

A CORRELATIONAL STUDY ON INSTITUTIONS' FINANCIAL RESOURCES IMPACT
ON UNDERGRADUATE GRADUATION RATES

by

Tiffany Lee

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

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ABSTRACT

Researchers have emphasized higher education accessibility and undergraduate degree completion in the United States for several decades. A significant amount of literature has examined student financial resources' role in influencing the completion of a bachelor's degree. Not much research exists on how institutional financial resources relate to and impact undergraduate graduation rates. The purpose of this study was to gauge how accurately institutional financial resources predicted undergraduate degree completion rates. The study investigated a random sample of 193 four-year colleges and universities classified as baccalaureate institutions by the Carnegie Classification system. The data collection process extracted institutional information from the Integrated Postsecondary Education Data System (IPEDS), a publicly accessible database administered by the U.S. Department of Education. The study obtained the financial resources and completion rates data from the IPEDS Finance and IPEDS Graduation Rates reports. The study used a correlational research design and multiple linear regression analysis to assess college and university financial resources' influence on graduation rates. The study found a statistically significant relationship between institutions' financial resources and six-year undergraduate completion rates. Future studies should consider examining the relationship between specific revenue and expense items and using one accounting method.

Keywords: higher education, financial resources, graduation rates, resource allocation

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List of Abbreviations

Expected Family Contribution (EFC)

Free Application for Federal Student Aid (FAFSA)

Full-time Equivalency (FTE)

Hispanic Serving Institutions (HSI)

Historically Black Colleges and Universities (HBCU)

Integrated Postsecondary Education Data System (IPEDS)

National Center for Education Statistics (NCES)

Statistical Package for Social Sciences (SPSS)

CHAPTER ONE: INTRODUCTION

Overview

Colleges and universities provide educational services and resources to students from various socio-economic backgrounds, accomplishing this responsibility as equitably as possible. Additionally, schools must explore different ways to obtain limited financial resources to operate and survive. The integration of institutional financial resources and undergraduate student graduation rates is the foundation of this dissertation research. This chapter explores the background and theoretical frameworks of college student departure and organizational resource dependence and the objective of this research study. In doing so, the introductory chapter will describe the research purpose and problem that informs the current research, the significance of the study, and the research question that will guide the methodology and data analysis. Finally, essential definitions will support the reader in making sense of the underlying research problem at the heart of this inquiry.

Background

Higher education institutions face many challenges to increase graduation rates while making college more affordable (Johnstone, 2016). Over the years, the cost to attend college has increased steadily, and at the same time, student loan debt has risen (Johnstone, 2016). Historically, there is a positive relationship between college student loans and graduation rates (Zhan et al., 2018). Even though educational loans have demonstrated a positive correlation with college completion rates, this relationship is only valid until a point (Dwyer et al., 2012). Student loans \$10,000 or greater have been shown to inversely affect college graduation rates (Zhan et al., 2018). Despite the increase in student loan debt and the goal of improving student college degree completion, recent literature explains that the higher amounts of educational debt are still

insufficient to cover the college cost of the attendance-funding gap (Leonor, 2017). Furthermore, studies have examined how student financial aid, socioeconomic status, and financial attitudes have influenced students' social and academic integration into the institution, and ultimately their likelihood of persisting through degree completion (Baker & Montalto, 2019).

Thus, colleges face the issue of making college costs more affordable. One approach to address the college cost challenge while improving graduation rates is college promise programs that dozens of public community colleges offer to provide students a postsecondary education at minimal to no cost (Kanter et al., 2016). Another tactic higher education institutions are using is publishing higher tuition rates and charging students different amounts based on reported income levels (Baum, 2017). However, the practice and ability to provide institutional discounting vary by school type and financial resources (Moran, 2018; Rine, 2019). Schools with more financial resources can provide more significant amenities and support for students (Moran, 2018) and subsidize high-need students' attendance costs (Fethke, 2018). Varying colleges and universities can offer students subsidies and services to support them throughout their tenure at the institution (Fethke, 2018; Moran, 2018). The more researchers and practitioners discover about what variables influence college student departure, the better colleges and universities can equip themselves to provide the necessary resources and support to aid students in completing their undergraduate degrees. Considering the historical overview, impact on society-at-large, and the theoretical background will provide a greater understanding of why improving college completion rates is critical.

Historical Overview

Studying the factors that influence collegiate graduation rates has been a relevant topic in higher education for many decades. As the number of higher education institutions increased and

obtaining a college degree became more accessible, the student population diversified immensely. As a result, colleges and universities have consistently tried to figure out ways to improve degree completion rates (Lucas, 2006). Spady (1971) was one of the first scholars to present variables such as pre-college preparation, academic capacity, social integration, friendship support, intellectual development, and grade performance as predictors for student departure from college. This research has expanded over the years. Tinto (1975) used Spady's work and coupled it with research on why people commit suicide (Durkheim, 1961) as the foundation for developing the well-known and widely used theory of student departure. At its core, the theory of student departure explains how students' decision to dropout is a layered process rooted in students' family background, individual attributes, and pre-college schooling (Tinto, 1975). While the theory has evolved over the years, these factors still serve as the basis for understanding why students do not complete their undergraduate degrees.

Subsequent research examined how federal financial aid (Voorhees, 1985) and students' finances influenced their decisions to depart from higher education (Breier, 2010). In addition to investigating the student components that affect student degree completion, over time, research broadened and examined institutional factors that could influence student persistence. Berger and Braxton (1998) expanded on Tinto's (1975) theory of student departure to examine how organizational attributes affect students' dropout decisions. Their research explained how students' perception and experience with organizational features, including institutional communication, fairness in policy and rule enforcement, and students' participation in decision-making, affected their dropout decision (Berger & Braxton, 1998).

Over time, other studies widened the scope for understanding students' departure decisions by using resource dependence theory to look at how institutions' decisions regarding

resource allocation influenced their ability to operate and provide students' services to improve graduation rates (Fowles, 2014; Pfeffer & Salancik, 1978). Recent studies continue to use resource dependence theory to understand institutional expenditure decisions, such as the relationship between institutions' revenue sources and their teaching expenditures (Kholmuminov et al., 2019).

Throughout the years, scholars have used various approaches and theories to understand what impacts undergraduate graduation rates from both the student resources perspective and institutional resources lens. During the same period, the cost of obtaining a postsecondary degree continuously rose, and students' educational loan debt (Dwyer et al., 2012). Baker and Montalto (2019) explore how student loan debt and financial stress impact students' academic performance, as academic integration is an integral part of students' dropout decisions (Tinto, 1993). Additionally, current studies on institutional resources and practices such as endowment investing and spending (Moran, 2018) and tuition discounting (Rine, 2019) explore how these factors impact students' experience and financial position, which are also determinants for students dropout decisions (Tinto, 1993). Scholars continue to use Tinto's (1975) theory of student departure and Pfeffer and Salancik's (1978) resource dependence theory to examine various aspects of institutions' and students' decision-making.

Social Background

Figuring out how to improve graduation rates at higher education institutions has benefits. Obtaining a higher education degree affects society because it is a crucial factor in socio-economic development and progression (Lucas, 2006). Individuals who at least complete some college are more likely to gain employment than their peers who do not obtain any postsecondary education (Giani et al., 2020). Additionally, the economic impact for individuals

who receive some amount of higher education is greater than for those who do not obtain any higher education (Trostel, 2015). Individuals who receive education beyond a high school diploma have experienced greater job security, lower probability of being in prison or jail, longer life expectancy, and a plethora of other societal impacts (Trostel, 2015).

Enrolling in a higher education institution creates a more educated society, which improves job, health, and financial satisfaction (Ilies et al., 2018). Low-educated women who participate in non-degree and informal education activities have demonstrated more social and political confidence, greater participation in culture, and improved employability (Iñiguez-Berrozpe et al., 2020). The literature shows that the impact of enhancing undergraduate college completion on society is vast.

Theoretical Background

Previous research details the various causes of students not completing their college degrees. Tinto (1975) developed the theory of student departure and explained that students' ability to integrate into an institution's academic and social systems helped them determine their college departure decision. The theory of student departure stems from Durkheim's (1961) explanation of why people commit suicide and Spady's (1971) research on college student dropouts. Over the years, Tinto (1993) built on the original theory of student departure by adding more factors that impact students' academic and social integration, such as faculty and peer interactions.

Subsequent research used Tinto's (1975, 1993) theory to add other components that may contribute to student departure. Berger and Braxton (1998) examined how organizational attributes such as communication and fairness of an institution also impact students' college departure decisions. However, Berger and Braxton's adaption did not examine the effects

organizational resources had on college students' departure decisions. Other research considered how students' and their families' attitudes about finances and financial aid affected their integration into college and, ultimately, their persistence to degree completion (Cabrera et al., 1992, Voorhees, 1985). Recent studies continue to build on Tinto's theory of student departure to investigate factors such as students' satisfaction with financial support (Moneva et. al, 2020) and students' background, financial, and academic variables (Margarit & Kennedy, 2019) to understand further what components contribute to students' dropout decision.

More recent studies on higher education have begun to use the resource dependence theory (Pfeffer & Salancik, 1978) to understand schools' financial decision-making processes (Fowles, 2014; Kholmuminov et al., 2019). Pfeffer and Salancik developed the resource dependence theory to explain how organizations rely on their environment and how these external constraints impact organizations' ability to survive in a competitive market. Studies that applied resource dependence theory to higher education focused on institutional revenues and expenditures such as instruction costs, subsidizing tuition for high-need students, and providing school amenities (Kholmuminov et al., 2019; Moran, 2018). Even though research gained information on how institutional financial resources are allocated, there is a gap in the literature on how financial resources affect student outcomes, such as undergraduate degree completion.

Problem Statement

Although the cost of attending higher education is increasing, and schools are putting forth tremendous effort to increase student degree completion, there is minimal literature that integrates undergraduate graduation rates and institutional financial resources. Colleges and universities wear many hats and are expected to achieve many outcomes and do so with as few costs as possible (Johnstone, 2016). Studies have explored how student financial aid,

socioeconomic status, and financial attitudes have influenced students' social and academic integration into the institution, and ultimately their likelihood of persisting through to degree completion (Baker & Montalto, 2019; Breier, 2010).

While research about students' finances and how they influence college persistence and studies on institutional resource allocation have been conducted, there is limited knowledge of the two topics being integrated. Significant amounts of literature exist around student degree completions that explore many variables that affect college student departure decisions (Margarit & Kennedy, 2019). Studies have also investigated how financial resource allocation affects organizational operations (Gansemer-Topf et al., 2018). A recent study used student body, student demographics, and student financial characteristics to predict the six-year undergraduate graduation rates (Crisp et al., 2018). The study found that institutional revenues and expenses can predict graduation rates, and researchers' recommended future research examine such variables and more to understand their predictability strength (Crisp et al., 2018). The literature gap arises when college student departure and organizational financial resources are examined together (Crisp et al., 2018). The literature on the relationship between institutional resources and expenditures and student retention can be found in recent publications (Dahlvig et al., 2020; Pike & Robbins, 2020). However, the literature on institutions' financial resources' impact on undergraduate graduation rates is limited. The problem is that the literature has not fully addressed how higher education institutions' financial resources predict students' bachelor's degree completion rates.

Purpose Statement

This quantitative, predictive correlational study aims to examine the relationship between colleges' and universities' financial resources and undergraduate degree completion rates. The

study used institutional financial information, aggregated revenues and aggregated expenses, as its two predictors. The aggregated financial revenues include operating and nonoperating institutional income, endowment funds, and tangible and intangible assets as defined by the IPEDS Finance survey glossary. In detail, revenues consist of earnings from tuition and fees, auxiliary enterprises revenues, capital appropriations, capital grants and gifts, contributions from affiliated entities, gifts, government appropriations, grants and contracts, investment income, and sales and services of educational activities (Integrated Postsecondary Education Data System, n.d.). The aggregated financial expenses include academic support, auxiliary enterprises expenses, independent operations, institutional support, and student services (Integrated Postsecondary Education Data System, n.d.). The criterion variable is student six-year degree completion rates, expressed as a graduation rate percentage. The population of the study is higher education institutions. The sample comprises 193 four-year, public and private, and non-profit and for-profit baccalaureate colleges and universities using the Carnegie basic classification.

Significance of the Study

The results of the study can add relevant information to the currently available literature. First, the study can theoretically help higher education scholars and practitioners understand how to integrate institutional financial resources and student degree completion. The outcomes show the strength and direction of the relationship between institutional financial resources and graduation rates. It also displays how much of the various financial resources contribute to determining student degree completion. Current research has explored variables that promptly aid students in graduating from community colleges (Margarit & Kennedy, 2019). Studies have also investigated how resource allocation improves or impedes institutional operations (Kholmuminov et al., 2019). This study combines institutional financial resources and student

degree completion to understand how institutional finances influence six-year undergraduate degree completion for colleges and universities in the U.S.

