

**An Examination of the Relationship Between the Developing Hispanic-Serving Institution  
(Title V) Program and Six-Year Completion Rates for Latino Students at Public Four-Year  
Hispanic-Serving Institutions (HSIs) in the United States**

by

Noe Ortega

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Doctoral Committee:

Professor Stephen L. DesJardins, Chair  
Professor John C. Burkhardt  
Assistant Professor Ozan Jaquette, UCLA  
Professor Brian McCall

Noe Ortega

nortega@umich.edu

ORCID iD: 0000-0001-9625-4651

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## **DEDICATION**

To all those who believed in me and refused to relinquish their support, this is for you.  
I will forever remain indebted and grateful.

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## **ABSTRACT**

Postsecondary attainment rates for Latinos in the United States have improved steadily over time, however Latinos continue to have disproportionately reduced opportunities in obtaining baccalaureate degrees in comparison to their White peers. These disparities are found at all levels of education and are particularly evident among graduates of various Latino backgrounds. Of particular relevance to this study is the premise that the majority of Latinos who enroll in a college or university in the United States do so at a Hispanic-Serving Institution (HSI). The more than 500 HSIs in this country represent 17 percent of all postsecondary institutions and educate nearly 70 percent of all Latinos. Yet, the relatively brief history of HSIs is one of institutions that receive less funding per pupil, spend less money on academic and support services, and continue to rely on public support for more than 60 percent of their revenue. Hence, making HSIs more dependent on state support in comparison to their non-HSI counterparts. This level of dependency on public support by HSIs also threatens their financial resiliency when this resource is reduced.

The U.S. Congress established the Developing Hispanic-Serving Institution (Title V) program in 1998 to provide HSIs with additional financial support and ultimately improve postsecondary success for Latino students. Presently, we are more than two decades removed from when HSIs were first recognized and the Title V program was launched, and no single evaluation has examined whether Title V is meeting its stated goals. This study represents a first-



ever rigorous assessment of the Title V program's effectiveness in one of its most frequently cited aims, improving six-year completion rates for Latinos pursuing a baccalaureate degree in the United States.

The results from this analysis suggest that Title V awards have no statistically significant relationship on six-year completion rates for Latino students at public four-year HSIs during the period observed (1997-2012). At first glance these results may bring into question the efficacy of the Title V program in meeting its stated goal of improving completion rates for Latino students; however, this study offers an explanation to help make sense of these results. Anchored in the theoretical perspectives applied in this study and the empirical trends observed in the review of the literature, the findings from this assessment suggest that variations in the financial contexts of public HSIs shape organizational behavior and drive performance outcomes at these institutions (i.e., completion rates).

This study emerges during a moment in the history of American higher education in which hard decisions about the investment of limited resources are becoming increasingly difficult and publicly challenging. The recent pandemic has placed yet another unexpected strain on public resources. If advocates for HSIs and the Title V program expect to secure continued investments and potentially expand the base of support, then researchers and policymakers alike must work to identify ways to demonstrate the efficacy of programs such as this one and further ensure that these programs effectively improve postsecondary success for Latino students. Moreover, given the growing representation of Latino undergraduates in the American system of higher education and the gaps that persist in completion rates between Latinos and their White peers, it is of utmost importance that researchers continue to rigorously assess and evaluate programs that effectively seek to improve baccalaureate completion rates for Latino students.

## **CHAPTER I**

### **Introduction**

Latinos are the fastest growing demographic group in the United States. Between 2010 and 2019, the Latino population increased by 18.9 million individuals (Krogstad & Noe-Bustamante, 2020). According to the most recent data from the U.S. Census, Latinos account for 52 percent of the population growth in the United States (Krogstad & Noe-Bustamante, 2020). Half of the Latino population resides in either California, Texas, Arizona, or New Mexico, and it is estimated that one-quarter of all students in K-12 schools are Latino (Lopez, Krogstad, & Flores, 2018; Krogstad & Noe-Bustamante, 2020). As a demographic category, Latinos comprise an identifiable population with some common characteristics, but the term Latino<sup>1</sup> (or Hispanic, or Latinx) encompasses many different groups, including Mexican, Cuban, Puerto Rican, Dominican, Columbian, and Guatemalan, to name just a few. Latino postsecondary educational attainment is as diverse as its demographic makeup. While most Latino adults in the United States identify as Mexican American (60.8 percent), degree attainment is lower among Mexican Americans (17 percent) than any of the other groups that represent large shares of the U.S. Latino population, such as Puerto Ricans and Cuban Americans, whose degree attainment rates

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<sup>1</sup> The term “Latino” or “Hispanic” will be used interchangeably throughout this dissertation to describe the U.S. population of people tracing their roots to Latin America or Spain. The author acknowledges the existence of new pan-ethnic labels that have emerged throughout the years as alternatives to “Hispanic” or “Latino,” with the most recent being the rise of the term “Latinx,” which is viewed as a more gender-neutral alternative than other terms in circulation. (For more information, see Noe-Bustamante, Mora, & Hugo Lopez, 2020.)

are 30 and 40 percent, respectively (Schak & Nichols, 2018). Even when you consider the Latino population as a whole, less than half of all degrees earned by Latinos are bachelor's degrees (Schak & Nichols, 2018). This dissertation examines the growing concern that Latinos account for as few as 12 percent of bachelor's degrees awarded in the United States compared to 24 percent earned by their White peers (Nichols, 2017). This fact holds true during a moment in our history where high-quality postsecondary credentials are essential for ensuring the social and economic well-being of individuals and our society (Carnevale, Smith, & Strohl, 2013).

The majority of Latino students enrolled in a college or university in the United States tend to enroll at Hispanic-Serving Institutions (HSIs) (*Excelencia in Education*, 2020). While HSIs are not the only path to higher education for Latinos, they play a crucial role in offering access to this growing population. The 539 federally recognized HSIs educate 67 percent of all Latinos currently enrolled in the American system of higher education, yet they represent less than 17 percent of all postsecondary institutions in the country (*Excelencia in Education*, 2020). Nearly half of all HSIs are community colleges (43 percent), the remaining 54 percent are classified as private (28 percent) and public (26 percent) colleges and universities, with only a handful of HSIs designated as research universities by the Carnegie Classification System (*Excelencia in Education*, 2020).<sup>2</sup> The majority of HSIs are in urban areas, and more than half are located in three states and one U.S. territory: California (176), Texas (96), Puerto Rico (60), and New York (34) (*Excelencia in Education*, 2020). HSIs enroll a diverse student body, where nearly half of all students at HSIs are Latino (46 percent) and 54 percent of the remaining students are from other racial and ethnic groups (*Excelencia in Education*, 2020). Although Latino students are well represented at HSIs, low completion rates continue to remain a central

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<sup>2</sup> Note that the remaining three percent of HSIs are classified as private, not-for-profit two-year institutions.

challenge for these institutions (Contreras & Contreras, 2015; Contreras, Malcolm, & Bensimon, 2008).

### **A Brief History of HSIs and the Establishment of the Developing Hispanic-Serving Institution (Title V) Program**

The HSI saga is one routinely characterized by institutional commitments to serving Latino students. However, the historical impetus for the HSI designation was largely driven by concerns regarding a lack of public investment in institutions that were providing postsecondary opportunities to the majority of Latino students enrolled in the U.S. system of higher education (Nellum & Valle, 2015). In response to fiscal constraints and low postsecondary attainment rates for the growing Latino population, a group of institutional leaders formed the Hispanic Association of Colleges and Universities (HACU) in 1986 (MacDonald, Botti, & Clark, 2007). Informed by the experiences that were previously faced by more traditional and long-standing Minority-Serving Institutions (MSIs), such as Historically Black Colleges and Universities (HBCUs) and Tribal Colleges and Universities (TCUs), HACU and its allies successfully lobbied for the recognition of a group of under-resourced institutions educating most Latino students in the country (MacDonald et al., 2007; Santiago, 2011). As a result, in the 1992 reauthorization of the Higher Education Act (HEA, originally passed in 1965), HSIs were formally recognized under Title III of the HEA (Gasman, 2008). This designation remains in effect today as HSIs continue to be defined as accredited, degree-granting, public or private, not-for-profit colleges and universities with 25 percent or more total undergraduate Hispanic full-time equivalent (FTE) student enrollment.<sup>3</sup>

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<sup>3</sup> In 1998 Congress established a separate program for HSIs under Title V (decoupled from Title III), the federal definition of HSIs continues to be defined today under Title V of the Higher Education Act (HEA), which was most recently amended by Congress in 2008.

Equally as significant to the recognition of HSIs was the decision by the U.S. Congress in 1998 to establish a separate funding program for HSIs under Title V of the HEA, which marks the launch of the Developing Hispanic-Serving Institution Program (henceforth referred to as the Title V program) (Santiago, 2006). One of the goals of the Title V program was to provide federal resources to HSIs and enhance their efforts to improve postsecondary completion rates for Latino students (Title V Program Statute, 2006). However, the resources made available to HSIs were discretionary, meaning that funding levels were not set at a specific dollar amount and would be adjusted periodically by Congress (Nellum & Valle, 2015). This funding scenario is entirely unique when compared to the funding processes that were put in place for other MSIs. For instance, HBCUs and TCUs receive a minimum average award of \$500,000, which is appropriated to these institutions every year (Gasman, 2008). In the case of the Title V program, HSIs are expected to compete with other HSIs for available funding.<sup>4</sup> Generally, only between 50 and 55 percent of eligible institutions receive Title V awards from the U.S. Department of Education, a funding scenario that continues to hold true today (Ortega, Frye, Nellum, Kamimura, & Vidal-Rodriguez, 2015).<sup>5</sup> Since the launch of the Title V program in 1998, the number of HSIs has grown threefold to 539 institutions (*Excelencia in Education*, 2020). An additional 352 institutions, which have been recognized as emerging HSIs,<sup>6</sup> are also on the verge of attaining full HSI status (*Excelencia in Education*, 2020). This increase in the number of HSIs will continue to fuel competition over limited Title V resources, and a number of HSIs will very

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<sup>4</sup> To be eligible for the “Developing HSIs Program,” the law further requires that HSIs enroll a high number of Pell-eligible students and low educational and general (E&G) expenditures.

<sup>5</sup> A more current comprehensive list of Title V recipients can be accessed by visiting the following link: <https://www2.ed.gov/programs/ideshsi/awards.html>.

<sup>6</sup> Emerging HSIs are defined as those institutions enrolling between 20 and 24 percent Latino students.

likely find themselves without the funding needed to meet their commitments and fulfill expectations to effectively serve Latino students (Nellum & Valle, 2015; Ortega et. al, 2015).

A few additional distinctions about HSIs that are also worth noting: First, the recognition of HSIs by Congress in the 1990s both elevated the importance of the role these institutions play in serving Latino students and further segmented the higher education landscape by creating an additional sector of MSIs who were given the primary responsibility to effectively serve these students. This segmentation of the system of higher education fuels concerns raised by scholars that suggest that the system of higher education creates a new system to accommodate historically underserved communities, rather than accommodating them in the systems that have historically existed. Additionally, HSIs further differ from their more traditional MSI counterparts in that they are defined by enrollment shares (25 percent Latino enrollment) and not by their mission statements (Benitez & DeAro, 2004; Nora & Crisp, 2009; Laden, 2004; O'Brien & Zudak, 1998). This is a departure from how HBCUs and TCUs are designated, both of which are types of institutions whose missions are aligned to their MSI designations (Gasman, 2008; Santiago, 2012; Garcia, 2019). HSIs share similarities with other more recent federally designated MSIs such as Asian American and Native American Pacific Islander-Serving Institutions (AANAPISIs), Native Hawaiian-Serving Institutions (NHSIs), and Predominantly Black Institutions (PBIs)—all of which obtain their designations based on the share of racial and ethnic composition of student enrollment and adhere to similar competitive grant funding processes facilitated by the U.S. Department of Education (Torres & Zerquera, 2012). This approach to the designation of HSIs has routinely called into question the intentionality and commitment of HSIs to serving Latino students (Santiago, 2012; Garcia, 2019; Contreras & Contreras, 2015). This long-standing concern is best exemplified by findings from a survey of

Latino students which found that even though more than half of all Latinos enrolled in a college or university are attending an HSI, most students at these institutions do not realize they are enrolled at an HSI (Santiago, 2007).

Presently, we are more than two decades removed from the moment in which HSIs were first recognized and the Title V program was launched by the U.S. Department of Education. The initiatives established by the Title V program in 1998 have continued to constitute a policy framework and a set of strategies for increasing the number of Latinos with college degrees. However, policymakers and researchers alike are beginning to raise questions about the efficacy of the program and the effectiveness of HSIs in improving postsecondary outcomes for Latino students, particularly as these outcomes relate to degree completion. Despite the fact that Title V has been rooted in an ongoing federal commitment, is vigorously defended by the institutions it serves, and is the primary strategic vehicle in place to educate an important and growing population, researchers and policy makers have never rigorously assessed the program. Institution-specific evaluations of Title V programs do exist; however, these evaluations tend to vary in focus, design, and sophistication from one institution to another and don't constitute a comprehensive, systematic evaluation of the program (Contreras, Malcolm, & Bensimon, 2008). The results from most of these institution-specific evaluations are often conflated with outcomes associated with other grant-funded programs available on respective campuses, many of which share similar goals and outcomes with the Title V program. Yet no single evaluation has examined the program from its infancy, nor has one employed a rigorous empirical approach that could help determine whether the Title V program is meeting its stated goal of improving postsecondary completion for Latino students.

## **Goal of this Dissertation, Gaps in the Literature, and Framing of the Problem**

This dissertation seeks to examine how well the Title V program has achieved its stated goal of increasing the number of Latino baccalaureates in the United States. In an effort to frame the problem more appropriately under investigation in this study, this section provides a review of the literature exclusively focused on findings associated with completion rates for Latinos enrolled at public four-year colleges and universities, and even more specifically at HSIs. Conclusions drawn from research examining Latino completion rates at HSIs, while sparse, can best be characterized as mixed. Most studies suggest that HSIs, on average, have lower completion rates for Latino students than their non-HSI counterparts (Li & Carroll, 2007; Contreras & Contreras, 2015; Flores & Park, 2015; Garcia, 2019). Much of this research has closely examined states like California and Texas, where the Latino population is large and HSIs serve as primary postsecondary access points for Latino students enrolled at public four-year institutions. The findings from these studies suggest that completion rates for Latinos are not equitable and consistently remain lower in comparison to non-HSIs (Contreras, Malcolm, & Bensimon, 2008; Flores & Park, 2015; Nuñez & Elizondo, 2012). For instance, a comprehensive study that examined several public four-year institutions in the California State University (CSU) system found that completion rates are lower for Latinos than their White peers across most of its universities (Contreras & Contreras, 2015). Other scholars have made similar discoveries about completion rates for Latino students in Texas and Arizona, which also have a large number of HSIs (Harmon, 2012; Nuñez & Bowers, 2011; Hurtado & Ponjuan, 2005).

The field of higher education has witnessed the emergence of new research that offers a somewhat more promising perspective on completion rates for Latinos, within certain parameters. Scholars have begun to take a more nuanced approach to concerns about Latino



student completion by examining outcomes in specific disciplines (Santiago, Calderón, & Taylor, 2016; Gonzalez, Aguirre, & Myers, 2020). While completion rates may be lower at HSIs, researchers have found that four-year HSIs are leading the way in advancing strategies and practices that have resulted in a greater production of Latinos in STEM-related fields (Santiago & Soliz, 2012; Cole & Espinoza, 2008). The success of Latinos in the STEM fields has been attributed to higher levels of support and engagement by faculty and administrators at public four-year HSIs (Malcolm & Dowd, 2012). This connection between student and faculty engagement within a context of support has been demonstrated across other studies related to student persistence and degree completion at HSIs (Flores & Park, 2013; Nuñez & Elizondo, 2012; Crisp, Nora, & Taggart, 2009). Latino students tend to be more engaged at HSIs, particularly when their experiences are compared to those of Latino students enrolled at predominately white institutions (Bridges, Kinzie, Laird, & Kuh, 2008).

Additionally, Flores and Park (2015) conducted a series of rigorous assessments on the relationship between HSI designation and six-year college completion and found that after taking into account student characteristics and institutional capacity, there is no consistent negative (or positive) effect on completion. In fact, their work suggests that the likelihood of degree completion is more influenced by pre-collegiate characteristics as opposed to institutional designation (Flores & Park, 2013; Flores & Park, 2015). Other studies examining student characteristics have made similar claims and have suggested that Latinos attending HSIs have greater academic and financial needs that contribute to lower completion rates (Nuñez & Elizondo, 2012; Nuñez, Sparks, & Hernandez, 2011). Similarly, other researchers have offered more contextualized explanations for the lower completion rates for Latinos enrolled at HSIs and have discovered that a greater share of low-income students who enroll at these institutions have

the added challenge of securing adequate resources to invest in student support necessary for improving completion rates (Nuñez et al., 2011).

The past decade has also seen a slight increase in the number of studies assessing the financial context of HSIs as an explanation for the differences in student success outcomes between HSIs and non-HSIs (Nuñez & Elizondo, 2012; Nuñez et al., 2011; Contreras & Contreras, 2015; Flores & Park, 2015; Garcia, 2019). One explanation that has been routinely offered up is that larger investments in per pupil expenditures by postsecondary institutions improve the odds of completing a baccalaureate degree (Flores & Park, 2013; Nuñez et al., 2011; Nellum & Valle, 2015). Other research has found that less selective institutions, such as HSIs, are historically underfunded, which makes it more challenging to provide students with the support needed to complete their degree programs (De los Santos & De los Santos, 2003; Nuñez et al., 2011). It is at the intersection between multiple organizational dynamics (and especially financial adequacy), the student experience, and ultimately their impact on completion rates for Latino students that this study is situated. While very early research regarding degree completion focused on student levels of aspiration, student deficiencies, or even student alienation, there is growing interest in policy circles and higher education research to determine how the organizational contexts of institutions influence student success, with a particular emphasis given to the financial circumstances shaping the institutional environment (Tinto, 1998; Adelman, 2004; Berger, 2002; Titus, 2006a; Titus, 2006b; Hurtado & Ruiz Alvarado, 2015).

In short, the series of historical events that led to the recognition of HSIs in the American system of higher education represent a unique framework for examining Latino degree completion at HSIs from an organizational perspective. HSIs continue to receive, on average, less institutional funding per full-time equivalent (FTE) student than their non-HSI peers (De los

Santos & De los Santos, 2003; Ortega et al., 2015). As a likely result of this discrepancy, HSIs spend 51 percent less on academic support services and 27 percent less on student services than non-HSIs (Mulnix, Bowden, & Lopez, 2002). Another point of differentiation between public HSIs and non-HSIs is that HSIs receive 62 percent of their revenue shares from state and local sources, making them especially dependent on appropriations from the state for their operations (Garcia, 2015). This level of dependency by HSIs on state support suggests that when this subsidy is reduced, the fiscal resiliency of these institutions is threatened (Pfeffer & Salancik, 1978; Davis and Marquis, 2005). It is also worth highlighting that HSIs tend to enroll a large number of first generation and historically underrepresented students, which research has determined are populations that can be the most expensive to serve (Nuñez & Elizondo, 2012; Nuñez et al., 2011). These and other long-standing challenges for HSIs raise pressing questions about how the financial context of these institutions affects the degree attainment rates and experiences of Latino students (Nuñez, Hurtado, & Galdeano, 2015; Titus, 2006a; Titus 2006b; Garcia, Nuñez, & Sansone, 2019).

In sum, when considering that Latinos represent one of the nation's fastest-growing demographic groups yet possess one of the lowest levels of postsecondary attainment in the United States, it becomes clear that additional research is needed to improve our understanding of the kinds of circumstances that affect Latino degree completion. Taken as a whole, this review of the literature examining the effects of the organizational and demographic factors that affect Latino student completion at public four-year HSIs suggests that this body of knowledge is quite limited. For this reason, this dissertation seeks to fill this gap and contribute to the growing need for higher education research examining the role of HSIs in improving the postsecondary

attainment rates for Latinos in the United States, specifically as it relates to baccalaureate completion at public four-year institutions.

