6 provided the data for Tennessee State University (TNSU). Looking at the student retention from 2009 to 2010, it decreased from 67% to 63%, or roughly a 6% decrease in retention over the previous year. In addition to the decrease in retention, undergraduate enrollment also decreased from 6,066 students to 6,059, which was a 1% decrease. However, despite the losses in retention and enrollment, state appropriations

from 2009 to 2010 increased significantly from \$39,810,535 to \$48,744,577, which was roughly a 22% increase from the previous year.

Table 6

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Tennessee State University (TNSU), 2009-2018

| | | | | | | TNSU | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | Performance Based Funding State | | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | |
| 67% | 6,066 | 63% | 6,059 | 67% | 6,207 | 56% | 5,869 | 60% | 6,007 | |
| State Appropriation \$39,810,535.00 | | State Appropriation \$48,744,577.00 | | State Appropriation \$36,275,644.00 | | State Appropriation \$37,689,604.00 | | State Appropriation \$39,729,884.00 | | |
| | | | | | | Wave 2 | | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | |
| 62% | 6,252 | 64% | 6,442 | 56% | 6,194 | 58% | 6,204 | 64% | 5,740 | |
| State Appropriation \$39,211,000.00 | | State Appropriation \$40,222,038.00 | | State Appropriation \$42,245,400.00 | | State Appropriation \$45,552,833.00 | | State Appropriation \$49,127,338.00 | | |

Total appropriations for higher education in the state of Tennessee in fiscal year 2009 was \$ 1,663,289,100. This was roughly 5% of the total \$29,335,665,200 state budget. Appropriations specifically for TNSU totaled at \$39,810,535, or a little over 2% of the total higher education appropriations for 2009-2010.

Table 7 provided data for Virginia State University (VSU). Note that from 2009 to 2010 retention increased from 67% to 74%, or roughly a 10% increase over the previous year. In addition to the increase in retention, undergraduate enrollment also increased from 4,940 students to 5,207, which was a 5% increase. State appropriations

from 2009 to 2010 also increased from \$37,977,396 to \$38,378,276, which is roughly a 1% increase to state appropriations from the previous year.

Table 7

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Virginia State University (VSU), 2009-2018

| | | | | | | VSU | | | | |
|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | Performance Based Funding State | | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | |
| 67% | 4,940 | 74% | 5,207 | 71% | 5,308 | 65% | 5,334 | 65% | 5,004 | |
| State Appropriation \$37,977,396.00 | | State Appropriation \$38,378,276.00 | | State Appropriation \$38,176,916.00 | | State Appropriation \$43,895,543.00 | | State Appropriation \$39,947,404.00 | | |
| | | | | | | Wave 2 | | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | |
| 61% | 4,486 | 73% | 4,290 | 74% | 4,205 | 71% | 4,220 | 66% | 3,983 | |
| State Appropriation \$41,531,909.00 | | State Appropriation \$45,777,710.00 | | State Appropriation \$47,001,221.00 | | State Appropriation \$48,587,822.00 | | State Appropriation \$50,062,886.00 | | |

Total appropriations for higher education in the state of Virginia in fiscal year 2009, was \$ 7,567,926,966, or roughly 21% of the total state budget, which was \$ 36,985,385,925.

Appropriations specifically for VSU totaled at \$37,977,396, or a little less than 1% of the total higher education appropriations for 2009-2010.

Non-Performance Based Budget States

Tables 8-12 display the institutional full-time retention rate, equivalent undergraduate enrollment, and state appropriations in non-performance-based budget states.

Table 8 provided data for Alabama A and M University (AAMU). From 2009 to 2010 the retention rate increased from 69% to 75%, which was roughly a 9% increase from the previous year. In addition, undergraduate enrollment increased from 4,389 students to 4,604, which was a 5% increase. State appropriations also increased marginally from \$38,356,842 in 2009 to \$38,821,235 in 2010, which was little over a 1% increase over the previous year.

Table 8

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Alabama A and M University (AAMU), 2009-2018

| | | | | | | AAMU | | | | | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|--------------------------|---|
| | | | | | | Non-Performance-Based Funding State | | | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 69% | 4,389 | 75% | 4,604 | 64% | 3,871 | 68% | 3,906 | 63% | 3,647 | | |
| State Appropriation \$38,356,842.00 | | State Appropriation \$38,821,235.00 | | State Appropriation \$40,405,340.00 | | State Appropriation \$39,335,736.00 | | State Appropriation \$39,882,136.00 | | | |
| | | | | | | Wave 2 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 66% | 3,739 | 58% | 3,977 | 58% | 4,307 | 59% | 4,902 | 61% | 5,163 | | |
| State Appropriation \$40,102,843.00 | | State Appropriation \$40,521,522.00 | | State Appropriation \$41,017,090.00 | | State Appropriation \$41,017,090.00 | | State Appropriation \$42,599,878.00 | | | |

Total state appropriations in fiscal year 2009 for higher education in Alabama, was \$1,434,470,159, or roughly 20.53% of the total state appropriations budget for 2009, was \$6,984,550,950. Appropriations specifically for AAMU totaled at \$38,356,842, or 2.67% of the total higher education appropriations for 2009-2010.

Table 9 provided data for Fort Valley State University (FVSU). Retention at FVSU decreased from 71% in 2009 to 64% in 2010, which was roughly a 9% decrease over the previous year. However, undergraduate enrollment increased from 3,366 students to 3,352, which was a less than 1% increase. State appropriations from 2009 to

2010 also increased from \$17,724,293 to \$20,970,110, which was an 18% increase in the state appropriation from the previous year.

Table 9

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Fort Valley State University (FVSU), 2009-2018

| | | | | | | FVSU | | | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|
| | | | | | | Non-Performance-Based Funding State | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 71% | 3,366 | 64% | 3,352 | 59% | 3,486 | 58% | 2,981 | 59% | 2,584 |
| State Appropriation \$17,724,293.00 | | State Appropriation \$20,970,110.00 | | State Appropriation \$19,832,028.00 | | State Appropriation \$21,758,049.00 | | State Appropriation \$24,002,876.00 | |
| | | | | | | Wave 2 | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 57% | 2,319 | 78% | 2,162 | 75% | 2,131 | 76% | 2,229 | 75% | 2,332 |
| State Appropriation \$23,309,344.00 | | State Appropriation \$21,623,880.00 | | State Appropriation \$20,799,672.00 | | State Appropriation \$23,075,207.00 | | State Appropriation \$23,253,144.00 | |

Total appropriations for higher education in Georgia for fiscal year 2009, was \$7,945,380,351, or roughly 39% of the total \$20,193,974,890 state budget.

Appropriations specifically for FVSU totaled at \$17,724,293 or less than 1% of the total higher education appropriations for 2009-2010.

Table 10 provided data for North Carolina A and T State University (NCAT).

From 2009 to 2010 their retention rate decreased from 77% to 72%, or roughly a 6% loss in retention over the previous year. Although their retention decreased, undergraduate

enrollment increased from 9,048 to 9,168, which was a 1% increase. State funding from 2009 to 2010 also increased from \$92,355,360 to \$93,559,050, which was little over a 1% increase in the state appropriation from the previous year.

Table 10

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for North Carolina A and T State University (NCAT), 2009-2018

| | | | | | | | | | | NCAT | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|
| | | | | | | | | | | Non-Performance-Based Funding State | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 77% | 9,048 | 72% | 9,168 | 74% | 8,909 | 74% | 8,578 | 80% | 8,564 | | |
| State Appropriation \$92,355,360.00 | | State Appropriation \$93,559,050.00 | | State Appropriation \$94,181,746.00 | | State Appropriation \$97,542,271.00 | | State Appropriation \$92,665,165.00 | | | |
| | | | | | | | | | | Wave 2 | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | | | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 79% | 8,665 | 75% | 8,915 | 75% | 9,245 | 79% | 9,843 | 77% | 10,157 | | |
| State Appropriation \$91,756,352.00 | | State Appropriation \$92,648,666.00 | | State Appropriation \$92,518,300.00 | | State Appropriation \$92,315,804.00 | | State Appropriation \$93,838,062.00 | | | |

Total fiscal year 2009 appropriations for higher education in the state of North Carolina, was \$7,141,573,290, which was roughly 37% of the total state budget, which was \$19 billion. Appropriations specifically for NCAT totaled \$92,355,360.00 which was roughly 1% of the total state higher education appropriations for 2009-2010.

Table 11 provided data for the institution Prairie View A and M University (PVAMU). Their retention rate stayed at 71% for 2009 and 2010, but enrollment

increased from 6,231 to 6,445, which was an increase of 3% in undergraduate enrollment. State appropriations from 2009 to 2010 also increased from \$60,407,257 to \$60,828,515, which was less than a 1% increase from the previous year.

Table 11

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for Prairie View A and M University (PVAMU), 2009-2018

| | | | | | | PVAMU | | | |
|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|---|
| | | | | | | Non-Performance-Based Funding State | | | |
| 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 71% | 6,231 | 71% | 6,445 | 64% | 6,366 | 67% | 6,386 | 68% | 6,377 |
| State Appropriation \$60,407,257.00 | | State Appropriation \$60,828,515.00 | | State Appropriation \$53,733,183.00 | | State Appropriation \$52,384,440.00 | | State Appropriation \$51,654,138.00 | |
| | | | | | | Wave 2 | | | |
| 2014 | | 2015 | | 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 67% | 6,620 | 66% | 6,650 | 69% | 7,096 | 71% | 7,693 | 74% | 8,206 |
| State Appropriation \$52,312,968.00 | | State Appropriation \$57,430,831.00 | | State Appropriation \$57,940,934.00 | | State Appropriation \$58,264,709.00 | | State Appropriation \$59,088,842.00 | |

The state of Texas operates on a biannual budget. In 2009 the governor signed into law the two-year \$182 billion budget for 2009-2011. All other states thus far, operate on single year budgets. The total appropriation for higher education in the Texas budget was \$75.5 billion. This is roughly 41% of the total state budget. Appropriations specifically for PVAMU totaled at \$60,407,257 or roughly less than 1% of the total higher education appropriations for 2009-2010.

Table 12 provided data for South Carolina State University (SCSU). From 2009 to 2010 retention decreased from 67% to 63%, a decrease of roughly 5% in retention over the previous year. Despite the decrease in retention, undergraduate enrollment increased from 3,587 to 3,742, which was a 4% increase. Similar to Alcorn University in Mississippi, state appropriations in South Carolina also decreased from \$19,154,845 in 2009 to \$14,084,314 in 2010, which was little over a 26% decrease in state funding from the previous year.

Table 12

Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation for South Carolina State University (SCSU), 2009-2018

| | | SCSU | | | | | | | | | |
|--------------------------|---|-------------------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|---|
| | | Non-Performance-Based Funding State | | | | | | | | | |
| | | 2009 | | 2010 | | Wave 1 2011 | | 2012 | | 2013 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 67% | 3,587 | 63% | 3,742 | 65% | 3,640 | 61% | 3,084 | 60% | 2,809 | | |
| State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | |
| \$19,154,845.00 | | \$14,084,314.00 | | \$14,582,664.00 | | \$17,335,288.00 | | \$18,402,331.00 | | | |
| | | 2014 | | 2015 | | Wave 2 2016 | | 2017 | | 2018 | |
| Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment | Full-time retention rate | Full-time equivalent undergraduate enrollment |
| 63% | 2,677 | 57% | 2,364 | 70% | 2,348 | 69% | 2,295 | 64% | 2,246 | | |
| State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | | State Appropriation | |
| \$19,895,148.00 | | \$24,806,063.00 | | \$24,685,126.00 | | \$21,150,755.00 | | \$24,969,524.00 | | | |

Total appropriations in fiscal year 2009 for higher education in South Carolina, were \$5,275,343,200. This was roughly 25% of the total state budget of \$20.7 billion.