Second, the study helps university administrators with financial decision-making. Since the research conducted multiple linear regression analysis, this knowledge can be used to decipher which expenditures have the most significant impact on student degree completion. Understanding the impact of various institutional expenses can help administrators with resource allocation for programs and services offered throughout the institution. A study on the variables positively affecting Black men's persistence discovered that urban public universities providing support systems and a sense of community tended to improve student outcomes (Strayhorn, 2017). The current research examined how institutional characteristics and actions affect graduation rates (Pike & Robbins, 2020). Another study also explored how institutional expenditures impact international student graduation rates (Schmidt, 2020). This study gives complementary knowledge by detailing how influential different expenditures indeed are to student degree completion. While current literature examined attributes that influence student persistence and degree completion, this study quantifies the impact these attributes have on institutional financial resources. Ultimately, this study provides new knowledge to describe whether organizational finances should be considered factors that influence undergraduate graduation rates.

Research Question

RQ: Is there a predictive relationship between a college or university's aggregated financial resources and their six-year undergraduate degree completion rates?

Definitions

1. *Academic Support* – Academic support is a functional expense category that includes expenses of activities and services that support the institution's primary missions of instruction, research, and public service (Integrated Postsecondary Education Data System, n.d.).
2. *Auxiliary Enterprises Expenses* – Auxiliary enterprises are expenses for essentially self-supporting operations of the institution that exist to furnish a service to students, faculty, or staff, and that charge a fee that is directly related to, although not necessarily equal to, the cost of the service (Integrated Postsecondary Education Data System, n.d.). Examples are residence halls, food services, student health services, intercollegiate athletics (only if essentially self-supporting), college unions, college stores, faculty and staff parking, and faculty housing.
3. *Auxiliary Enterprises Revenues* – Auxiliary enterprises are Revenues generated by or collected from the auxiliary enterprise operations of the institution that exist to furnish a service to students, faculty, or staff, and that charge a fee that is directly related to, although not necessarily equal to, the cost of the service. (Integrated Postsecondary Education Data System, n.d.).
4. *Baccalaureate colleges* – Baccalaureate colleges are primarily undergraduate colleges with a major emphasis on baccalaureate programs (National Center for Education Statistics, 2020).
5. *Capital appropriations* – Capital appropriations are nonoperating revenues appropriated to a GASB institution by a government with the requirement that the funds be used primarily to acquire, construct, or improve capital assets, including buildings, land,

equipment, and similar capital assets (Integrated Postsecondary Education Data System, n.d.).

6. *Capital grants and gifts* – Capital grants and gifts are revenues of a GASB institution, other than capital appropriations, where a funding source external to the institution specifies that they are used primarily to acquire, construct, or improve capital assets (Integrated Postsecondary Education Data System, n.d.).
7. *Carnegie classification* – Carnegie classification is an institutional classification coding structure developed by the Andrew W. Carnegie Foundation for the Advancement of Teaching (National Center for Education Statistics, 2020).
8. *Cohort* – Cohort is a specific group of students established for tracking purposes (National Center for Education Statistics, 2020).
9. *Completions* – Completions are the number of degrees and other recognized postsecondary credentials (certificates) conferred during an entire academic year (National Center for Education Statistics, 2020).
10. *Contributions from affiliated entities* – Contributions from affiliated entities are revenues from non-consolidated affiliated entities, such as fundraising foundations, booster clubs, other institutionally-related foundations, and similar organizations created to support the institution or organizational units of the institution (Integrated Postsecondary Education Data System, n.d.).
11. *Cost of attendance* – Cost of attendance is the amount of tuition and fees, room and board, books and supplies, and other expenses that a full-time, first-time degree/certificate-seeking student can expect to pay to go to college for an academic year (National Center for Education Statistics, 2020).

12. *Endowment funds* – Endowment funds are funds whose principal is nonexpendable (true endowment) and that are intended to be invested to provide earnings for institutional use.
13. *Expenses* – Expenses are defined as the discharge of assets, or accrual of liabilities, from providing goods, services, or other activities (National Center for Education Statistics, 2020).
14. *Expected family contribution* – Expected family contribution is an index number that college financial aid staff use to determine how much financial aid a student would receive if the student were to attend their school. The information the student reports on their free application for federal student aid (FAFSA) form is used to calculate the student's EFC (Federal Student Aid, n.d.).
15. *Financial resources* – Financial resources consist of operating and nonoperating institutional revenues, endowment funds, and tangible and intangible assets as defined by the IPEDS Finance survey glossary (Integrated Postsecondary Education Data System, n.d.). Financial resources are used to cover institutional expenses, including academic support, auxiliary enterprises, independent operations, institutional grants, institutional support, and student services.
16. *Full-time equivalency* – Full-time equivalent (FTE) of students is a single value providing a meaningful combination of full-time and part-time students (Integrated Postsecondary Education Data System, 2017).
17. *Gifts* – Gifts are revenues received from gift or contribution non-exchange transactions (Integrated Postsecondary Education Data System, n.d.).
18. *Government appropriations* – Government appropriations are revenues received by an institution through acts of a legislative body, except grants and contracts. (Integrated

Postsecondary Education Data System, n.d.). These funds are for meeting current operating expenses and not for specific projects or programs.

19. *Graduation rate* – Graduation rate is calculated as the total number of completers within 150% of normal time divided by the revised adjusted cohort (National Center for Education Statistics, 2020).
20. *Grants and contracts* – Grants and contracts are revenues from governmental agencies and nongovernmental parties that are for specific research projects, other types of programs, or for general institutional operations (if not government appropriations) (Integrated Postsecondary Education Data System, n.d.).
21. *Independent Operations* – Independent operations are expenses associated with operations that are independent of or unrelated to the primary missions of the institution (i.e., instruction, research, public service), although they may contribute indirectly to the enhancement of these programs (Integrated Postsecondary Education Data System, n.d.). This category is generally limited to information technology expenses, actual or allocated costs for operation and maintenance of plant, interest, and depreciation related to the independent operations.
22. *Institutional Grants* – Institutional grants are scholarships and fellowships granted and funded by the institution and/or individual departments within the institution (i.e., instruction, research, public service) that may contribute indirectly to the enhancement of these programs (Integrated Postsecondary Education Data System, n.d.).
23. *Institutional Support* – Institutional support is a functional expense category that includes expenses for the institution's day-to-day operational support (Integrated Postsecondary Education Data System, n.d.).

24. *Intangible Assets* – Intangible assets consisting of nonmaterial rights and benefits of an institution, such as patents, copyrights, trademarks, and goodwill (Integrated Postsecondary Education Data System, n.d.).
25. *Investment income* – Investment income is revenue derived from the institution's investments, including investments of endowment funds (Integrated Postsecondary Education Data System, n.d.). Such income may take the form of interest income, dividend income, rental income or royalty income and includes both realized and unrealized gains and losses.
26. *Nonoperating* – Nonoperating activities are those outside the activities that are part of the operating activities of the institution (Integrated Postsecondary Education Data System, n.d.).
27. *Operating* – Operating revenues and expenses result from providing goods and services (Integrated Postsecondary Education Data System, n.d.).
28. *Retention rate* - Retention rate is a measure of the rate at which students persist in their educational program at an institution, expressed as a percentage. For four-year institutions, this is the percentage of first-time bachelor's (or equivalent) degree-seeking undergraduates from the previous fall who are again enrolled in the current fall. For all other institutions, this is the percentage of first-time degree/certificate-seeking students from the previous fall who either re-enrolled or successfully completed their program by the current fall (National Center for Education Statistics, 2020).
29. *Revenues* - Revenues are defined as the arrival of resources of net assets of an institution from them providing goods, services, or other activities (National Center for Education Statistics, 2020).

30. *Sales and services of educational activities* – Sales and services of educational activities are revenues from the sales of goods or services that are incidental to the conduct of instruction, research, or public service (Integrated Postsecondary Education Data System, n.d.). Examples include film rentals, sales of scientific and literary publications, testing services, university presses, dairy products, machine shop products, data processing services, cosmetology services, and sales of handcrafts prepared in classes.
31. *Student Services* – Student services are a functional expense category that includes expenses for admissions, registrar activities, and activities whose primary purpose is to contribute to students' emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instructional program (Integrated Postsecondary Education Data System, n.d.). Examples include student activities, cultural events, student newspapers, intramural athletics, student organizations, supplemental instruction outside the normal administration, and student records.
32. *Tangible Assets* – Tangible assets are physical items that have value and are owned by the institution (Integrated Postsecondary Education Data System, n.d.).
33. *Tuition and fees* – Tuition and fees are the amounts of tuition and required fees covering a full academic year most frequently charged to students (Integrated Postsecondary Education Data System, n.d.). These values represent what a typical student would be charged and may not be the same for all students at an institution.

CHAPTER TWO: LITERATURE REVIEW

Overview

A literature review was completed to examine student departure, higher education finance, and the role institutional finance plays in undergraduate student degree completion. This chapter explores literature relevant to the research topic. First, the review describes the theory of student departure and resource dependence theory. Next, the chapter focuses on past and current research on student departure from college and higher education finance. Finally, a synthesis of the theories reviewed and financial considerations on student departure was completed. The literature review will reveal the gap in research on the relationship between financial considerations and student departure and how institutional financial resources impact undergraduate graduation rates.

Theoretical Frameworks

The theories explored in this chapter are Tinto's (1975) theory of student departure and Pfeffer and Salancik's (1978) resource dependence theory. The purpose of the theoretical framework is to provide background and understanding of the concepts that will guide the research project. The bases of the theories for this research are psychology, higher education, sociology, and economics. The literature will be detailed in a narrative format to explain the knowledge that exists on the research topic (Gall et al., 2007).

Using Durkheim's (1961) theory on suicide and Spady's (1971) research on college student dropout, Tinto (1975) developed the theory of student departure to explain how students arrive at their college departure decision. Pfeffer and Salancik (1978) used sociology and organizational theory to describe how organizations are reliant on their environment and how these external constraints impact organizations' ability to survive in a competitive market. The

subsequent sections examine these theories and how they lay the foundation for the research topic. The research explores the relationship between higher education institutions' financial resources and undergraduate graduation rates. The research also investigates whether institutional wealth serves as a predictor for graduation rates.

Tinto's (1975, 1993) theory on student departure and Pfeffer and Salancik's (1978) resource dependence theory are the theoretical frameworks for examining financial considerations and student departure. Research exists that uses both theories related to institutional wealth or student departure, but the theories are used separately. Tinto's original theory of student departure has remained the same at the core. However, over the years, Tinto and other researchers have added more variables that better explain students' dropout decisions' nuances.

Breier (2010) built on Tinto's (1993) model to understand the role students' socioeconomic status plays in their institutional experiences, specifically their academic and social integration, which helps determine students' departure decisions. This literature investigated how students' financial resources impacted their dropout decision, not how the institutions' financial resources influenced their dropout decision. The role of finances was also used by Cabrera et al. (1992) as they expanded Tinto's (1975) model of student departure to understand inputs such as students' financial aid and financial attitudes. Specifically, Cabrera et al. (1992) sought to determine how these inputs impact students' goals and institutional commitment. Examining how students felt about finances and examining the student aid they were given has also been applied to Tinto's theory of student departure. Still, it is again from the students' inputs and not necessarily institutional resources and inputs.

Kholmuminov et al. (2019) applied Pfeffer and Salancik's (1978) resource dependence theory to higher education institutions' resource allocation for academic and non-academic expenditures, as well as institutional aid. As resource constraints increase for public and private colleges and universities, schools must figure out ways to provide students with institutional financial support and offer quality services and amenities inside and outside the classroom (Fowles, 2014; Moran, 2018). These studies have used resource dependence theory to examine institutions' revenues and expenditures, how colleges and universities allocate their resources, how schools' resources impact the services and amenities they can offer to students, and the various constraints institutions have to conquer to survive and remain competitive. Resource dependence theory has been applied to higher education to understand how schools are surviving in an increasingly competitive industry that is dealing with less government funding, more corporate relationships, heightened student loan debt, increased cost of attendance, growing globalization, and more privatization (Zhang et al., 2016).

Using these two theoretical frameworks will provide insight into how financial attitudes, financial aid, and institutional resources contribute to undergraduate graduation rates. Tinto (1975), and subsequent research, uses students' pre-college attributes, students' institutional experiences, and institutional attributes to understand whether students will persist in college through to degree completion. Pfeffer and Salancik (1978) use organizations' dependence on external resources, such as money, to survive and remain competitive. The research topic intersects these theories to investigate how institutional resource dependence connects to, and possibly influences, institutional attributes and students' institutional experiences that contribute to student persistence and degree completion.