### **Purpose of the Study**

Although public four-year institutions draw on a variety of other financial resources for maintaining operations that include tuition, fees, auxiliary enterprises, private gifts, grants, and federal support, by and large, it is public subsidies in the form of state and federal appropriations that public colleges and universities rely on to maintain relatively low cost and improve postsecondary success for all students (DesJardins, Ahlburg, McCall, 2002; Nuñez, Hoover, Pickett, Stuart-Carruthers, & Vázquez, 2013; St. John & Asker, 2003). This relationship is best demonstrated by the long-standing arrangement that exists between public institutions and the states, which can be traced back to the passage of the Morrill Act of 1862 (Thelin, 2011). The Morrill Act is often credited for expanding public support for over a full century to colleges and universities as the nation's population and technological and industrial base grew (Thelin, 2011). The last 20 years have significantly tested these long-standing agreements between states and their public institutions of higher education (Laderman & Weeden, 2020). Most recently, the financial impact from the Coronavirus Disease of 2019 (COVID-19), which affected every state in the nation, has further exacerbated concerns surrounding the predictable availability of state or federal investment at colleges and universities (Kim, Krishnan, Law, & Rounsaville, 2020). When this new economic reality is coupled with the preexisting financial constraints from the Great Recession that affected postsecondary institutions in the early years of the 21st century, it invites the possibility of even greater competition for appropriations with other budget priorities (Laderman & Weeden, 2020; Kim et al., 2020). The fiscal environment currently facing this

country can best be characterized as one of turbulent change in which colleges and universities will be expected to continue to do even more with even less.

However, it should come as no surprise that public investment in higher education historically rise and fall in accordance with changes in the economy. Take for instance the pre- and post-investment trends in higher education which indicate that six years out from the recession (2008), state investments in higher education remained 27 percent below what they were before the recession (Laderman & Weeden, 2020). Additionally, as more institutions continue to assess the magnitude of disruptions associated with COVID-19, preliminary reports indicate that postsecondary enrollments may drop by as much as 20 percent in the fall semester of the 2020 academic year (Kim, et al., 2020). If enrollments decline by 20 percent across all undergraduates enrolled in the United States, then losses attributed to COVID-19 could total nearly \$19 billion in lost tuition and other sources of revenue (Kim, et al., 2020). This is especially concerning given our understanding about how institutional performance is greatly influenced by the financial context of an institution (Berger & Milem, 2000; Titus, 2006a; Titus 2006b; Nuñez & Elizondo, 2012).

The field of organizational studies in higher education has routinely posited that institutions positioned advantageously, relative to the availability of resources, enjoy competitive advantages during periods of economic turbulence (Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008; Bastedo & Bowman, 2010). These findings, coupled with the current financial crisis facing our nation's colleges and universities, raise new speculation as to whether these results will also hold true for postsecondary institutions navigating a global pandemic with no clear indication as to when it will subside. Yet, as scholars, we have an opportunity to launch work that builds on prior findings to a similar phenomenon in an effort to help inform policies

that may help to mitigate and manage the current fiscal crisis. Hence, a closer examination of the HSI saga can help key stakeholders better understand how institutions may experience and navigate the current set of fiscal challenges that we are poised to experience in the coming years.

### **A Unique Contribution to the Field of Study in Higher Education**

With these conditions, assumptions, and contributions in mind, this study will examine how historical challenges to the financial context of HSIs have influenced institutional performance; particularly, as it relates to improving six-year completion rates for Latino students enrolled at public four-year colleges and universities in the United States. This question is timely, given the need to better understand what historical precedents can tell us about how institutions might mitigate the current economic and political realities that have resulted from the recent pandemic. This study will also draw upon the theoretical assumptions posited by two established frameworks for explaining how organizations relate to their financial circumstances: resource dependence theory (RDT) and resource heterogeneity (Pfeffer & Salancik, 1978; Davis & Marquis, 2005; Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008). Moreover, it will examine the efficacy of the federal Title V program as a strategy for improving postsecondary outcomes for Latino students—an outcome that will be measured by six-year completion rates.

This dissertation takes form during a moment in the history of American higher education where difficult decisions about the strategic investment of limited resources are paramount. The recent pandemic has placed yet another unexpected strain on state and federal dollars; on resources which public colleges and universities have historically relied on for their operations and HSIs even more so. Given the trend by most states and federal agencies to move toward performance-based approaches and data-driven decisions about continued investments in higher education, it is imperative that more researchers examine the efficacy of programs such as the

Title V program of the federal Higher Education Act to inform discussions about the long-term prospects of such programs.

### **Research Questions**

This first-ever longitudinal analysis of its kind will examine the relationship between the Title V program and six-year completion rates for Latino students. The analytic sample for this study will only include public four-year colleges and universities to better understand the gaps that persist in baccalaureate attainment between Latinos and White students in the United States. Given the specific interest in Latino student outcomes, the analysis will also focus primarily on HSIs, given their role in educating the majority of Latino students in the United States. The unique history and organizational context of HSIs lends well to several key propositions of the RDT and resource heterogeneity perspectives and key components of the empirical strategy for this dissertation that will be discussed more fully in the subsequent sections of this dissertation. With this proposition and these considerations in mind, the primary research question and sub-questions guiding this study are as follows:

**Primary Research Question (RQ1):** What is the relation between the Title V program and six-year completion rates for Latino Students enrolled at public four-year HSIs in the United States?

**Sub-Question 1 (SQ1):** What is the primary source of revenue at public four-year institutions, and do HSIs tend to exhibit a greater dependency on this resource relative to their non-HSI peers?

**Sub-Question 2 (SQ2):** What is the relationship between state support and expenditure patterns at public four-year HSIs?

**Sub-Question 3 (SQ3):** What is the socio-economic makeup of students enrolled at HSIs?

The answers to these research questions will provide scholars, institutional leaders, and policy makers with a better understanding of how investments in our public system of higher education affect the postsecondary experiences of students, particularly at institutions that serve a larger share of low-income and historically underrepresented students. Furthermore, this dissertation will add to the growing body of knowledge seeking to improve understanding about postsecondary attainment and success for Latino students.

### **Organization of the Dissertation**

This remainder of this dissertation is organized into five chapters. Chapter II outlines the significance of this dissertation by shedding further light on the demographic changes and educational attainment rates of Latinos in the United States. The challenge of increasing the educational status for this group is framed within the context of Hispanic-Serving Institutions (HSIs). Additionally, the chapter introduces the theoretical perspectives informing both the conceptual and analytical framework of this study and concludes with a discussion about the assumptions that inform the conceptual framework that guide this dissertation.

Chapter III provides an overview of the empirical strategy used to estimate the relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs. The chapter presents a description of the two quasi-experimental approaches selected for this analysis and then provides a rationale for the selection of the analytical approach, and it further provides an explanation for how the resource dependence theory (RDT) and resource heterogeneity perspectives inform the design and selection of the



covariates included in each of the models constructed for this analysis. The chapter concludes with a discussion about the limitations of the study.

Chapter IV provides an overview of the results from an analysis on the relationship between Title V awards and six-year completion rates for Latino students at public four-year HSIs in the United States. It further explains how the outcome of interest will also serve as a proxy for determining the efficacy of the Title V program in achieving its intended goal of improving postsecondary completion for Latino students. The chapter also provides an overview of the descriptive trends associated with both the dependent and independent variables of interest between 1997 and 2012, and it concludes with a detailed description of the results from the event study and differences in estimations conducted for this study.

Finally, Chapter V will discuss the implications of the findings and offer several explanations pertaining to a set of conclusions drawn in response to the goals of the study and organized around the research questions which guided it. The discussion will draw on findings and considerations from both the estimates produced by the empirical strategy, as well as other descriptive trends observed in the data utilized for this study. The dissertation concludes with a brief discussion on the implications of this study for higher education theory, policy, and practice and further raises new questions to guide future research on this topic.

## **CHAPTER II**

### **Literature Review, Theory, and Conceptual Framework**

Concerns over the availability of resources at colleges and universities continue to dominate policy agendas. Recent developments surrounding disruptions that resulted from the ongoing pandemic of 2020, coupled with lingering effects from the Great Recession (2007-2009), have furthered exacerbated concerns about the precariousness of public investment in higher education (Laderman & Weeden, 2020; Kim, et al., 2020). Research examining how institutions respond to their changing financial environment have long attracted the attention of scholars (Williamson, 1975; Pfeffer & Salancik, 1978; Meyer & Rowan, 1977; Gumport & Pusser, 1999; Kraatz & Zajac, 2001). Much of this research tends to focus on restructuring, academic retrenchment, strategies for generating alternative revenue, as well as other adaptive behaviors enacted by institutions when mitigating fiscal constraints (Gumport & Pusser, 1999; Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008). The field of organizational studies routinely examines the impact of the fiscal environment on institutions. Organizational scholars have applied various theoretical perspectives—transaction cost economic theory, agency theory, new institutional theory, population ecology, and resource dependence theory—to address questions about how organizations mitigate fiscal constraints (Williamson, 1975; Jensen & Meckling, 1976; Meyer & Rowan, 1977; Hannan & Freeman, 1977; Pfeffer & Salancik, 1978).

One theory in particular, resource dependence theory (RDT), experienced a rise in higher education research (Davis & Marquis, 2005). RDT serves as a useful tool for better understanding the proliferation of such prevalent strategies as tuition increases, advancement and fundraising campaigns launched by institutions, strategies to increase the production of master's degrees, reliance on contingent faculty, and the emergence of other auxiliary enterprises on college campuses as strategies for mitigating fiscal constraints (Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008; Bastedo & Bowman, 2010; Jaquette, 2011; Jaquette & Curs, 2015; Frye, 2017). This dissertation seeks to build on this body of knowledge by drawing on some of the theoretical assumptions posited by the RDT perspective into an analysis of institutional responses to changing fiscal circumstances in their environment. Particular emphasis is given to the RDT propositions that suggest organizations employ diversification strategies as a means to reduce their dependence on a single resource and to improve financial viability (Pfeffer & Salancik, 1978; Davis & Marquis, 2005). This dissertation will specifically examine the strategy utilized by HSIs to shift their reliance away from state support and tuition toward a strategy to diversify revenues by seeking out additional sources of revenue (e.g., Title V dollars, tuition, etc.). The goal of this diversification strategy is twofold and allows HSIs to do the following: 1) maintain operations and 2) improve postsecondary education attainment outcomes for Latino students. Yet, given our understanding of the prevalence of this strategy for HSIs and its intended goals, there has never been a comprehensive effort to measure the efficacy of the Title V program to determine whether it has achieved its stated goals.

Building on the theoretical assumptions posited by both the resource dependence and resource heterogeneity perspectives—coupled with the empirical literature on promising practices that influence Latino student postsecondary completion—this chapter will outline each

key component of the integrated conceptual framework informing this study. The chapter begins by outlining the significance of this dissertation by shedding light on the demographic changes and postsecondary educational attainment rates of Latinos in the United States. The challenge of increasing the educational status for this group is framed within the context of Hispanic-Serving Institutions (HSIs), which enroll more than half of all Latinos in this country. Then the chapter introduces the theoretical constructs (RDT and resource heterogeneity) informing the framework and that provide a rationale for how institutions respond to their changing fiscal circumstances. These two theoretical lenses are then integrated and coupled with the literature on Latino completion in an effort to illustrate how changes to investment strategies by institutions affect the completion rates of Latino students. The chapter concludes with a depiction of the conceptual framework that outlines each of the key constructs and theoretical mechanisms influencing six-year completion rates for Latino students enrolled at HSIs.

### **Latino Educational Attainment in the United States**

The significance of this dissertation lies in the nation's changing demographics shaping America's future. The estimated 60.5 million Latinos living in the United States make up 18 percent of the total population and represent the fastest growing minority group (Krogstad & Noe-Bustamante, 2020). Latinos accounted for 52 percent of the country's population growth in the last decade (Krogstad & Noe-Bustamante, 2020). Accordingly, the role of Latinos in shaping our country's political, economic, and cultural future is becoming more significant as time passes (Lopez, Krogstad, & Flores, 2018). Presently there are 18.3 million Latinos of ages 18 and younger, representing 23 percent of this age group (Lopez et al., 2018). Latinos also accounted for 25 percent of the nation's population in 2016, up from 16 percent in 2000 (Lopez et al., 2018).

The foregoing statistics are not in question. Unfortunately, while efforts to prepare and inform previously underrepresented students about the importance of postsecondary educational attainment have increased, the prospect of this population achieving the educational preparation needed for their success, and that of the nation, remains in doubt (Nichols, 2017; *Excelencia in Education* 2018). When one considers the demographic trends in the United States over the past several years, it becomes clear why it is imperative that we ensure that colleges and universities successfully recruit, retain, and graduate more Latino students. Much of this responsibility, as explained in the introductory chapter of this dissertation, continues to fall on HSIs.

Educational attainment rates for Latinos have improved steadily over time, however they continue to lag behind that of their White peers. Only 12 percent of Latinos hold a bachelor's degree compared to the 24 percent of White students for the overall population (Nichols, 2017). Even though there has been an increase in the number of Latinos enrolled in college from fewer than 1 million in 2002 to 3.27 million in 2017 (Nichols, 2017), these students continue to have proportionately reduced opportunities in relation to postsecondary degree attainment. These numbers are especially alarming when you begin to disaggregate this data by the various ethnic groups that constitute the Latino population. The majority of Latinos in the United States identify as Mexican American (60.8 percent), and degree attainment is lower among Mexican Americans (17 percent) than any other Latino groups that represent large shares of the U.S. Latino population; by comparison, degree attainment rates are 30 and 40 percent for Puerto Ricans and Cuban Americans, respectively (Schak & Nichols, 2018). Yet even among the aforementioned Latino groups, less than half of the degrees earned by each of these ethnic groups are bachelor's degrees (Schak & Nichols, 2018).

The number of bachelor's degrees conferred for Latinos shows a disparate decrease from the point of access, as demarcated by the increase in enrollment reported in the first part of the century to the completion rates of Latino students enrolled at four-year institutions (Passel, Cohn & Lopez, 2011). This gap in postsecondary attainment raises further concerns about the social mobility for Latinos living in the United States. According to the U.S. Census Bureau, a Latino individual who finishes high school receives an average of 30 percent more income than a Latino who does not finish high school (Passel, Cohn & Lopez, 2011). Similarly, the average income gap among Latinos without a postsecondary degree and those with a bachelor's degree is 64 percent (Passel, Cohn & Lopez, 2011). Thus, lack of postsecondary attainment carries real consequences for individual livelihood. These consequences also cause real barriers for society, as education is the path toward cultivating the necessary human capital to support economic and civic development. For these reasons, it is important to attempt to improve our understanding of the factors that inhibit the baccalaureate completion rates for Latino students in the United States.

### **The Changing Fiscal Landscape for Postsecondary Institutions in the United States**

Colleges and universities must address equity gaps in postsecondary attainment amid the changing demand for postsecondary education, greater competition for appropriations with other budget priorities, and the recent public health challenges that have fundamentally altered the routine operations of colleges and universities (McLendon, Hearn, & Deaton, 2006; St. John, Paulsen, & Carter, 2005; Laderman & Weeden, 2020; Kim, et al., 2020). Although states currently allocate more than \$87 billion to their public systems of higher education, researchers and policy groups have routinely raised the concern that appropriations have generally failed to keep pace with rising educational costs and increasing student enrollments (Toukoushian &

Hollis, 1998; Heller, 2001; Rizzo, 2004; Laderman & Weeden, 2020). In fact, public colleges and universities are growing increasingly more reliant on the share of revenue they receive from tuition, fees, and other sources of support (Ma, Baum, Pender, & Libassi, 2019; Laderman & Weeden, 2020). Since the turn of the 21st century, researchers have been documenting how the changing revenue streams of public institutions are slowly beginning to resemble those of private colleges and universities, suggesting that much of public higher education has become state-assisted rather than state-supported (Heller, 2001; St. John, et al., 2005; McLendon, Hearn, & Deaton, 2006). Thus, it is imperative that institutions continue to identify ways in which to diversify sources of revenue and seek out alternative resources (Slaughter & Rhoades, 2004).

Recent events associated with COVID-19 have further fueled long-standing fiscal concerns among public colleges and universities that have long threatened state funding to public institutions altogether (Kim, et al., 2020). This has increased anxiety over the ever-growing possibility of zero funding from states to their public institutions of higher education (Mortenson, 2012). Fewer state dollars often translate into higher levels of tuition, a strategy routinely employed by colleges and universities to offset reductions in state support (Laderman & Weeden, 2020). In fact, the College Board's Trends in College Pricing (2019) reported that between 2007 and 2017, tuition at public institutions increased at an average rate of 3.2 percent per year beyond inflation, an expense which has begun to weigh heavily on students and their families. While the challenges described in this section are shared in different ways across all postsecondary institutions, what is often left out of the larger public narrative about fiscal challenges in higher education is that institutions are impacted differently by the changing fiscal landscape (Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008). The sections that follow will

make a case for how this is especially true for Hispanic-serving Institutions (HSIs) in the United States.

### **The Particular Challenge Faced by HSIs**

The issue of resource constraints and growing expectations placed on colleges and universities is central to the discussion about degree completion for underrepresented students. HSIs continue to play a vital role in the expansion of educational opportunities for the fast-growing Latino population in the United States (*Excelencia in Education*, 2020). Navigating fiscal constraints amid a turbulent environment is a particularly significant challenge for HSIs, given the responsibility they have inherited in providing postsecondary opportunities for the growing Latino population (Nellum & Valle, 2015; Nuñez & Elizondo, 2012). One area where the change in the availability of public support has had a demonstrated impact on public colleges and universities is in the amount of funds expended on core functions and activities of the universities such as instruction, research, and student support (Mulnix, et al., 2002; Nuñez & Elizondo, 2012; Ortega et al., 2015). Institutional investments in these critical areas are often credited in the literature with providing students with the support needed to persist and successfully complete their postsecondary education (Oseguera, Locks, & Vega, 2009; Cole & Espinosa, 2008; Garcia, 2015). In the case of Latino, first-generation students, these support services are essential to ensuring persistence and completion and have also been credited with having a positive relationship with Latino student success (Oseguera et al., 2009; Bensimon, Malcolm, & Dávila, 2010). In their findings, Cole and Espinoza (2008) underscore the importance of increased investment in education-related services for Latino students, which their research found improved faculty interactions and mentoring for Latino students, and ultimately improved persistence and completion rates. Their work examined these services in the fields of



science, technology, engineering, and mathematics (STEM), an area which institutions have consistently struggled to recruit, retain, and graduate Latinos and other students of color (Cole & Espinoza, 2008; Contreras, 2005).

It is also important to highlight the intersectionality of additional characteristics facing students that typically enroll at HSIs. About 62 percent of HSIs have an open admissions policy and enroll a greater share of students from low-income and underprepared populations (Rodríguez & Calderón-Galdeano, 2015). HSIs also serve high numbers of immigrants, first-generation, and low-income students—all of which are vulnerable student populations that often require additional resources if they are to be served adequately (Bailey, 2002; Bailey & Morest, 2004; Flores & Park, 2015). Research also found that students who enroll at HSIs tend to have relatively weak K-12 preparation, which reduces the likelihood of obtaining a bachelor's degree and requires HSIs to offer suitable student services, such as developmental programs, to bolster success (Flores & Park, 2015; Nuñez & Elizondo, 2012; Crisp, Taggart, & Nora, 2015). HSIs continue to face circumstances where they are required to offer more services to more students within the constraint of relatively fewer resources (Nellum & Valle, 2015; Ortega et al., 2015). Their vulnerable financial contexts suggest that when HSIs face extended periods of revenue shortfalls, structural deficits, and cost pressures, these institutions have the least financial resilience to withstand those threats (Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008; Nuñez & Elizondo, 2012).