Appropriations specifically for SCSU totaled at \$19,154,845, which is less than 1% of the total higher education appropriations for 2009-2010.

Scatter Plot Analysis

To understand the usefulness of the data just presented, scatterplots analyses were performed on the Full-Time Retention Rate, Equivalent Undergraduate Enrollment, and State Appropriation data for the sample institutions. Figures 2-6 display scatterplots for the performance-based budget states and their HBCU institutions. Additionally, figures 7-12 display scatterplots for non-performance-based budget states and their HBCU institutions follow in Figures 2-6.

Performance Based Budget States

Figure 2 showed each academic year (2009-2018) as a dot. The data suggest there is a positive monotonic relationship between retention rates and state appropriations (Lund and Lund, 2021). Monotonic relationships explain measures of the strength and direction of association between two ranked variables (Lund and Lund, 2021). The fit line indicates that while state appropriations increased, retention rates also increased, consistently except for four academic years where retention rates remained the same as other previously recorded years.

Figure 2

State Appropriations and Full-Time Retention Rates (2009-2018) for ALCORN

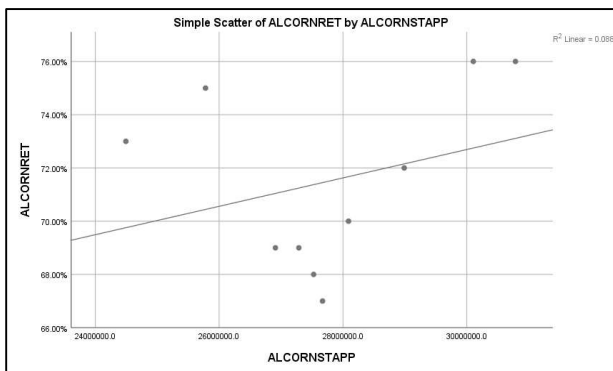


Figure 2 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Alcorn State University (ALCORN). State funding is represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 3 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Florida A and M University (FAMU). State funding is represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 3

State Appropriations and Full-time retention rates (2009-2018) for FAMU

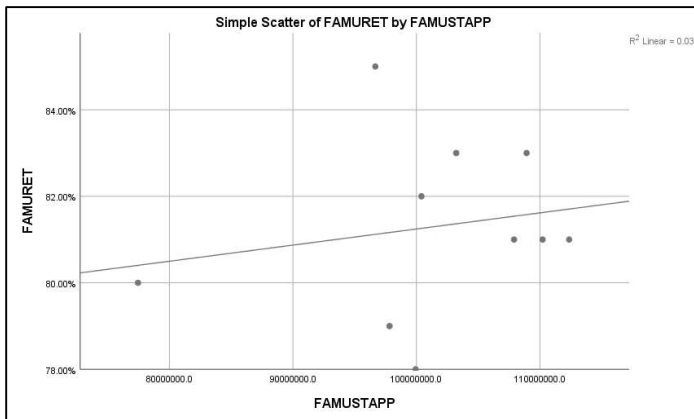


Figure 3 showed each academic year (2009-2018) as a dot. The data suggested there is a positive monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates increased consistently except for three academic years where retention rates remained the same as other previously recorded years.

Figure 4 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Kentucky State University (KYSU). State funding is represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 4

State Appropriations and Full-time retention rates (2009-2018) for KYSU

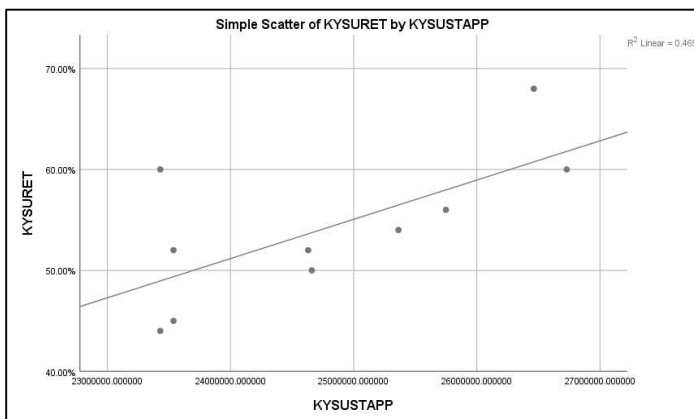


Figure 4 showed each academic year (2009-2018) as a dot. Data suggested there is a positive monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates increased, consistently except for one academic year where retention rate remained the same as another previously recorded year.

Figure 5 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Southern University and A and M College (SU). State funding is represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 5

State Appropriations and Full-time retention rates (2009-2018) for Southern University and A and M College (SU).

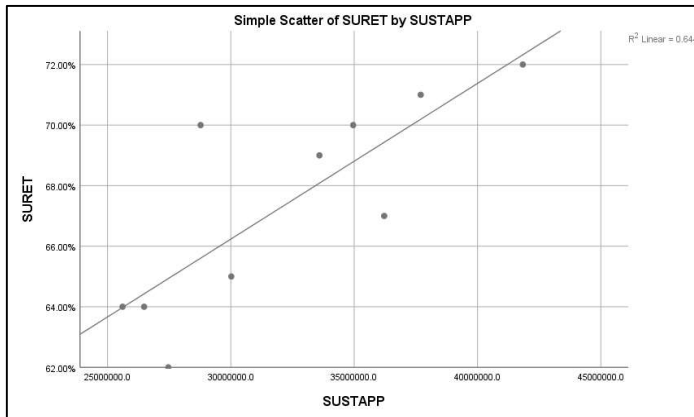


Figure 5 showed each academic year (2009-2018) as a dot. The data suggested there was a positive monotonic relationship between retention rates and state appropriation. The fit line indicates that while state appropriations increased, retention rates increased, consistently except for one academic year where retention rate remained the same as another previously recorded year.

Figure 6 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Tennessee State University (TNSU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 6

State Appropriations and Full-time retention rates (2009-2018) for Tennessee State University (TNSU).

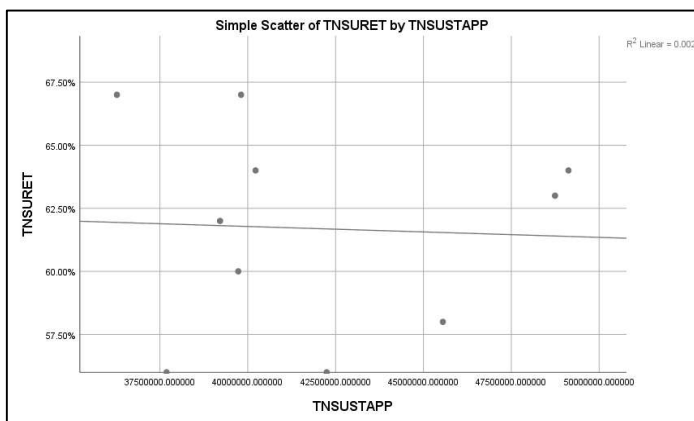


Figure 6 showed each academic year (2009-2018) as a dot. The data suggested there was a negative monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates decreased, consistently except for one academic year where state appropriations remained the same as another previously recorded year.

Figure 7 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Virginia State University (VSU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 7

State Appropriations and Full-time retention rates (2009-2018) for Virginia State University (VSU).

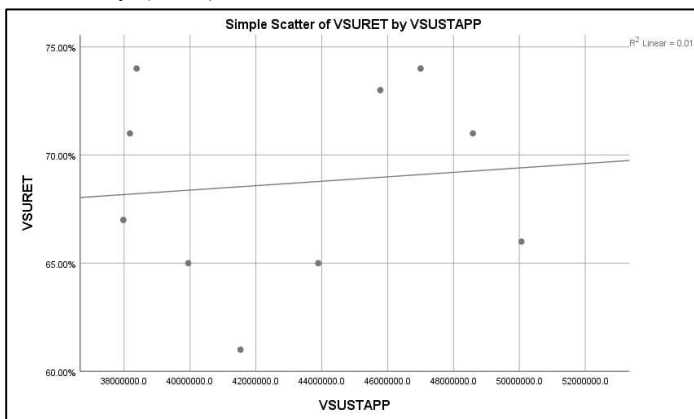


Figure 7 showed each academic year (2009-2018) as a dot. The data suggested there was a positive monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates decreased.

Non-Performance Based Budget States

Figure 8 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Alabama A and M University (AAMU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 8

State Appropriations and Full-time retention rates (2009-2018) for AAMU

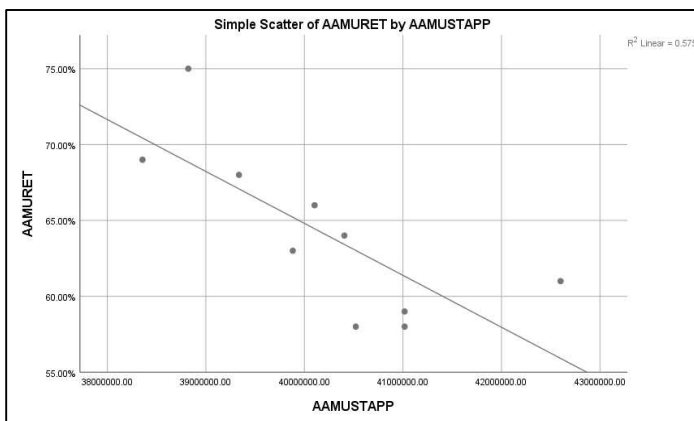


Figure 8 showed each academic year (2009-2018) as a dot. The data suggested there was a negative monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates decreased, consistently except for one academic year where state appropriations remained the same as another previously recorded year.

Figure 9 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Fort Valley State University (FVSU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 9

State Appropriations and Full-time retention rates (2009-2018) for Fort Valley State University (FVSU).

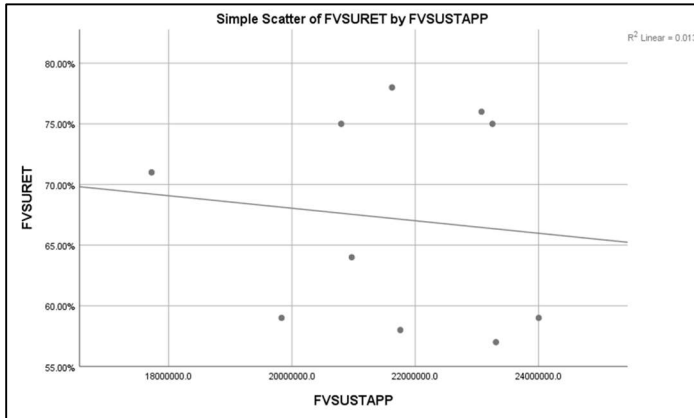


Figure 9 showed each academic year (2009-2018) as a dot. The data suggested there was a negative monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates decreased consistently.