Theory of Student Departure

Tinto (1975) applies Durkheim's (1961) theory of suicide to Spady's (1971) student dropout research to develop the theory of student departure. These two theories use psychology, sociology, and the structure of higher education to understand how students decide to depart from college (Durkheim, 1961; Spady, 1971). One of the suicide types that Durkheim describes is egoistic, which includes people who are not deeply ingrained in communities. People that feel separate and have not integrated into communities. Tinto uses Durkheim's egoistic suicide type definition and applies it to higher education by explaining the connection between students' dropout decisions and how they have integrated into the college academically and socially (Godor, 2017). Spady explains that the factors contributing to student attrition in their first year will be the same forces the following year. However, the variables to affect student persistence and attrition tend to be different in the latter years of their college experience (Tinto, 1982). Spady's and Tinto's intertwine when examining student and faculty relationships (Pascarella & Terenzini, 1979). Pascarella and Terenzini (1979) found the student-faculty relationship to influence student persistence consistently positively. This study demonstrates how Durkheim's theory of suicide can be applied in a higher education context. Students who are ingrained in a community, specifically the faculty community for this study, are less likely to voluntarily drop out (Conn, 2017; Pascarella & Terenzini, 1979).

The theory of student departure suggests that students must have a personal goal commitment and an institutional commitment to being fully integrated into college (Tinto, 1975). These commitments consist of adapting to the social and academic systems that exist at an institution. The social system is comprised of peer-group interactions and faculty interactions. The academic system includes students' grade performance and intellectual development. The

components in these systems gauge students' academic and social integration. Student integration is used to understand their goal commitment and institutional commitment. The results of these social and academic integrations can be used to predict a student's dropout decision. According to Tinto (1975), students who do not integrate academically and socially into college culture are more likely to depart.

Students' goal commitment and institutional commitment are affected by their inputs when they enroll at a higher education institution (Tinto, 1975). The inputs consist of students' family background, individual attributes, and pre-college schooling. Family background pertains to familial social status, values, and expectations. Individual attributes refer to demographics such as sex, race, and ability. Pre-college schooling includes grade point averages and academic and social achievements. These inputs have direct and indirect impacts on the student's initial goal commitment and institutional commitment. Then, the institution's academic and social systems provide a student experience. The student experience in these systems determines students' academic integration and social integration, cultivating a new goal commitment and institutional commitment. As a result of the student experience in the academic and social systems and their ability to integrate, these evolved commitments then predict their dropout decision.

Tinto's (1975) foundational theory on student departure focused solely on experiences of students' integration into the social and academic systems that exist in college to determine their dropout decision. Over the years, the theory expanded regarding students' goals and commitments and the components that make up the institution's academic and social systems as factors determining students' departure decisions (Tinto, 1993). Goals and commitments grew to include external commitments and students' intentions. Formally, the academic system included

students' academic performance, and informally it considered faculty interactions. The social system examined students' extracurricular activities formally and peer group interactions informally.

The various iterations of Tinto's (1975, 1993) theory of student departure have been used in subsequent research to examine the role of finances in student persistence (Breier, 2010; Cabrera et al, 1992; Margarit & Kennedy, 2019), how institutional characteristics contribute to students' dropout decisions (Berger & Braxton, 1998; Strayhorn, 2017), and other research topics around the subject of student departure from college. These studies have expanded Tinto's theory to look at how student finances (Margarit & Kennedy, 2019), financial aid (Lin et al., 2018), student perceptions (Breier, 2010; Wagner et al., 2019), student resources (Cabrera et al., 1992; Collier et al., 2019), and institutional attributes (Berger & Braxton, 1998; Strayhorn, 2017) influence students' goal and institutional commitment and integration. There is room in the literature to examine if and how institutional financial resources relate to and impact undergraduate graduation rates. The theory of student departure can be built upon from the lens of institutional financial resources as a factor in students' departure decisions.

Resource Dependence Theory

The resource dependence theory was developed by Pfeffer and Salancik (1978) and is structured around how external resources affect organizational behavior. Pfeffer and Salancik built their research on sociological and economic principles to study how organizations must work with other entities to acquire resources for survival. Businesses must develop strategies and internal frameworks to combat resource constraints and their dependence on scarce resources to survive (Pfeffer & Salancik, 1978). Companies that can function with uncertainty, adapt to changes, establish and maintain relationships with other organizations in their environment, and

keep their internal structure and management sound have power. This power can be used to obtain the limited resources and have a competitive advantage within the respective industry. Resource dependence theory explains that the organization that can acquire power aligns itself with surviving in a competitive market.

Although resource dependence theory was developed with for-profit businesses in mind, researchers have applied the framework to higher education when examining internal frameworks and operations and the impact external funding has on colleges and universities' expenditure decisions (Coupet, 2013; Fowles, 2014; Zhang et al., 2016). Coupet (2013) used resource dependence theory to understand how external resource reliance impacted graduation rates at historically Black colleges and universities (HBCUs). The study found that HBCUs are overly dependent on government funding and need to diversify revenue streams and offset administrative spending's negative impact on graduation rates. (Coupet, 2013).

Other higher education research used resource dependence theory to understand institutional funding structures such as colleges' and universities' reliance on various external resources to operate and how financial resource sources impact expenditure decisions (Fowles, 2014; Kholmuminov et al., 2019). External income, such as revenue from tuition and fees, is one example of how colleges and universities are dependent on student enrollment to survive and operate (Fowles, 2014). However, how the institution operates internally impacts its resource dependence as well. Higher education boards' organization and structure have the power to influence institutional operations and productivity (Coupet & McWilliams, 2017). From a resource dependence lens, changing organizational culture, which is influenced by the board, may be necessary to improve resource allocation (Coupet & McWilliams, 2017).

Resource dependence theory is relevant to this research topic because it is grounded in how resources affect organizational behavior (Pfeffer & Salancik, 1978). Understanding organizational behavior in a higher education context could help determine which institutional resource revenues and expenditures would positively affect undergraduate graduation rates. There is research on how resource dependence impacts institutional expenditures (Coupet & McWilliams, 2017; Fowles, 2014; Kholmuminov et al., 2019). However, there is minimal information on how institutional financial resources affect undergraduate graduation rates. The research on student completion focuses on a specific institutional type, such as HBCUs or public/private (Coupet, 2013; Pike & Robbins, 2020).

Using resource dependence theory as the theoretical framework, a qualitative study on volunteer engagement and financial sustainability for non-profit organizations discovered that are transparent, focus on local fundraising, and build trust were more likely to maintain financial sustainability (Ilyas et al., 2020). From the resource dependence theory perspective, organizations that survive and operate effectively in a competitive market are successful because they reduce their uncertainty (Pfeffer & Salancik, 1978). Higher education institutions, like many non-profit organizations, function with limited resources. Resource dependence theory explains why organizations must develop and adopt strategies that enable their survival. One of the ways to ensure this is by establishing financial sustainability. Although much literature on resource dependence theory is not conducted in higher education, the principles can be applied in a higher education context.

Another component where resource dependence theory can be applied is organizational logistics to improve competitiveness. In a study that examined 250 South Korean manufacturing companies, resource dependence theory was used to investigate how trust, satisfaction, and

commitment impacted companies' logistics decisions and outcomes (Kim et al., 2020). The study found that companies with a higher level of trust, satisfaction, and commitment with external firms also had enhanced outcomes related to their service providers. The study also found that companies that established strategic relationships with external firms also had better performance with organizational operations. This study is an example of how relationships affect organizational effectiveness and competitiveness in the marketplace. Resource dependence theory tells us that organizations must maintain a competitive edge in their industry to survive and have long-term success (Pfeffer & Salancik, 1978). The concepts of trust, satisfaction, and sense of belonging are used in higher education research as variables that contribute to students' departure decisions (Berger & Braxton, 1998; Museus et al., 2018).

Resource dependence theory can also be used to understand why governments provide resources to public entities, creating quasi-markets, with the expectation that these entities will offer a good or service more effectively and efficiently than they could offer it (Coupet & McWilliams, 2017). Since firms depend on limited resources in their environment to function and survive, they have to overcome the level of uncertainty they experience from constraints (Pfeffer & Salancik, 1978). Organizations can reduce uncertainty within their constraints by diversifying their relationships with external firms in their environment or by exerting dominance over a scarce resource. A recent study used the understanding of resource dependence theory to explain why governments may subsidize industries such as healthcare, corrections, education, and garbage collection (Coupet & McWilliams, 2017). Governments provide funding to organizations in these environments when they believe these firms will produce an output more efficiently than they could (Coupet & McWilliams, 2017). However, if they perceive the output is not worth the cost, they can and have decreased funding to these organizations. The

decrease in funding would lead to more uncertainty. Several recent studies explore how decreases in government financial support impact institutions and undergraduate graduation rates (Denning et al., 2019; Qayyum et al., 2018; Rine, 2019).

There is a gap in the literature on how institutional revenues from endowments, tuition and fees dollars, fundraising, and government funding impact schools' resources and how they allocate those resources. This research topic uses the theory of student departure and resource dependence theory to explore the relationship between institutional resources and student degree completion.

Related Literature

Extensive research has been conducted observing various factors that contribute to students' departure decisions using Tinto's (1975, 1993) models as the framework. A longitudinal analysis of 466 college students attending a large public high commuter institution was conducted by Cabrera et al. (1992) and uses financial considerations, specifically student aid and their attitude about aid, to understand student persistence. Other studies also used the theory of student departure and examined financial aid's impact on students' departure decisions (Breier, 2010; Voorhees, 1985). While there is much literature available to explore the theory of student departure, there are not as many studies on resource dependence theory and student departure. Research using resource dependence theory in the context of higher education focuses heavily on institutional expenditure decisions (Fowles, 2014; Kholmuminov et al., 2019). Nonetheless, the following sections will provide a synthesis of studies that focus on student departure and the various higher education resources that play a role in students' departure decisions. The related literature will reveal the importance of exploring institutional resource dependence and understanding its relationship with student completion.

Student Departure

Tinto's (1975, 1993) model on student departure has been used as the foundation for many other research studies. Subsequent research used Tinto's foundation to research the role organizational attributes and finances play in student persistence. The theory of student departure explains how students' family background, individual features, and pre-college schooling impact their goals and institutional commitments (Tinto, 1993). Other research detailed that students' and their families' attitudes toward finances (Cabrera et al., 1992; Moneva et al., 2020) and the financial aid available to students (Breier, 2010) are also part of the inputs that contribute to students' commitments. Before coming to college, students' socioeconomic status impacts how they integrate into the academic and social systems, which influences persistence and ultimately students' dropout decision (Breier, 2010; Cabrera et al., 1992; Tinto, 1993). Recent literature reaffirms past studies that students' socioeconomic status influences their integration and performance (Crisp et al., 2018; Lin et al., 2018). A study with a sample of 700 students at one university found that students with food insecurity are more likely to experience psychological and financial stress and obtain a lower first-semester grade point average (Collier et al., 2019). This study used the theory of student departure to investigate another variable that could contribute to students' departure decisions. This variable connects to financial considerations that were also previously examined by Breier (2010).

In addition to financial considerations impacting how students adapt to college systems, institutional attributes also play a role in students' dropout decisions (Berger & Braxton, 1998). The theory on student departure explains that students' institutional experiences impact their departure decision, and other scholarly research details how organizational attributes directly influence the institutional experience (Berger & Braxton, 1998; Hajrasouliha, 2017; Webb &

Cotton, 2018). Students can integrate into the academic and social systems when an institution has robust and clear communication and policies, and decision-making is perceived as fair, thus making them more likely to persist because of their institutional experience (Berger & Braxton, 1998; Millea et al., 2018).

Additionally, the college campus's aesthetic serves as an organizational attribute and contributes to students' satisfaction and academic performance (Hajrasouliha, 2017). Another institutional factor that impacts students' departure decisions is the academic experience the institution provides the student (Murphy & Murphy, 2017; Webb & Cotton, 2018). An institutional survey with 1,170 respondents determined a positive relationship between students' considering withdrawing from their institution and factors such as low peer interaction, not enough individual contact with staff, and too much assessment (Webb & Cotton, 2018). In a study on factors that improve degree completion for Latino students, Murphy & Murphy (2017) focused on individual elements, including students' academic experience, that positive student success. By examining four higher education institutions, they explained how programs at the school link to individual factors.

Student Persistence and Completion

Research has demonstrated that finances and organizational attributes play a role in student persistence (Baker & Montalto, 2019; Conn, 2017). A survey was administered using a sample of 299 students enrolled in a Midwestern public university to examine the relationship between students' academic performance and self-reported financial stress, and student loan debt (Baker & Montalto, 2019). Academic performance is an indicator for determining the likelihood of student persistence (Tinto, 1993). Another study that examined student persistence focused on the factors that made students feel like their college tuition was worth the cost (Conn, 2017).

Using data on 6,322 undergraduate students representing 11 institutions who completed the Thriving Quotient questionnaire, Conn (2017) discovered that the strongest determinant of students feeling like their cost of attendance was worth it was a psychological sense of community and the second strongest indicator was financial difficulty. These research projections relied on Tinto's (1975) and Cabrera et al.'s (1992) models to observe variables that contribute to student persistence. These studies highlight the factors that influence students to graduate from their undergraduate program. Many of the factors mentioned can be directly related to how institutional resources are allocated (Gamsemer-Topf et al., 2018; Jacob & Gokbel, 2018).