However, government sources of revenue are not the only source of funding available to colleges and universities that inform their decisions about resource allocation. Institutions also rely on revenue from student sources like tuition, a strategy that recently became more common but has generated a great deal of attention because it transfers costs onto students and their

families (Nuñez & Elizondo, 2012; Flores & Park, 2015; Titus, 2006a; Titus 2006b).

Additionally, institutions are increasing their reliance on other non-student institutional sources of funding—private investment, endowment income, and revenue generated from auxiliary enterprises—to help account for operating expenses (Mulnix, et al., 2002; Titus, 2006a; Titus 2006b).

The complications posed by changes in the availability of higher education funding and the availability of fewer dollars to invest in key education-related services may offer an explanation as to why completion rates for Latino students are low (Mulnix, et al., 2002; Nuñez & Elizondo, 2012; Flores & Park, 2015). The series of findings from the literature discussed in this section suggest that more attention should be given to understanding the relationship between financial pressures experienced by postsecondary institutions and the strategies employed by these organizations to mitigate the disruptions that may result from continued fiscal constraints. Equally important to the financial resiliency of the organization as determined by continued survival is an understanding as to how these strategies may contribute to the improvement of completion rates for students. It is the combined effect of all these factors that contribute to the significance of this issue and the importance of this study.

### **A Proposed Shift from Traditional Approaches to the Framing of the Problem**

Cost frameworks, which have traditionally been used to explain price-setting behavior and the allocation of resources at colleges and universities, suggest that institutions rely on subsidies to cover all costs of operation (Winston, Carbone, & Lewis, 1998). These frameworks, which are routinely relied upon by policymakers and other stakeholders to inform their decisions, fail to explain how, or why, institutions that face similar circumstances adapt differently to their changing fiscal landscape (Berger & Milem, 2000; Titus, 2006a). Research routinely suggests

that the fiscal context of an organization plays a significant role in providing institutions with the financial resiliency for sustained capacity without jeopardizing key performance outcomes for the organization (Kraatz & Zajac, 2001). Take for instance the availability of private, investment, and endowment income. Not only does the availability of this resource contribute to the likelihood of sustained performance, but it can also influence decision-making and contribute to student success (Mulnix, et al., 2002). This is not to suggest that institutions with an abundance of historical resources (such as endowments) would not raise tuition or cut back services; however, these institutions are extended a buffer that expands alternatives and alters the time parameters for making decisions that may ultimately affect key organizational outcomes such as the completion rates for students enrolled at their respective institutions (Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008; Bastedo & Bowman, 2011).

Resource disparities among postsecondary institutions are not only attributed to the availability of public support but are also related to the ability of institutions positioned advantageously to enjoy a greater lead in securing additional resources (Bastedo & Bowman, 2010; Kraatz & Zajac, 2001). In the case of HSIs, this sector of institutions surfaced, in large part, due to being on the receiving end of an inequitable pattern of resource distribution to institutions serving Latino students (Mulnix, et al., 2002; Nuñez & Elizondo, 2012; Flores & Park, 2015). Most of these institutions faced financial adversity from the onset, and many continue to face fiscal challenges that are increasingly confounded by changing economic conditions and demographic trends that have placed increased pressures and demands on these institutions (*Excelencia in Education*, 2018; Ortega et al., 2015). Unfortunately, the ongoing fiscal challenges faced by HSIs continue to influence institutional priorities and affect their

ability to effectively serve the growing number of Latino students enrolling at these institutions (Nuñez & Elizondo, 2012; Flores & Park, 2015).

### **An Integrated Approach to Framing the Challenges Faced by HSIs**

The field of organizational studies is well positioned to offer new theoretical approaches to help frame the challenges faced by HSIs, largely because organizational processes are often the vehicles by which change may be affected (Anderson, Christianson, Grant, Marquis, Neuman, Sonenshein, & Sutcliffe, 2006; Davis, 2006; Davis & Marquis, 2005). Organizational theory offers a distinctive set of tools for addressing organizational change through a set of well-elaborated mechanisms and propositions that can examine how macro-level changes have impact on the ground (Davis & Marquis, 2005). The practice of linking organizations to their environments has been a critical area of examination in organizational studies, particularly as it relates to decision-making processes and management strategies which are generally treated as central variables in the research examining organizational-environment relationships (Miles, Snow, Meyer & Coleman, 1978; Nadler & Tushman, 1988; Pfeffer & Salancik, 1978; Porter, 1980). The general assumption among scholars in organizational research is that strategies and decision processes serve as mechanisms for organizations that allow them to position themselves advantageously relative to their changing environment (Cameron & Tschirhart, 1992; Hamermesh, 1983).

In the case of institutional responses to fiscal constraints, several organizational frameworks have been utilized by researchers to examine how institutions mitigate financial challenges. These frameworks include transaction cost economics (Williamson, 1975), agency theory (Jensen & Meckling, 1976), new institutional theory (Meyer & Rowan, 1977), population ecology (Hannan & Freeman, 1977) and resource dependence theory (Aldrich & Pfeffer, 1976;

Pfeffer & Salancik, 1978). These frameworks all materialized in the field of organizational studies around the same time, and over the years, they have branched out as competing paradigms (Davis & Cobb, 2010). This study contends that resource dependence theory (RDT) provides a useful building block through which to examine and better understand how some HSIs mitigate fiscal constraints. However, before making this case, it should be noted that RDT does have its own set of critics (Davis & Cobb, 2010). Despite the theory's recent appeal in the field of higher education, some researchers suggest that the RDT perspective has been reduced to nothing more than a "metaphorical statement about organizations," primarily due to the lack of empirical examination of some of the theory's central constructs and tenets (Pfeffer & Salancik, 2003, p. xvi). While this may be an overgeneralization about the fate of RDT, more recent claims indicate this perspective has re-emerged across multiple disciplines (Casciaro & Piskorski, 2005; Davis & Cobb, 2010; Hillman, Withers, & Collins, 2009). The sections that follow build on some of the key tenets and constructs of resource dependence and describe how RDT can be integrated with ideas attributed to the resource heterogeneity perspective and other constructs which have been empirically demonstrated to influence Latino student completion to help examine the problem under investigation in this study.

### **The First Key Component of the Integrated Framework: Resource Dependence Theory (RDT)**

Resource dependence theory (RDT) suggests that in order to understand the choices and actions of an organization, you must focus less on the internal dynamics, values, and the beliefs of leaders and more on the situations that organizations confront (Davis & Cobb, 2010; Pfeffer & Salancik, 1978). This conceptualization of RDT was borrowed from previous interpretations of the environment introduced by Karl Weick. He suggests that environments are enacted and

“human[s] create the environment to which the system then adapts” (Weick, 1969). Pfeffer and Salancik (1978) applied this interpretation of the enacted environment to their theory on resource dependence and made explicit in their framework that any assessment of an organization’s behavior is meaningless without regard to the focal organization that is enacting it. This characterization of organizations in RDT is central to understanding how a number of the mechanisms and processes are outlined in the theory work.

Additionally, RDT defines organizations as coalitions made up of institutions with varying interests and preferences whose survival is contingent on their ability to acquire resources (Pfeffer & Salancik, 1978). In order to acquire these resources, organizations must interact with the various stakeholders in the environment who control these resources (Pfeffer & Salancik, 1978). It is in this sense that organizations are viewed as being dependent on their environments (Pfeffer & Salancik, 1978). According to the RDT perspective, most of the constraints experienced by an organization are a result of these interdependencies, as well as the pressures and demands that may result from their interactions with other organizations (Pfeffer & Salancik, 1978).

Furthermore, rather than viewing the environment as one that is deterministic and to which the organization then adapts, RDT defines the environment as an outcome of a process that involves both adaptation to the environment and attempts to change that environment by the organization (Pfeffer & Salancik, 1978). It is these strategic efforts embarked on by an organization—and explicitly outlined by RDT—that are a key component for the empirical framework developed for this study. More specifically, the integrated framework builds on the RDT proposition, which suggests that the factors contributing to the dependence of an

organization can be addressed by seeking alternative revenue or diversifying resources to diminish dependency and improve organizational viability (Pfeffer & Salancik, 1978).

It should also be noted that although RDT was originally developed as an alternative perspective to economic theories of mergers and board interlocks (Pfeffer & Salancik, 2003), over the years, the theory has seen its reach extend to fields such as those in higher education (Bastedo & Bowman, 2010; Jaquette, 2011; Frye, 2017). RDT is routinely used to examine such issues as institutional change in response to government policies, administrative bloat, academic restructuring, and changes in the education-related activities of the institution (Gumport & Pusser, 1995; Hackman, 1985; Leslie & Gappa, 1995; Pfeffer & Salancik, 1978; Rhoades, 1995; Slaughter, 1995; Tolbert, 1985). The continued development of a vast number of studies that examine the relationship between resources and the outcomes of key functions of postsecondary institutions present an excellent opportunity to further assess the utility of the theory in the field of higher education.

### **An Additional Mechanism for the Integrated Framework: Resource Heterogeneity**

Where the RDT perspective falls short is in how it accounts for differences in resources among various organizations which can affect the strategies available to organizations when dealing with turbulent change (Kraatz & Zajac, 2001). Recent trends in the field of organizational studies shift attention away from traditional theoretical paradigm-driven research toward a more problem-driven approach of theorizing (Anderson, et al., 2006; Davis & Marquis, 2005). Some scholars suggest that problem-based theoretical mechanisms that can examine how macro-level changes have their impact on the ground make for useful tools in examining contemporary organizational challenges (Davis & Marquis, 2005). These mechanisms are often described as multidisciplinary conceptual tools that represent a convergence between such fields

as sociology, economics, psychology, and political science, which are well placed to address some of the critical questions of our time—in large part because organizational processes are often the vehicles by which social and economic change are affected (Davis & Marquis, 2005; Anderson, et al., 2006; Davis, 2006). By focusing attention on these carefully articulated mechanisms, the field of higher education stands to benefit significantly from a continual elaboration of the descriptions and processes which underlie several theoretical orientations, constructs which include resource dependence theory (Davis, 2006). This trend presents an opportunity for this study to address some of the shortfalls in the theory and contribute to the further conceptual development and empirical assessment of some of RDT's most significant constructs and assumptions.

Insights provided by contemporary literature in higher education suggest that the concept of resource heterogeneity provides researchers with a conceptual tool that can be used to build on some of the basic constructs prescribed by the RDT perspective (Cheslock & Gianneschi, 2008; Zajac, et. al, 2000). The ideas posited by the resource heterogeneity suggest that resource differences between organizations that can be measured by monetary resources such as endowments, or by less tangible resources such as human capital, institutional reputation, and prestige (Kraatz & Zajac, 2001; Zajac, Kraatz, & Bresser, 2000). Given the vast differences in resources that have been routinely documented in the higher education literature, this study contends that the ideas put forth by the resource heterogeneity perspective warrant further consideration in a study about the adaptive behaviors of colleges and universities; particularly, as it relates to the propensity of institutions to implement change strategies during periods of fiscal constraints (Kraatz & Zajac, 2001; Zajac, et. al, 2000). Several researchers examining restructuring practices within the context of higher education have suggested that institutions



positioned advantageously, relative to other institutions, enjoy certain competitive benefits (Cheslock & Gianneschi, 2008; Zajac, et. al, 2000). For instance, Cheslock & Gianneschi (2008) determined that during periods of economic turbulence, highly selective institutions enjoy a greater advantage in generating alternative resources, particularly in the form of endowment revenue. In a slightly different variation of a similar idea, Bastedo and Bowman (2010) examined how college rankings impact future investments by resource providers and the ability of institutions to maximize revenue potential. Their study found that institutional prestige, as measured by college rankings, can influence an institution's ability to generate and acquire additional resources in the form of out-of-state tuition and voluntary support (Bastedo & Bowman, 2010). Kraatz & Zajac (2001) examined the effect of institutional resources such as endowments on the propensity for change at liberal arts colleges and universities in the United States during the period 1971 through 1986. Their study found that institutions with greater resources were less likely to change in response to periods of fiscal instability (Kraatz & Zajac, 2001). They also determined that monetary advantages provide institutions with greater discretion over certain adaptive behaviors that result from economic challenges faced by certain institutions (Kraatz & Zajac, 2001).

Concerns over resources have a long history in literature on organizational studies. Much of this work has drawn attention to how resources contribute to sustained performance, figure prominently into strategic decision-making, and ultimately help to secure the success of an organization (Wernerfelt, 1995; Barney, 2001; Mahoney & Pandian, 1992). For this reason, this study integrates the RDT perspective with insights provided by the literature on resource heterogeneity that highlight how differences in resources between organizations—which can be measured by monetary resources or by less tangible resources such as human capital,

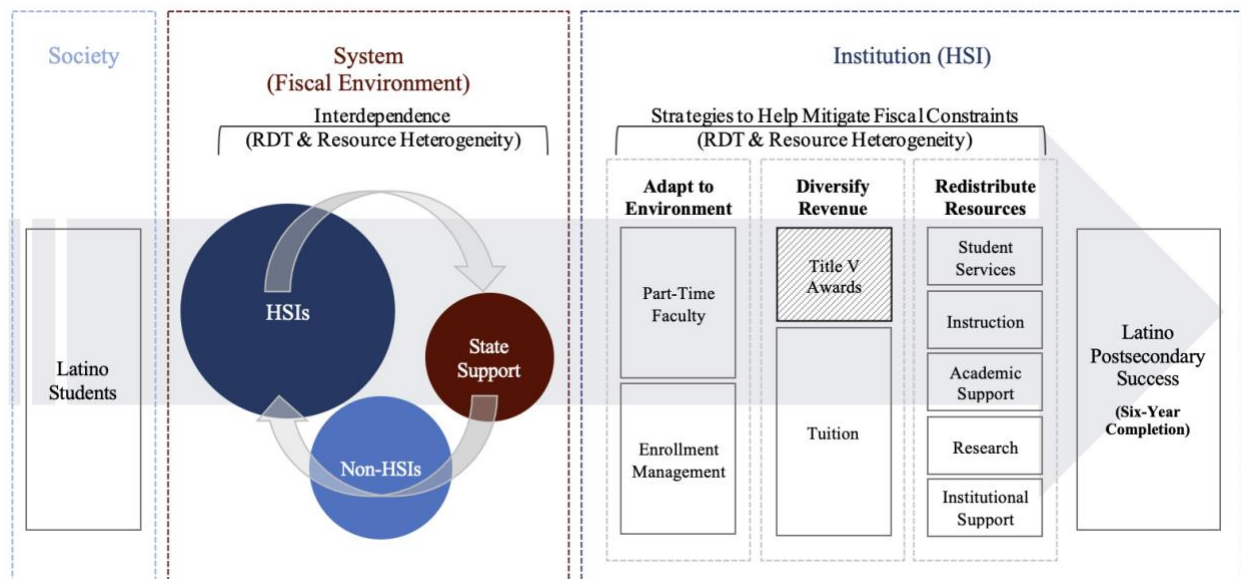
institutional reputation, or prestige—provide organizations with certain advantages (Kraatz & Zajac, 2001; Zajac, et. al, 2000).

### **An Overview of the Integrated Framework**

The primary premise underlying RDT suggests that organizations are externally controlled, and institutions must respond to changes in their environments or fail to survive (Pfeffer & Salancik, 1978). Additionally, the RDT perspective also prescribes a specific set of strategies available to organizations to help address some of the social determinants and improve organizational vitality and resiliency. When the RDT assumptions are integrated with the ideas posited by the resource heterogeneity perspective, this results a new conceptual framework that suggests that organizations with more institutional resources may be better insulated from environmental threats for quite some time before experiencing significant threats to their survival (Cheslock & Gianneschi, 2008; Zajac, et. al, 2000). In other words, wealthier institutions have the advantage of responding to these disruptions on their own terms, from positions of strength, or in ways that may even extend their competitive advantages (Bastedo & Bowman, 2010; Zajac, et. al, 2000). This assumption is central to the integrated framework developed for this study.

Figure II.1 below describes the integrated framework for this study that was developed to help explain why organizations that face similar circumstances sometimes adopt different strategies when mitigating fiscal constraints. The model depicted in the framework illustrates how changes in the fiscal environment of the system of higher education influence organizational outcomes at public four-year HSIs during periods of fiscal constraint. Although the process described in the model is much more complex than suggested by the linear representation, the framework does help to illustrate why HSIs tend to reduce their dependency on a traditional source of revenue (i.e., state support) and seek to secure revenues from other sources (i.e., Title

**Figure II.1:** Integrated conceptual framework



V dollars, increased shared or part-time faculty, etc.). It further depicts how the strategies selected by HSIs to help mitigate fiscal constraints (and prescribed by RDT) may be influencing student outcomes (i.e., completion rates). Each of the adaptive strategies included in the model have been previously examined by prior scholars and have all been determined to influence Latino student completion at public four-year colleges and universities.

### Assumptions Informing the Analysis and the Framing of the Problem

The integrated framework outlined in this chapter is informed by a set of assumptions (A1-A6 below) which inform the research questions developed for this study and further build a rationale for the empirical strategy that guides this study. The sections that follow will further unpack each of the following assumptions:

**A1:** Hispanic-Serving Institutions (HSIs) tend to be more reliant on public support than their non-HSI counterparts.

**A2:** Institutions need to diversify their resources as a strategy to mitigate changes that occur among resources they have relied upon historically.

**A3:** Organizations engage in other types of adaptive behaviors in an effort to mitigate changes in the availability of resources, and these behaviors affect some of the core functions of the institution.

**A4:** Issues of resource constraints tend to disproportionately affect institutions that enroll higher shares of socio-economically disadvantaged students.

**A5:** Strategies by institutions to help mitigate fiscal constraints may influence student outcomes and ultimately affect organizational performance.

**A6:** Federal investment in Hispanic-Serving Institutions (HSIs) has failed to keep pace with the growing number of HSIs in the United States.

Additionally, the theoretical and empirical information that will be used to inform the responses for each of the aforementioned assumptions will further assist in making determinations about how the adaptive and strategic behaviors of HSIs—when mitigating fiscal constraints—influence the completion rates for Latino students and ultimately affect organizational performance outcomes. Additionally, these assumptions will allow for a closer examination as to whether institutions with even moderate resources are afforded the opportunity to redirect funds and continue to invest in essential programs, while those with more modest resources are more likely to direct those funds toward the immediate survival of the institution, protecting basic operations in an effort to attempt to ride out the storm.

### **Summary of the Theoretical and Empirical Literature**

Considered in full, the existing literature from organizational research and higher education suggests that resources provide certain competitive advantages to institutions, improves the likelihood of sustained performance among colleges and universities, and figures

prominently in decision-making during periods of general fiscal constraint (Cheslock & Gianneschi, 2008; Zajac, et. al, 2000). The findings from this literature review suggest the following: as state support continues to fluctuate, public four-year colleges and universities will seek to reduce their dependence on the state by diversifying their markets to generate alternative sources of revenue and reduce their dependence on state support.

Additionally, research examining the adaptive behaviors of institutions when managing fiscal constraints warns that some of these strategies can result in a redistribution of resources away from programs and practices that have been proven to effectively recruit, retain, and graduate students, particularly at institution such as HSIs that enroll a greater share of students who balance on the margin of success (Nuñez & Elizondo, 2012; Flores & Park, 2015; Nellum & Valle, 2015). The following chapter (III) will provide an overview of the empirical strategy used to answer the primary research question for this study, as well as a set of sub-questions and assumptions guiding the framing and rationale for this study.

## **CHAPTER III**

### **Methodology**

This chapter provides an overview of the empirical strategy used to estimate the relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs. It begins with a summary of the two quasi-experimental approaches selected for this analysis. It further provides a rationale for the selection of the empirical strategy and explains how the resource dependence and resource heterogeneity perspectives inform the design and selection of the covariates included in each of the models estimated. Finally, the chapter concludes with a discussion about the limitations of the study.