Figure 10 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution North Carolina A and T State University (NCAT). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 10

State Appropriations and Full-time retention rates (2009-2018) for North Carolina A and T State University (NCAT).

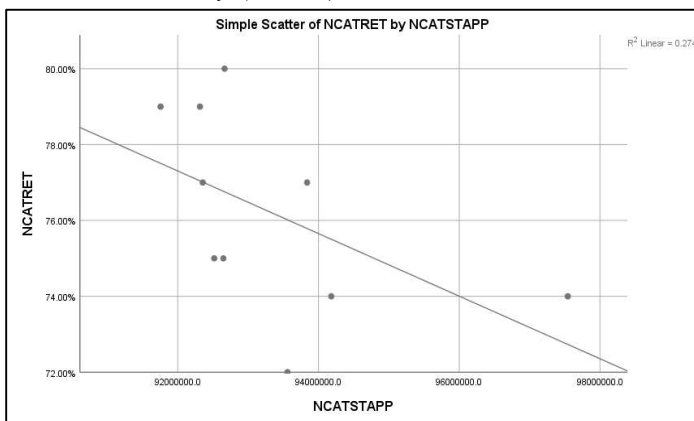


Figure 10 showed each academic year (2009-2018) as a dot. The data suggested there was a negative monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increase, retention rates decrease, consistently except for one academic year where retention rate remained the same as another previously recorded year.

Figure 11 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution Prairie View A and M University (PVAMU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 11

State Appropriations and Full-time retention rates (2009-2018) for Prairie View A and M University (PVAMU).

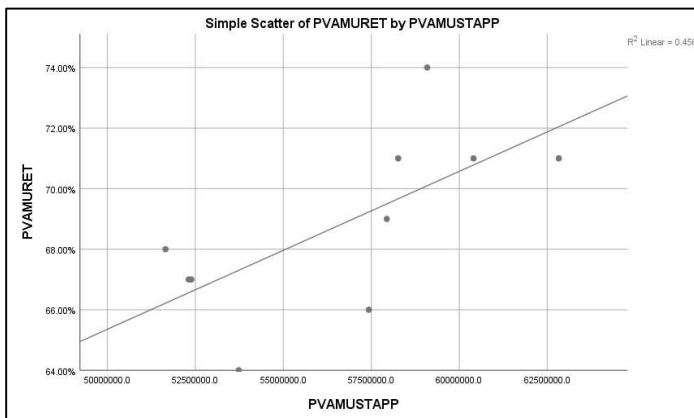


Figure 11 showed each academic year (2009-2018) as a dot. The data suggested there was a negative monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates increased, consistently except for one academic year where retention rates remained the same as another previously recorded year.

Figure 12 showed a simple scatter plot that highlights retention rates and state appropriations for ten academic years 2009-2018 for institution South Carolina State University (SCSU). State funding was represented on the x or horizontal axis and retention rates are represented on the y or vertical axis.

Figure 12

State Appropriations and Full-time retention rates (2009-2018) for South Carolina State University (SCSU).

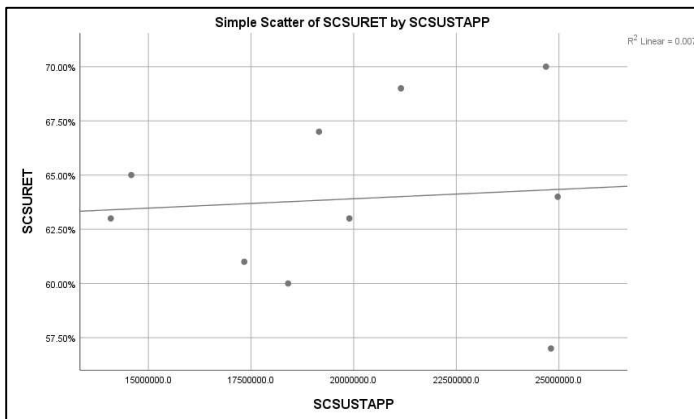


Figure 12 showed each academic year (2009-2018) as a dot. The data suggested there was a positive monotonic relationship between retention rates and state appropriations. The fit line indicates that while state appropriations increased, retention rates increased, consistently except for three academic years where state appropriations remained relatively the same as another previously recorded year.

Correlations

Correlations explain the relationship between two variables (Frankfort-Nachmias and Leon-Guerrero, 2015). The direction of the relationship was determined as positive if they move in the same direction or negative if they move in opposite directions. (Frankfort-Nachmias and Leon-Guerrero, 2015). The correlation coefficients are determined by the magnitude of the strength of the correlation expressed by the degrees of freedom. The degree of freedom for this study was captured at $rs = (8)$. This was calculated by $rs = n - 2$ because there are ten (10) paired observations of the independent and dependent variables based on the information analyzed for each institution.

Table 13

Correlation Coefficients for all institutions (Performance-Based and Non-Performance-Based)

| Correlation Coefficient | Meaning |
|-------------------------|---|
| +1 | Perfect Positive Relationship |
| 0.8 | Fairly Strong Positive Relationship |
| 0.6 | Moderate Positive Relationship |
| 0.4 | Fairly Weak Positive Relationship |
| 0.2 | Weak Positive Relationship |
| 0 | No relationship. As one value increases, no tendency for other value to change in a specific direction. |
| -0.2 | Weak Negative Relationship |
| -0.4 | Fairly Weak Negative Relationship |
| -0.6 | Moderate Negative Relationship |
| -0.8 | Fairly Strong Negative Relationship |
| -1.0 | Perfect Negative Relationship |

Source: Frankfort-Nachmias and Leon-Guerrero, 2015

A Spearman correlation matrix was constructed to examine relationships between state appropriations and retention rates for the sample. Nonparametric tests, such as Spearman, are most accurate with continuous variables (Warner, 2012). Separate matrices were constructed for each academic institution in the study to understand the correlation between the independent and dependent variables. Data were organized based on schools that are in states using performance budgeting, and those that are in states with non-performance-based budgets. Tables 14-18 display correlations for the performance-based funding states and their respective institutions. Tables 19-24 displayed correlations for non-performance-based funding states and their respective institutions.

Table 14

Correlation of Retention Rate and State Appropriation for 2009-2018 for AAMU

| Correlations | | | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | AAMURET | AAMUSTAPP |
| Spearman's rho | AAMURET | Correlation Coefficient | 1.000 | -.851** |
| | | Sig. (2-tailed) | . | .002 |
| | | N | 10 | 10 |
| | AAMUSTAPP | Correlation Coefficient | -.851** | 1.000 |
| | | Sig. (2-tailed) | .002 | . |
| | | N | 10 | 10 |

Note. **. Correlation is significant at the 0.01 level (2-tailed).

For the data collected for AAMU, a spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations*. Ten years of consecutive data from 2009-2018 were assessed. The results showed a fairly strong negative correlation between retention rate and state appropriations, ($r_s = -.851$) based on 10 complete paired observations of Sig. (2-tailed) at .002. From this information, it can be determined that funding decreased as retention rates increased. However, further statistical analysis was needed to understand the nature of the relationship between retention rates and state funding.

Table 15

Correlation of Retention Rate and State Appropriation for 2009-2018 for FVSU

| | | Correlations | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | FVSURET | FVSUSTAPP |
| Spearman's rho | FVSURET | Correlation Coefficient | 1.000 | -.220 |
| | | Sig. (2-tailed) | . | .542 |
| | | N | 10 | 10 |
| | FVSUSTAPP | Correlation Coefficient | -.220 | 1.000 |
| | | Sig. (2-tailed) | .542 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run on the data collected for FVSU to assess the relationship between *retention rate* and *state appropriations*. Ten years of consecutive data from 2009-2018 were assessed. The results show a fairly weak negative correlation between retention rate and state appropriations, ($r_s = -.220$) based on 10 complete paired observations of Sig. (2-tailed) at .542. From this information, it can be determined that funding decreased as retention rates increased. However, further statistical analysis was needed to understand the nature of the relationship between retention rates and state funding.

Table 16

Correlation of Retention Rate and State Appropriation for 2009-2018 for NCAT

| Correlations | | | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | NCATRET | NCATSTAPP |
| Spearman's rho | NCATRET | Correlation Coefficient | 1.000 | -.620 |
| | | Sig. (2-tailed) | . | .056 |
| | | N | 10 | 10 |
| | NCATSTAPP | Correlation Coefficient | -.620 | 1.000 |
| | | Sig. (2-tailed) | .056 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for NCAT. Ten years of consecutive data from 2009-2018 were assessed. The results show a moderate negative correlation between retention rate and state appropriations, ($r_s = -.620$) based on 10 complete paired observations of Sig. (2-tailed) at .056. From this information, it can be determined that funding stayed the same, as retention rates decreased. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 17

Correlation of Retention Rate and State Appropriation for 2009-2018 for PVAMU

| | | Correlations | | |
|----------------|------------|-------------------------|----------|------------|
| | | | PVAMURET | PVAMUSTAPP |
| Spearman's rho | PVAMURET | Correlation Coefficient | 1.000 | .714* |
| | | Sig. (2-tailed) | . | .020 |
| | | N | 10 | 10 |
| | PVAMUSTAPP | Correlation Coefficient | .714* | 1.000 |
| | | Sig. (2-tailed) | .020 | . |
| | | N | 10 | 10 |

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

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for PVAMU. Ten years of consecutive data from 2009-2018 were assessed. The results show a moderate positive correlation between retention rate and state appropriations, ($r_s = .714$) based on 10 complete paired observations of Sig. (2-tailed) at .020. From this information, it can be determined that funding increased, as retention rates increased. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 18

Correlation of Retention Rate and State Appropriation for 2009-2018 for SCSU

| | | Correlations | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | SCSURET | SCSUSTAPP |
| Spearman's rho | SCSURET | Correlation Coefficient | 1.000 | .146 |
| | | Sig. (2-tailed) | . | .688 |
| | | N | 10 | 10 |
| | SCSUSTAPP | Correlation Coefficient | .146 | 1.000 |
| | | Sig. (2-tailed) | .688 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for SCSU. Ten years of consecutive data from 2009-2018 were assessed. The results show no relationship correlation, neither positive nor negative, between retention rate and state appropriations, ($r_s = .146$) based on 10 complete paired observations of Sig. (2-tailed) at .688. From this information, it can be determined that as funding increased slightly, retention rates also increased slightly. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 19

Correlation of Retention Rate and State Appropriation for 2009-2018 for ALCORN

| | | Correlations | | |
|----------------|-------------|-----------------|-----------|-------------|
| | | | ALCORNRET | ALCORNSTAPP |
| Spearman's rho | ALCORNRET | Correlation | 1.000 | .299 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | . | .402 |
| | | N | 10 | 10 |
| | ALCORNSTAPP | Correlation | .299 | 1.000 |
| | | Coefficient | | |
| | | Sig. (2-tailed) | .402 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for ALCORN. Ten years of consecutive data from 2009-2018 were assessed. The results show a weak positive correlation, between retention rate and state appropriations, ($r_s = .299$) based on 10 complete paired observations of Sig. (2-tailed) at .402. From this information, it can be determined that funding increased, as retention rates varied up and down. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 20