Other current studies have also examined how finances and institutional resources contribute to student persistence through degree completion (Crisp et al., 2018; Qayyum et al., 2018). In addition to students' attitudes toward finance, financial aid, specifically student loans and scholarships, impacts students' stress levels, influencing academic performance, social integration, and their likelihood to persist (Baker & Montalto, 2019; Qayyum et al., 2018). In a study of 545 distance education students, Qayyum et al. (2018) observed institutional scholarships if financial aid was a factor in student persistence. The logistic regression and Chi-square analysis results showed that high-needs students who received the scholarship were twice as likely to persist as lower-need students who received the scholarship (Qayyum et al., 2018). When students are stressed about money, they have a higher tendency to depart from college (Baker & Montalto, 2019; Collier et al., 2019; Qayyum et al., 2018). Financial aid resources that students do not have to pay back, such as grants and scholarships, have shown to make students less worried about finances, and they positively impact students' persistence and ability to

complete their degree within six years (Crisp et al., 2018; Moneva et al., 2020; Qayyum et al., 2018; Voorhees, 1985).

Past and current research has provided evidence on how finances are inputs that students bring with them to college, such as their socioeconomic status and how they feel about money (Breier, 2010; Cabrera et al., 1992; Lin et al., 2018). Students' financial situations, such as their financial aid and their ability to pay for school, affect their ability to adapt to their college's academic and social systems (Baker & Montalto, 2019; Qayyum et al., 2018). Specifically, the type of financial aid, such as education loans, also impacts students' likeliness of graduating from college (Zhan et al., 2018). This integration influences their persistence and, ultimately, degree completion (Crisp et al., 2018; Qayyum et al., 2018).

Applying Tinto's (1975) student departure theory, studies have discovered that student persistence can be predicted by examining students' academic and social integration and the interaction between the two systems. A study at a small university in a developing country sought to apply Tinto's model to understand the relationship between students' academic and social integration in college (Mannan, 2007). The researchers developed a questionnaire and administered it to 2,400 full-time undergraduate students (Mannan, 2007). The study found a negative relationship between academic integration and social integration, but both factors are predictors of persistence (Mannan, 2007). This means that students who deeply were ingrained in the institution's academic system were minimally integrated with the social system and vice versa (Mannan, 2007). Subsequent studies have also determined that social and academic integration predict students' dropout decisions, but they may not be mutually exclusive (Dewberry & Jackson, 2018).

The varying studies show that Tinto's (1975) theory of student departure has been used over many decades to predict students' dropout decisions when thinking about student persistence and degree completion. Using NSSE data, a study found positive relationships between student-staff-faculty interactions and students' satisfaction with their college experience (Johnson et al., 2016). Additionally, NSSE data was used again for a study that found that college experiences were among many predictors for six-year graduation rates (Shoulders et al., 2020). Recent literature on student persistence and completion supports Tinto's (1993) theory of student departure that students' academic and social integration impact their departure decisions. However, the question following it is what organizational attributes impact the student experience, which affects college degree completion?

Organizational Attributes

Organizational attributes are other factors that play a significant role in students' dropout decisions (Berger & Braxton, 1998). Organizational attributes include characteristics such as institution-wide policies and decision making, academic support, institutional communication practices, non-academic support and activities, sense of community, and institutional integrity (Baltaru, 2018; Berger & Braxton, 1998; Conn, 2017; Strayhorn, 2017). Studies on various student types determined that institutions that provide support systems for students have a sense of community and involve non-academic professionals also improve student performance and persistence (Baltaru, 2018; Strayhorn, 2017). The student experience plays a critical role in their departure decision (Tinto, 1993). When students believe their tuition dollars were used fairly for academic and non-academic services, they are more likely to integrate into the college systems (Conn, 2017). These studies show that organizational attributes are part of the student persistence

and degree completion progress because they impact the student experience (Baker & Montalto, 2019; Baltaru, 2018; Conn, 2017; Qayyum et al., 2018; Strayhorn, 2017).

Other recent studies examined how institutional characteristics affect 4- and 6-year graduation rates at different institutional types (Dahlvig et al., 2020; Pike & Robbins, 2020). A correlational analysis of Council for Christian Colleges & Universities (CCCU) member institutions were conducted using IPEDS data to examine the relationship between how institutions allocate resources and their six-year graduation rates (Dahlvig et al., 2020). Similarly, Pike and Robbins (2020) used IPEDS data to investigate 556 public baccalaureate granting institutions using GASB account standards to run multiple regressions on institutional expenditures and 4- and 6-year graduation rates. The studies found a positive relationship between spending on instruction and graduation rates. Although other positive correlations were discovered in these studies, other inconsistencies were found, such as the relationship between other expenditures and graduation rates (Pike & Robbins, 2020).

Research on institutional expenditures and graduation rates provides context on how specific organizational attributes affect students' dropout decisions. Institutional expenditures were predicted using IPEDS data on bachelors, masters, and doctoral degree-granting institutions (Horn et al., 2019). The institutions' degree production was a key variable in accurately predicting expenditures. Expenditures were also used to understand better organizations' efficiency and what attributes they focus on to understand resource allocation decisions better. The organizational attributes previously mentioned provide insight on what matters to students and which institutional characteristics impact their dropout decision (Baltaru, 2018; Conn, 2017; Strayhorn, 2017; Tinto, 1993). Analysis of institutional expenditures also adds detail on

organizational priorities, and how firms allocate their resources gives insight into institutions' level of uncertainty in the higher education sector (Pfeffer & Salancik, 1978).

Another aspect of organizational attributes is schools' physical characteristics. A contemporary study conducted linear regressions on 103 research-intensive universities in the United States and found that schools' campus scores positively correlated with institutions' six-year graduation rates (Hajrasouliha, 2017). The study also discovered private universities have higher average campus scores than public universities. The campus score additionally informed researchers that campus physical attributes play a role in student satisfaction. Students' academic experience likewise contributes to their likelihood of completing their undergraduate degrees (Murphy & Murphy, 2017; Webb & Cotton, 2018). In a study on Latinos preparing for, getting into, and getting through college, Murphy and Murphy (2017) determined that although Latino students have many unique influences that impact their chances of graduating from college, their academic experience and sense of community play a critical role in their persistence. In addition to students' sense of community impact their persistence, current research also emphasizes that sense of belonging influences retention and degree completion (Davis et al., 2019; Gopalan & Brady, 2020; Museus et al., 2018). These are experiences that continue to appear in studies on student persistence. Students' sense of community and belonging and academic experiences are affected by organizational attributes, including campuses' physical characteristics (Conn, 2017; Hajrasouliha, 2017; Strayhorn, 2017). These organizational attributes are determined based on institutional resources (Millea et al., 2018).

Higher Education Finance

Higher education finance impacts the services institutions can provide, the cost of attendance for students, and institutions' ability to survive (Fowles, 2014; Kholmuminov et al.,

2019). Colleges and universities rely on limited resources to stay open and educate and serve students (Fowles, 2014; Pfeffer & Salancik, 1978). Institutions depend on their endowments (Moran, 2018), state appropriations if public (Ortagus & Yang, 2018; Tang, 2020), and tuition and fees revenue to function (Kholmuminov et al., 2019; Rine, 2019). Using Pfeffer and Salancik's (1978) resource dependence theory as the foundation, the subsequent paragraphs detail how different income streams impact higher education institutions' ability to remain open and competitive in their industry.

A survey of more than 3,000 faculty and staff at Southern University found that higher education employees are being asked to do more with less (Jaeger & Thorton, 2005). Faculty disclosed that they believed their work, viewed as public service, had a high value but that this value was not reflected in the reward system in place. They also viewed administrative offices as barriers to performing their service work instead of serving as institutional resources managers. Subsequent research supported this finding when examining the double-edged sword of diversifying higher education revenue (Namalefe, 2014). As public subsidies have decreased, colleges and universities have had to seek other revenue streams to provide adequate resources for faculty and staff to function (Namalefe, 2014). However, this initiative also led to more work for faculty that are encouraged to pursue grants and conduct research. It is a balancing act of acquiring sufficient resources and protecting academic quality. Like Jaeger & Thorton's (2005) study, faculty are asked to do more with less.

The scope of higher education finance has changed globally over the years. Recent studies in Malaysia and the United Kingdom investigated how universities can secure and improve their financial stability and minimize uncertainty (Nik Ahmad et al., 2019; Garland, 2020). The desire to diversify revenues beyond tuition and government support has created fierce

competition in the financial higher education environment. A recent study of United Kingdom universities found that schools were more diversified financially before 1992 (Garland, 2020). In Malaysia, another study found that higher education institutions are heavily dependent on government support (Nik Ahmad et al., 2019). Many studies on higher education finance focus on public institutions. However, it is essential to remember that higher education finance affects private institutions as well. As public colleges and universities strive to become less dependent on government support and more reliant on diversifying revenue streams, they increase competition in the private fundraising sector (Body, 2017).

The literature on higher education finance has touched on how institutions are trying to figure out how to offer quality education and experience to students while also working toward expanding resources (Jaeger & Thornton, 2005; Koryakina, 2018). It is worth noting that there are gaps in the literature on how this pressure to diversify resources impacts students' graduation rates. Faculty and staff have disclosed the pressures to bring in grant funds, support the university in diversifying revenue, and manage a heavier workload (Jaeger & Thornton, 2005). Additional research has also discovered that higher education professionals impact institutions' graduation rates (Baltaru, 2018). Therefore, employee workload should not be ignored since employees significantly impact the student experience. Tinto (1993) explained that the relationships that students establish with faculty affect their departure decision. Even though the literature shows the indirect connection between higher education finance and institutions' graduation rates, there is an opportunity to investigate the relationship between higher education finance, specifically institutional revenues and expenses, and students' graduation rates.

Other nuances to consider when examining higher education finance are performance-based funding (Umbricht et al., 2017), alternative student loan schemes (Chapman & Doris,

2019), its effects on students' and their family's academic aspirations (Anderberg et al., 2020), and the impact of offering income-contingent loans (Barr et al., 2019; Long, 2019). Using IPEDS data to investigate the impacts of performance-based funding at public universities in the state of Indiana, Umbrecht et al. (2017) determined that this funding structure not only did not increase degree completions but also lowered acceptance rates. An alternative to performance-based funding as a form of financing higher education, Chapman and Doris (2019) administrated simulations of different loan repayment programs in Ireland, including mortgage-type loans and income-contingent loans. A similar study conducted by Barr et al. (2019) made suggestions on the U.S. student loan system based on Australia's and England's systems (Barr et al., 2019). These studies found that mortgage-type loans would have payments too high for lower-income college graduates, but income-contingent loans were viewed as feasible for both students and the anticipated government subsidies that would be necessary (Barr et al., 2019; Chapman & Davis, 2019).

A similar study recommended another form of income-contingent loan repayment, a piecewise program that would allow borrowers to participate in the workforce and simultaneously complete their education (Long, 2019). This suggestion argues that a piecewise income-contingent program would improve both efficiency and equity. In addition to performance-based funding and income-contingent programs, Anderberg et al. (2020) explain how higher education finance impacts students and their families' academic aspirations in the UK. Although students' academic ambitions did not change based on various higher education costs, there was a difference, from a socioeconomic lens, in parents' aspirations for their children. The subsequent sections will provide a more in-depth synthesis of the literature on higher education finance.

Government Support

The Pew Charitable Trusts (2019) produced a report on the changes, over the last 20 years, in state and federal government support for higher education. In 1990 state funding per student was about 140 percent higher than federal funding, but over the years, things have changed, and in 2015 state funding per student was only 12 percent more than federal funding (The Pew Charitable Trusts, 2019). The report is one example of how state government support has declined in the last few decades, and federal government support has increased. The noticeable difference is that state appropriations to institutions have decreased, and the federal Pell Grant program for students has expanded (The Pew Charitable Trusts, 2019).

Government financial support to public postsecondary institutions has consistently declined over several years (Fethke, 2018; Li, 2017; Ortagus & Yang, 2018). Colleges and universities have had to adjust institutional aid policies, increase online student enrollment, and rely more heavily on endowment revenue to offset the state decreases (Fethke, 2018; Ortagus & Yang, 2018). To understand the consistent decline of state government financial support to higher education institutions, Li (2017) examines data from 50 states over 30 years to glean the relationship between changes in states' policies and states' characteristics. The study determined a positive relationship between unemployment in the state and education budget cuts. In contrast, increases in tax revenue and larger income inequality gaps act as protectors against education budget cuts (Li, 2017). Furthermore, Li found that a unified government across political parties in a state was more likely to make budget cuts than a split government.

Another way schools improve their financial sustainability is by securing funding via performance-based funding, a funding approach offered by many states in the U.S. (Larocca & Carr, 2020; Umbricht et al., 2017). Research on this funding mechanism discovered that

performance-based funding does not improve graduation rates at colleges and universities, but it does the opposite (Favero & Rutherford, 2020; Umbricht et al., 2020).