#### **Overview of the Empirical Strategy**

This study uses panel data coupled with a quasi-experimental research design to examine the relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs. Quasi-experimental approaches are often used to make relatively strong inferences about cause and effect in the absence of random assignment in a research design (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007). Additionally, the use of panel data allows for observations on a particular unit of analysis at multiple points in time and provides for the observation of changes within that unit over time (Zhang, 2009). The strategy of using multiple observations of the same subject over time assists researchers in

detecting the behavior of a subject before and after a treatment, especially when periodic measurements for an effect of interest are available (Schneider et al., 2007).

In an effort to make determinations about the efficacy of the Title V program, a difference-in-differences (DiD) and two-way fixed effects analyses (also referred to as an event study) were applied to this study and will be described more fully in the sections that follow. These two complimentary empirical approaches allow researchers to control for both observable institution-specific factors, such as undergraduate enrollment or share of part-time faculty; as well as unobserved differences in factors that may not otherwise be accounted for in a basic linear regression model (Frees, 2004). Some examples of unobservable factors include campus climate or culture, both of which may influence student completion but are often hard to measure; such factors were not available in the panel used for this study.

### **Difference-in-Differences (DiD)**

The first of the two quasi-experimental approaches, difference in differences (DiD), has been routinely utilized by researchers to study the effect of policies on educational outcomes (DesJardins & Flaster, 2013). The DiD approach controls for unobserved or omitted factors that may confound the relationship between the treatment and outcome of interest (Angrist & Pischke, 2008). This study uses variation over time in the receipt of Title V awards by HSIs (treatment) to estimate the effects of the program on six-year Latino completion rates at public four-year colleges and universities (outcome of interest). The differences in six-year Latino completion rates before and after a Title V award is received by an HSI are compared with student outcomes over the same period at institutions that were eligible but did not receive the award.

Equation (1) below specifies the general model used to examine completion rates for Latino students. Where  $Y_{it}$  is the six-year completion rate for Latinos at institution  $i$  in time  $t$ ,  $W_{it}$  represents institutional revenue and expenditure covariates of interest;  $X_{it}$  represents a set of time-varying institution-level covariates;  $\alpha_i$  is an institution-level fixed effect;  $\gamma_t$  is a year-level fixed effect; and  $\varepsilon_{it}$  is the error term:

$$Y_{it} = \mu_t + \beta TitleV_{it} + \delta W_{it} + \theta X_{it} + \alpha_i + \gamma_t + \varepsilon_{it} \quad (1)$$

The primary parameter of interest in Equation (1) is  $\beta$ , the estimate of which represents the change in six-year completion rates for Latinos at HSIs that received a Title V award in a given year. This analytic strategy allows for the independent and dependent variables included in each of the models to measure the variation in outcomes for each institution (*within* variation) over time. However, it should be noted that this empirical approach does not provide estimates for time-invariant variables, as they do not vary over time.

### **Event Study Analysis**

As discussed in the previous chapters of this dissertation, a unique challenge when examining the efficacy of the Title V grant program is that it is completed annually, and awards are determined by the availability of federal funding. When an institution receives a Title V award from the U.S. Department of Education, these funds are made available to the institution over a five-year period. In some instances, an institution may elect to use the first year (or two) of the award to build institutional capacity before embarking on a full implementation of the funded program, yet these circumstances vary by institution. One common way to account for this type of variation in the construction of an analytical strategy is by lagging the key independent predictor. This strategy allows researchers to observe whether there are any delayed



effects on the outcome of interest. However, one major difficulty that emerges with the inclusion of lagged variables in a model is that they do not always separate out preexisting trends leading up to the time an event occurred. Specific to this study, preexisting trends may appear in the years leading up to the moment in which the institutions receive a Title V award. In some cases, these institution-specific preexisting trends may be picking up the effects of the Title V award on the outcomes of interest and biasing the estimates when employing DiD. Therefore, to mitigate such threats to internal validity, this study will employ an event study approach to allow for the treatment effects to vary from year-to-year and account for any preexisting trends (see McFarlin, Martorell, & McCall, 2017).

Equation (2) below specifies the general event study model used to examine four-year completion rates. Similar to the first equation,  $Y_{it}$  is the six-year completion rate for Latinos at institution  $i$  in time  $t$ ;  $W_{it}$  represents institutional revenue and expenditure variables of interest;  $X_{it}$  represents a set of time-varying institution-level covariates;  $\alpha_i$  is an institution-level fixed effect;  $\gamma_t$  is a year-level fixed effect; and  $\varepsilon_{it}$  is the error term:

$$Y_{it} = \mu_t + \delta W_{it} + \theta X_{it} + \alpha_i + \gamma_t + \sum_{-4 \leq k \leq 4} Title V_{it}^k + \varepsilon_{it} \quad (2)$$

However, in Equation (2) the primary coefficient of interest is  $Title V_{it}^k$ , a dummy variable indicating whether institution  $i$  received a Title V award  $k$  years after (or before) year  $t$ . For values where  $k > 0$  or  $k < 0$ ,  $Title V_{it}^k = 1$ . This variable tests for the presence of systematic trends. If these trends are present in the outcomes both leading up to and post receipt of the Title V award, then the coefficients for the dummy variable will capture such trends and provide some reassurance that they are not influencing the estimates.

Furthermore, the event study approach will help account for any bias due to any unobserved time-invariant differences between public four-year HSIs that may be correlated with the six-year completion rates for Latino students. Additionally, this empirical strategy will control for a limited form of endogeneity in the model by allowing certain regressors to be correlated with the time invariant component of the error in Equation (2) (Cameron & Triverdi, 2010). However, because this empirical strategy is not able to control for unobserved institution-specific factors that vary over time, the models also include a set of institution-level time-varying covariates that have been used in prior studies to examine Latino student completion at public four-year institutions (Titus, 2006a; Titus 2006b; Nuñez & Elizondo, 2012). Given that this study builds upon prior studies that examine the relationship between organizational factors and performance outcomes such as six-year completion rates, the time-varying covariates primarily consist of expenditures and revenue variables (Berger, 2002; Titus, 2006a; Titus 2006b; Nuñez & Elizondo, 2012). Each of these variables will be described in greater detail in the sections that follow.

### **Using RDT and Resource Heterogeneity Concepts to Specify the Models**

The assumptions posited by both the RDT and resource heterogeneity perspectives are used to inform both the selection of covariates for the models and the empirical strategy for this study. These two perspectives suggest that organizational performance is influenced by an institution's ability to mitigate or adapt to changes in its fiscal landscape (Pfeffer & Salancik, 1978; Davis, 2006; Davis & Marquis, 2005). In the case of this study, the greater the level of dependence of an institution on a discretionary resource (i.e., state support), the more likely that organizational performance outcomes (i.e., completion rates) are affected when these resources fluctuate. The period observed for this study coincides with the Great Recession (2007-2009) in

the United States, a moment in our recent history that significantly affected funding for higher education at all levels. The mechanism of resource heterogeneity, which is integrated with the RDT perspective for this analytical framework, posits that organizations with more institutional resources may be better insulated from environmental threats for quite some time before putting their survival at risk, an assumption that will be tested in the analysis (Zajac, et. al, 2000; Kraatz & Zajac, 2001; Cheslock & Gianneschi, 2008).

The models constructed for this analysis are an extension of prior empirical work that also examined six-year completion rates at postsecondary institutions (see Berger & Milem, 2000; Titus, 2006a; Titus 2006b; Nuñez & Elizondo, 2012). All the studies reviewed for this analysis examined the relationship between the structural, demographic, and financial contexts of an institution and completion rates for students. A similar model specification was applied in this study; however, the one unique point of departure is that this analysis focused exclusively on completion rates for Latino students enrolled at public four-year HSIs. Additionally, the empirical approach for this study pairs a DiD analysis with an event study approach, whereas other researchers have tended to use hierarchical generalized linear modeling (HGLM), analysis of variance (ANOVA), and descriptive cross tabulations to explore the relationship of the financial environment with completion rates (Titus, 2006a; Titus, 2006b; Nuñez & Elizondo, 2012).

In an effort to test the assumptions posited by the empirical framework informing this study, a series of models are estimated and described more fully in the subsequent chapter (IV). The analysis is conducted on the following three samples: 1) a panel of institutions consisting of all public four-year colleges and universities, 2) a panel containing only public four-year institutions located in states with HSIs, and 3) a panel of institutions that only includes HSIs that

either received a Title V award or were eligible but did not receive an award. The construction of these three samples was informed by prior findings in the literature on higher education research which suggest that any analysis of Latino student completion should seek to disaggregate full samples in meaningful ways to allow for better comparisons across similar sectors and types of institutions (Flores & Park, 2013; Flores & Park, 2015; Nuñez & Elizondo, 2012). This is especially important for research making broad generalizations and claims about specific populations of students enrolled at mission-driven institutions such as minority-serving institutions (MSIs) and when comparing those findings with the outcomes of students enrolled at non-MSIs (Flores & Park, 2015; Nuñez & Elizondo, 2012).

### **Sources of Data**

The primary data for this study was obtained from the Higher Education General Information Survey (HEGIS)/Integrated Postsecondary Education Data System (IPEDS) panel (henceforth referred to as HEGIS/IPEDS) constructed by Jaquette (2011). The HEGIS/IPEDS has great utility for research that utilizes organizations as the primary unit of analysis. The HEGIS/IPEDS panel was originally designed to examine the offering of master's degrees and mission drift at liberal arts colleges; however, the data can also be used to examine changes in revenues and expenditures over time at colleges and universities (Jaquette, 2011). The HEGIS/IPEDS panel has a couple of advantages over other more commonly used datasets that examine institutional resources, such as the Delta Cost Project (DCP). First, the HEGIS/IPEDS panel spans a longer period (1969 to the present), while DCP covers only the period between 1987 and 2010. Second, the HEGIS/IPEDS and DCP panels also differ in their treatment of the parent-child relationship, which refers to the analytical distinction made when aggregating data at a multi-campus or system level, rather than at the campus level. While DCP collapses a large

number of campus finances and expenditures reported by institutions into a single organization, the HEGIS/IPEDS panel aggregates multi-campus institutions less often than the DCP panel—increasing its utility for addressing some research questions (Jaquette, 2011). Given the interest of this study in examining the relationship between the Title V program and the organizational performance outcomes of HSIs (as measured by completion rates) throughout the analytic period (1997 to 2012), the HEGIS/IPEDS panel presents an optimal source of data for this assessment.

The panel used in this study contains 16 years of data (1997-2012) consisting of four-year public colleges and universities in the United States. The decision to use this time span was informed by several key policy developments. First, the Office of Management and Budget (OMB) released revisions to its standards for classifying federal data on race and ethnicity in 1997. These guidelines affected the way Latinos were reported and identified in IPEDS.<sup>7</sup> Additionally, given that the U.S. Department of Education (ED) first launched the Title V program in 1998 and the inaugural awards were made available in 1999 to selected HSIs, 1997 serves as a useful start date to account for federal policy developments and permits the inclusion of additional years of data leading up to the disbursement of the first Title V award. Furthermore, the Governmental Accounting Standards Board (GASB) also made changes during this period to the *Finance Component* survey for public institutions. These changes made comparisons of resources such as endowment revenue, private gifts, grants, and contracts difficult to compare over periods of time that extend into earlier decades. In contrast, the decision to end the analysis in 2012 was primarily driven by limitations, challenges, and time constraints associated with the ability to obtain Title V award data from the U.S. Department of Education (ED). Information on

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<sup>7</sup> Source: 52FR 30529, August 14, 1984, <https://www.govinfo.gov/content/pkg/CFR-1997-title34-vol3/pdf/CFR-1997-title34-vol3-sec607-2.pdf>

Title V awards is only made available through Freedom of Information Act (FOIA) requests to ED, a process that can be cumbersome and time consuming. It is also worth noting that the frequency and quality in which this data is made available also presented additional empirical challenges.

The HEGIS/IPEDS data informing most of the variables constructed for this study is made up of nine survey components: Finance, Fall Enrollment, Graduation Rates, Human Resources, Completions, State Migration, Libraries, Faculty and Staff, and Institutional Characteristics. Each of the survey components is administered annually by the National Center for Education Statistics (NCES) and has been collected since 1987. For the purposes of this study, only data found in the following five survey components is used: Finance, Fall Enrollment, Graduation Rates, Human Resources, and Institutional Characteristics. The additional source of data needed from the Developing Hispanic-Serving Institutions (Title V) program was obtained through FOIA from ED. This information, which is only available via scanned images of archived PDFs and photocopies, includes information on the type of grants and dollar amounts awarded to recipients of the Title V grant program. Data files were obtained for each award year dating back to the start of the Title V program in 1999 and ending in 2012. The data was then coded and merged onto the HEGIS/IPEDS panel.

The effective panel used in the analysis was created by appending years of data from each of the components described above and then merging all the components together following the IPEDS data processing procedure suggested by Jaquette and Parra (2014). The merging of each of the separate components across years requires some caution, largely due to a dilemma associated with parent-child data reporting (Jaquette & Parra, 2014). Simply put, data may be reported differently across survey components. For instance, multi-campus institutions or

institutions that are part of larger state systems may elect to report enrollment data at the campus level but then decide to report finance information at the system or main campus level. As a result, data for these institutions may need to be collapsed to the parent level in an effort to ensure consistency across the entire panel of data and over time. The parent-child collapsing procedures developed by Jaquette & Parra (2014) provided a solution for addressing parent-child reporting challenges and allowed for the construction of multi-year, matched panels of data that can be utilized to conduct institution-level analyses over extended periods of time.

### **Analytic Period**

The period of analysis for this study covers 16 years and spans from 1997 through 2012. As previously stated, the decision to limit the analysis to this period of time was driven by changes in policy, availability of data, and improved consistency of reporting on several key variables of interest. The sample of institutions for this analysis were carefully selected to meet a key assumption of the theoretical framework for this study, which is that institutions must exhibit a high level of dependency on key resources for survival (Pfeffer & Salancik, 1978; Davis & Cobb, 2010). For this reason, the sample was limited to only include public four-year colleges and universities, which have historically relied more heavily on state and federal support for their operations than their private or independent non-profit counterparts (Thelin, 2011). The sample is further restricted to institutions categorized as baccalaureate, master's, research, and doctoral institutions by the Carnegie Classification System. These institutions tend to serve students in a wide variety of fields and disciplines and are often referred to as general mission HSIs (Nuñez & Elizondo, 2012). In an effort to distinguish general mission HSIs from other types of four-year HSIs, institutions classified as special focus institutions, such as health professions, arts, or religious colleges and universities, were excluded from the sample.

**Table III.1:** Number of Observations with Imputed Data, by Variable

Variable	Number of Observations with Imputed Values
Latino 6-year Completion Rate (Dependent Variable)	68
State Appropriations	0
State Grants and Contracts	0
Tuition	0
Student Services	0
Instruction	0
Academic Support	0
Research Activities	0
Administrative Support	0
Education and General Expenditures	0
Total Number of Part-Time Faculty	1,707
Total Pell Grant Distributed	2
Total Undergraduate	0
Total	1,777

Next, institutions that had missing data on the key variables of interest for all years of the analysis period were dropped from the sample. In the case of missing institution-year observations in the data, all missing covariates for the variables selected for the study were imputed by averaging the totals of the leading (year + 1) and lagging year (year – 1) for each observation within each institution panel. In the end, 27 percent of the observations in the analysis (N=1,777) contained at least one imputed value (see Table III.1). In circumstances where data for a particular observation were missing for two or more years in a row—or if observations were missing at the beginning or end of the 16-year period—then data for those particular cases were also dropped. In the end, the matched data set developed for this study included 6,464 observations of public four-year colleges and universities in the United States.



## **The Dependent Variable**

The dependent variable is the six-year completion rate for Latino students enrolled at public four-year institutions in the United States, which was also selected for its utility as a proxy for assessing the efficacy of the Title V program that was launched by the U.S Department of Education in 1998 (Title V Program Statute, 2006; Santiago, 2006). The goal of the Title V program was to build capacity and infrastructure at HSIs in an effort to improve the postsecondary attainment rates of Latino students enrolled at these institutions. When you consider that postsecondary access for Latinos has improved exponentially in recent years, yet completion rates have failed to keep pace with this growth, the selection of six-year completion rates for Latino students is an appropriate indicator of success. In 2012, during the Obama Administration, the U.S Department of Education declared college completion a national imperative and placed a renewed emphasis on demonstrated outcomes.<sup>8</sup> Presently, discretionary investment in higher education continues to come under scrutiny, and determinations as to whether institutions of higher learning can improve postsecondary completion rates will quite likely influence the continued investment or elimination of certain federal programs currently in place.

The dependent variable in this study specifically measures the 150 percent completion percentage for Latino students. The variable was constructed from information reported by institutions in the IPEDS graduation survey. The variable is derived by taking the total number of Latino students who completed their respective program in 150 percent of the four-year graduation time (numerator) and dividing it by the number of first-time, full-time degree seeking Latino students who enrolled in a given year (denominator). Simply put, the 150 percent

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<sup>8</sup> <https://www.ed.gov/college>

graduation rate at four-year institutions is the percentage of Latino students who completed a bachelor's degree program in six years. The 150 percent graduation rate is a standard way of measuring this outcome in the higher education literature.

### **Explanatory Variables**

Table III.2 contains a list of all variables, variable definitions, and sources of the data used in this study. It is also important to note that all monetary variables included in the analysis were adjusted to constant dollars using the 2012 Consumer Price Index (CPI) to allow for comparison across the analytic period. Each of the monetary variables that were not proportions, as well as the total enrollment of the institution, were all transformed by using the natural logarithm (ln). This transformation allowed for standardization of the data by reducing skewness and excess kurtosis that may result from differences in institutional size and spending (Cameron & Triverdi, 2010). An additional benefit of the log transformation of the monetary variables is that it allows for the interpretation of the coefficients as an elasticity measure (e.g., percentage change in the dependent variable associated with a percentage change in the independent variable of interest).

The primary explanatory variable of interest is the Developing Hispanic-Serving Institutions Program (Title V) award. This variable includes the Individual Development Grants (single institution awards) and the Cooperative Development grants (multiple partnering institution awards) that are disbursed annually by the U.S. Department of Education. To measure the efficacy of the Title V program, controls for a number of additional time-varying covariates that could affect the six-year completion rates for Latino undergraduates are also included. Research in the field of higher education has determined that the financial context of an institution can influence degree completion (Berger, 2002; Hurtado, 2002; Titus, 2006a; Titus

**Table III.2:** Explanatory variables by financial and organizational structural context

<b>Financial Context</b>		
	<b>Variable</b>	<b>Description</b>
Revenue Shares	State Support	Total share of revenues received from state appropriations, grants, and contracts.
	Tuition	The share of revenue received from money charged to students for instructional services
	Federal Support (Title V Awards)	Includes Individual Development Grants (single institution awards) and the Cooperative Development grants (multiple partnering institution awards) that are disbursed annually by the U.S. Department of Education.
Expenditure Shares	Student Services	Expenses for admissions, registrar activities, and activities whose primary purpose is to contribute to student's emotional and physical well-being and to their intellectual, cultural, and social development outside the context of the formal instructional program.
	Instruction	Expenses for colleges, schools, departments, and other instructional divisions of the institution and expenses for departmental research and public service that are not separately budgeted.
	Academic Support	Expenses for activities and services that support the institution's primary missions of instruction, research, and public service.
	Research	Expenses for activities organized to produce research outcomes and commissioned by an agency either external to the institution or separately budgeted by an organizational unit within the institution. The category includes institutes and research centers, and individual and project research.
	Institutional Support	Expenses for the day-to-day operational support of the institution. Examples include executive-level activities concerned with management and long range planning, legal and fiscal operations, space management, and public relations and development.
	Education and General	Sum of total expenses on instruction, research, public service, academic support, institutional support, and student services.
<b>Structural Context</b>		
	<b>Variable</b>	<b>Description</b>
Demographic Characteristics	Total Pell Grant	Provides grant assistance to eligible undergraduate postsecondary students with demonstrated financial need to help meet education expenses.
	Share of Part-Time Faculty	Individuals whose initial assignments are made for the purpose of conducting instruction, research or public service as a principal activity (or activities). They may hold academic rank titles of professor, associate professor, assistant professor, instructor, lecturer or the equivalent of any of those academic ranks.
	Total Undergraduate Enrollment	Total unduplicated head count for the number of students by gender, attendance status (full-time, part-time), race/ethnicity, first-time, transfer-in, continuing/returning, and degree/certificate-seeking statuses enrolled throughout the reporting period.