Correlation of Retention Rate and State Appropriation for 2009-2018 for FAMU

| | | Correlations | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | FAMURET | FAMUSTAPP |
| Spearman's rho | FAMURET | Correlation Coefficient | 1.000 | .178 |
| | | Sig. (2-tailed) | . | .622 |
| | | N | 10 | 10 |
| | FAMUSTAPP | Correlation Coefficient | .178 | 1.000 |
| | | Sig. (2-tailed) | .622 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for FAMU. Ten years of consecutive data from 2009-2018 were assessed. The results show no correlation relationship, positive or negative, between retention rate and state appropriations, ($r_s = .178$) based on 10 complete paired observations of Sig. (2-tailed) at .622. From this information, it can be determined that as funding slightly increased, retention rates increased and decreased. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 21

Correlation of Retention Rate and State Appropriation for 2009-2018 for KYSU

| | | Correlations | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | KYSURET | KYSUSTAPP |
| Spearman's rho | KYSURET | Correlation Coefficient | 1.000 | .572 |
| | | Sig. (2-tailed) | . | .084 |
| | | N | 10 | 10 |
| | KYSUSTAPP | Correlation Coefficient | .572 | 1.000 |
| | | Sig. (2-tailed) | .084 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for KYSU. Ten years of consecutive data from 2009-2018 were assessed. The results show a weak positive correlation between retention rate and state appropriations, ($r_s = .572$) based on 10 complete paired observations of Sig. (2-tailed) at .084. From this information, it can be determined that funding increased, as retention rates increased. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 22

Correlation of Retention Rate and State Appropriation for 2009-2018 for SU

| | | Correlations | | |
|----------------|---------|-------------------------|--------|---------|
| | | | SURET | SUSTAPP |
| Spearman's rho | SURET | Correlation Coefficient | 1.000 | .823** |
| | | Sig. (2-tailed) | . | .003 |
| | | N | 10 | 10 |
| | SUSTAPP | Correlation Coefficient | .823** | 1.000 |
| | | Sig. (2-tailed) | .003 | . |
| | | N | 10 | 10 |

Note. **. Correlation is significant at the 0.01 level (2-tailed).

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for SU. Ten years of consecutive data from 2009-2018 were assessed. The results show a strong positive correlation between retention rate and state appropriations, ($r_s = .823$) based on 10 complete paired observations of Sig. (2-tailed) at .003. From this information, it can be determined that funding increased, as retention rates increased. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 23

Correlation of Retention Rate and State Appropriation for 2009-2018 for TNSU

| | | Correlations | | |
|----------------|-----------|-------------------------|---------|-----------|
| | | | TNSURET | TNSUSTAPP |
| Spearman's rho | TNSURET | Correlation Coefficient | 1.000 | -.037 |
| | | Sig. (2-tailed) | . | .920 |
| | | N | 10 | 10 |
| | TNSUSTAPP | Correlation Coefficient | -.037 | 1.000 |
| | | Sig. (2-tailed) | .920 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for TNSU. Ten years of consecutive data from 2009-2018 were assessed. The results show a weak negative correlation between retention rate and state appropriations, ($r_s = -.037$) based on 10 complete paired observations of Sig. (2-tailed) at .920. From this information, it can be determined that funding decreased, as retention rates varied up and down. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Table 24

Correlation of Retention Rate and State Appropriation for 2009-2018 for VSU

| | | Correlations | | |
|----------------|----------|-------------------------|--------|----------|
| | | | VSURET | VSUSTAPP |
| Spearman's rho | VSURET | Correlation Coefficient | 1.000 | .055 |
| | | Sig. (2-tailed) | . | .880 |
| | | N | 10 | 10 |
| | VSUSTAPP | Correlation Coefficient | .055 | 1.000 |
| | | Sig. (2-tailed) | .880 | . |
| | | N | 10 | 10 |

A spearman correlation analysis was run to assess the relationship between *retention rate* and *state appropriations* for the data collected for VSU. Ten years of consecutive data from 2009-2018 were assessed. The results show a weak positive correlation between retention rate and state appropriations, ($r_s = .055$) based on 10 complete paired observations of Sig. (2-tailed) at .880. From this information, it can be determined that funding increased, as retention rates varied up and down. However, further statistical analysis was needed to understand the relationship between retention rates and state funding.

Simple Linear Regression

Upon completion of all correlations for the study, an additional step was taken to ensure complete understanding of the variables and the intent of the study. As stated by O'Sullivan et al. (2017), "Correlation does not equal causality". We were able to assess how strong the relationship is between the independent variable and the dependent variable, but a more thorough assessment was needed to determine if or how one causes an effect on the other if there was a relationship.

To better understand the variables of this study and see how they were related, a simple regression for retention rates and state funding was employed. To determine whether a linear regression model was a good fit for the data, several assumptions must be considered. First, there must be a “dependent” and “independent” variable that are continuous variables. In addition to the assumptions, three statements previously discussed to validate the data were: 1. the percentage (or proportion) of variance explained; 2. the statistical significance of the overall model; and 3. the precision of the predictions from the regression model. In addition to understanding a good fit for the data, an interpretation commonly used refers to the effect size are small ($d = 0.2$), medium ($d = 0.5$), and large ($d = 0.8$) based on benchmarks suggested by Cohen (1988). Figures 22-27 displayed regressions for the performance-based funding states and their respective institutions. Figures 28-33 displayed regressions for non-performance-based funding states and their respective institutions.

Table 25

Simple Regression of Retention Rates and State Appropriations for 2009-2018 for AAMU

| Model Summary | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | | |
| 1 | .758 ^a | .575 | .522 | 843811.19033 | | |

Note. a. Predictors: (Constant), AAMURET

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|-------------------|--------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 769938591650 | 1 | 7699385916508.678 | 10.813 | .011 ^b |
| | | 8.678 | | | | |
| | Residual | 569613859939 | 8 | 712017324924.365 | | |
| | | 4.922 | | | | |
| | Total | 133955245159 | 9 | | | |
| | | 03.600 | | | | |

Note. a. Dependent Variable: AAMUSTAPP
b. Predictors: (Constant), AAMURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|-------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 50972713.188 | 3285027.639 | | 15.517 | .000 |
| | AAMURET | -167967.894 | 51079.132 | -.758 | -3.288 | .011 |

Note. a. Dependent Variable: AAMUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for AAMU accounted for 57.5% of the variation in state funding with adjusted $R^2 = 52.2\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for AAMU from 2009-2018, $F(1, 8) = 10.80$, $p > .001$. The regression equation predicted state appropriation was = $50972713.188 + (-167967.894)$.

Table 26

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for FVSU

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .115 ^a | .013 | -.110 | 2011559.9987 | |

Note. a. Predictors: (Constant), FVSURET

| ANOVA ^a | | | | | | |
|--------------------|------------|--------------------|----|-------------------|------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 431218032626.738 | 1 | 431218032626.738 | .107 | .752 ^b |
| | Residual | 323709890284.15360 | 8 | 4046373628551.920 | | |
| | Total | 328022070610.42098 | 9 | | | |

Note. a. Dependent Variable: FVSUSTAPP
b. Predictors: (Constant), FVSURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|-------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 23347885.614 | 5285874.195 | | 4.417 | .002 |
| | FVSURET | -25491.493 | 78087.191 | -.115 | -.326 | .752 |

Note. a. Dependent Variable: FVSUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for FVSU accounted for 1.3% of the variation in state funding with adjusted $R^2 = -11.0\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for AAMU from 2009-2018, $F(1, 8) = 4.41$, $p > .001$. The regression equation predicted state appropriation was $= 23347885.614 + (-25491.493)$.

Table 27

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for NCAT

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .523 ^a | .274 | .183 | 1500211.6124 | |

Note. a. Predictors: (Constant), NCATRET

| ANOVA ^a | | | | | | |
|--------------------|------------|--------------------|----|-------------------|-------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 6793520762836.809 | 1 | 6793520762836.809 | 3.018 | .121 ^b |
| | Residual | 18005079055947.590 | 8 | 2250634881993.449 | | |
| | Total | 24798599818784.400 | 9 | | | |

Note. a. Dependent Variable: NCATSTAPP
b. Predictors: (Constant), NCATRET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 118643411.305 | 14572947.002 | | 8.141 | .000 |
| | NCATRET | -332090.994 | 191144.659 | -.523 | -1.737 | .121 |

Note. a. Dependent Variable: NCATSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for NCAT accounted for 27.4% of the variation in state funding with adjusted $R^2 = 18.3\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for NCAT from 2009-2018, $F(1, 8) = 3.018$, $p > .001$. The regression equation predicted state appropriation was = $118643411.305 + (-332090.994)$.

Table 28

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for PVAMU

| Model Summary | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | | |
| 1 | .675 ^a | .456 | .388 | 3013193.8267 | | |

Note. a. Predictors: (Constant), PVAMURET

| ANOVA ^a | | | | | | |
|--------------------|------------|---------------------|----|--------------------|-------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 60938453565079.220 | 1 | 60938453565079.220 | 6.712 | .032 ^b |
| | Residual | 72634696300164.880 | 8 | 9079337037520.610 | | |
| | Total | 133573149865244.100 | 9 | | | |

Note. a. Dependent Variable: PVAMUSTAPP
b. Predictors: (Constant), PVAMURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -3592802.344 | 23255401.013 | | -.154 | .881 |
| | PVAMURET | 874961.977 | 337730.696 | .675 | 2.591 | .032 |

Note. a. Dependent Variable: PVAMUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for PVAMU accounted for 45.6% of the variation in state funding with adjusted $R^2 = 38.8\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for PVAMU from 2009-2018, $F(1, 8) = 6.712$, $p > .001$. The regression equation predicted state appropriation was $= -3592802.344 + 874961.977$.

Table 29

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for SCSU

| Model Summary | | | | | | |
|------------------------------------|-------------------|-----------------------------|-------------------|----------------------------|------|-------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | | |
| 1 | .086 ^a | .007 | -.117 | 4251848.0606 | | |
| a. Predictors: (Constant), SCSURET | | | | | | |
| ANOVA ^a | | | | | | |
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 1077520222719.719 | 1 | 1077520222719.719 | .060 | .813 ^b |
| | Residual | 144625695443715.900 | 8 | 18078211930464.490 | | |
| | Total | 145703215666435.620 | 9 | | | |
| a. Dependent Variable: SCSUSTAPP | | | | | | |
| b. Predictors: (Constant), SCSURET | | | | | | |
| Coefficients ^a | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 14433892.779 | 22456781.679 | | .643 | .538 |
| | SCSURET | 85644.961 | 350805.859 | .086 | .244 | .813 |

Note. a. Dependent Variable: SCSUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for SCSU accounted for 00.7% of the variation in state funding with adjusted $R^2 = -11.7\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for SCSU from 2009-2018, $F(1, 8) = .060$, $p > .001$. The regression equation predicted state appropriation was $= -14433892.779 + 85644.961$

Table 30

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for ALCORN

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .297 ^a | .088 | -.026 | 1905592.9066 |

Note. a. Predictors: (Constant), ALCORNRET

| ANOVA ^a | | | | | | |
|--------------------|------------|--------------------|----|-------------------|------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 2818350509926.891 | 1 | 2818350509926.891 | .776 | .404 ^b |
| | Residual | 2905027460469.2010 | 8 | 3631284325586.502 | | |
| | Total | 3186862511461.8902 | 9 | | | |

Note. a. Dependent Variable: ALCORNSTAPP

b. Predictors: (Constant), ALCORNRET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 15907111.722 | 13471289.781 | | 1.181 | .272 |
| | ALCORNRET | 165819.488 | 188221.051 | .297 | .881 | .404 |

Note. a. Dependent Variable: ALCORNSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for ALCORN accounted for 08.8% of the variation in state funding with adjusted $R^2 = 02.6\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for ALCORN from 2009-2018, $F(1, 8) = 1.181$, $p > .001$. The regression equation predicted state appropriation was $= -15907111.722 + 165819.488$.