While understanding some of the variables that contribute to government support changes, scholars also examined how to combat the steady declines in state appropriations. In an attempt to reduce the impact of lowering state appropriations, some schools adopted a pay-what-you-can-afford (PWYCA) model where the schools set tuition rates the same for in-state and out-of-state students with the assumption that they will increase tuition revenue with full pay students, allowing them to subsidize tuition for lower-income students (Fethke, 2018). While the model has intentions to help lower-income students, Fethke (2018) found the high tuition high aid approach does not lead to higher tuition revenue and does not offset state funding declines. Another recent study examined whether public universities were becoming more reliant on income from online education because of decreasing state appropriations (Ortagus & Yang, 2018). Using resource dependence theory, Ortagus and Yang (2018) discovered a negative correlation between reliance on online education and state appropriations at four-year public universities, especially doctoral institutions. These recent studies are examples of government support's impact on higher education finance, specifically for public institutions.

Government support affects how institutions function and influences students' persistence and degree completion (Gershenfeld et al., 2019; Li, 2017). Research has demonstrated that students who receive non-loan-based financial aid are more likely to graduate (Crisp et al., 2018; Gershenfeld et al., 2019). Recently, Gershenfeld et al. (2019) discovered that low-income students who received an Illinois need-based state grant were more than two times more likely to complete their degree when compared to low-income students who did not receive the grant. It is important to note that the type of program studied in Illinois is not how state

government support typically shows up for higher education institutions (Gershenfeld et al., 2019). About 13 percent of state funding for higher education is in financial aid grants to students, and about 73 percent are structured as state appropriations for institutions (The Pew Charitable Trusts).

With the decreasing of state government support in the form of state appropriations and the expansion of federal government support through grant programs that go directly to students, the model for higher education finance has shifted over the years in terms of government support (Li, 2017; The Pew Charitable Trusts, 2019). As a result, schools are trying different approaches to diversify revenue streams while still striving to subsidize education costs for lower-income students (Fethke, 2018). From a resource dependence lens, government support that goes to the institution is a subsidy that alleviates uncertainty for higher education institutions (Pfeffer & Salancik, 1978). However, most federal government aid goes to students in the form of federal student aid. This type of support adds uncertainty to colleges and universities because it shifts the institutions' burden to enroll students to receive government support.

Institutional Finance

Complementary to government support, institutional finance also plays a vital role in higher education finance. While there may be variations between how institutional finance, specifically revenues and expenditures, are determined, several studies have used variables in IPEDS surveys as the standard for understanding institutional finance for a large sample of institutions (Cheslock, 2007; Horn et al., 2019). In a study on how institutional researchers could incorporate economics into understanding and analyzing higher education revenues, Cheslock (2007) used the revenues defined and provided by IPEDS to conduct a comparative analysis of many institutions. Horn et al. (2019) also used IPEDS to define and determine what is considered

an educational expenditure. The Integrated Postsecondary Education Data System (IPEDS) provides standard definitions and criteria that colleges and universities follow to report their institutional finances. These standards can be used in conjunction with resource dependence theory to understand the nuances of institutional finance.

From a resource dependence theory lens, institutional finance relies on limited revenue from tuition and fees, fundraising and endowments, and government support to determine and allocate expenditures (Fowles, 2014; Kholmuminov et al., 2019; Pfeffer & Salancik, 1978). To survive in a competitive higher education market, institutions must be strategic about internal expenditures and acquiring limited external resources (Fowles, 2014; Horn et al., 2019). When organizations have to function without knowing how much revenue they will accumulate, their uncertainty increases (Pfeffer & Salancik, 1978). To decrease the uncertainty, firms must secure income and establish a level of power for a particularly limited resource in their external environment (Pfeffer & Salancik, 1978). This will ensure that they survive and are competitive in their respective industry (Pfeffer & Salancik, 1978).

Fowles (2014) used resource dependence theory to better understand institutional finance by examining the relationship between schools' net tuition dollars and institutional expenditures for education. After investigating 11 years of institutional finance data, Fowles discovered that organizational expenditures vary depending on their revenue for a given year. In a more recent study that examined the same variables at 62 Uzbekistan higher education institutions over 14 years, Kholmuminov et al. (2019) have similar findings in that there is a positive relationship between institutional revenue from tuition and fees and expenditures on teaching. These studies align with the foundation of resource dependence theory of organizations shifting how they use

resources based on their position of power in the environment and their access to obtain limited resources (Pfeffer & Salancik, 1978).

Institutional revenues act as the primary role in an institution's ability to function and serve and support students. Private institutions rely on income from tuition and fees and fundraising and endowments (Body, 2017; Moran, 2018; Meyer & Zhou, 2017). Public colleges and universities also need tuition and fees and fundraising and endowment revenues, but they depend heavily on state appropriations (Body, 2017; Fethke, 2018; Li, 2017; Ortagus & Yang, 2018). As government support at the state level decreases, public higher education institutions have to replace the revenue in other ways to survive (Li, 2017; Ortagus & Yang, 2018). As a result, public and private schools strive to access the same pool of financial resources, making revenues more challenging to acquire (Meyer & Zhou, 2017). Some institutions have adopted a tuition discounting practice to maximize full-pay students and offer lower tuition, in the form of grants, to high-need students (Moran, 2018; Rine, 2019).

Studies have shown that institutional expenditures on instruction impact student outcomes, specifically graduation rates (Millea et al., 2018; Schmidt, 2020). Even though institutions' expenses are directly impacted by tuition revenue, schools are still expected to improve student retention and degree completion regardless of their financial infrastructure (Gansemer-Topf et al., 2018; Jacob & Gokbel, 2018). Based on resource dependence theory and institutional finance, studies have shown that there is at least an indirect relationship between institutional spending on instruction, teaching and class sizes, and graduation rates (Kholmuminov et al., 2019; Millea et al., 2018; Schmidt, 2020).

Financial Considerations and Student Departure

Previous sections under related literature covered student departure and higher education finance. Using Tinto's (1975) theory of student departure, the prior sections reviewed factors that contribute to student persistence and degree completion and how organizational attributes impact students' dropout decisions. Higher education finance was examined using Pfeffer and Salancik's (1978) resource dependence theory to review research on how government support and the logistics of institutional impact colleges and universities' ability to survive in their environment. This section of the related literature will use both the theory of student departure and resource dependence theory to understand the research that has been conducted on the relationship between financial considerations and student departure from higher education.

Higher institutional revenues allow colleges and universities to provide more non-loan aid to needy students (Moran, 2018). For both private and public institutions' endowments and various forms of fundraising can be used to subsidize tuition for high-need students, increase expenditures on instruction and academic support, and provide more amenities for students to enhance student satisfaction (Body, 2017; Moran, 2018). However, wealthier schools with historically higher endowments for decades have an advantage over lower-resourced institutions (Meyer & Zhou, 2017). They can depend on their income from their endowment to cover much of their operating budget, including the ability to offer more non-loan financial aid to students (Meyer & Zhou, 2017). With state appropriations decreasing, public institutions have had to try various mechanisms to offset those declines, and many do not have endowments large enough to cover their operating budgets (Fethke, 2018; Li. 2017). As a result, less-resourced institutions are more dependent on tuition revenue and function with more income uncertainty, which indirectly impacts student outcomes whether it be because the school cannot offer as much aid, invests less

in instruction and academic support, or are unable to invest in capital projects and campus grounds that may increase student satisfaction (Gansemer-Topf et al., 2018; Hajrasouliha, A., 2017; Moran, 2018). Satisfaction, financial and experience, is a factor in students' departure decisions (Moneva et al., 2020; Shoulders et al., 2020).

Institution's ability to offer more aid to students impact student outcomes (Cabrera et al., 1992). When students feel less financial stress, they are more likely to persist and complete their degrees (Baker & Montalto, 2019; Crisp et al., 2018; Gershenfeld et al., 2019). Additionally, schools with more financial resources can use more expenditures for various student services to enhance the student experience (Gansemer-Topf et al., 2018; Moran, 2018). Furthermore, organizational attributes such as integrity, support services, and sense of community improve student persistence and degree completion (Berger & Braxton, 1998; Conn, 2017; Strayhorn, 2017). Thus, institutional financial considerations are connected to students' departure decisions making an institution's financial sustainability quite important.

Financial Attitudes

Cabrera et al. (1992) explained that students and their families' financial attitudes were inputs that affected students' persistence. Current research shows that students from low-income homes are more likely to stress about higher education cost, how to pay for college, and the type of financial aid they receive (Baker & Montalto, 2019; Cabrera et al., 1992). In a study on offering low-income students in the United Kingdom grant aid, Deaden et al. (2014) found that by providing just £1,000 in grant aid, low-income students' participation in higher education increased by almost four percent. How students perceive their institutions care about their financial hardships also influences retention and graduation rates (Wagner et al., 2019). An exploratory study on students experiencing financial stress and receiving a financial hardship

grant explained that they felt like the school cared about them (Wagner et al., 2019).

Additionally, recent research on college student dropout in South Korea determined that university costs and students' burden were significant variables in understanding students' decision to leave college (Kim & Kim, 2018). However, a study on college students experiencing high financial stress and high student loan debt recently found that those factors positively correlated with students' commitment to their career, economic, and academic goals (Baker, 2019).

In addition to worrying about how to cover school costs, students from various backgrounds also ponder whether their college experience is worth the cost (Conn, 2017). With the cost of higher education increasing, both students and their families want reassurance that obtaining a college degree will result in a return on investment (Johnstone, 2016). Furthermore, students who are satisfied with their families' financial support are more likely to persist in college (Moneva et al., 2020). These financial attitudes impact students' social and academic integration and departure decisions (Baker & Montalto, 2019; Conn, 2017; Moneva et al., 2020).

Although financial stress for students is not ideal, and many studies have found it to impact student persistence negatively, students' financial attitudes can enhance their commitment to avenues they believe will help them relieve their financial stress (Baker, 2019; Kim & Kim, 2019). The literature explains that students burdened about how to pay for college impacts their persistence and degree completion, and even small financial support like grant aid for high need students can have a positive impact on their decision to pursue higher education (Baker, 2019; Dearden et al., 2014; Wagner et al., 2019).

Financial Aid

Just as students' financial attitudes impact their likelihood to complete college, financial aid plays a critical role as well in student persistence (Cabrera et al., 1992; Breier, 2010; Voorhees, 1985). Financial aid that students do not have to pay back, such as federal and state grants and institutional scholarships, have a positive impact on students likelihood to persist and graduate, especially for low-income students (Baker & Montalto, 2019; Gershenfeld et al., 2019; Qayyum et al., 2018; Voorhees, 1985). Because state appropriations are declining, public higher education institutions rely more on tuition and fees revenue and fundraising efforts to provide institutional aid to need-based students and cover organizational expenditures (Body, 2017; Ortagus & Yang, 2018). The increased competition in the fundraising market has also made schools depend on endowment income (Meyer & Zhou, 2017). Even with more schools practicing tuition discounting, financial aid is still insufficient for many schools to close the financial gap for high-needs students (Leonor, 2017). As a result, schools with larger endowments can offer more financial aid, amenities, and services to students to improve their student experience and hopefully their persistence (Fethke, 2018; Moran, 2018; Meyer & Zhou, 2017).

Many studies explain the importance of financial aid, specifically student loans, and its relationship with improving college student persistence and degree completion (Noopila & Pichon, 2020; Zhan et al., 2018). However, there is a threshold where loan-based financial aid becomes a hindrance in students graduating from college. In a study of students enrolled in a Hispanic Serving Institution (HSI), Noopila and Pichon (2020) conducted a mixed-methods study to understand how Stafford loan debt load influences student persistence. Through quantitative analysis on student debt and qualitative interviews, the researchers found that

student debt load across all historically underserved populations had a significant relationship with persistence in both directions. Loans were positively correlated with persistence until it reached a point where students became scared of the amount. That is when the relationship between student loans and student persistence turns to a negative relationship. A similar study that used longitudinal survey data discovered that educational loans were a great predictor in improving graduation rates up until about \$20,000, and then there is a negative relationship between student loans and graduation rates (Zhan et al., 2019). These studies highlight the importance of students receiving non-loan-based aid to improve college graduation rates.

An alternative to student loans are grants that can be offered at the institutional, state, and federal level to help make higher education more equitable and accessible by making the cost of attendance more affordable for lower-income students, as well as, improve graduation rates (Denning et al., 2019; The Pew Charitable Trusts, 2019). A study on the federal Pell grant found that the grant significantly improves graduation rates for first-time students (Denning et al., 2019). On a state level, researchers investigated the longitudinal impact of state grant programs in California, Illinois, and Wisconsin had on student outcomes (Anderson et al., 2019; Bettinger et al., 2019; Gershenfeld et al., 2019). The grant programs in California and Illinois found positive relationships between these state grant programs for high-need students and improvement in graduation rates (Bettinger et al., 2019; Gershenfeld et al., 2019). However, the Wisconsin program did not see an increase in degree completion, but they did see improvements in time to degree for some students (Anderson et al., 2019).

The research on financial aid demonstrates how critical it is for students to have resources to complete their college degrees. Student loans help improve graduation rates but only to a certain point (Zhan et al., 2018). Federal and state grants help high-needs students with degree

completion and time to degree (Anderson et al., 2019; Bettinger et al., 2019; Gershenfeld et al., 2019). Institutional aid is an essential component of student financial aid to improve graduation rates (Lin et al., 2018). Institutions rely on various tactics to improve access and student outcomes, such as subsidizing tuition for high-needs students by increasing it for full-pay students (Rine, 2019). However, colleges and universities with financial resources may be more equipped to offset the cost of attendance for students to boost graduation rates.