2006b). Additionally, other studies have determined that the availability of resources at HSIs, and other less selective institutions, influence student outcomes (Nuñez & Elizondo, 2012;

DeLos Santos & Cuamea, 2010). For this reason, measures for the two largest primary sources of revenues at public four-year institutions were included in the analysis: a) tuition and b) state support. The variable for state support is derived from the sum for the total of state appropriations, state grants, and state contracts. While the variable for tuition represents only net tuition and does not include fees in its calculation.

Additionally, expenditures shares were also included in this analysis. These variables represent investments in the core functions and operations of the institution, which prior empirical work in the field of higher education has determined also influence student completion (Titus, 2006a; Titus, 2006b; Garcia, 2015; Ortega et al., 2015; Garcia, Nuñez, & Sansone, 2019). The specific expenditure measures included in this study represent investments in such areas as student services, instruction, academic support, research activities, and administrative support for the institution. Each of these variables were converted into proportions (or shares) by taking the total dollar amounts for a given expenditure (e.g., instruction) and then dividing it by the total amount of education and general (E&G) investment at a given institution (denominator) for every single year. While each expenditure variable included in the analysis has a demonstrated effect on student completion (Titus, 2006a; Titus, 2006b; Garcia, Nunez, & Sansone, 2019), the inclusion of these covariates also positions this study to extend prior empirical findings and determine whether these results may also hold up for mission-driven, public four-year HSIs.

Higher education scholars have also suggested that certain demographic characteristics of the institution affect student completion at public four-year institutions (Berger and Milem, 2000; Hurtado, 2002). One such measure is the socio-economic status (SES) of students enrolled at a given institution (Titus, 2006a; Titus, 2006b; Flores & Park, 2015). This is especially relevant for mission-driven institutions such as HSIs that tend to enroll greater shares of socio-

economically disadvantaged students (Garcia, 2015; Contreras & Contreras, 2015). To account for the SES of students enrolled at public four-year institutions, the study included a measure for total Pell grants awarded per FTE at an institution—a variable that is routinely used as a proxy for SES. Furthermore, research has demonstrated that size (as measured by enrollment) of an institution may also affect student experiences and ultimately influence the likelihood of completion, particularly in relation to first-generation, historically underserved students (Oseguera, et al, 2008; Cole & Espinosa, 2008; Garcia, 2015). In an effort to account for institutional size in this study, a measure for total undergraduate enrollment was included in the model. Finally, building on prior findings that suggest that the share of part-time faculty on a campus also affect the quality of instruction and the likelihood of completion (Garcia, 2015; Gehrke & Kezar, 2015; Frye, 2017), a measure the share of part-time faculty on campus was also included in the analysis.

### **Limitations**

As with all studies, there are limitations to this analysis that should be acknowledged. First, the analysis conducted for this study is only a small segment of a larger structure that, if estimated, would explain the efficacy of the program more fully. Hence, the estimates from this study may also be biased by several other events that may be occurring prior to the receipt of a Title V award by institution. These events may include the motivation for an institution to apply for the Title V program or may not. Additionally, there are also a number of unknown factors influencing determinations made by the U.S. Department of Education regarding the selection of institutions that were selected to receive a Title V award, as well as a number of undisclosed considerations that may have influenced decisions about the final total grant award amount. Each

of these mechanisms at work may further threaten the internal validity and generalizability of the results from my analysis.

Next, any attempt to estimate the effect of a program (i.e., Title V) on a particular outcome of interest (e.g., completion rates) using a quasi-experimental design is also subject to bias if researchers fail to account for other important measures that may prove difficult to collect or obtain. Efforts were made to control for a number of time-varying covariates that have been found to influence completion rates. However, there are undoubtedly additional factors such as human capital shortages, attrition in executive leadership, and investments in programs that provide students with academic support or advising which were not included in this study. The reason being that most of these organizational factors were not available (or collected) in the panel developed for this study.

Furthermore, a decision was made to focus this analysis exclusively on the overall completion rates for Latino students enrolled at all public four-year HSIs. It is also important to point out that the majority of HSIs in the United States are community colleges (two-year institutions) and a large segment of private four-year institutions also participate in the Title V program. Additionally, given the variation in the types of institutions in existence—even among the public ones—and the numerous characteristics of the students they serve, there are clearly a number of sub-group effects that may be masked by these choices that warrant additional attention for future researchers.

Availability of some of the control variables for this study were also limited and this required the selection of proxy variables to control for some organizational factors. Take, for instance, the measure selected to account for the socio-economic status (SES) and makeup of the student body. Generally, studies include a variable that represents the share of students receiving

Pell awards at an institution. However, information on Pell grant awards was not available for all years of the panel. In fact, Pell grant awards were a recent addition to the Integrated Postsecondary Education Data System (IPEDS)—they were only available for the later years in the study. As a result, the revenue variable for total Pell grant dollars was used instead. This solution took the total Pell grant dollars (numerator) and then divided that variable by the total full-time equivalent (FTE) enrollment (denominator) to create a derived variable representing total Pell per FTE distributed at the institution. While the measure is slightly less than perfect, it does however serve as a proxy for determining Pell distribution on campus and can also be compared across all institutions included in this study.

Finally, it is important to also offer up a few caveats about the decision to select six-year completion rates for Latinos as the dependent variable of interest. This measure is frequently used in the policy arena as an indicator for institutional success and routinely used to make policy determinations about the return on investment (ROI) at colleges and universities (Nuñez & Elizondo, 2012; Mehaffy, 2012). However, researchers have also noted that this metric may disadvantage postsecondary institutions that are less selective, more likely to enroll transfer students, and enroll greater shares of socio-economically vulnerable students (Titus, 2006a; Titus 2006b; Nichols, 2017; De los Santos & De los Santos, 2003; & Nuñez & Elizondo, 2012). The decision to proceed with the inclusion of this metric was premised on the understanding that making progress toward this goal should remain a top priority for HSIs, given the goal of the Title V program to improve postsecondary attainment rates for Latinos in the United States.

## **Summary**

In short, changes in the availability of state support have required institutions to diversify sources of revenue as a strategy to help mitigate financial constraints and improve financial

viability. In the case of HSIs, a number of these institutions continue to make efforts to reduce dependency on state support by seeking out federal resources in the form of Title V grants. To date, the Title V program remains the primary policy mechanism at the federal level that specifically targets HSIs for support with the goal of improving postsecondary attainment for Latino students in the United States, yet no effort has ever been made to examine the efficacy of the program in meeting its stated goal. This chapter provided an overview of the measures that were selected to conduct a first-ever assessment of this program. The following chapter will provide an overview of the empirical strategy developed for this assessment and present the results from it.



## **CHAPTER IV**

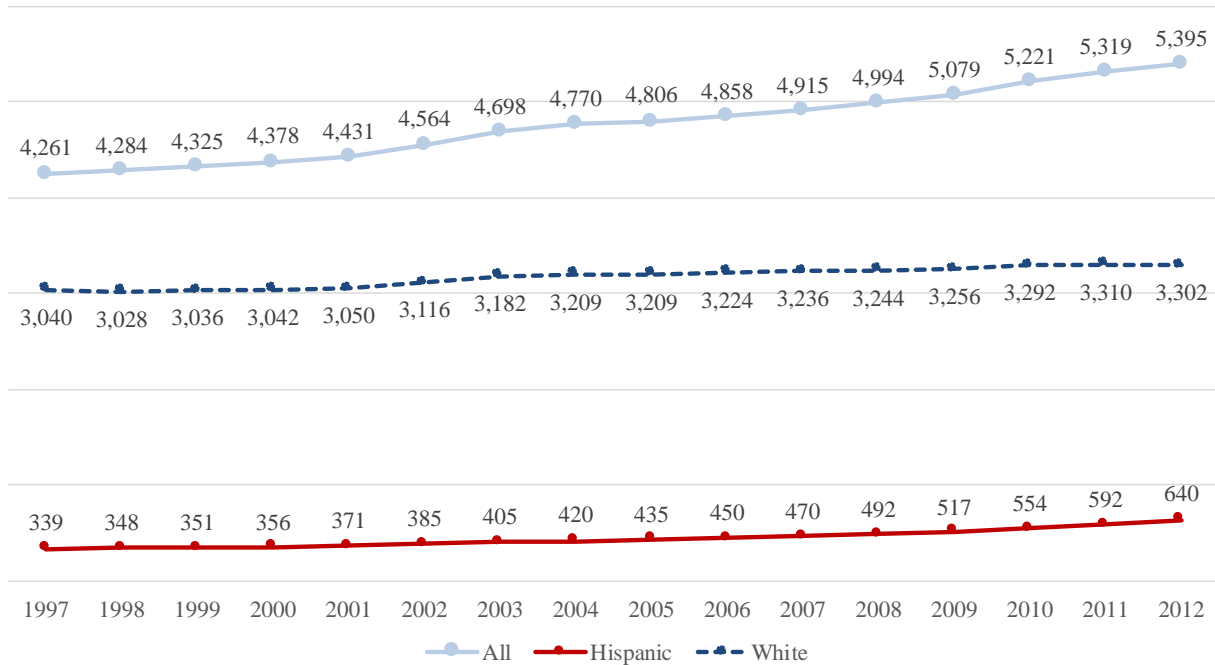
### **Results**

This chapter presents the results from this examination on the relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs in the United States. The outcome of interest for this study (six-year completion rates for Latino students) will also serve as a proxy for making determinations about the efficacy of the Title V program in achieving its stated goal of improving postsecondary success for Latino students. The chapter begins with an overview of the descriptive statistics associated with the full panel of institutions selected for this study. This descriptive information will include trends for both the dependent and independent variables of interest during the analytic period selected for this study (1997 to 2012). The chapter concludes with a detailed description of results from both the difference-in-differences (DiD) and event study estimates, results which will inform any findings and determinations made about the (conditional) relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs.

#### **Latino Student Enrollment and Completion**

Figure IV.1 illustrates how Latino undergraduate enrollment at public four-year colleges and universities in this panel nearly doubled between 1997 and 2012, increasing from 339,375 to nearly 640,000 students, respectively. The 88 percent increase in the total number of Latinos enrolled at public four-year institutions in the United States makes Latino students one of the

**Figure IV.1:** Share of total Latino undergraduate enrollment at public four-year colleges and universities by race and ethnicity, 1997-2012



fastest growing demographic groups in that sector. Although the rate of increase in Latino student enrollment outpaced the rate of growth for all undergraduates at public four-year institutions (27 percent) throughout the period observed, the more than 640,000 Latino students enrolled at a public four-year institution in 2012 represent only 12 percent of the total undergraduate enrollment in the United States. The share of Latino students enrolled at public four-year institutions in 2012 was far less than the total share of enrollment for White students (61 percent) enrolled at similar institutions in that same year. More succinctly stated, between 1997 and 2012, Latino student access to higher education increased at an unprecedented pace, yet their representation at public four-year colleges and universities in the United States lagged far behind that of their White peers.

It is also important to point out that the majority of Latino student enrollment growth occurred primarily in 10 states and one U.S. territory (see Table IV.1). Puerto Rico clearly

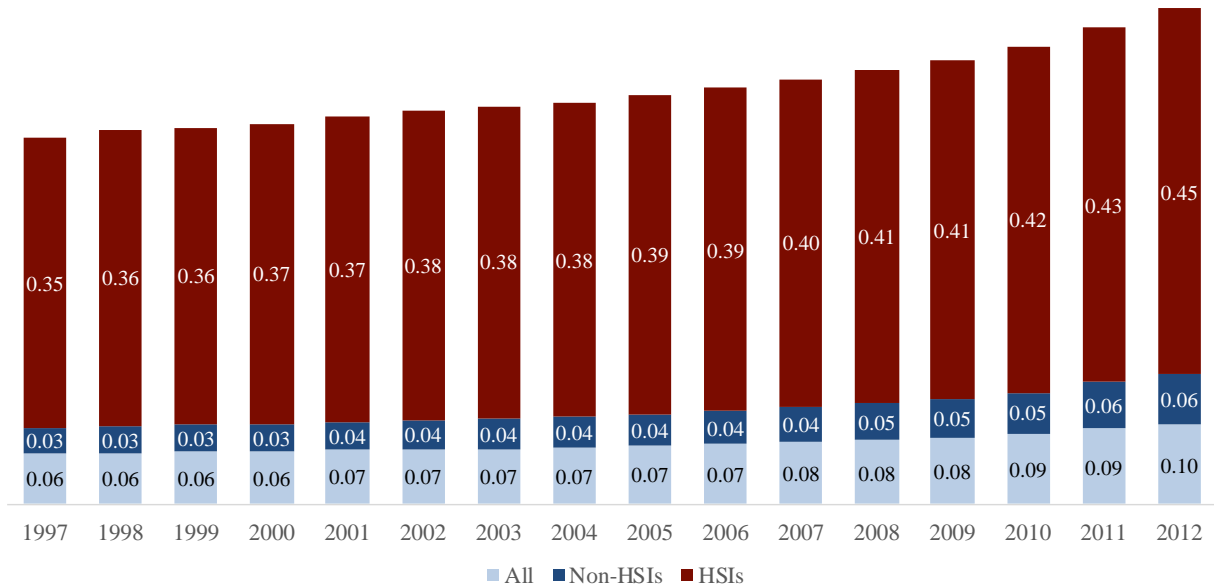
**Table IV.1:** Top 10 states by share of Latino enrollment at public four-year colleges and universities

State	Share of Latinos
Puerto Rico	0.97
New Mexico	0.40
Texas	0.24
New York	0.24
California	0.21
Florida	0.15
Arizona	0.13
New Jersey	0.13
Colorado	0.11
Nevada	0.10
Illinois	0.08

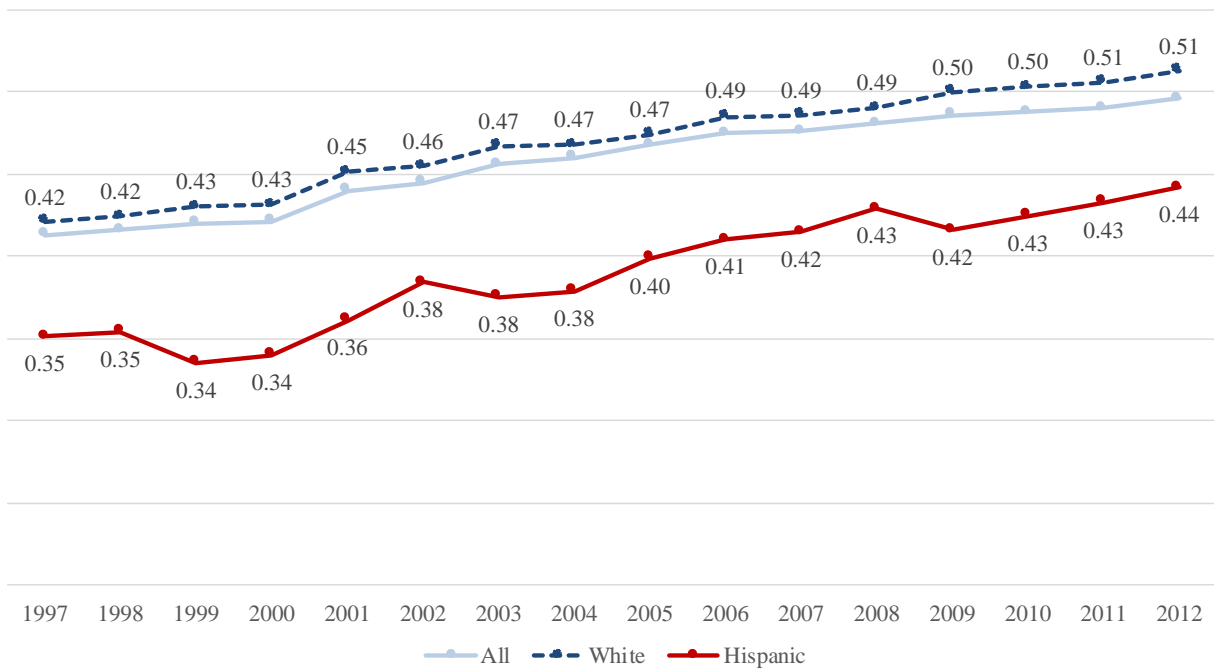
represents the region with the greatest number of Latino undergraduates given its unique demographic make-up as a Latino-majority territory. However, among the top 4 contiguous states where the share of the total number of Latino undergraduates was the highest, New Mexico led the way, with Latinos averaging about 40 percent of the total undergraduate enrollment between 1997 and 2012. The next three states include Texas, New York, and California, where the total share of Latino student representation at public four-year institutions averaged 23 percent across all three of these states throughout the period observed. Figure IV.2 illustrates the types of institutions enrolling the largest shares of Latino students. Latinos largely enrolled at one of the 37 public four-year HSIs included in this study. In 2012, 45 percent of all Latinos enrolled at a public four-year HSI—a set of colleges and universities that represent only 9 percent of all the institutions included in this panel.

Although Latino student enrollment at public four-year colleges and universities increased throughout this period, completion rates for these students continued to lag behind the

**Figure IV.2:** Share of total Latino undergraduate enrollment at public four-year colleges and universities by institution type, 1997-2012



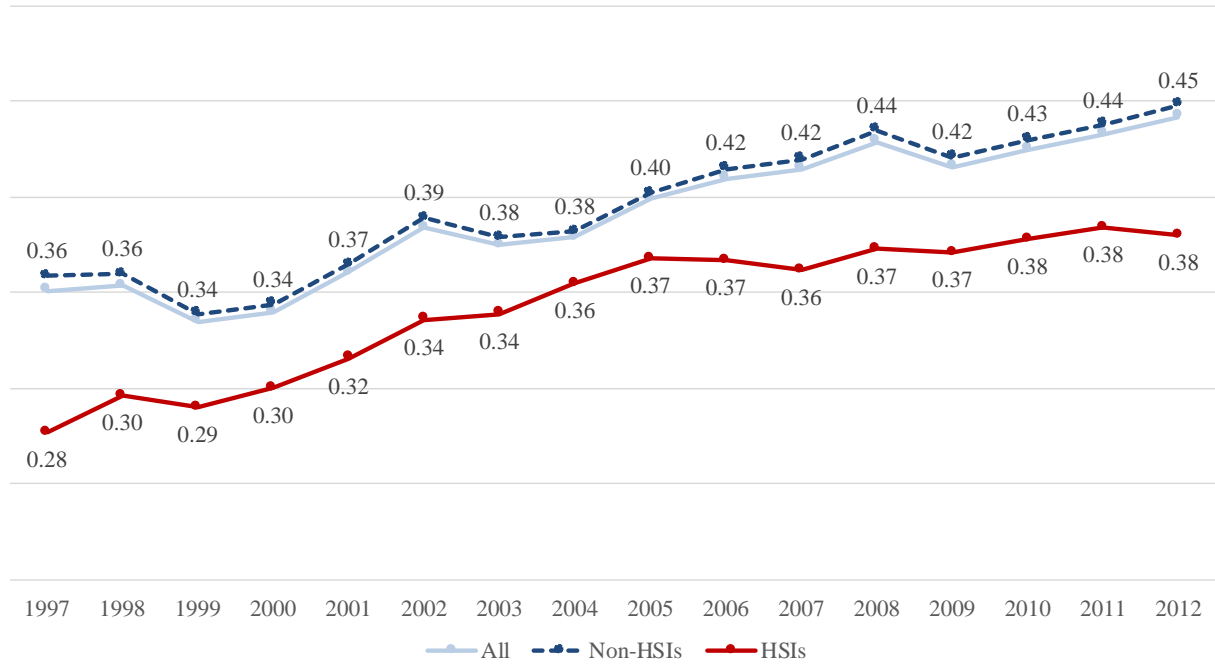
**Figure IV.3:** Six-year completion rates at public colleges and universities by race, 1997-2012



national average and that of their White peers. Figure IV.3 describes how between 1997 and 2012, the average six-year completion rate for all students enrolled at public four-year institutions in the United States was 46 percent. Comparatively, the completion rate for Latinos during this same period averaged only 39 percent, nearly 7 percentage points lower than the average for the entire panel of institutions. The rate of completion for Latino students is especially concerning when compared to the rate of completion for White students. In 2012, more than half (51 percent) of all White students enrolled at public four-year institutions completed their undergraduate studies in six years. In other words, the average rate of completion for White students at public four-year colleges and universities in the United States is 12 percentage points higher than the completion rates for Latino students enrolled at similar institutions.