Table 31

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for FAMU

| Model Summary | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | | |
| 1 | .182 ^a | .033 | -.088 | 10494766.3075 | | |

Note. a. Predictors: (Constant), FAMURET

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|---------------------|------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 3031237756033 | 1 | 30312377560332.000 | .275 | .614 ^b |
| | | 2.000 | | | | |
| | Residual | 8811209587904 | 8 | 110140119848812.480 | | |
| | | 99.900 | | | | |
| | Total | 9114333363508 | 9 | | | |
| | | 31.900 | | | | |

Note. a. Dependent Variable: FAMUSTAPP
b. Predictors: (Constant), FAMURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|---------------|---------------------------|------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 28974136.646 | 138269363.442 | | .210 | .839 |
| | FAMURET | 891964.383 | 1700240.217 | .182 | .525 | .614 |

Note. a. Dependent Variable: FAMUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for FAMU accounted for 03.3% of the variation in state funding with adjusted $R^2 = -08.8\%$, a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for SCSU from 2009-2018, $F(1, 8) = .275$, $p > .001$. The regression equation predicted state appropriation was $= -28974136.646 + 891964.383$.

Table 32

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for KYSU

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .682 ^a | .465 | .398 | 990389.192744 |
| | | | | 598 |

Note. a. Predictors: (Constant), KYSURET

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|------------------|-------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 6828141066495 | 1 | 6828141066495.22 | 6.961 | .030 ^b |
| | | .229 | | 9 | | |
| | Residual | 7846966024842 | 8 | 980870753105.296 | | |
| | | .371 | | | | |
| | Total | 1467510709133 | 9 | | | |
| | | 7.600 | | | | |

Note. a. Dependent Variable: KYSUSTAPP

b. Predictors: (Constant), KYSURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|-------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | Sig. |
| | | B | Std. Error | Beta | t | |
| 1 | (Constant) | 18279434.384 | 2473427.688 | | 7.390 | .000 |
| | KYSURET | 119656.854 | 45351.560 | .682 | 2.638 | .030 |

Note. a. Dependent Variable: KYSUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for KYSU accounted for 46.5% of the variation in state funding with adjusted $R^2 = 39.8\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for KYSU from 2009-2018, $F(1, 8) = 6.961$, $p > .001$. The regression equation predicted state appropriation was $= -18279434.384 + 119656.854$.

Table 33

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for SU

| Model Summary | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .802 ^a | .644 | .599 | 3427964.023 |
| 0 | | | | |

Note. a. Predictors: (Constant), SURET

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|----|------------------|-------|--------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 1697676377 | 1 | 1697676377.85609 | 14.44 | .005 |
| | | 85609.620 | | 620 | 7 | ^b |
| | Residual | 9400749874 | 8 | 1175093734.29773 | | |
| | | 3818.470 | | 09 | | |
| | Total | 2637751365 | 9 | | | |
| | | 29428.100 | | | | |

Note. a. Dependent Variable: SUSTAPP

b. Predictors: (Constant), SURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | -52082453.122 | 22217697.702 | | -2.344 | .047 |
| | SURET | 1251448.009 | 329246.839 | .802 | 3.801 | .005 |

Note. a. Dependent Variable: SUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for SU accounted for 64.4% of the variation in state funding with adjusted $R^2 = 59.9\%$, which was a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for SU from 2009-2018, $F(1, 8) = 14.447$, $p > .001$. The regression equation predicted state appropriation was $= -52082453.122 + 1251448.009$.

Table 34

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for TNSU

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .047 ^a | .002 | -.122 | 4751372.772230375 | |

Note. a. Predictors: (Constant), TNSURET

| ANOVA ^a | | | | | | |
|--------------------|------------|---------------------|----|--------------------|------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 407853402640.813 | 1 | 407853402640.813 | .018 | .896 ^b |
| | Residual | 180604345765537.250 | 8 | 22575543220692.156 | | |
| | Total | 181012199168178.060 | 9 | | | |

Note. a. Dependent Variable: TNSUSTAPP
b. Predictors: (Constant), TNSURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 45077113.554 | 23975541.145 | | 1.880 | .097 |
| | TNSURET | -52126.876 | 387818.711 | -.047 | -.134 | .896 |

Note. a. Dependent Variable: TNSUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for TNSU accounted for 00.2% of the variation in state funding with adjusted $R^2 = -12.2\%$, which was a *medium* size effect according to Cohen (1988). Retention Rates did not statistically significantly predict state funding for TNSU from 2009-2018, $F(1, 8) = .018$, $p > .001$. The regression equation predicted state appropriation was $= -45077113.554 + (-52126.876)$.

Table 35

Simple Regression of Retention Rate and State Appropriation for 2009-2018 for VSU

| Model Summary | | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | | |
| 1 | .104 ^a | .011 | -.113 | 4805747.8981 | | |

Note. a. Predictors: (Constant), VSURET

| ANOVA ^a | | | | | | |
|--------------------|------------|---------------------|----|--------------------|------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 2017727447091.563 | 1 | 2017727447091.563 | .087 | .775 ^b |
| | Residual | 184761702878034.500 | 8 | 23095212859754.312 | | |
| | Total | 186779430325126.060 | 9 | | | |

Note. a. Dependent Variable: VSUSTAPP
b. Predictors: (Constant), VSURET

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|--------------|---------------------------|-------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 35902131.297 | 24513140.634 | | 1.465 | .181 |
| | VSURET | 105263.130 | 356127.911 | .104 | .296 | .775 |

Note. a. Dependent Variable: VSUSTAPP

A simple linear regression was calculated to predict if retention rates have any effect on state appropriations. Average retention rates for VSU accounted for 01.1% of the variation in state funding with adjusted $R^2 = -11.3\%$, a *medium* size effect (Cohen, 1988). Retention Rates did not statistically significantly predict state funding for VSU from 2009-2018, $F(1, 8) = .087$, $p > .001$. The regression equation predicted state appropriation was $= -35902131.297 + 105263.130$.

Multiple Regression

To explore the relationships between the variables, a more robust analysis was, multiple regressions were performed to include other explanatory independent variables.

State Fiscal Capacity and Education Governance were added. In the regression model's education governance was coded Higher Education Structure. As mentioned at the beginning of this chapter, State Funding Method, identifying performance-based and non-performance-based budget states was coded Performance Model.

State Capacity

The additional explanatory variable State Fiscal Capacity was found to make this research more robust. This variable was constructed from each state's revenue and expenses collected from state's comprehensive annual financial reports (Pew Charitable Trusts, 2021). State fiscal capacity was the ability of the state to generate funds to support the state budget (Chervin, 2007). All states (except Vermont) are required to have a balanced budget (NCSL, 2010). However, budgets are built on forecasts of revenue. If the forecast was wrong, or revenue collections are interrupted by an intervening event such as a national economic downturn, or unexpected emergencies (hurricane, floods etc.) budgets must be cut back. Therefore, a state's fiscal capacity can change from year-to-year. These data provided information on whether the state was in a negative or positive net position for each fiscal year observed. Data collected for each state assess if a state even had the capacity to capture sufficient revenue to better support higher education.

This variable was analyzed with other independent variables such as (retention rate, enrollment, governance model, etc.) collected. Data were reported for a 10-year period from fiscal year 2009 to 2018 were from fiscal 2019 annual reports. Data for earlier fiscal years were collected from the annual reports in which results were reported

for the final time. Data for this research was last updated on November 15, 2021 (Pew Charitable Trusts, 2021). Tables 36-45 showed each states' fiscal capacity for each year observed from 2009-2018.

Table 36*State Capacity for Fiscal Year 2009*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 22,395,213 | \$ 22,843,059 | \$ (447,846) |
| <i>Florida</i> | \$ 76,844,235 | \$ 82,199,758 | \$ (5,355,522) |
| <i>Georgia</i> | \$ 46,469,886 | \$ 49,098,102 | \$ (2,628,216) |
| <i>Kentucky</i> | \$ 24,822,706 | \$ 27,027,413 | \$ (2,204,707) |
| <i>Louisiana</i> | \$ 33,654,958 | \$ 33,597,351 | \$ 57,607 |
| <i>Mississippi</i> | \$ 18,412,527.39 | \$ 18,667,533.47 | \$ (255,006) |
| <i>North Carolina</i> | \$ 46,779,501 | \$ 47,546,032 | \$ (766,531) |
| <i>South Carolina</i> | \$ 27,694,147.72 | \$ 28,415,654.56 | \$ (721,507) |
| <i>Tennessee</i> | \$ 28,717,088.16 | \$ 29,357,101.38 | \$ (640,013) |
| <i>Texas</i> | \$ 115,895,704.24 | \$ 128,279,644.12 | \$ (12,383,940) |
| <i>Virginia</i> | \$ 35,456,006.64 | \$ 37,815,434.18 | \$ (2,359,428) |

Source: Pew Charitable Trusts. (2021).

Table 37*State Capacity for Fiscal Year 2010*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 24,980,540 | \$ 24,452,751 | \$ 527,790 |
| <i>Florida</i> | \$ 93,899,838 | \$ 90,060,573 | \$ 3,839,265 |
| <i>Georgia</i> | \$ 52,256,719 | \$ 52,559,005 | \$ (302,286) |
| <i>Kentucky</i> | \$ 27,130,286 | \$ 28,832,123 | \$ (1,701,837) |
| <i>Louisiana</i> | \$ 30,984,602 | \$ 32,654,668 | \$ (1,670,066) |
| <i>Mississippi</i> | \$ 19,867,274.70 | \$ 19,435,996.87 | \$ 431,278 |
| <i>North Carolina</i> | \$ 53,234,070 | \$ 52,609,904 | \$ 624,166 |
| <i>South Carolina</i> | \$ 31,157,443.22 | \$ 30,620,879.80 | \$ 536,563 |
| <i>Tennessee</i> | \$ 32,762,236.81 | \$ 32,089,896.14 | \$ 672,341 |
| <i>Texas</i> | \$ 142,027,727.04 | \$ 140,301,124.44 | \$ 1,726,603 |
| <i>Virginia</i> | \$ 39,797,989.82 | \$ 39,503,700.27 | \$ 294,290 |

Source: Pew Charitable Trusts. (2021).

Table 38*State Capacity for Fiscal Year 2011*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 24,423,174 | \$ 23,986,399 | \$ 436,776 |
| <i>Florida</i> | \$ 92,260,862 | \$ 88,882,025 | \$ 3,378,838 |
| <i>Georgia</i> | \$ 50,854,755 | \$ 50,390,081 | \$ 464,674 |
| <i>Kentucky</i> | \$ 27,456,469 | \$ 28,053,708 | \$ (597,240) |
| <i>Louisiana</i> | \$ 31,004,850 | \$ 31,237,187 | \$ (232,337) |
| <i>Mississippi</i> | \$ 19,907,399.69 | \$ 18,847,099.09 | \$ 1,060,301 |
| <i>North Carolina</i> | \$ 53,645,614 | \$ 51,378,068 | \$ 2,267,546 |
| <i>South Carolina</i> | \$ 32,642,275.49 | \$ 30,691,651.68 | \$ 1,950,624 |
| <i>Tennessee</i> | \$ 33,978,123.13 | \$ 32,282,669.74 | \$ 1,695,453 |
| <i>Texas</i> | \$ 151,350,881.11 | \$ 143,141,947.62 | \$ 8,208,933 |
| <i>Virginia</i> | \$ 40,730,275.34 | \$ 39,195,255.10 | \$ 1,535,020 |

Source: Pew Charitable Trusts. (2021).