Institutional Resources

Institutional resources separate the haves from the have nots when considering the external resource constraints higher education organizations are competing for, such as fundraising (Body, 2018), tuition revenue (Fowles, 2014; Kholmuminov et al., 2019), government funding (Coupet, 2013; Tang, 2020), and public-private partnerships (Golich et al., 2018). Schools' ability to allocate a larger portion of their expenditures to non-academic functions can provide more amenities and professional staff to students, improving both students' academic and social integration (Baltaru, 2018; Kim, 2018; Moran, 2018). However, investment in instruction and academic support has repeatedly been shown to improve student retention and graduation rates (Dahlvig et al., 2020; Pike & Robbins, 2020).

Many schools have challenges accumulating the resources to distribute to non-academic expenditures because government funding has consistently decreased at public institutions, and fundraising markets have become crowded (Body, 2017; Li, 2017). As a result, colleges and universities have relied more on revenue from endowment investments to enhance the student experience (Moran, 2018). However, many schools, such as HBCUs and public institutions, depend on tuition revenue and government funding to operate adequately (Coupet, 2013; Fowles, 2014, Li, 2017). Therefore, some colleges resort to public-private partnerships to gain access to

resources to offer students the enhanced institutional experience other schools can provide using endowment funds (Golich, 2018; Moran, 2018).

Ultimately, the source and depth of institutional resources influence institutions' expenditure decisions. A study on HBCU resource dependence found that HBCUs are too reliant on government funding and allocate too many resources on administrative expenditures that negatively affect the institutions' graduation rate (Coupet, 2013). Although this research focuses on a specific institutional type, it highlights how schools are dependent on limited external resources and the importance of diverse revenue streams. The study also describes a connection between institutional financial considerations and student degree completion. This study provides a rationale for the significance of this research topic. Additional research should explore other institutional types and how institutional financial resources, in addition to government funding, relate to student degree completion.

Summary

College student dropout challenges have been a constant topic in higher education (Burke, 2019). Extensive research has been conducted on why students leave higher education (Burke, 2019). Past and current studies examined student retention and persistence from the institutional and student lens. Researchers investigated students' academic preparation, family background, financial status, and commitment to college enrollment. Studies also probed institutional characteristics, resources, and services offered that could contribute to students' dropout decisions. Although much research has covered both institutional and student attributes and characteristics that influence students' dropout decisions, there is not much information available on how institutions' financial resources impact student departure and, ultimately,

undergraduate graduation rates. Past and current literature is missing the connection between student departure and institutional resource dependence.

Undergraduate graduation rates have been analyzed by institutional types such as public vs. private, two-year vs. four-year, or Predominately White Institution (PWI) vs. Historically Black College and University (HBCU). A considerable amount of research has also investigated students' socio-economic status and how personal financial attitudes and attributes impact degree completion. However, little research has explored undergraduate graduation rates based on institutional financial status and resource expenditures. Examining the relationship between institutional financial resources and student degree completion will give higher education administrators and educational policymakers insight into whether and how institutional wealth and resource allocation affects student completion. Gaining a better understanding of how student outcomes compare between students who attend wealthier schools to students who enroll in financially challenged institutions will add another factor to increase awareness of student departure. This expanded understanding will provide new knowledge on ways of improving equity in higher education access and success because decision-makers will have more information on where to allocate resources to yield better student outcomes, such as degree completion.

CHAPTER THREE: METHODS

Overview

The purpose of this study was to examine the relationship between institutional finances and six-year undergraduate degree completion rates at four-year colleges and universities in the United States. The study used institutional finances, revenues and expenses, and six-year undergraduate graduation rates defined and provided by IPEDS to conduct the research. Chapter three details the research design, research question, hypothesis, participants and setting, instrumentation, methods, and data analysis for the study.

Design

The research used a non-experimental, quantitative, correlational design (Warner, 2013). The purpose of selecting a correlational research design was to examine the relationship between grouped institutional financial resources, the predictor variables, and undergraduate graduation rates, the criterion variable (Gall et al., 2007). Using a correlational design was suitable because the study investigated the relationship between variables (Gall et al., 2007). Correlational research allowed the study to analyze how multiple variables, combined and separately, affect an outcome (Gall et al., 2007). This design also understood the strength of the relationship between the variables being studied (Gall et al., 2007). In addition to exploring the relationship between variables, a correlational design was also appropriate for this study because it was used to analyze how much the predictor variables, aggregated institutional financial resources, could predict the criterion variable, six-year undergraduate completion rates (Gall et al., 2007).

It was appropriate to use a quantitative correlational method for this study because the research strived to measure variables to understand their relationship and respond to a research question and hypothesis (Creswell, 2018). Quantitative research is a mechanism when scholars

collect, analyze, interpret, and write the study's findings (Williams, 2007). This study followed this process to report the results of publicly accessible IPEDS data, which included institutional financial resources and six-year undergraduate graduation rates. Using a correlational design allowed the study to analyze how multiple variables, combined and separately, affected an outcome (Gall et al., 2007). Furthermore, the methodology in the research design provided an understanding of the strength of the relationship between the variables that were studied (Gall et al., 2007). In addition to exploring the relationship between variables, using a correlational design was also appropriate for this study because it investigated how much the predictor variables, combined institutional financial resources, could predict the criterion variable, six-year undergraduate completion rates (Gall et al., 2007).

The study's criterion variable was six-year undergraduate graduation rates at four-year bachelor's degree-granting colleges and universities. The graduation rate was defined as the portion of first-time, full-time undergraduate students, who were part of a reported entering cohort, that completed their bachelor's level degree within six years of enrolling in a four-year college or university (National Center for Education Statistics, 2019). The standard measurement for graduation rates was determined by the U.S. Department of Education's National Center for Education Statistics (NCES) subsidiary, the Integrated Postsecondary Education Data System (IPEDS) (National Center for Education Statistics, 2020). All higher education institutions participating in a federal student aid program report aggregated institutional data annually to IPEDS (National Center for Education Statistics, 2020).

The study used two predictor variables to make up institutional financial resources. The predictor variables were the institutions' aggregated revenues and expenses. The IPEDS definitions for revenues and expenses were also used for this study. For this study, revenues

included the sum of earnings from tuition and fees, auxiliary enterprises revenues, capital appropriations, capital grants and gifts, contributions from affiliated entities, gifts, government appropriations, grants and contracts, investment income, and sales and services of educational activities. These items were aggregated to represent institutional revenues. Revenues were defined as the arrival of resources of net assets of an institution from them providing goods, services, or other activities (National Center for Education Statistics, 2019). Expenses included the sum of instruction, research, academic support, public service, student services, institutional support, scholarships and fellowships, auxiliary enterprises, hospital services, and independent operations. Similar to revenues, these expense items were aggregated to determine the expense variable. Expenses were defined as the discharge of assets, or accrual of liabilities, from providing goods, services, or other activities (National Center for Education Statistics, 2019). Revenues increase net assets, and expenses cause a decrease in net assets (National Center for Education Statistics, 2019).

Recent studies have also used tuition and fees, public and private gifts and contracts, auxiliary services, and grants as forms of higher education revenues (Cheslock & Shamekhi, 2020; Horn et al., 2019; Koryakina, 2018). They have also provided the cost of instruction, institutional aid, student services, and other operations as examples of expenses (Cheslock & Shamekhi, 2020; Dahlvig et al., 2020). These studies have used IPEDS definitions and data to conduct comparative analyses of many different higher education institutions. Current literature demonstrated that using IPEDS definitions and data to carry out studies is appropriate. While this practice has not been as widespread in the past, studies are beginning to use IPEDS reported expenditures to understand undergraduate graduation and retention (Dahlvig et al., 2020). Using IPEDS definitions and criteria for institutional revenues, expenses, and undergraduate graduation

rates allowed this study to adhere to a standard that has been followed by other researchers and an instrument that has been determined to be valid and reliable (National Center for Education Statistics, 2012).

Research Question

RQ: Is there a predictive relationship between a college or university's aggregated financial resources and their six-year undergraduate degree completion rates?

Hypothesis

H₀: There will be no significant predictive relationship between the criterion variable, six-year undergraduate graduation rates, and the linear combination of two predictor variables, institutional aggregated revenues and aggregated expenses, for four-year colleges and universities.

Participants and Setting

The participants for the study were drawn from a random sample of more than 7,500 higher education institutions that take part in at least one federal student financial aid program authorized by Title IV of the Higher Education Act of 1965 (National Center for Education Statistics, 2020). Specifically, the participants for the study were four-year bachelor-granting colleges and universities. The sample only included institutions that participated in a federal financial aid program. The participants were determined based on the 2018 Carnegie classification, basic classification. The basic classification in the Carnegie classification system was created by the Carnegie Commission on Higher Education in 1970 and has been updated many times over the years (The Carnegie Classification of Institutions of Higher Education, n.d.). Over 7,500 higher education institutions participate in IPEDS reporting. Higher education institutions that participate in at least one federal student financial aid program must complete all

IPEDS surveys (National Center for Education Statistics, 2020). IPEDS uses the Carnegie classifications for various aggregate reporting. The population of higher education institutions that participate in IPEDS reporting is broken into seven different Carnegie basic classifications. The classifications are doctoral universities, master's colleges and universities, baccalaureate colleges, baccalaureate/associate's colleges, associate's colleges, special focus institutions, and tribal colleges (The Carnegie Classification of Institutions of Higher Education, n.d.). The basic classifications are broken into subgroups. For this study, the high-level basic classification, baccalaureate colleges, was used to determine the sample.

Sample

Since the population of interest included certificate- and degree-granting colleges and universities, random sampling was used to determine the schools that were included in the study. The participants were baccalaureate colleges, which are institutions where baccalaureate or greater degrees make up at least half of all the degrees conferred at the school, and the school confers less than 50 master's degrees or less than 20 doctoral degrees (The Carnegie Classification of Institutions of Higher Education, n.d.). For this study, there were 573 baccalaureate colleges to choose from for the random sample, which represented more than seven percent of all higher education institutions included in the population. The minimum sample size for correlational research for a nondirectional test for $\alpha = .05$, with a desired statistical power of .80 and population p^2 of .05, is 153 participants (Warner, 2013). This study exceeded the minimum requirement because it selected 200 institutions from the available 573 schools. Although the Carnegie classification determined 575 colleges as baccalaureate colleges, one institution was excluded because it did not offer any undergraduate programs. Another institution was excluded from the sample because it was the only school in the classification

whose size and setting were described as large and primarily not residential.

The institutions in the sample were all four-year level or greater. The sample was drawn from 116 (20%) public, 410 (72%) private not-for-profit, and 47 (8%) private for-profit schools. Two-hundred seventy-four (48%) of the colleges did not offer any graduate programs. The sample included both subgroups of the baccalaureate colleges' basic classification: diverse fields and arts and sciences focus. This excluded colleges that were classified as special-focus institutions and tribal colleges. The sample to choose from represented 51 U.S. states and territories. The institutional size makeup of this group was 38 (7%) medium, 270 (47%) small, and 265 (46%) very small. Schools with reported fall enrollment full-time equivalency (FTE) of less than 1,000 students were determined as very small, with 1,000 to 2,999 FTE enrollment was considered small, and 3,000 to 9,999 FTE enrollment was considered medium (The Carnegie Classification of Institutions of Higher Education, n.d.). This study did not include any school with an institution size classified as large, a school with an FTE enrollment of at least 10,000. The institutional setting ranged from primarily nonresidential, primarily residential, and highly residential. Institutions where less than 25% of degree-seeking undergraduates lived on campus were determined to be primarily nonresidential, where 25% to 49% lived on campus were considered as primarily residential, and where at least half of the degree-seeking undergraduates lived on-campus were classified as highly residential. There were 139 (24%) primarily nonresidential, 67 (12%) primarily residential, and 367 (64%) highly residential colleges.

A random sample was determined using Microsoft Excel. The 573 baccalaureate colleges were extracted from the Carnegie Classification database and available in a spreadsheet. In Microsoft Excel, the RAND() function was used for each row in the document, and a random number was assigned to all 573 institutions. The spreadsheet was then sorted from smallest

random number to largest random number. The first 200 institutions were selected to serve as the sample for the study. The NCES unitIDs were entered into the IPEDS system for all 200 institutions, and 193 of those institutions had data available to be extracted. After the data was extracted, it was discovered that 13 schools only had graduation rate data available and not financial data. As a result, those schools were excluded from the analysis. The final sample size was 180 institutions.