Given the particular interest in examining the six-year completion rates for Latino students enrolled at HSIs with those of Latinos enrolled at non-HSIs, this descriptive analysis suggests that Latino students who enroll at HSIs complete their baccalaureate degree programs at lower rates than Latino students enrolled at non-HSIs (see Figure IV.4), a trend that is consistent with some of the findings observed in the empirical literature (Nuñez & Elizondo, 2012; Garcia, 2015; *Excelencia in Education*, 2018). This trend is consistent across all the years observed for this study. While Figure IV.4 describes how completion rates for Latino students enrolled at public four-year HSIs increased by nearly 10 percentage points between 1997 and 2012 (a 32 percent change), the rate remained nearly 7-percentage points below the completion rate for Latinos enrolled at public four-year non-HSIs. When you consider that nearly half of all Latinos pursuing a bachelor's degree in the United States enroll at an HSI, the disparities in completion rates are alarming.

**Figure IV.4:** Six-year Latino completion rates at public four-year colleges and universities by institution type, 1997-2012



### Unpacking the Organizational Context of HSIs

The analytic framework informing the empirical strategy for this study posits that organizational performance—as measured by six-year completion rates—is influenced by the structural, demographic, and financial context of an institution (Berger & Milem, 2000; Titus, 2006a; Titus 2006b; Nuñez & Elizondo, 2012). One major component of this framework is the propositions that are posited by the RDT and resource heterogeneity perspectives, which suggest that well-resourced institutions are more insulated from environmental threats and are afforded certain advantages as a result of the resources they possess before their survival is threatened or placed at risk (Cyert & March, 1963; Singh, 1986; Cheslock & Gianneschi, 2008; Zajac, et. al, 2000). Throughout the period observed for this study, the United States experienced a Great Recession (2007) that further contributed to financial instability among institutions of higher education. The changes in the levels of federal and state support for public colleges and

**Table IV.2:** Total federal and state support at public four-year colleges and universities by full-time equivalent (FTE), 1997-2012 (in 2012 dollars)

Year	Federal Support Public 4-Year			State Support Public 4-Year		
	All <i>n=6,464</i>	Non-HSIs <i>n=5,872</i>	HSIs <i>n=592</i>	All <i>n=6,464</i>	Non-HSIs <i>n=5,872</i>	HSIs <i>n=592</i>
1997	\$2,039	\$2,056	\$1,879	\$6,018	\$5,961	\$6,577
1998	\$2,135	\$2,154	\$1,947	\$6,312	\$6,255	\$6,882
1999	\$2,298	\$2,315	\$2,136	\$6,707	\$6,636	\$7,410
2000	\$2,363	\$2,363	\$2,356	\$7,060	\$7,002	\$7,644
2001	\$2,618	\$2,603	\$2,768	\$7,433	\$7,369	\$8,072
2002	\$2,900	\$2,883	\$3,072	\$7,341	\$7,251	\$8,235
2003	\$3,151	\$3,143	\$3,228	\$6,999	\$6,920	\$7,789
2004	\$3,317	\$3,328	\$3,204	\$6,757	\$6,677	\$7,545
2005	\$3,543	\$3,533	\$3,634	\$6,883	\$6,808	\$7,631
2006	\$3,548	\$3,539	\$3,638	\$7,258	\$7,188	\$7,955
2007	\$3,606	\$3,590	\$3,755	\$7,658	\$7,583	\$8,398
2008	\$3,718	\$3,694	\$3,953	\$8,231	\$8,112	\$9,404
2009	\$3,888	\$3,862	\$4,138	\$7,791	\$7,721	\$8,491
2010	\$4,587	\$4,549	\$4,970	\$7,164	\$7,065	\$8,142
2011	\$4,783	\$4,762	\$4,994	\$7,120	\$7,012	\$8,192
2012	\$4,510	\$4,516	\$4,449	\$6,720	\$6,649	\$7,417

universities before, during, and after the Great Recession serve as the backdrop for this study. This is especially relevant, given that public four-year colleges and universities, which are the main unit of analysis for this study, have historically relied on federal and state support for their operations. Table IV.2 provides an overview of the trends associated with changes in public support for public four-year institutions between 1997 and 2012. The measures included in this table will also serve as proxies for approximating the level of dependency that public institutions have on resources they have relied upon historically.

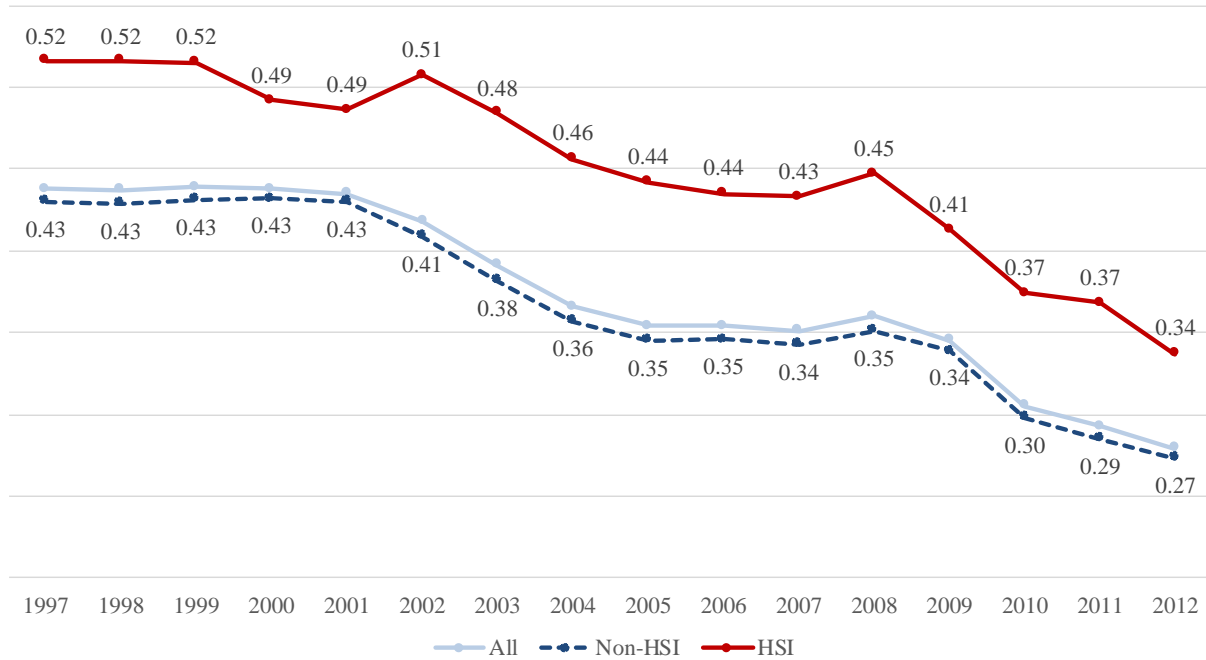
Between 1997 and 2008 (the years leading up to the Great Recession), state support for public four-year institutions steadily increased from \$6,018 per FTE in 1999 to \$8,231 per FTE

in 2008. This increase represents a change of about \$1,878 per FTE (37 percent change) at all public four-year institutions throughout this period. Between that same period (1997-2008), state support for HSIs also increased from \$6,577 to \$9,404 per FTE, representing an upturn of about \$2,827 (28 percent change). In the first few years following the Great Recession, the average amount of state support for all public four-year colleges and universities declined to levels below what they were at the turn of the century (1999), averaging about \$6,720 per FTE by the end of 2012. In the case of federal support, these subsidies remained stable. In fact, federal support for public colleges and universities increased steadily between 1997 and 2011, with a slight dip occurring in 2012 when funds per FTE decreased by \$273 from the previous year. Although similar trends in revenues were observed for all public four-year institutions in this study, one important distinction is that HSIs tend to rely more heavily on state support than non-HSIs throughout the entire analytic period (1997-2012), by an average of nearly \$1,000 more per FTE. These descriptive trends support the assumptions from the theoretical perspectives selected for this study. First, in the case of RDT, this theory posits that the level of dependency on a specific resource matter for an organization (Pfeffer & Salancik, 1978). Next, when you consider both the level of dependency on a resource and the heterogeneity of resources possessed by institutions of higher education, the integrated framework developed for this study further suggests that the fiscal circumstances of an organization may affect its ability to mitigate and withstand fiscal threats (Cheslock & Gianneschi, 2008; Zajac, et. al, 2000).

For instance, **Assumption 1 (A1)** for this study suggests that HSIs tend to be more reliant on state support than their non-HSI counterparts. In an effort to better approximate the level of dependency by public institutions on state support, this study replicates an empirical approach used in prior studies which utilized revenue shares as proxies for determining resource

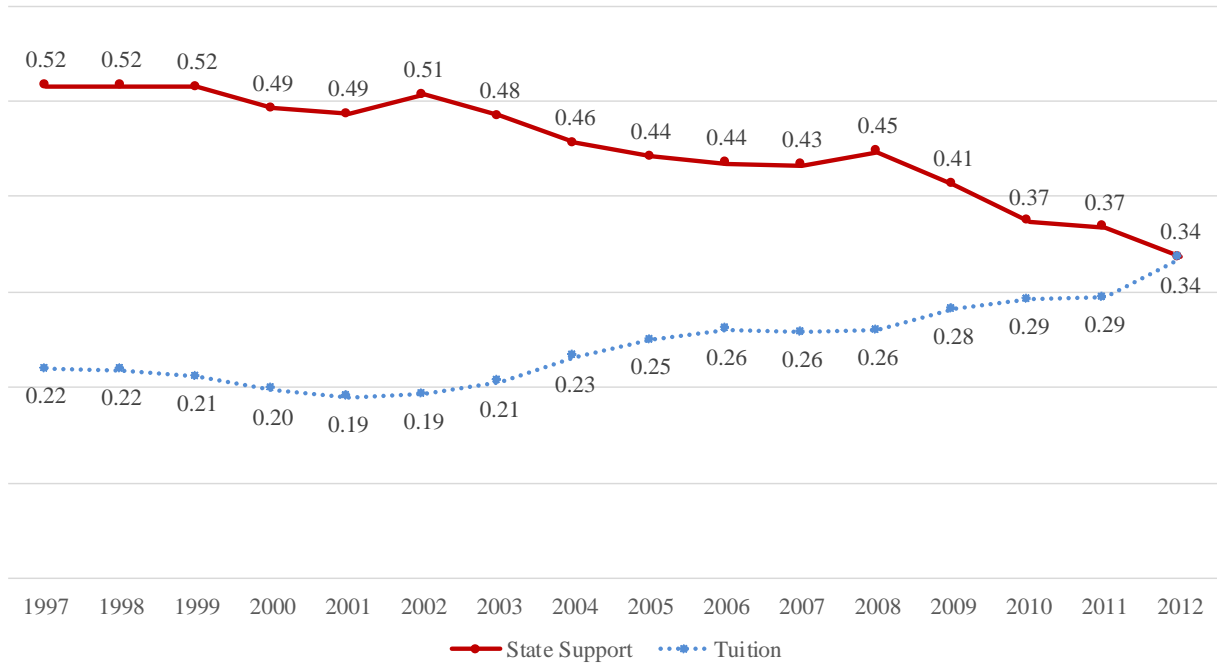


**Figure IV.5:** Share of revenues from state support at public four-year colleges and universities by institution type, 1997-2012



dependence by an institution (see Titus, 2006a; Titus 2006b). Figure IV.5 provides an overview of the total shares of state support by institution type and includes the averages for the entire sample for ease of comparison across the various groupings. Between 1999 and 2012, the average share of state support remained higher for HSIs than the average share for all public four-year institutions. HSIs relied, on average, between 7 and 10 percentage points more on state support than non-HSIs did throughout the period observed. In 1999, HSIs received more than half (52 percent) of all their revenues from the state, compared to the 44 percent received by all public four-year institutions. By 2012, the share of state support at four-year HSIs declined to 34 percent, a decline of 18 percentage points from what was reported in 1997. These descriptive trends suggest that HSIs continued to rely more heavily on state support than non-HSIs did throughout the period under observation, an average of 6 percentage points more than their non-HSI peers.

**Figure IV.6:** Share of state support and tuition revenues at public four-year Hispanic-Serving Institutions (HSIs), 1997-2012

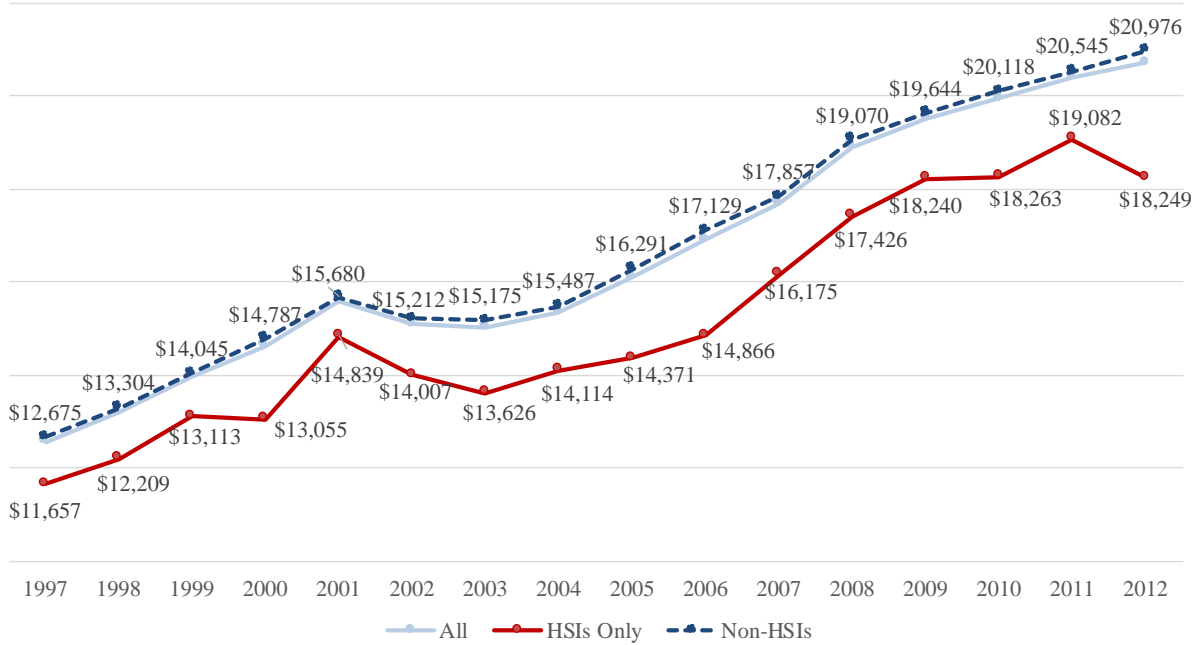


**Assumption 2 (A2)** suggests that institutions need to diversify their resources to help mitigate changes that may occur to resources they have come to rely upon historically. Research conducted over the past several decades indicates that postsecondary institutions tend to increase their reliance on tuition as a strategy for offsetting declines in state support (Bastedo & Bowman, 2010; Cheslock & Gianneschi, 2008; Jaquette & Curs, 2015). Given this study’s interest in assessing the changing financial context for HSIs, Figure IV.6 describes how the share of tuition revenue increased relative to declines in state support at public four-year institutions between 1997 and 2012. In 1997, the average share of revenue from tuition at public four-year HSIs represented less than a quarter (22 percent) of the total revenue shares at these institutions, while state support represented more than half (52 percent) of all shares of revenues at HSIs in my sample. By 2012, the average share of revenue from tuition increased to about 34 percent at HSIs, which equaled the average share of state support at public four-year HSIs in that same

year. This trend suggests that as state support fluctuates, tuition levels tend to increase at these institutions. In other words, an increasing share of the cost of subsidizing a bachelor's degree at public four-year HSIs is incurred by students and their support systems. This determination is best exemplified by observations of the year 2012 data. That year, public four-year HSIs relied equally on the shares of revenue from tuition and state support for nearly two-thirds (68 percent) of their operating budgets.

**Assumption 3 (A3)** suggests that organizations adapt to changes in their fiscal landscape in an effort to mitigate fiscal constraints and further implies that these adaptive behaviors may affect some of the core functions and operations of the institution. Research in the field of higher education examining the adaptive behaviors of colleges and universities tends to examine patterns of investment or expenditures in an effort to make determinations about how institutional decisions may be affecting organizational outcomes and performance (Titus, 2006a; Titus, 2006b; Nuñez & Elizondo, 2012). Most of this research closely examines Education and General (E&G) expenditures patterns in an effort to make determinations about the level of commitment by institutions to such areas as instruction, student services, academic support, organized research, and other education-related expenditures (Titus, 2006a; Titus, 2006b; Nuñez & Elizondo, 2012; Ortega et al., 2015). Figure IV.7 describes the E&G expenditure trends throughout the analytic period for this study. During this period, investments by public four-year colleges and universities in E&G-related expenses averaged about \$16,989 per FTE. However, when you disaggregate the data and compare expenditures for HSIs with those incurred by non-HSIs, the trends begin to reveal some obvious gaps in investment by these institutions. For instance, the total amount of dollars invested in E&G expenditures in 1997 averaged \$12,675 for non-HSIs versus \$11,657 at HSIs. This represents a difference of over \$1,018 per FTE between

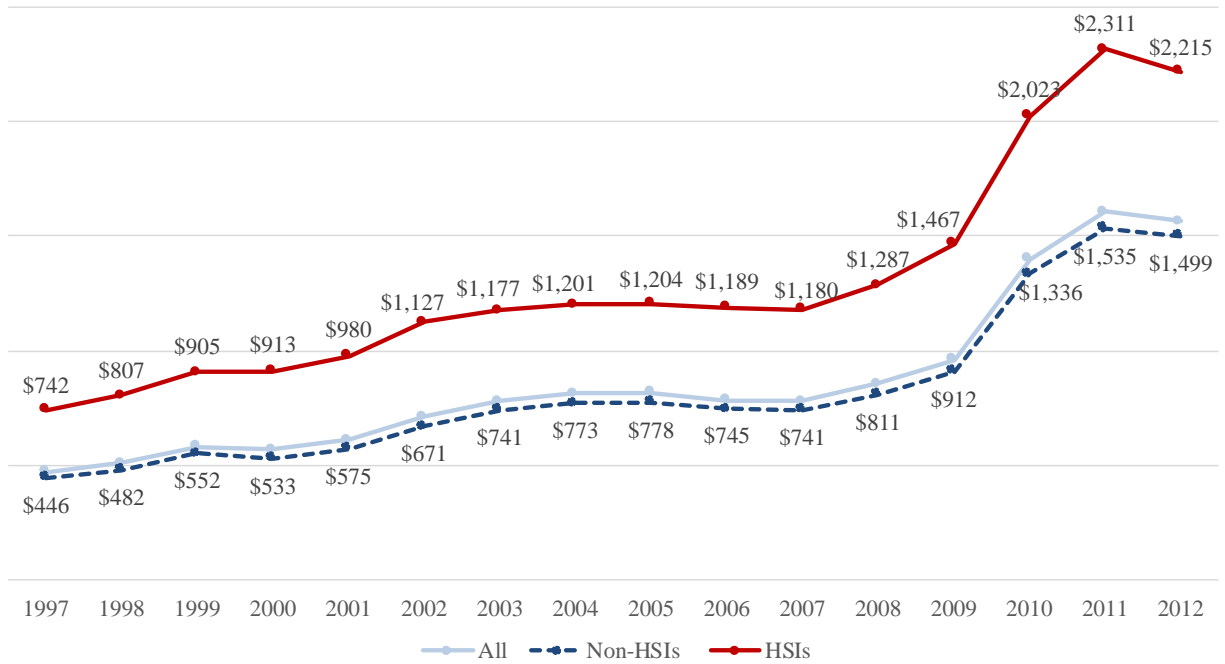
**Figure IV.7:** E&G expenditures per FTE at public four-year colleges and universities by institution type, 1997-2012 (in 2012 dollars)



these institutions. This gap persisted throughout the entire period observed for this study, and it should be noted that it also increased incrementally with each preceding year. By 2012, the total E&G investments made by HSIs averaged \$18,249 per FTE, while the average amount expended by non-HSIs climbed to \$20,976 per FTE, a peak for the period observed for this study. The gap between HSIs and non-HSIs in E&G investments more than doubled to \$2,727 per FTE from where it stood at the beginning of the analytic period (1997). The average dollar amounts invested by HSIs in core functions and operations of the institution are imperative, given the demographic characteristics and academic needs of the type of students that tend to enroll at these institutions (as described below).