Table 39

State Capacity for Fiscal Year 2012

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 23,453,871 | \$ 22,715,761 | \$ 738,111 |
| <i>Florida</i> | \$ 88,738,667 | \$ 82,804,847 | \$ 5,933,820 |
| <i>Georgia</i> | \$ 50,672,372 | \$ 50,358,725 | \$ 313,647 |
| <i>Kentucky</i> | \$ 25,136,917 | \$ 26,111,568 | \$ (974,651) |
| <i>Louisiana</i> | \$ 28,690,075 | \$ 29,504,358 | \$ (814,283) |
| <i>Mississippi</i> | \$ 18,848,952.76 | \$ 18,192,568.98 | \$ 656,384 |
| <i>North Carolina</i> | \$ 51,602,713 | \$ 49,784,973 | \$ 1,817,741 |
| <i>South Carolina</i> | \$ 30,309,342.73 | \$ 28,545,057.64 | \$ 1,764,285 |
| <i>Tennessee</i> | \$ 33,034,956.54 | \$ 31,505,287.91 | \$ 1,529,669 |
| <i>Texas</i> | \$ 146,319,382.37 | \$ 135,573,683.35 | \$ 10,745,699 |
| <i>Virginia</i> | \$ 40,534,414.85 | \$ 38,704,619.26 | \$ 1,829,796 |

Source: Pew Charitable Trusts. (2021).

Table 40*State Capacity for Fiscal Year 2013*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 22,845,513 | \$ 22,398,041 | \$ 447,472 |
| <i>Florida</i> | \$ 88,849,690 | \$ 79,579,186.96 | \$ 9,270,503 |
| <i>Georgia</i> | \$ 52,093,729.26 | \$ 50,451,056.16 | \$ 1,642,673 |
| <i>Kentucky</i> | \$ 25,579,962 | \$ 25,699,376.30 | \$ (119,414) |
| <i>Louisiana</i> | \$ 27,823,026.34 | \$ 28,756,277.59 | \$ (933,251) |
| <i>Mississippi</i> | \$ 18,446,633.82 | \$ 17,904,273.33 | \$ 542,360 |
| <i>North Carolina</i> | \$ 51,708,625 | \$ 48,649,532 | \$ 3,059,093 |
| <i>South Carolina</i> | \$ 24,170,266.85 | \$ 22,908,801.72 | \$ 1,261,465 |
| <i>Tennessee</i> | \$ 32,012,669.33 | \$ 30,594,579.95 | \$ 1,418,089 |
| <i>Texas</i> | \$ 145,543,888.06 | \$ 134,110,096.38 | \$ 11,433,792 |
| <i>Virginia</i> | \$ 40,665,025.81 | \$ 39,156,336.68 | \$ 1,508,689 |

Source: Pew Charitable Trusts. (2021).

Table 41*State Capacity for Fiscal Year 2014*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 22,669,763 | \$ 22,225,594 | \$ 444,169 |
| <i>Florida</i> | \$ 90,798,865.80 | \$ 81,304,481.08 | \$ 9,494,385 |
| <i>Georgia</i> | \$ 50,657,505.96 | \$ 49,018,315.30 | \$ 1,639,191 |
| <i>Kentucky</i> | \$ 27,234,904.00 | \$ 27,715,006.47 | \$ (480,102) |
| <i>Louisiana</i> | \$ 27,230,292.96 | \$ 28,319,740.45 | \$ (1,089,447) |
| <i>Mississippi</i> | \$ 18,269,394.00 | \$ 17,704,095.21 | \$ 565,299 |
| <i>North Carolina</i> | \$ 49,545,232.15 | \$ 45,220,075.26 | \$ 4,325,157 |
| <i>South Carolina</i> | \$ 24,836,186.82 | \$ 23,239,173.46 | \$ 1,597,013 |
| <i>Tennessee</i> | \$ 30,689,501.69 | \$ 30,110,532.48 | \$ 578,969 |
| <i>Texas</i> | \$ 156,417,466.38 | \$ 137,841,406.20 | \$ 18,576,060 |
| <i>Virginia</i> | \$ 41,064,399.86 | \$ 39,703,107.09 | \$ 1,361,293 |

Source: Pew Charitable Trusts. (2021).

Table 42*State Capacity for Fiscal Year 2015*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 22,780,008 | \$ 22,376,721 | \$ 403,288 |
| <i>Florida</i> | \$ 89,301,203.08 | \$ 83,262,264.80 | \$ 6,038,938 |
| <i>Georgia</i> | \$ 51,638,570.51 | \$ 49,352,865.77 | \$ 2,285,705 |
| <i>Kentucky</i> | \$ 27,778,303.50 | \$ 27,200,435.22 | \$ 577,868 |
| <i>Louisiana</i> | \$ 26,714,861.03 | \$ 28,367,158.72 | \$ (1,652,298) |
| <i>Mississippi</i> | \$ 18,267,605.06 | \$ 17,836,689.70 | \$ 430,915 |
| <i>North Carolina</i> | \$ 51,115,691.43 | \$ 45,818,671.68 | \$ 5,297,020 |
| <i>South Carolina</i> | \$ 25,164,527.14 | \$ 24,006,351.76 | \$ 1,158,175 |
| <i>Tennessee</i> | \$ 31,223,506.20 | \$ 29,722,898.99 | \$ 1,500,607 |
| <i>Texas</i> | \$ 147,824,664.14 | \$ 142,919,923.72 | \$ 4,904,740 |
| <i>Virginia</i> | \$ 41,529,244.51 | \$ 40,277,230.06 | \$ 1,252,014 |

Source: Pew Charitable Trusts. (2021).

Table 43*State Capacity for Fiscal Year 2016*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 23,193,664 | \$ 22,497,219 | \$ 696,445 |
| <i>Florida</i> | \$ 91,836,180.21 | \$ 85,795,812.60 | \$ 6,040,368 |
| <i>Georgia</i> | \$ 53,054,125.05 | \$ 49,434,782.59 | \$ 3,619,342 |
| <i>Kentucky</i> | \$ 28,663,343.39 | \$ 29,249,831.09 | \$ (586,488) |
| <i>Louisiana</i> | \$ 27,316,349.98 | \$ 27,261,585.39 | \$ 54,765 |
| <i>Mississippi</i> | \$ 18,856,969.02 | \$ 17,833,343.49 | \$ 1,023,626 |
| <i>North Carolina</i> | \$ 51,425,523.17 | \$ 45,743,940.22 | \$ 5,681,583 |
| <i>South Carolina</i> | \$ 25,313,707.05 | \$ 23,365,661.32 | \$ 1,948,046 |
| <i>Tennessee</i> | \$ 32,625,413.18 | \$ 30,582,521.54 | \$ 2,042,892 |
| <i>Texas</i> | \$ 153,289,704.09 | \$ 148,700,165.85 | \$ 4,589,538 |
| <i>Virginia</i> | \$ 42,366,438.50 | \$ 41,544,344.62 | \$ 822,094 |

Source: Pew Charitable Trusts. (2021).

Table 44*State Capacity for Fiscal Year 2017*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 23,533,765 | \$ 22,961,463 | \$ 572,302 |
| <i>Florida</i> | \$ 91,106,600.70 | \$ 85,315,919.86 | \$ 5,790,681 |
| <i>Georgia</i> | \$ 54,087,455.01 | \$ 51,115,288.75 | \$ 2,972,166 |
| <i>Kentucky</i> | \$ 28,374,092.10 | \$ 29,599,070.59 | \$ (1,224,978) |
| <i>Louisiana</i> | \$ 31,032,967.85 | \$ 30,817,036.06 | \$ 215,932 |
| <i>Mississippi</i> | \$ 17,820,028.69 | \$ 18,093,705.09 | \$ (273,676) |
| <i>North Carolina</i> | \$ 51,376,609.94 | \$ 46,988,265.74 | \$ 4,388,344 |
| <i>South Carolina</i> | \$ 26,333,175.11 | \$ 24,636,089.65 | \$ 1,697,085 |
| <i>Tennessee</i> | \$ 32,946,133.29 | \$ 30,956,040.78 | \$ 1,990,093 |
| <i>Texas</i> | \$ 159,694,571.76 | \$ 150,223,495.33 | \$ 9,471,076 |
| <i>Virginia</i> | \$ 43,530,746.07 | \$ 42,009,173.67 | \$ 1,521,572 |

Source: Pew Charitable Trusts. (2021).

Table 45*State Capacity for Fiscal Year 2018*

| <i>State</i> | <i>Revenue</i> | <i>Expenses</i> | <i>Difference</i> |
|-----------------------|-------------------|-------------------|-------------------|
| <i>Alabama</i> | \$ 23,547,065 | \$ 22,879,373 | \$ 667,691 |
| <i>Florida</i> | \$ 94,411,627.58 | \$ 90,905,598.22 | \$ 3,506,029 |
| <i>Georgia</i> | \$ 55,109,535.18 | \$ 52,764,578.22 | \$ 2,344,957 |
| <i>Kentucky</i> | \$ 28,449,013.55 | \$ 29,905,753.71 | \$ (1,456,740) |
| <i>Louisiana</i> | \$ 30,290,572.17 | \$ 29,373,421.58 | \$ 917,151 |
| <i>Mississippi</i> | \$ 17,828,734.88 | \$ 17,385,656.62 | \$ 443,078 |
| <i>North Carolina</i> | \$ 51,293,511.11 | \$ 47,363,234.05 | \$ 3,930,277 |
| <i>South Carolina</i> | \$ 27,175,932.31 | \$ 25,207,677.31 | \$ 1,968,255 |
| <i>Tennessee</i> | \$ 33,380,353.86 | \$ 31,098,667.96 | \$ 2,281,686 |
| <i>Texas</i> | \$ 169,732,678.13 | \$ 143,329,127.40 | \$ 26,403,551 |
| <i>Virginia</i> | \$ 44,845,010.46 | \$ 43,228,044.61 | \$ 1,616,966 |

Source: Pew Charitable Trusts. (2021).

Education Governance

A governance variable was created to identify the higher education systems that are in place. This variable was coded as Higher Education System Structure. This explanatory independent variable was created to highlight the difference between those institutions that may fall under performance based or non-performance based.

Inferential statistics were used to determine if the findings are statistically significant enough to generalize to a larger population. According to Salkind (2011),

regression is a statistical analysis used to predict an outcome when two independent variables are used. The multiple linear regression models below were conducted using SPSS version 25. This research examined the impact of state funding by assessing accrediting agency performance indicators. The analysis is represented by the following theoretical formula:

$$Y (\text{State Appropriations}) = X_1(\text{Retention Rate}) + X_2(\text{Performance Model}) + X_3(\text{State Capacity}) + X_4(\text{Governance}).$$

The correlation coefficient (R) in the Model 1.1 summary was provided below, the coefficient of determination (R^2) is used to determine the percent variation between the independent variables and dependent variables. The following models employed the regression equation used to examine the dependent variable and the independent variables listed above.