Instrumentation

The criterion variable for this study was six-year undergraduate graduation rates, and it was measured by the number of students who completed their degree within six years divided by the revised adjusted cohort. The revised adjusted cohort was defined as the cohort number after revisions or removals such as fixing previously reported incorrect data and removing students who meet IPEDS allowable exclusions (National Center for Education Statistics, 2019). The six-year graduation rate was included in the colleges' IPEDS graduation rate survey, which must be submitted annually for schools to remain in compliance with the federal student aid program. The graduation rates survey had 48 questions that collected six-year graduation rates information on first-time, full-time fall entering cohorts by student gender, race and ethnicity, academic program, time to degree completion, and federal financial aid status. The purpose of the graduation rates survey was for colleges and universities to provide NCES with information about their institutional productivity and comply with federal reporting requirements (Integrated Postsecondary Education Data System, n.d.). Current literature has used the IPEDS graduation rates survey to analyze the relationship between institutional expenditures and student graduation rates (Dahlvig et al., 2020).

The predictor variables were aggregated institutional revenues and expenses, which were

collected in the IPEDS Finance survey instrument. The purpose of the finance survey was to gather institutional financial information to understand the resources and costs associated with postsecondary education services and how schools contributed to the gross national product (Integrated Postsecondary Education Data System, n.d.). The finance survey had 155 questions that collected detailed information on institutional revenues and expenses and assets and liabilities. Public institutions reported using the Governmental Accounting Standards Board (GASB) standards. Private institutions had the option to report using the Financial Accounting Standards Board (FASB) standards. Institutions used one of the two reporting standards to provide their source of funds for operating and non-operating revenues and their expenses classifications.

The IPEDS Finance survey required schools to report their revenues by operating, non-operating, and other sources (National Center for Education Statistics, 2020). The operating revenue sources included tuition and fees, after deducting tuition discounts and allowances, federal grants and contracts, state grants and contracts, local grants and contracts, private grants and contracts, sales and services of auxiliary enterprises, sales and services of hospitals after deducting for patient contractual allowances, sales and services of educational activities, independent operations, and other sources. The non-operating revenue sources included federal appropriations, state appropriations, local appropriations, non-operating grants, investment income, gifts, including contributions from affiliated organizations, and other non-operating revenues. The final category for institutional revenues was other revenues and additions. This portion included capital appropriations, capital grants and gifts, additions to permanent endowments, and other revenues and additions. The operating, non-operating, and other revenues were totaled and reported as all institutional revenue and additions. In this study, revenues were

reported in aggregate form; however, portions by the source of funds were reported when applicable and relevant.

Colleges and universities reported their institutional expenses by functional and natural classification for the IPEDS Finance Survey (National Center for Education Statistics, 2020). The functional classification combined operating and non-operating expenses. The expenses included instruction, research, public service, academic support, student services, institutional support, scholarships and fellowships, auxiliary enterprises, hospital services, independent operations, and other functional expenses and deductions. The natural classification expenses consisted of salaries and wages, benefits, operation and maintenance of plant, depreciation, interest, and other natural expenses and deductions. The natural and functional expenses were combined to make up institutions' total expenses and deductions. A recent study used the expense section of the IPEDS Finance survey to gather institutional expenditure data to investigate the relationship between institution expenditures and student graduation and retention (Dahlvig et al., 2020).

The graduation rates and finance survey instruments were used by more than 7,000 higher education institutions annually. These survey instruments were created to describe and analyze trends in higher education in the United States (National Center for Education Statistics, 2020). The data obtained focused on student enrollment, dollars spent, employees, and degrees earned (National Center for Education Statistics, 2020). IPEDS data are used by Congress, federal agencies, state and local governments, professional organizations, and students and their families (National Center for Education Statistics, 2020). All IPEDS survey instruments must meet the NCES standards for validity and reliability. To meet validity requirements, all instruments had to detail the rationale for the survey's intended use and evidence of their validity

have to be based on analysis of survey content, response processes, the internal structure of the instrument, and the relationship of the scores to the criterion (National Center for Education Statistics, 2012). Survey instruments met reliability standards when the scores collected were “free from effects of random variations due to factors such as administration conditions and/or differences between scorers” (National Center for Education Statistics, 2012). Data reported in IPEDS surveys were publically accessible because institutions that participated in any federal aid program must have reported data on various institutional factors as a requirement of the Higher Education Act of 1965 (National Center for Education Statistics, 2020).

Procedures

Correlational research studies can collect and analyze previously collected data (Creswell, 2018). For this study, previously reported quantitative data was collected from a publicly accessible source, the Integrated Postsecondary Education System (IPEDS). The specific data types collected were institutions’ six-year graduation rates, aggregated revenues, and aggregated expenses. These quantitative data types were appropriate for correlational research because they allowed the study to examine the relationship between multiple variables in a large dataset (Creswell, 2018).

The researcher received approval to extract institutional data using the publically accessible IPEDS database. Before collecting information, the researcher submitted the required application to the Liberty University Institutional Review Board (IRB). After the researcher received IRB approval, see Appendix, the researcher went to the Carnegie classification site to extract a Microsoft Excel CSV file of all institutions considered baccalaureate colleges in their basic classification system. Then, the researcher used the unitID provided in the Microsoft Excel CSV file to pull the graduation rates data and revenues and expenses data from IPEDS.

To access IPEDS data, the researcher went to the main IPEDS site and selected “use the data.” Next, “compare institutions” was selected. At this time, the researcher copied and pasted all unitIDs that were obtained into the IPEDS compare institutions text box. Then, the researcher selected compare institutions by “name or unitIDs.” The next step was to select variables. First, the researcher selected variables for the graduation rates survey. The researcher chose the “graduation rate data within 150 percent of normal time 4-year and 2-year institutions” subcategory. Then, “gender - 1997 to current year” was selected. For years, the researcher chose to obtain three years of graduation rate data and selected 2017 to 2019. For cohort data, the researcher chose “4-year institutions” and “completers within 150% of normal time.” Finally, for the graduation rates variables, the researcher selected “grand total.” Second, the researcher selected revenues and expenses variables for the finance survey. Three subcategories were selected for the finance survey. The “public institutions - GASB 34/35,” “private not-for-profit institutions or Public institutions using FASB,” and “Private for-profit institutions” subcategories were chosen. Then, for the revenues and expenses sections, the researcher chose the option to select all variables for fiscal years 2017 to 2019 for all subcategories and sections. Once all variables were selected, the researcher selected “continue” and then downloaded the data in an Excel file. The data was imported into the IBM® Statistical Package for the Social Sciences (SPSS®) program. The researcher used IBM® SPSS® Statistics 28 for all data analysis.

Data Analysis

The variables in this study were aggregated institutional financial resources and undergraduate graduation rates. Multiple linear regression was the type of data analysis that was used for the study. Multiple linear regression is a statistical approach that uses two or more predictor variables to predict the outcome of the criterion variable (Gall et al., 2007). The

multiple linear regression also provided the correlation between the criterion variable and the predictor variables (Gall et al., 2007). Conducting a multiple linear regression was appropriate in this non-experimental study that did not manipulate the variables, and causal inferences were not made (Warner, 2013). A multiple linear regression data analysis was also suitable because two or more predictor variables were being used to examine their effect on one criterion variable (Warner, 2013).

The steps of the analysis were to follow and meet the following assumptions for multiple linear regression. Data screening was conducted by producing box and whisker plots to check for extreme outliers (Warner, 2013). If an extreme outlier was detected, the study would have sought an explanation to understand the possible cause of the outlier. First, the data would be reviewed to ensure the outlier was not the result of a calculation or recording error (Gall et al., 2007). If that did not explain the outlier, the sample would have been reviewed to ensure it represented the target population (Gall et al., 2007). If the extreme outliers resulted from data error or sampling differences, the study would have removed extreme outliers (Field, 2018). However, if the extreme outliers appeared to result from natural variation, the outlier would not be removed (Field, 2018). It was essential to remove outliers if the previously mentioned conditions were met because they would have decreased the chances of having Type I or Type II errors. The study did not find extreme outliers. Data screening continued by creating scatterplots for each pair of predictor variables and between predictor variables and the criterion variable used for the assumption tests of a multivariate normal distribution to ensure a linear relationship between the predictor and criterion variables. The researcher looked for a cigar shape in the scatter plots to meet the assumption of a multivariate normal distribution. Data screening also used scatter plots of residuals to meet the assumptions of linearity, independence of residuals, and

homoscedasticity. To conduct linear regression, the relationship between the predictor variables and the criterion variable needed to be linear. Scatter plots of residuals ensured linearity, independence, and homoscedasticity assumptions were met. The last assumption test was a correlation matrix to ensure there was no multicollinearity. The assumption of non-multicollinearity among predictor variables was met when the variance inflation factor (VIF) was between one and five. After executing a multiple linear regression using SPSS®, the various outputs were used for interpreting and reporting the results.

An alpha level of 0.05 was used to determine statistical significance (Gall et al., 2007). However, in prediction studies, practical significance provide more context than statistical significance (Gall et al., 2007). The magnitude was used to determine practical significance. For prediction studies, the magnitude of the obtained correlation coefficients should be at least .70 (Gall et al., 2007). The multiple correlation coefficient, R^2 , was used to measure magnitude in multiple linear regression (Gall et al., 2007). Those values provided information on the strength and direction of the predictor variables' contributions. Descriptive statistics, the mean and standard deviation, were observed to examine the independent relationships between the variables without controlling for or considering other variables. Conducting multiple linear regression produced three outputs, the model summary, an ANOVA table, and a coefficients table. The model summary showed how well the model fit by showing the percentage of the variance of the data explained by the linear regression (Warner, 2013). The ANOVA table specified whether the results from the model were statistically significant. The coefficients table displayed the specific predictor variables that were statistically significant predictors of the criterion variable while holding the other variables constant. Ultimately, the results determined whether to reject or fail to reject the null hypothesis.

CHAPTER FOUR: FINDINGS

Overview

This chapter will provide the results from the data analysis. The chapter starts by reviewing the research question and null hypothesis. Then, the chapter presents the descriptive statistics, followed by the multiple linear regression analysis. The researcher conducted a multiple linear regression analysis to investigate the predictive relationship between a college or university's aggregated financial resources, revenues and expenses, and six-year undergraduate completion rates. Multiple linear regression is a statistical approach that uses two or more predictor variables to predict the outcome of the criterion variable. It also provided the correlation between the criterion variable and the predictor variables. The descriptive statistics report data such as mean and standard deviation for the criterion variable, six-year completion rates, and the predictor variables, aggregated revenues and aggregated expenses. The findings from the multiple linear regression address the research question and null hypothesis. Assumption tests are summarized in tables and figures. The statistical outputs from the multiple linear regression analysis display the alpha level for statistical significance and the multiple correlation coefficient for practical significance. The researcher used detailed statistics to report whether to reject or fail to reject the null hypothesis.

Research Question

RQ: Is there a predictive relationship between a college or university's aggregated financial resources and their six-year undergraduate degree completion rates?

Null Hypothesis

H₀: There will be no significant predictive relationship between the criterion variable, six-year undergraduate graduation rates, and the linear combination of two predictor variables,

institutional aggregated revenues and aggregated expenses, for four-year colleges and universities.

Descriptive Statistics

Using random sampling, 200 institutions were selected to conduct the data analysis. Out of the 200 colleges and universities, IPEDS profiles could be found for 193 schools. Ultimately, the data was obtained for 180 institutions. The 180 schools were 4-year and above baccalaureate colleges and universities, and the data cover three academic years between 2016-2017 and 2018-2019. The data represent 47 U.S. states and territories, with the majority of the institutions being private, not-for-profit schools that have enrollment profiles of very high undergraduate or exclusively undergraduate. Table 1 describes the institutional profiles and provides frequency and percent of school type, size, setting, and enrollment profile.

Table 1

Description of Institution Profile Frequencies

	Category	Frequency	Percent
School type	Private for-profit	12	6.7
	Private not-for-profit	138	76.7
	Public	30	16.7
Size	Medium	12	6.7
	Small	91	50.5
	Very Small	77	42.8
Setting	Highly Residential	127	70.6
	Primarily Nonresidential	36	20.0
	Primarily Residential	17	9.4
Enrollment Profile	Exclusively undergraduate	82	45.6
	High Undergraduate	21	11.7
	Majority Undergraduate	3	1.7
	Very High Undergraduate	74	41.1

Table 2 describes the sample by reporting mean, standard deviation, and median data for the predictor and criterion variables. The data represent six-year graduation rates for academic years between 2016-2017 and 2018-2019. The aggregated financial information includes fiscal years 2017 through 2019.

Table 2

Mean, Standard Deviation, and Median of Criterion and Predictor Variables

	N	M	SD	Median
Six-year graduation rate	543	54.8	21.8	52
Total Expenses	528	\$39,122,082.83	\$50,323,542.02	\$19,461,192.50
Total Revenues	523	\$48,027,715.39	\$77,678,772.10	\$19,727,109.00

Results

Data Screening

The researcher extracted public data from Integrated Postsecondary Education Data System (IPEDS) and downloaded the data into a Microsoft Excel sheet. The data was extracted three times to ensure the accuracy of the correct information being pulled from the IPEDS system. Before screening the data, seven institutions were omitted, decreasing the sample from 200 to 193 because they did not have IPEDS profiles. Since these institutions did not have IPEDS profiles, they did not have data that could be collected. Of the 193 schools that had IPEDS profiles, 180 had both six-year graduation rate and financial resources information. The financial resources and six-year graduation rate data were imported into IBM SPSS, and the statistical software was used to merge the two datasets using institutions' unitID and academic year. After the researcher finalized the complete dataset, data screening was conducted by

producing box and whisker plots to check for extreme outliers. The researcher did not identify any extreme outliers.