**Assumption 4 (A4)** suggests that fiscal constraints tend to disproportionately affect institutions that enroll larger shares of socio-economically disadvantaged students. HSIs tend to enroll a greater share of socio-economically disadvantaged students relative to non-HSIs, as

**Figure IV.8:** Total Pell Grants distributed per FTE at public four-year colleges and universities by institution type, 1997-2012 (in 2012 dollars)



illustrated by the total amount of Pell grants distributed per FTE at these institutions between 1997 and 2012. Figure IV.8 illustrates Pell grants distributed at public four-year institutions. On average, HSIs distribute about \$450 more per FTE than the average Pell grants distributed by their non-HSI counterparts. In 2012, HSIs distributed an average of \$2,215 per FTE student, while non-HSIs awarded an average of \$1,499 per FTE that same year, a difference of more than \$700 per FTE. Pell distribution is routinely used by researchers as a proxy for the socio-economic composition of the student body of an institution. It is also important to highlight that research has demonstrated that socio-economically disadvantaged students are also a population of students that require additional academic support to complete their degree programs, all of which require additional investments by these institutions (Contreras, 2011; Flores & Park, 2015; Garcia, 2015).

**Table IV.3:** Itemized E&G expenditures per FTE at public four-year colleges and universities by institution type, 1997 & 2012 (by share & 2012 dollars)

Expenditures per FTE	Full Sample Public 4-Year <i>n=6,464</i>		Non-HSIs Public 4-Year <i>n=5,872</i>		HSIs Public 4-Year <i>n=592</i>	
	1997	2012	1997	2012	1997	2012
	Total Education and General (E&G) Expenditures per FTE	\$12,582	\$20,726	\$12,675	\$20,976	\$11,657
Student Services per FTE	\$799	\$1,685	\$798	\$1,690	\$811	\$1,634
Student Service Share of E&G Expenditures per FTE	0.07	0.09	0.07	0.09	0.07	0.10
Instruction per FTE	\$4,900	\$8,761	\$4,944	\$8,920	\$4,464	\$7,185
Instruction Share of E&G Expenditures per FTE	0.41	0.45	0.41	0.45	0.40	0.42
Academic Support per FTE	\$1,206	\$2,309	\$1,239	\$2,358	\$882	\$1,817
Academic Share of E&G Expenditures per FTE	0.10	0.11	0.10	0.11	0.08	0.11
Research per FTE	\$1,372	\$2,948	\$1,395	\$2,992	\$1,152	\$2,514
Research Share of E&G Expenditures per FTE	0.07	0.09	0.07	0.10	0.06	0.09
Administrative Support per FTE	\$1,280	\$2,421	\$1,271	\$2,444	\$1,366	\$2,196
Administrative Share of E&G Expenditures per FTE	0.11	0.13	0.11	0.13	0.12	0.12

While the trends related to E&G investment at public four-year institutions illustrate an overall gap in expenditures between HSIs and non-HSIs, a closer examination of specific investments highlight additional concerns. Given the level of dependency by HSIs on state support, **Assumption 5 (A5)** suggests that strategies by institutions to help mitigate fiscal constraints may influence student outcomes and ultimately affect organizational performance. The descriptive analysis illustrated in Table IV.3 seeks to further unpack this assumption by disaggregating the various expenditure categories that make up total E&G expenditures at an institution. It is also important to point out that each category of expenditures included in this

analysis has been found in prior studies to have some level of influence on the completion rates for students (Titus, 2006a; Titus, 2006b; Nuñez & Elizondo, 2012; Ortega et al., 2015). Table 4.3 presents both the average amounts per FTE expended by institutions, as well as the share of E&G expenditures represented by each category included in the calculation. The table also provides a snapshot of the means for each of the expenditure categories between 1997 and 2012, which mark the beginning and the end of the observation period, respectively.

The findings from this descriptive analysis suggest that by and large, instruction remained the largest expenditure category across all public four-year colleges and universities in this study. Public institutions directed, on average, 40 percent of their investments in E&G expenditures to instruction-related activities. Public four-year institutions invested about \$4,900 (41 percent of the share of E&G expenditures) per FTE on instruction, an amount that increased by \$3,861 per FTE in 2012 when it totaled \$8,761 per FTE. While the average amount expended on instruction by HSIs also equaled about 40 percent in E&G investments, one major difference is that when this is measured by total dollar amounts expended, these amounts are far less than the average expended by all public four-year institutions. For instance, in 1999, HSIs invested \$436 less per FTE than the total amounts expended by all public four-year institutions. By 2012, the gap between HSI and non-HSI investments in instruction more than tripled. In 2012, HSIs spent, on average, \$1,576 less per FTE than all public four-year institutions in my sample. When the sample was restricted to compare only those institutions located in states with HSIs, public four-year HSIs spent \$1,735 less per FTE than the average amount expended by their non-HSI counterparts.

Further, it is worth pointing out that even in cases where the average share of investment for certain expenditure categories is similar or identical for both HSIs and non-HSIs, the total

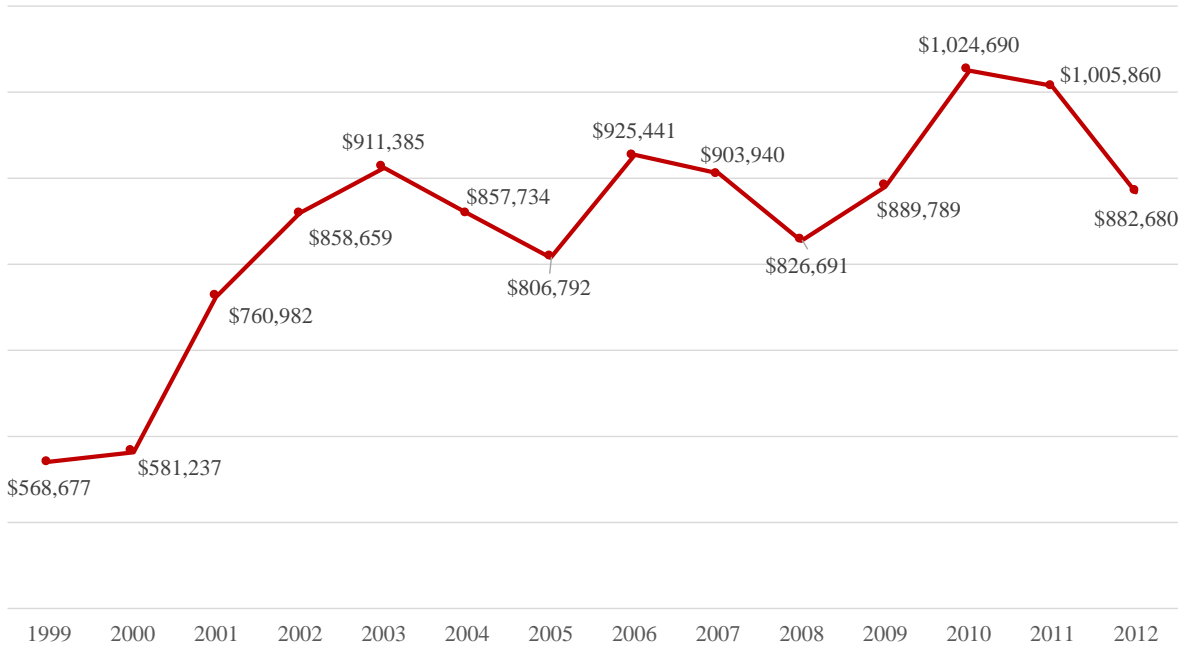
dollar amounts invested per FTE are lower at HSIs than at non-HSIs. For instance, in 2012, both HSIs and non-HSIs contributed 11 percent of the share of E&G expenditures to academic support services; however, HSIs invested, on average, \$541 less per FTE than their non-HSI counterparts. This gap in academic support for students persisted throughout the entire period observed for this study. In areas where the average share of investment was modestly higher at HSIs relative to non-HSIs—as in the case of student service support—HSIs and non-HSIs dedicated 10 and 9 percent of their E&G expenditure shares, respectively. However, non-HSIs were still able to outspend HSIs by nearly \$60 per FTE student, gaps which have persisted over time. In short, HSIs maintain a lower investment per FTE dollar amounts in key areas that research has demonstrated improve student completion and success (Flores & Park, 2015; Nuñez & Elizondo, 2012; Garcia, 2015). Trends which have continued throughout the entire existence of HSIs and throughout the entire first part of the 21st century.

**Key Predictor: The Developing HSI Program (Title V Program)**

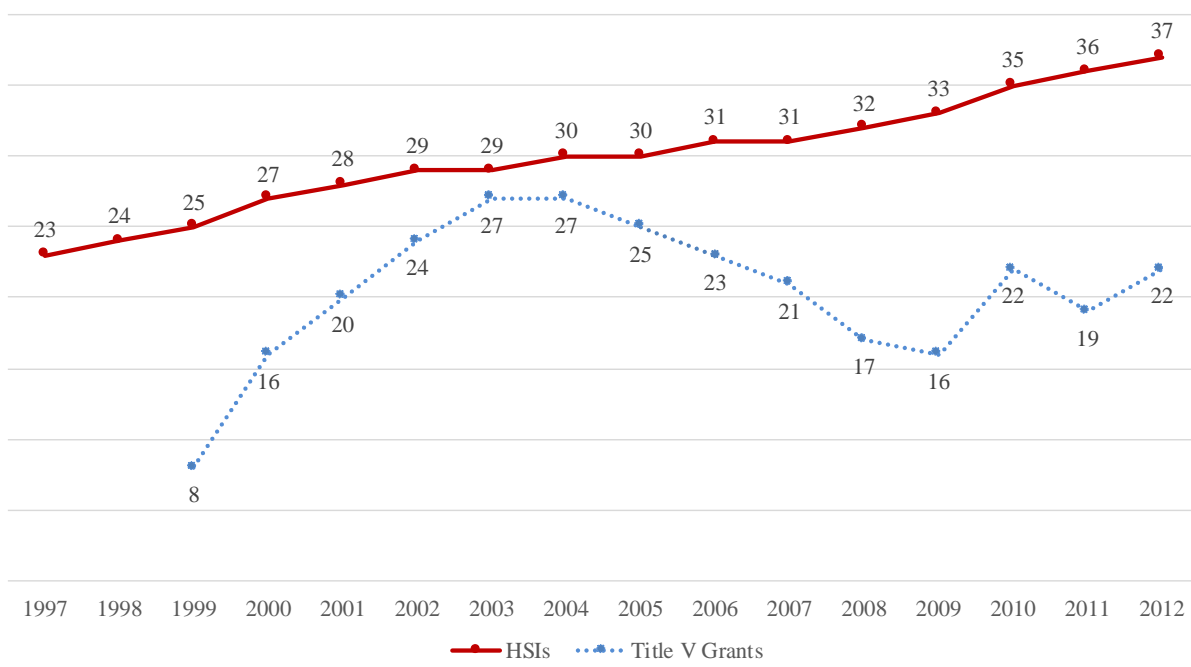
The key predictor for this analysis is the Developing Hispanic-Serving Institutions (Title V) grant program. As discussed in prior sections of this dissertation, the U.S. Congress launched the Title V grant program in 1998 as a way to address the gaps in funding and the fiscal challenges faced by institutions enrolling the greater share of Latino students in the United States. Although the program was launched in 1998, the first awards were made available to HSIs in 1999. Figure IV.9 illustrates the average award amounts made to Title V grant recipients between 1999 and 2012. At the beginning of the program (1999), awards averaged about \$568,677 per institution. These awards nearly doubled between 1999 and 2010—a year in which the average award amount peaked at \$1,077,355. Throughout the entire period observed for this study, Title V awards averaged about \$839,971 per institution.



**Figure IV.9:** Average Title V awards made to public four-year Hispanic-Serving Institutions (HSIs), 1999-2012



**Figure IV.10:** Total number of public four-year Hispanic-Serving Institutions (HSIs) and Title V awards distributed, 1997-2012



**Assumption 6 (A6)** suggests that federal investment in HSIs has failed to keep pace with the growing number of HSIs in the United States. Figure IV.10 illustrates the number of public four-year HSIs in existence for each of the years observed in this study. In 1997, there were 23 HSIs, a number that increased to 37 in 2012. Figure IV.10 also describes the number of eligible institutions that did not receive Title V awards. Between 1999 and 2012, Title V awards were only made to about 65 percent of the eligible HSIs. Take for instance the first five years of the Title V program (1999 to 2004), the program grew from 8 to 27 awards. During this period, the gap between the number of eligible institutions and the number of award recipients was minimal, with 27 out of the 29 (93 percent) public four-year HSIs receiving an award. However, in the years that followed, the share of awards to eligible institutions dropped below 50 percent, and in 2009, only 16 of 33 eligible public four-year HSIs received a Title V award from the U.S. Department of Education. Between 2010 and 2012, only half of eligible institutions received a Title V award. This variation in the availability of funding is what distinguishes the funding approach for HSIs from that of MSIs and TCUs (Nellum & Valle, 2015). It creates conditions in which all eligible institutions must compete with each other for funding; the availability of funding may also change from year to year.

### **Summary of the Fiscal Context for HSIs**

In summary, the findings from the descriptive analysis conducted on the dependent and independent variables of interest in this chapter indicate that between 1997 and 2012, Hispanic-Serving Institutions (HSIs) relied more heavily on state support for operating costs than their non-HSI counterparts. As the share of that support varied throughout this period, HSIs diversified their resources and began to increase their reliance on revenue from tuition—a strategy used routinely by institutions to help mitigate changes in the level of state support.

However, even in cases where HSIs were able to identify an alternative source of revenue to deal with the rising costs, there remained persistent gaps in key areas of Education and General (E&G) investment between HSIs and non-HSIs. E&G expenditures are determinants for the levels of investments made by institutions in the core functions and operations of the organization and include such key areas as instruction, academic support, student services, and research. The gap in E&G investments between HSIs and non-HSIs persisted throughout the entire period of analysis. In short, HSIs spent less, on average, per FTE student in each of the expenditure categories when compared to the amounts expended by all other public four-year institutions included in this study.

### **Examining the Efficacy of the Title V Program**

The diversification strategy of interest for this dissertation is the efforts by HSIs directed at reducing their dependency on state support and tuition by pursuing federal resources in the form of Title V grants. The descriptive trends pertaining to Title V awards described in the previous sections suggest that these resources failed to keep pace with the growing number of HSIs in the United States. In fact, less than half of all eligible institutions included in this study received a Title V award between 1999 and 2012. These trends beg the underlying question posed in this study: does the financial context of HSIs affect organizational outcomes such as completion rates for Latino students? Additionally, given the competing demands that continue to be placed on state resources and the limited ability of students and families to pay for college, it is imperative that researchers continue to examine whether federally sponsored programs such as Title V—which are utilized by institutions to offset shortfalls in state support—are improving postsecondary outcomes for Latino students. The section that follows provides results from this first-ever examination of the Title V program. The results from this study will assist in making

determinations about the efficacy of the Title V program and its relationship to the six-year completion rates for Latino students enrolled at public four-year HSIs.

The estimates for the results from this examination are organized around the following three groupings: 1) the full sample of public four-year institutions in the panel, 2) a subset of public four-year colleges and universities located only in states with HSIs, and 3) the main specification sample that includes only those institutions identified as HSIs in the panel. Furthermore, given the unique demographic makeup of HSIs located in Puerto Rico, additional specification checks were conducted for each of the three aforementioned samples that excluded public four-year institutions located in Puerto Rico. The descriptive results from the explanatory variables will be reported first, followed by a description of the results associated with the key predictor (Title V awards) and several other covariates of statistical significance in this study.

#### **A Snapshot of Descriptive Statistics Associated with the Explanatory Variables**

Table 4.4 includes a snapshot of the descriptive statistics associated with each of the explanatory variables. Included in the table are the means and standard deviations for each of the predictor variables during the analytic period (1997-2012). Throughout this period, the share of state support averaged 45 percent at HSIs, compared to 37 percent for the full sample of public four-year institutions. By and large, HSIs relied more heavily on state support by an average of 7 percentage points more than all public four-year institutions, and 5 percentage points greater than institutions located in states with HSIs. In the case of tuition, the share of revenue from tuition averaged about 27 percent at all public four-year institutions. Comparatively, HSIs relied nearly 2 percentage points less on tuition revenue than the entire panel of public four-year institutions included in this study.