Table 46 Model 1.1

Statistical Analysis: State Appropriations/Retention, Performance Model, State Capacity and Governance for all institutions.

| Statistical Measure | Value | Calculated P-Value |
|--|-------------|--------------------|
| Regression – R | .697 | - |
| Regression – R ² | .486 | - |
| Regression – Adjusted R ² | .467 | - |
| Std. Error of the Estimate | 19698947.22 | - |
| F-Test | 24.839 | .000 |
| Significance | .000 | - |
| Regression Coefficient Retention Rate | 1705372.06 | .000 |
| Regression Coefficient Performance Model | 1937046.53 | .619 |
| Regression Coefficient State Capacity | .814 | .012 |
| Regression Coefficient Higher Education Structure | 2742662.88 | .099 |
| Constant | -81585558.3 | - |

Computed Equation: Y (State Appropriations) = 1705372.06 (Retention Rate) + 1937046.53 (Performance Model) + .814 (State Capacity) + 2742662.88 (Governance) - 81585558.3

A multiple regression was run to predict state appropriations as an explanatory independent variable using retention rates, performance models for each institution, state capacity, and higher education structure. The R² for the overall model was 48.6%, which was a medium size effect (Cohen, 1988). The multiple regression model is statistically significant for state appropriations, ($F(4, 105) = 24.839, p < .001$). Of the four independent variables two, “retention rates” and “higher education structure for each institution”, were statistically significant for predicting state appropriations, which means the null hypothesis: there is no relationship between performance indicators and

funding decisions, is *rejected* ($F(4, 105) = 24.839, p < .001$). The other two variables “performance model for each institution”, and “state capacity” were not statistically significant, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is *accepted* ($p > .001$).

Table 47 Model 1.2

Statistical Analysis: State Appropriations/Enrollment, Performance Model, State Capacity and Governance for all institutions

| Statistical Measure | Value | Calculated P-Value |
|--|--------------|--------------------|
| Regression – R | .895 | - |
| Regression – R ² | .801 | - |
| Regression – Adjusted R ² | .793 | - |
| Std. Error of the Estimate | 12274022.650 | - |
| F-Test | 105.344 | .033 |
| Significance | .033 | - |
| Regression Coefficient Enrollment Rate | 9296.022 | .000 |
| Regression Coefficient Performance Model | -301366.743 | .901 |
| Regression Coefficient State Capacity | -.199 | .528 |
| Regression Coefficient Higher Education Structure | 1802398.001 | .007 |
| Constant | -6906559.253 | - |

Computed Equation: Y (State Appropriations) = 9296.022 (Enrollment Rate) - 301366.743 (Performance Model) -.199 (State Capacity) + 1802398.001 (Governance) - 6906559.253

A second multiple regression model was run this time using state appropriations, retention rates, performance models for each institution, state capacity, and higher education structure. The R² for the overall model was 80.1%, which was a large size

effect (Cohen, 1988) therefore we can determine that the multiple regression model is statistically significant for state appropriations, ($F(4, 105) = 105.344, p < .001$). Of the four independent variables, “retention rates” and “higher education structure for each institution”, were statistically significant for state appropriations, which means the null hypothesis: there is no relationship between performance indicators and funding decisions, is *rejected* ($F(4, 105) = 105.344, p < .001$). The other two variables, “performance model for each institution”, and “state capacity” were not statistically significant, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is *accepted* ($p > .001$).

The next section of analysis removed the state performance model variable from the analysis and the data were grouped by state either performance-based budget states or non-performance-based states. Data were manipulated into the two groups. The data were coded 1= Performance-Based Funding States (Group 1, $n=60$), and 0= Non-Performance Based Funding States (Group 2, $n=50$).

Table 48 Model 2.1

Statistical Analysis: State Appropriations/Retention Rate, Performance Model, State Capacity and Governance for Performance Based Funding States

| Statistical Measure | Value | Calculated P-Value |
|--|-------------|--------------------|
| Regression – R | .842 | - |
| Regression – R ² | .709 | - |
| Regression – Adjusted R ² | .693 | - |
| Std. Error of the Estimate | 14910388.72 | - |
| F-Test | 45.412 | .000 |
| Significance | .000 | - |
| Regression Coefficient Retention Rate | 848984.542 | .003 |
| Regression Coefficient State Capacity | 2.852 | .002 |
| Regression Coefficient Higher Education Structure | 6146617.292 | .000 |
| Constant | -35874431.4 | - |

Computed Equation: Y (State Appropriations) = 848984.542 (Retention Rate) + 2.852 (State Capacity) + 6146617.292 (Governance) -35874431.4

A multiple regression was run to predict state appropriations using retention rates, as an explanatory independent variable for performance models for each institution, state capacity, and Higher Education structure. The R² for the overall model was 70.9%, which was a large size effect (Cohen, 1988). The multiple regression model was statistically significantly for state appropriations ($F(3, 56) = 45.412, p < .001$). The results of the three independent variables, “retention rates”, “higher education structure for each institution”, and “state capacity”, were statistically significant in predicting state appropriations, which means the null hypothesis: there is no relationship between performance indicators and funding decisions, is *rejected*. $F(3, 56) = 45.412, p < .001$.

Table 49 Model 2.2

Statistical Analysis: State Appropriations/Enrollment Rate, Performance Model, State Capacity and Governance for Performance Based Funding States

| Statistical Measure | Value | Calculated P-Value |
|--|--------------|--------------------|
| Regression – R | .889 | - |
| Regression – R ² | .791 | - |
| Regression – Adjusted R ² | .779 | - |
| Std. Error of the Estimate | 12639327.17 | - |
| F-Test | 70.508 | .000 |
| Significance | .000 | - |
| Regression Coefficient Enrollment Rate | 5609.959 | .000 |
| Regression Coefficient State Capacity | 1.837 | .021 |
| Regression Coefficient Higher Education Structure | 476555.635 | .000 |
| Constant | -1020687.543 | - |

Computed Equation: Y (State Appropriations) = 5609.959 (Enrollment Rate) + 1.837 (State Capacity) + 476555.635 (Governance) - 1020687.543

A multiple regression was run to predict state appropriations using retention rates as an explanatory independent variable for performance models for each institution, state capacity, and Higher Education structure. R² for the overall model was 79.1%, which was a large size effect (Cohen, 1988). The multiple regression model was statistically significantly predicted state appropriations ($F(3, 56) = 70.508, p < .001$). The results of the three independent variables, “enrollment rates”, “higher education structure for each institution”, and “state capacity”, were statistically significant for predicting state appropriations, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is *rejected*, ($F(3, 56) = 70.508, p < .001$).

Table 50 Model 3.1

Statistical Analysis: State Appropriations/Retention Rate, Performance Model, State Capacity and Governance for Non-Performance Based Funding States

| Statistical Measure | Value | Calculated P-Value |
|--|-------------|--------------------|
| Regression – R | .623 | - |
| Regression – R ² | .388 | - |
| Regression – Adjusted R ² | .348 | - |
| Std. Error of the Estimate | 22049823.91 | - |
| F-Test | 9.731 | .000 |
| Significance | .000 | - |
| Regression Coefficient Retention Rate | 2438607.806 | .000 |
| Regression Coefficient State Capacity | .553 | .365 |
| Regression Coefficient Higher Education Structure | -282955.670 | .864 |
| Constant | -120436646 | - |

Computed Equation: Y (State Appropriations) = 2438607.806 (Retention Rate) + 9.731 (State Capacity) – 282955.670 (Governance) -120436646

A multiple regression was run to predict state appropriations using retention rates, as an explanatory independent variable for performance models for each institution, state capacity, and Higher Education structure. The R² for the overall model was 38.8%, which was a medium size effect (Cohen, 1988). The multiple regression model was statistically significant for predicting state appropriations ($F(3, 46) = 9.731, p < .001$). The results for one independent variable, “retention rates”, was statistically significant for predicting state appropriations, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, *rejected*. $F(3, 46) = 9.731, p < .001$. The other two variables were not statistically significant were “state capacity” and “higher

education structure for each institution”, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is *accepted* ($p > .001$).

Table 51 Model 3.2

Statistical Analysis: State Appropriations/Enrollment Rate, Performance Model, State Capacity and Governance for Non-Performance Based Funding States

| Statistical Measure | Value | Calculated P-Value |
|---|--------------|--------------------|
| Regression – R | .964 | - |
| Regression – R ² | .929 | - |
| Regression – Adjusted R ² | .924 | - |
| Std. Error of the Estimate | 7531884.411 | - |
| F-Test | 199.482 | .000 |
| Significance | .000 | - |
| Regression Coefficient Enrollment Rate | 11141.826 | .000 |
| Regression Coefficient State Capacity | -.559 | .012 |
| Regression Coefficient Higher Education Structure | 162228.059 | .766 |
| Constant | -9717150.855 | - |
| Computed Equation: Y (State Appropriations) = 11141.826 (Enrollment Rate) + -.599 (State Capacity) + 162228.059 (Governance) -9717150.855 | | |

A multiple regression was run to predict state appropriations using retention rates, as an explanatory independent variable for performance models for each institution, state capacity, and Higher Education structure. The R² for the overall model was 92.9%, which was a very large size effect (Cohen, 1988). The multiple regression model was statistically significant in predicting state appropriations ($F(3, 46) = 199.482, p < .001$). The results of the two independent variables, “retention rates” and “state capacity”, was

statistically significant predicting state appropriations, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is *rejected* ($F(3, 46) = 199.482, p < .001$). The remaining variable, “higher education structure for each institution”, was not statistically significant, which means the null hypothesis: There is no relationship between performance indicators and funding decisions, is accepted, $p > .001$.

The following table summarized the answer to the research question, do academic accrediting agencies, such as the Southern Association of Colleges and Schools’ (SACS) performance indicators affect state funding allocations for HBCU’s?”, The dependent variable used was state appropriations (DV) and the independent variables used were retention (IV1), enrollment (IV2), performance model for each state (IV3), state capacity (IV4), and higher education structure (IV5).