Assumptions Testing

Once the data were merged and the initial data screening was complete, data screening continued by creating scatter plots for each pair of predictor variables and between predictor variables and the criterion variable to ensure a linear relationship between the predictor and criterion variables. The assumption of a multivariate normal distribution was met because the scatterplots displayed a cigar shape. Scatterplots of residuals were used to test the assumptions of linearity, independence of residuals, and homoscedasticity.

Analysis

A multiple linear regression analysis was conducted to examine the predictability institutions' financial resources had on their six-year graduation rates. Table 3 provides the model summary output, which displays information on the quality of the prediction. Table 3 showed that the multiple correlation coefficient, $R = .454$, $R^2 = .206$, and adjusted $R^2 = .203$. This means that aggregated financial resources can predict 20.6% of the variation in an institutions' six-year graduation rates.

Table 3

Multiple Linear Regression Model Summary

<i>R</i>	<i>R</i> Square	Adjusted <i>R</i> Square	Std. Error of the Estimate
.454	.206	.203	19.208

The results also show that the overall regression model is a good fit because the predictor variables, aggregated revenues and aggregated expenses, statistically significantly predict six-

year graduation rates: $F(2, 503) = 65.263, p < .001$). Table 4 includes the Analysis of Variance (ANOVA) output, which shows that alpha is less than .05.

Table 4

Analysis of Variance Output

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.
Regression	48155.337	2	24077.669	65.263	<.001
Residual	185572.015	503	368.930		
Total	233727.352	505			

Although the ANOVA output underscores that the model is statistically significant, the model summary indicates that variations in aggregated financial resources accurately predict the variation in six-year graduation rates less than a quarter of the time. The squared multiple correlation coefficient signals the quality of the model's fit, and $R^2 = .206$ means that more than 79% of the variance in the model remains unexplained. The coefficients show how much the six-year graduation rate is impacted by the predictor variables when all else is held constant.

Table 5 shows that aggregated expenses have an alpha above .05 at $p = .943$, which means that aggregated expenses do not have a statistically significant impact on six-year graduation rates. Although total revenues stand as a statistically significant predictor, $p < .001$, the unstandardized coefficient, $B = 0.0000001226$, reveals that for every additional revenue dollar, graduation rates increase by 0.0000001226. Another way to interpret this coefficient is to consider that for every \$1,000,000 increase in revenue, the model suggests six-year graduation rates will increase by .1226.

Table 5*Coefficients*

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	<i>B</i>	Std. Error	Beta	<i>t</i>	Sig.	Lower Bound	Upper Bound
(Constant)	49.696	1.113		44.633	<.001	47.509	51.884
Total Revenues	1.226E-7	.000	.448	4.590	<.001	.000	.000
Total Expenses	2.946E-9	.000	.007	.071	.943	.000	.000

The multiple linear regression had an alpha below .05, $p < .001$. Based on this outcome, the researcher rejected the null hypothesis because the model was statistically significant; however, the magnitude of the model was low, with an $R^2 = .206$, leaving almost 80% of the variability in the model unexplained.

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter will begin by discussing how the results from the study support or contradict other studies and theories. Following that discussion, the study's implications will explain how the study has contributed to existing knowledge on student postsecondary degree completion. Next, the limitations of the study will be covered. The chapter will conclude by providing recommendations for future research.

Discussion

The purpose of this quantitative, predictive correlational study was to examine the relationship between colleges' and universities' financial resources and six-year undergraduate degree completion rates. The research question asked if a predictive relationship existed between a college or university's aggregated financial resources and their six-year undergraduate degree completion rates? The study's findings showed a statistically significant relationship between institutions' financial resources and their six-year undergraduate completion rate. The multiple linear regression determined $R^2 = .206$, which means that 20.6% of the time, the variability in the six-year completion rate can be predicted by institutions' financial resources. The results show that for every \$1,000,000 increase in revenue, the model suggests that six-year graduation rates will increase by .1226. When examining the predictor variables individually, the findings from the study showed that aggregated revenues were statistically significant with predicting six-year undergraduate completion rates, but aggregated expenses were not statistically significant.

The findings from the study support recent literature on the impact institutions' financial resources have on graduation rates. Pike and Robbins (2020) found that certain specific institutional expenditures such as instruction, academic support, and student services could be

related to graduation rates. However, their study also discovered inconsistencies on the possible impact that expenses have on graduation rates due to omitted variables from using IPEDS data. Pike and Robbins (2020) findings align with the results from this study because aggregated expenses did not show statistical significance in predicting six-year graduation rates, and this study also used IPEDS data.

Theoretical Frameworks

Tinto's (1975) theory of student departure and Pfeffer and Salancik's (1978) resource dependence theory served as the theoretical frameworks for this study. Tinto explained that students' academic and social integration into college affected their departure decision. Students' ability to integrate successfully academically and socially depended on their individual inputs and institutional characteristics. Expanded versions of Tinto's theory produced by Cabrera et al. (1992) explained how finances and students' ability to pay for college influenced their likelihood of academic and social integration, and ultimately the departure decision. Cabrera et al. explained the importance of students having sufficient financial resources, which aligns with the study's findings that institutional revenues have a statistically significant impact on six-year completion rates. Current literature highlights the importance of revenue diversification to combat resource constraints and offer students financial support, services, and amenities to help them inside of and outside of the classroom (Fowles, 2014; Moran, 2018).

While research on the importance of revenue diversification in higher education is still a relatively new hot topic, Pfeffer and Salancik (1978) developed the resource dependence theory decades ago to describe how organizations are reliant on their environment and how these external constraints impact organizations' ability to survive in a competitive market. Much of the literature on resource dependence theory has been done outside of higher education and

primarily focused on for-profit companies. Some recent literature has used resource dependence theory in a higher education context to examine institutions' resource allocation for academic and non-academic expenditures, as well as institutional aid (Kholmuminov et al., 2019). This type of research has not explored the connection to institutions' financial resources impact on graduation rates. The results from this study showed that there is a positive relationship between institutions' financial resources and their six-year undergraduate completion rate. Thus, supporting the relevancy of this topic. From Tinto's theory of student departure and resource dependence theory, this study underscores how institutional resources contribute to completion rates. The study supports the idea that these two theoretical frameworks can be used together in higher education research and practice.

Student Departure

When thinking about student departure, specifically, this study also supports much of the recent literature on factors that contribute to students' departure decisions. Godor (2017) and Strayhorn (2017) researched factors contributing to improving completion rates for Latino students and Black male students. Both researchers found the students' academic experience as contributing factors to their success. In conjunction with that notion, Gansemer-Topf et al. (2018) and Dahlvig et al. (2020) found that institutions' spending on instruction was positively related to the schools' retention and graduation rates. This study combined examining the contextual services colleges and universities offer to students that promote their success with the financial expenditures that are also indirectly connected to improving student outcomes. Combining these research topics using the theory on student departure and resource dependence theory supports current literature on factors that contribute to improving six-year graduation rates. The study found that 20.6% of the variability in six-year completion rates could be

connected to institutions' financial resources. Current literature also found that when schools spend more on students' academic experience, their retention and graduation rates increase (Murphy & Murphy, 2017; Webb & Cotton, 2018).

Higher Education Finance

The study connected resource dependence theory to higher education finance. In addition to the study showing that financial resources have a statistically significant impact on six-year undergraduate completion rates, it specifically discovered that institutional revenues have a statistically significant impact on completion rates, and institutional expenses did not show a statistically significant impact on completion rates. From this lens, the study both supported and contradicted recent literature.

Current research explains that institutions depend on their endowments (Moran, 2018), state appropriations--if a public college or university (Ortagus & Yang, 2018; Tang, 2020), and tuition and fees revenue to function (Kholmuminov et al., 2019; Rine, 2019). The findings from the study support this research because institutional revenues showed statistical significance in influencing graduation rates. Other recent literature details how institutional expenditures on instruction impact student outcomes, specifically graduation rates (Millea et al., 2018; Schmidt, 2020). The results from this study contradict this frame of research because it found institutional expenses not to have a statistically significant impact on graduation rates.

Financial Considerations and Student Departure

When considering financial considerations and student departure, the findings from this study both support and contradict other research on the topic. Current research covers how wealthier schools can rely more on income from investments and endowments to subsidize costs for students or invest more in student services and amenities (Body, 2017; Meyer & Zhou, 2017;

Moran, 2018). As a result, these schools have more reliable revenue streams and can use that on expenditures like instruction to improve the student academic experience. Related studies also explain that student satisfaction, financial and experience, is a factor in students' departure decisions (Moneva et al., 2020; Shoulders et al., 2020). These studies align with the findings from this study in the context that institutional revenues do support student outcomes because revenues decide what areas schools can invest in, such as instruction and academic support.

In addition to revenues playing a role in student outcomes, other recent literature discussed how schools' ability to allocate a larger portion of their expenditures to non-academic functions can provide more amenities and professional staff to students, improving both students' academic and social integration (Baltaru, 2018; Kim, 2018; Moran, 2018). However, instruction and academic support investment has repeatedly shown to improve student retention and graduation rates (Dahlvig et al., 2020; Pike & Robbins, 2020). These studies contradict the findings from this study because this student did not find expenses to be statistically significant when examining financial resources' impact on six-year undergraduate completion rates.

Implications

This study shows that a relationship exists between institutions' financial resources and their completion rates. The study uses two theoretical frameworks that inform the relationship between student outcomes and the finances of colleges and universities. This study adds to existing knowledge because it provides more context around what factors truly influence student outcomes. Many studies focus on what schools offer, how they allocate their resources or diversify their revenue. However, the current literature lacks many contexts around how revenue diversification, resource allocation, and student services directly connect to student success, specifically student degree completion. This study examined aggregated revenues, aggregated

expenses, and six-year undergraduate graduation rates to investigate at a high level whether there is a direct influence between finances and graduation rates, and the study discovered that there is a connection. Although the positive correlation and predictive variability were not strong, the study provided enough information for additional studies to be conducted in more detail to understand better the relationship between financial resources and six-year graduation rates.

Limitations

The study had several limitations. First, the study examined financial and graduation rates for a three-year period. The validity of the study could be stronger if examining a longer span of time. Another limitation of the study is that it examined three different types of institutions: public, private, and for-profit. The findings from the study may have been stronger if the scope of the schools examined focused on one institutional type. A third limitation of the study is that it included institutions that used three different types of accounting methods. While the majority of the schools included in the study used the Financial Accounting Standards Board (FASB) method, the for-profit institutions have the Generally Accepted Accounting Principles (GAAP) option, and public schools used the Governing Accounting Standards Board (GASB) method of accounting. The findings of the study may have altered if the study only included institutions that used the same accounting method. Moreover, given that nearly 80% unexplained variance exists in the model, other variables that might influence student retention should be investigated. Finally, correlational research does not reveal causal relationships; consequently, studying student retention with controlled variables might reveal more certain, less variable relationship between variables germane to this study. These five limitations may have weakened the validity of the study.

Recommendations for Future Research

This study was conducted at a high level because it used aggregated revenues and aggregated expenses to examine the relationship between institutional financial resources and six-year completion rates. Recommendations for future research include:

1. Studying one institutional type to remove variation that may exist between public, private non-profit, and for-profit institutions;
2. Use one accounting method when selecting schools to examine;
3. Use the fiscal years of the cohorts examined instead of the fiscal years of the years the graduation rate is being reported. For example, when examining the six-year graduation rate for a cohort that entered Fall 2008, use the six fiscal years between 2008 and 2014 instead of just examining the fiscal year 2014, when the graduation rate is just reported.
4. Include variables other than institutional financial resources to account for the unexplained variance revealed in the model that this study revealed.
5. Study the impact of institutional financial variables with an experimental design to reveal causal factors in the relationship and outcomes between an institution's finances and college student retention.

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APPENDIX: Institutional Review Board Approval**LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

April 23, 2021

Tiffany Lee
Jeffrey Savage

Re: IRB Application - IRB-FY20-21-840 A CORRELATIONAL STUDY ON INSTITUTIONS' FINANCIAL RESOURCES IMPACT ON UNDERGRADUATE GRADUATION RATES

Dear Tiffany Lee and Jeffrey Savage,

The Liberty University Institutional Review Board (IRB) has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Decision: No Human Subjects Research

Explanation: Your study is not considered human subjects research for the following reason:

(1) It will not involve the collection of identifiable, private information.

Please note that this decision only applies to your current research application, and any modifications to your protocol must be reported to the Liberty University IRB for verification of continued non-human subjects research status. You may report these changes by completing a modification submission through your Cayuse IRB account.

If you have any questions about this determination or need assistance in determining whether possible modifications to your protocol would change your application's status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office