Table 52*Summary of Answers to Research Questions*

| Model | Answer to research question: |
|--------------------------------------|---|
| Model 1.1 (As noted in Table 46) | DV/IV1: Statistically Significant; Null hypothesis rejected ~Retention Rates is a significant indicator of state appropriations DV/IV3: Not Statistically Significant; Null Hypothesis can be accepted DV/IV4: Not Statistically Significant; Null Hypothesis can be accepted DV/IV5: Statistically Significant; Null hypothesis rejected ~Higher Education Structure is a significant indicator of state appropriations |
| Model 1.2 (As noted in Table 47) | DV/IV2: Statistically Significant; Null hypothesis rejected ~Enrollment Rates is a significant indicator of state funding DV/IV3: Not Statistically Significant; Null Hypothesis can be accepted DV/IV4: Not Statistically Significant; Null Hypothesis can be accepted DV/IV5: Statistically Significant; Null hypothesis rejected ~Higher Education Structure is a significant indicator of state appropriations |
| Model 2.1a (As noted in Table 48) | DV/IV1: Statistically Significant; Null hypothesis rejected DV/IV4: Statistically Significant; Null hypothesis rejected DV/IV5: Statistically Significant; Null hypothesis rejected ~Retention Rates, State Capacity, and Higher Education Structure is significant indicator of state appropriations |
| Model 2.1b (As noted in Table 49) | DV/IV2: Statistically Significant; Null hypothesis rejected DV/IV4: Statistically Significant; Null hypothesis rejected DV/IV5: Statistically Significant; Null hypothesis rejected ~Enrollment Rates, State Capacity, and Higher Education Structure is significant indicator of state appropriations |
| Model 3.1a (As noted in Table 50) | DV/IV1: Statistically Significant; Null hypothesis rejected ~Retention Rates is a significant indicator of state appropriations DV/IV4: Not Statistically Significant; Null Hypothesis can be accepted DV/IV5: Not Statistically Significant; Null Hypothesis can be accepted |
| Model 3.1b (As noted in Table 51) | DV/IV2: Statistically Significant; Null hypothesis rejected DV/IV4: Statistically Significant; Null hypothesis rejected ~Enrollment Rates and State Capacity is a significant indicator of state appropriations DV/IV5: Not Statistically Significant; Null Hypothesis can be accepted |

Summary of Chapter 4

The information discovered in this analysis is beneficial as it showed a connection between specific indicators and state funding. The results have also indicated and further confirmed that a closer examination should be conducted based on additional analysis. Further regressions could be run to increase the regression coefficient, but that is beyond the scope of this research. Chapter 5 provided an introduction of the conclusion of this research, an interpretation of the findings, the limitations of the study, recommendations for change, and implications for social good as a conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to see if there is an adverse relationship between state appropriations allocated to higher education institutions and the accrediting institution's performance indicators. Using RDT, it was theorized that HBCUs are negatively affected by suspect or outdated indicators used by accrediting agencies (Coupet, 2017). This study was undertaken to shed light on the need for updated outcome indicators so that institutions' performance can be more accurately assessed in the hope that policy makers would use this information when making funding decisions (Aparicio et al., 2021). In short, this study was an effort to ensure that institutions are equitably assessed and funded based on mission-driven performance outcomes to serve their target population of students.

There was in fact a relationship between state appropriations the current accrediting agency's performance indicators for the selected institutions in this study. It was important to understand that there are several variables that could be used to evaluate the relationship between institutional funding and the accrediting agencies indicators used to assess those same institutions. The findings suggested that there is a correlation between state appropriations and retention rates. Scatterplots illustrated the relationships. Although the correlations were not consecutive, it was significant.

This significance was captured on a scale varying from a "perfect positive relationship to perfect negative relationship" (Frankfort-Nachmias and Leon-Guerrero, 2015). Additional analysis was conducted to better understand if there was a relationship

between state appropriations and retention rates. A linear regression model assessed the significance of the two variables for each institution in the sample. The finding of the regressions was validated as described Chapter 4. It was evident another test was needed to substantiate the findings and multiple regression was employed. Several models were tested to provide a more thorough assessment of the relationships between the dependent variable, state appropriations and the independent and explanatory variables (Warner, 2013).

Interpretation of Findings

The findings in this research supported and expound on the literature reviewed in Chapter 2. The existing research showed a deep connection between data associated with institutions and external bodies who may have some type of control over them. This study contributes to the understanding of the importance and impact resource dependence has on organizations that has already been discussed by researchers in the field. According to Schmidt (2020), the “alternative lens or instrument” approach allows behaviors of public institutions to be explained and assessed in this case aligning the dependability of funding of higher education institutions to the availability of resources (Bennett and Law, 2020; Fowles, 2014; Schmidt, 2020).

Understanding the dynamics internally and further comprehending an institution’s sole reliance on external funds opens a conversation to discuss this with policy makers and provide them with needed information to help them see the outcomes of their decision making (Aparicio et al., 2021).

Finding other sources of revenue to unhinge a university's sole dependence on funds derived from tuition seems to be worthwhile. Coupet (2017, 2018) argued this but placed clear emphasis on the institution's dependence on external funding. While this may seem a small problem, if prolonged it can decay the structure of any institution that has to alter their core fundamental mission to comply with social norms not meant for their benefit and ultimately, their existence. This is especially important for the survival of HBCUs.

The information that was collected, analyzed, and discussed in Chapter 4 expands the discipline's knowledge, as most peer-reviewed literature is focused on one specific variable, graduation rates (Miller et al., 2021; Ryan, 2004). This study focused on retention rates, a very important but sometimes overlooked variable in some higher education institutions. Retention was important for this study on HBCUs because it demonstrates the strength of commitment and persistence of students to want an education (Serkan and Serkan, 2021).

Other researchers such as Ruppert (1994), Ryan (2004), and Sarrico (2022) suggested that there was substantial acknowledgement that graduation rates as variable "affects the overall population." With the proper analysis, it could be determined that there was some degree of affect to the overall population based in the sample population when other associated variables are analyzed and assessed.

There are significant undertakings of the students that attend HBCUs. Every day is a carbon copy of the day before. This will augment campus life in a way that a week will seem to have been a month on a HBCU campus. Understanding the connection

between RDT and the findings was articulated in the connection between an institution's existence based on external funding sources that is not student tuition. Thus, researchers use indicators are more likely to respond by implementing systems that move away from the designed mechanics of the mission (Jones, 2016).

There is an understanding that the theory of resource dependence and specific indicators are closely related and should be viewed as a source of valuable information. A great deal of information has been researched, and the data suggest that more inquiry is needed to focus on the seriousness of reviewing these indicators and evaluating metrics associated. This study was able to show that an eroding system of performance indicators has created a system that services institutions of higher education, especially HBCUs inefficiently (Aparicio et al., 2021). If there are additional performance indicators that could be relevant, additional researchers should seek them out.

Limitations

Since this study was based on strict sampling criterion that left only 11 institutions in the study, I speculated that the study may not be generalizable to a larger population. However, the sample of HBCUs used is representative of the larger sample of HBCU in character and nature and can function and fill a gap in the literature. But clearly, more research is needed. One key component of this study was that the sample of institutions were unique and their missions as institutions of higher education institution well defined making them excellent subjects to test RDT. This study provided context for the reader to explore other opportunities for further research.

Recommendations

A more holistic review of the accrediting agencies' performance indicators is needed to see if the indicators really measure what they are intended to measure. Many mistakes in choosing the correct indicator to capture the appropriate performance were made at the outset. Much research has been done on performance measurement since it was introduced in 1993 to correct those initial errors. For example, the 2010 revision of the Performance Measures Act (1993) now ties future performance to the strategic plan to ensure that performance is continuously progressing. But the research showed that the accrediting agencies have reviewed or assessed their indicators for 25 years.

If, as Lynch et al. (2017) suggested, outcomes are the effectiveness indicator for the long-term effect of education on the target population, surely effectiveness outcome measures should target the longitudinal progress of the student as a contributing member of the society *after* they graduate. Of course, this would require universities to engage their alumni more actively, but that might also diversify their revenue stream.

According to Aparicio et al. (2021), the perspective that if the correct instruments can help to mold outcome indicators when assessed, a more in-depth discussion may be possible on what the accrediting agencies should be assessing in higher education institutions. Rather than projecting an adversarial position in their reviews and flagging schools for shortcomings, taking a moment to receive feedback from institutions as a partner might result in a more productive system of oversight. This may open opportunities to have meaningful conversations about how to improve the fundamental flaws with the current indicators and arrive at consensus on the revisions that are needed.

In addition, there should be an assessment of all accrediting agencies in the United States that are tasked with accrediting higher education institutions to ensure that all are using and applying the performance indicators consistently. All peer reviewers should be trained to understand and interpret efficiency and effectiveness and know the difference between them.

To complete the research cycle on the topic of state funding, a comparative study of similar sized HBCUs and PWIs using the same specific accrediting agency performance indicators is needed. This could provide information on whether there is systemic institutional racial bias in state funding.

A comparative study of similar sized private and public HBCUs based on diversity in revenue streams could further test RDT on organizational behavior. Examining indicators in similar institutions will demonstrate how each type of institution is affected by external change. Additional funding variables, in addition to state appropriations, would be needed to assess the impact of funding structures for those institutions sampled. The accrediting variables would remain consistent because all institutions are assessed on the same indicators.

Implications for Social Change

Positive social change resulting from this study can occur at many levels. At the individual level, a student researcher or reader can use this information to conduct further research on a similar topic to expand the body of knowledge. At the family level, a family can use this information to provide their prospective student, searching for a college to attend, the best advice. For an organization, an entity could use this information to help

strengthen relationships between coworkers, faculty, and staff where the common goal is to matriculate and graduate students. Ultimately, understanding that students persist through college at a rate that is conducive to them, and their life-circumstance and not based a set schedule, leads to compassion driven results and the outcomes will reflect the overall picture. Finally, at the societal/policy level, the results of this study, presented at the appropriate time and place to the right people, can provide context for policy makers that institutions are struggling to make ends meet. Just as for organizations, those who hold authoritative power need tools and research to make informed decisions based on data and not ideological preference.

The theoretical approach to this study was one that was carefully considered to ensure the accuracy of the theory used and note that the environment plays a significant role in how resources are distributed and if it is done in a fair and/or equitable manner. To expound upon this statement, the theoretical approach of RDT is multi-disciplinary. The use of this theory can be used to extend research into a myriad of disciplines such as agriculture, music education, criminal justice. Being limited in funding sources and trying to make up for the loss places the organization in a financial crunch. By understanding the effect of RDT and its effect on populations, organizations have a better chance to not fall victim to this lack of understanding.

Recommendations for Practice

There should always be a push to continue research in this field so that all areas are covered. Anyone interested in institutions and what makes them run effectively and efficiently will find great joy in researching the areas of higher education, performance

measurement, and policy recommendations. While the scope of this kind of research is broad and can include several topics, once focused on a specific area, the possibilities for discovery are endless. A supplemental qualitative research design will assist in understanding the real-world experience first-hand from state budget committee members, senior administrative staff on campus as well as retention and institutional effectiveness staff members. This research could provide hands-on knowledge to not only the researcher, but all those involved in higher education.

Conclusion

This study was analyzed to provide understanding and add to the body of knowledge in the discipline of public policy and public administration. The research employed secondary data from IPEDS and used the data to assess the relationship between a specific accreditation agency indicators and state appropriations. Findings for this study were compiled from each of the state institutions sampled. Understanding the impact of the indicators and their usefulness to institutions' funding sources broadens the knowledge of this area and fill in a gap in the literature.

A key finding is that while the indicator and funding source are related, there is a need to reexamine other indicators that affect the primary funding source. Making changes to the policy structures that are in place based on the correct interpretation of indicators being used will hopefully yield better financial assistance to higher education institutions. Just like the missions of HBCUs, this research serves an underserved population, provided a foundation for scholarly research and further, to empower the next generation of scholar practitioners to rise to the call of action!

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Appendix: List of Acronyms

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|-------|---|
| GPRA | Government Performance Results Act |
| HBCU | Historically Black colleges and universities |
| IPEDS | Integrated postsecondary education database system |
| MGPRA | Modernization of the Government Performance Results Act |
| NCES | National Center for Education Statistics |
| RDT | Resource dependence theory |
| SACS | Southern Association for Colleges and Schools |