**Table IV.4:** Descriptive statistics for explanatory variables, 1997-2012 (full sample)

		Public 4-Year Full Sample <i>n=6,464</i>	Public 4-Year States w/ HSIs <i>n=1,760</i>	Public 4-Year HSIs <i>n=592</i>
State Share of Total Revenues (%)	mean	0.375	0.400	0.451
	sd	0.117	0.136	0.123
Tuition Share of Total Revenues (%)	mean	0.268	0.262	0.244
	sd	0.102	0.109	0.104
Student Services Share of Expenditures (%)	mean	0.080	0.081	0.083
	sd	0.038	0.036	0.034
Instruction Share of Expenditures (%)	mean	0.415	0.406	0.395
	sd	0.074	0.070	0.074
Academic Support Share of Expenditures (%)	mean	0.101	0.097	0.094
	sd	0.032	0.035	0.038
Research Share of Expenditures (%)	mean	0.084	0.092	0.076
	sd	0.106	0.112	0.115
Administrative Share of Expenditures (%)	mean	0.116	0.119	0.124
	sd	0.045	0.046	0.044
Total E&G Expenditures per FTE	mean	\$16,608	\$17,836	\$15,206
	sd	\$10,014	\$12,459	\$8,562
Share of Part-Time Faculty (%)	mean	0.287	0.335	0.363
	sd	0.165	0.176	0.177
Pell Grant Dollars Distributed per FTE	mean	\$864	\$984	\$1,295
	sd	\$554	\$592	\$608
Total Undergraduate Enrollment (log)	mean	11,804	14,636	14,586
	sd	9,012	10,124	11,501
Title V (T5) Grant Received (%)	mean	0.044	0.163	0.485
	sd	0.206	0.370	0.500

Changes in the shares of revenue from state support and tuition influence the total amount of dollars available to invest in the core operations of the institution. The descriptive analysis for this analysis suggests this was true for HSIs, even amid efforts by these institutions to maintain similar shares of investment in key functions of the institution. In other words, when investments

made in the various expenditure categories are measured in shares (i.e., proportions of the total expenditures), HSIs maintained similar levels of investment relative to their public four-year peers (see Table IV.4). Take for instance the share of investments made in the areas of instruction (40 percent), administrative costs (13 percent), academic support (10 percent), and student services (8 percent), which were either identical, or differed by an amount less than 1 percentage point across all public four-year institutions. In fact, Table IV.4 identifies two key areas where HSIs invested slightly *more* than the average amount invested by all public four-year institutions in the panel: a) student services and b) administrative expenses—each of which averaged about 1 to 2 percentage points higher at HSIs than for the full sample of institutions. However, Table IV.3 illustrates an entirely different portrait of investments by HSIs. While the shares of investments remain relatively similar across all institutions when measured by shares, the total actual dollar amounts (per FTE) invested by HSIs were far less. Table IV.3 illustrates that HSIs invested \$1,400 less per FTE student than the average amount invested by all public four-year institutions observed in this study. This gap in investment nearly doubled to \$2,600 per FTE student when the sample was restricted to only include public four-year institutions located in states with other HSIs.

The amount of dollars per FTE student is especially important given the demographic characteristics of students that tend to enroll at public four-year HSIs. Table IV.4 describes how HSIs, on average, enroll more socio-economically disadvantaged students, as measured by the Pell Grant dollars disbursed per FTE. HSIs awarded \$400 more per FTE student than the total Pell Grant dollars disbursed at all public four-year institutions. This amount is reduced to \$300 per FTE student when the sample is restricted to only include public four-year institutions located in states with HSIs. Table IV.4 also indicates that part-time faculty at HSIs represent

**Table IV.5:** Descriptive statistics for explanatory variables, 1997 & 2012 (select years)

		Public 4-Year Full Sample <i>n=404</i>		Public 4-Year States w/ HSIs <i>n = 110</i>		Public 4-Year HSIs <i>n = 37</i>	
		1997	2012	1997	2012	1997	2012
		State Share of Total Revenues (%)	mean	0.438	0.279	0.470	0.289
	sd	0.106	0.099	0.122	0.113	0.105	0.107
Tuition Share of Total Revenues (%)	mean	0.234	0.344	0.228	0.350	0.220	0.336
	sd	0.085	0.109	0.089	0.117	0.086	0.121
Student Services Share of Expenditures (%)	mean	0.071	0.094	0.070	0.096	0.073	0.098
	sd	0.032	0.045	0.032	0.043	0.029	0.040
Instruction Share of Expenditures (%)	mean	0.409	0.448	0.400	0.437	0.400	0.420
	sd	0.068	0.080	0.064	0.080	0.074	0.086
Academic Support Share of Expenditures (%)	mean	0.096	0.113	0.089	0.110	0.078	0.108
	sd	0.029	0.035	0.035	0.036	0.031	0.038
Research Share of Expenditures. (%)	mean	0.073	0.094	0.079	0.102	0.063	0.085
	sd	0.095	0.116	0.100	0.125	0.100	0.133
Administrative Share of Expenditures (%)	mean	0.108	0.126	0.118	0.123	0.123	0.124
	sd	0.038	0.052	0.042	0.049	0.045	0.041
Total E&G Expenditures per FTE	mean	\$12,582	\$20,726	\$13,372	\$22,626	\$11,657	\$18,249
	sd	\$6,764	\$11,835	\$8,634	\$14,501	\$5,205	\$8,467
Share of Part-Time Faculty (%)	mean	0.230	0.33	0.284	0.371	0.302	0.410
	sd	0.167	0.151	0.171	0.172	0.187	0.166
Pell Grant Dollars Distributed per FTE	mean	\$473	\$1,565	\$544	\$1,756	\$742	\$2,215
	sd	\$265	\$648	\$269	\$662	\$270	\$574
Total Undergraduate Enrollment (log)	mean	10,546	13,355	12,820	16,590	12,391	16,877
	sd	8,053	9,918	9,067	10,797	10,749	11,714
Title V (T5) Grant Received (%)	mean	0	0.054	0	0.200	0	0.595
	sd	0	0.227	0	0.402	0	0.498

one-third (36 percent) of the total faculty composition of their respective institutions. This rate is 3 percentage points higher the average share of part-time faculty employed at all public four-year institutions located in states with HSIs and 7 percentage points higher than the share of part-time

faculty for the full sample of institutions. This gap in the share of part-time faculty at HSIs persisted throughout the entire observation period (1997-2012).

In an effort to provide an additional snapshot of the changes that occurred with each of the key predictors included in this study, Table IV.5 provides comparison statistics for both the initial (1997) and end years (2012) of the analytic period. Several trends are noteworthy. The results from this descriptive overview further reiterate the findings and observations discussed thus far in this section. First, while all institutions experienced some level of decrease in state support throughout the 16-year period, HSIs experienced a decline in the state share of support from 52 percent in 1997 to 34 percent in 2012, representing a 35 percent reduction in revenue from the state. Like many of its public four-year counterparts, HSIs sought to offset these declines by increasing the amount of revenue derived from tuition, which in 2012 represented nearly a quarter of the share of revenues at these institutions—2 percentage points lower than the average share at all public four-year institutions in the sample. An additional noteworthy trend is that the shifts in state support also affected expenditures at public four-year HSIs. In 1997, HSIs spent an average of \$925 less in E&G-related expenditures in comparison to the average E&G expenditures made by all public four-year institutions in this study. By 2012, the gap in E&G investments between HSIs and their public four-year counterparts nearly tripled, widening by as much as \$2,500 per FTE. In sum, the descriptive statistics provided in both Tables IV.4 and IV.5 illustrate the level of dependency by HSIs on public subsidies (e.g., state support) and further highlighted the gaps that persisted in available resources (e.g., financial, student characteristics, human capital, etc.) between HSIs and their non-HSI peers throughout the period observed for this study.



## **Effects on Six-Year Completion for Latino Students**

Each of the descriptive relationships described in the previous section illustrate the observed differences in the financial context of HSIs relative to all other public four-year institutions in the panel. The sections that follow will build on the trends from these inferential statistics to determine whether the financial circumstances of an institution may influence completion rates for Latinos, particularly as it relates to the Title V federal awards to HSIs. Table IV.6 describes the results of the relationship between Title V award (independent variable of interest) and select education and general (E&G) expenditures at public four-year colleges and universities. Additionally, Tables IV.7 and IV.8 provide the results for the difference-in-differences (DiD) and event study model estimates. Unless otherwise noted, columns (1) and (2) present the results for the full sample of public four-year institutions; columns (3) and (4) report the results for public four-year institutions located in states with HSIs; and columns (5) and (6) provide the estimates for public four-year institutions designated as HSIs and that are eligible to participate in the Title V program. Additionally, the results reported in the odd numbered columns for each of the two tables exclude institutions located in Puerto Rico; conversely, the results described in the even numbered columns in each of the tables include findings for institutions located in the U.S. and the territory of Puerto Rico.

### **Key Predictor: Title V Awards**

The primary research question guiding this dissertation (**RQ1**) examines the relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs. Prior to estimating the difference-in-difference and event study analysis on the dependent variable of interest (six-year completion rates for Latino students), I estimated the relationship on select education and general (E&G) expenditures on Title V awards (key

**Table IV.6:** The relationship between Title V award received and select education & general (E&G) expenditures at public four-year colleges and universities, 1997-2012

	Full Sample of Institutions					
	Public 4-Year					
	(1)	(2)	(3)	(4)	(5)	(6)
Student Service Share of Expenditures	-0.107 (0.247)	-	-	-	-	-
Instruction Share of Expenditures	-	0.034 (0.118)	-	-	-	-
Academic Support Share of Expenditures	-	-	0.143 (0.170)	-	-	-
Research Share of Expenditures	-	-	-	0.076 (0.199)	-	-
Institutional Support Share of Expenditures	-	-	-	-	-0.191 (0.141)	-
Log Total E&G Expenditures per FTE	-	-	-	-	-	<b>0.045***</b> (0.013)
R2 (within)	0.025	0.025	0.025	0.025	0.026	0.004
Observations	6,464	6,464	6,464	6,464	6,464	6,464
Institutions	404	404	404	404	404	404
F	2.11	2.16	2.11	2.09	2.08	11.18

+p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Robust std errors in parentheses; errors clustered at institution level

predictor). The results from this naïve (in a statistical sense) model presented in Table IV.6 suggest no significant relationship with: (1) student service share of expenditures; (2) instruction share of expenditures; (3) academic support share of expenditures; (4) research share of expenditures, or (5) institutional support share of expenditures per FTE on Title V awards at public four-year colleges and universities. However, the results for the log total of E&G expenditures per FTE indicate a significant and positive relationship ( $p<0.001$ ) on Title V awards. This suggests that key investments in E&G expenditures are influencing Title V awards, the mechanism (key predictor) that will be examined closely in the result from each of the estimates that will be discussed in the sections that follow.

**Table IV.7:** Difference-in-Differences (DiD) analysis on the relationship between Title V awards and six-year completion rates for Latino student at public four-year colleges and universities by control and institution type, 1997-2012

	Full Sample		Only States with HSIs		HSIs Only	
	Public 4-Year		Public 4-Year		Public 4-Year	
	w/ PR (1)	w/o PR (2)	w/ PR (3)	w/o PR (4)	w/ PR (5)	w/o PR (6)
Title V Award Received (Year - 4 or More)	<b>-0.046***</b> (0.013)	<b>-0.045***</b> (0.013)	<b>-0.027*</b> (0.013)	<b>-0.026+</b> (0.013)	<b>-0.033*</b> (0.015)	<b>-0.030*</b> (0.015)
Title V Award Received (Year - 3)	<b>-0.016+</b> (0.009)	-0.015 (0.009)	-0.007 (0.009)	-0.006 (0.009)	-0.008 (0.011)	-0.005 (0.010)
Title V Award Received (Year - 2)	-0.013 (0.008)	<b>-0.014+</b> (0.008)	-0.007 (0.008)	-0.007 (0.008)	-0.006 (0.009)	-0.005 (0.009)
Title V Award Received (Year)	0.013 (0.010)	0.014 (0.010)	0.006 (0.010)	0.007 (0.010)	0.006 (0.011)	0.006 (0.011)
Title V Award Received (Year + 1)	0.013 (0.011)	0.014 (0.012)	0.004 (0.012)	0.005 (0.012)	0.008 (0.012)	0.008 (0.013)
Title V Award Received (Year + 2)	-0.003 (0.012)	-0.002 (0.012)	-0.011 (0.012)	-0.010 (0.012)	-0.009 (0.014)	-0.009 (0.014)
Title V Award Received (Year + 3)	-0.002 (0.012)	-0.001 (0.012)	-0.015 (0.012)	-0.015 (0.012)	-0.009 (0.016)	-0.010 (0.016)
Title V Award Received (Year + 4 or More)	-0.011 (0.014)	-0.009 (0.014)	<b>-0.028+</b> (0.014)	<b>-0.026+</b> (0.015)	-0.007 (0.022)	-0.009 (0.022)
State Share of Total Revenues	0.002 (0.048)	0.003 (0.048)	0.022 (0.052)	0.028 (0.053)	<b>0.105+</b> (0.059)	<b>0.119+</b> (0.060)
Tuition Share of Total Revenues	0.009 (0.062)	0.008 (0.062)	0.096 (0.071)	0.094 (0.071)	<b>0.239+</b> (0.129)	<b>0.233+</b> (0.128)
Student Service Share of Expenditures	0.188 (0.182)	0.186 (0.182)	0.256 (0.206)	0.251 (0.205)	0.472 (0.366)	0.452 (0.357)
Instruction Share of Expenditures	-0.008 (0.076)	-0.008 (0.076)	0.071 (0.074)	0.070 (0.074)	-0.033 (0.089)	-0.033 (0.090)
Academic Support Share of Expenditures	-0.052 (0.135)	-0.055 (0.136)	<b>0.282*</b> (0.129)	<b>0.271*</b> (0.130)	<b>0.433**</b> (0.155)	<b>0.401*</b> (0.155)
Research Share of Expenditures	0.007 (0.092)	0.006 (0.092)	0.086 (0.072)	0.084 (0.072)	<b>0.165+</b> (0.096)	0.144 (0.097)
Institutional Support Share of Expenditures	-0.123 (0.097)	-0.122 (0.097)	0.029 (0.092)	0.031 (0.093)	-0.045 (0.104)	-0.048 (0.105)
Log Total E&G Expenditures per FTE	-0.026 (0.025)	-0.027 (0.025)	0.023 (0.017)	0.023 (0.017)	0.008 (0.030)	0.012 (0.031)
Share of Part-Time Faculty	<b>-0.090**</b> (0.034)	<b>-0.090**</b> (0.034)	<b>-0.055+</b> (0.030)	<b>-0.054+</b> (0.030)	<b>-0.063+</b> (0.032)	<b>-0.062+</b> (0.032)
Log Pell Grant Support per FTE Student	0.003 (0.007)	0.003 (0.007)	<b>-0.026*</b> (0.011)	<b>-0.027*</b> (0.011)	<b>-0.067*</b> (0.027)	<b>-0.073*</b> (0.028)
Log Total Undergraduate Enrollment	-0.031 (0.031)	-0.032 (0.031)	0.028 (0.033)	0.023 (0.034)	-0.006 (0.043)	-0.026 (0.044)
R2 (within)	0.068	0.068	0.346	0.348	0.478	0.485
Observations	6,464	6,448	1,760	1,744	592	576
Institutions	404	403	110	109	37	16
F	15.17	15.35	22.03	22.57	123.72	266.96

+p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Robust std errors in parentheses; errors clustered at institution level

Table IV.7 describes the difference-in-difference results from this analysis. The table includes results from the main specification (HSIs only) and several robustness checks that utilize several comparison groups in this study: a) a full sample of public four-year institutions (with or without institutions located in Puerto Rico) and b) public four-year institutions located in states with other HSIs (with or without institutions located in Puerto Rico). First, the DiD results for the full sample of institutions indicate a significant and positive relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year institutions. However, these results are only significant at the .10 level and given that the full sample of institutions includes public 4-year institutions with characteristics that differ slightly from those included in the main specification (HSIs), these results are imprecisely measured when you consider the specific interest in HSIs that is posed in **RQ1**. The remaining results for the sample inclusive of HSIs (main specification), as well as the additional comparison groups of public four-year institutions located in states with HSIs, did not find a statistically significant relationship between the Title V program and six-year completion rates for Latino students at public four-year institutions. Hence, the results for main specification indicate no relationship between Title V awards and six-year completion rates of Latino students enrolled at public four-year HSIs.

One of the key assumptions of the difference-in-differences empirical approach is that pre-existing trends in completion rates at HSIs that received a Title V Award, is what these institutions would have experienced had they not received a Title V award. Hence, the inclusion of the event study analysis allows this study to test for the presence of pre-existing, systematic trends. Table IV.8 presents the results from the event study and includes findings for the main specification (HSIs only), as well as the results from several other comparison groups that were

**Table IV.8:** Event Study analysis on the relationship between Title V awards and six-year completion rates for Latino student at public four-year colleges and universities by control and institution type, 1997-2012

	Full Sample		Only States with HSIs		HSIs Only	
	Public 4-Year		Public 4-Year		Public 4-Year	
	w/ PR (1)	w/o PR (2)	w/ PR (3)	w/o PR (4)	w/ PR (5)	w/o PR (6)
Title V Award Received (Year - 4 or More)	<b>-0.046***</b> (0.013)	<b>-0.045***</b> (0.013)	<b>-0.027*</b> (0.013)	<b>-0.026+</b> (0.013)	<b>-0.033*</b> (0.015)	<b>-0.030*</b> (0.015)
Title V Award Received (Year - 3)	<b>-0.016+</b> (0.009)	-0.015 (0.009)	-0.007 (0.009)	-0.006 (0.009)	-0.008 (0.011)	-0.005 (0.010)
Title V Award Received (Year - 2)	-0.013 (0.008)	<b>-0.014+</b> (0.008)	-0.007 (0.008)	-0.007 (0.008)	-0.006 (0.009)	-0.005 (0.009)
Title V Award Received (Year)	0.013 (0.010)	0.014 (0.010)	0.006 (0.010)	0.007 (0.010)	0.006 (0.011)	0.006 (0.011)
Title V Award Received (Year + 1)	0.013 (0.011)	0.014 (0.012)	0.004 (0.012)	0.005 (0.012)	0.008 (0.012)	0.008 (0.013)
Title V Award Received (Year + 2)	-0.003 (0.012)	-0.002 (0.012)	-0.011 (0.012)	-0.010 (0.012)	-0.009 (0.014)	-0.009 (0.014)
Title V Award Received (Year + 3)	-0.002 (0.012)	-0.001 (0.012)	-0.015 (0.012)	-0.015 (0.012)	-0.009 (0.016)	-0.010 (0.016)
Title V Award Received (Year + 4 or More)	-0.011 (0.014)	-0.009 (0.014)	<b>-0.028+</b> (0.014)	<b>-0.026+</b> (0.015)	-0.007 (0.022)	-0.009 (0.022)
State Share of Total Revenues	0.002 (0.048)	0.003 (0.048)	0.022 (0.052)	0.028 (0.053)	<b>0.105+</b> (0.059)	<b>0.119+</b> (0.060)
Tuition Share of Total Revenues	0.009 (0.062)	0.008 (0.062)	0.096 (0.071)	0.094 (0.071)	<b>0.239+</b> (0.129)	<b>0.233+</b> (0.128)
Student Service Share of Expenditures	0.188 (0.182)	0.186 (0.182)	0.256 (0.206)	0.251 (0.205)	0.472 (0.366)	0.452 (0.357)
Instruction Share of Expenditures	-0.008 (0.076)	-0.008 (0.076)	0.071 (0.074)	0.070 (0.074)	-0.033 (0.089)	-0.033 (0.090)
Academic Support Share of Expenditures	-0.052 (0.135)	-0.055 (0.136)	<b>0.282*</b> (0.129)	<b>0.271*</b> (0.130)	<b>0.433**</b> (0.155)	<b>0.401*</b> (0.155)
Research Share of Expenditures	0.007 (0.092)	0.006 (0.092)	0.086 (0.072)	0.084 (0.072)	<b>0.165+</b> (0.096)	0.144 (0.097)
Institutional Support Share of Expenditures	-0.123 (0.097)	-0.122 (0.097)	0.029 (0.092)	0.031 (0.093)	-0.045 (0.104)	-0.048 (0.105)
Log Total E&G Expenditures per FTE	-0.026 (0.025)	-0.027 (0.025)	0.023 (0.017)	0.023 (0.017)	0.008 (0.030)	0.012 (0.031)
Share of Part-Time Faculty	<b>-0.090**</b> (0.034)	<b>-0.090**</b> (0.034)	<b>-0.055+</b> (0.030)	<b>-0.054+</b> (0.030)	<b>-0.063+</b> (0.032)	<b>-0.062+</b> (0.032)
Log Pell Grant Support per FTE Student	0.003 (0.007)	0.003 (0.007)	<b>-0.026*</b> (0.011)	<b>-0.027*</b> (0.011)	<b>-0.067*</b> (0.027)	<b>-0.073*</b> (0.028)
Log Total Undergraduate Enrollment	-0.031 (0.031)	-0.032 (0.031)	0.028 (0.033)	0.023 (0.034)	-0.006 (0.043)	-0.026 (0.044)
R2 (within)	0.068	0.068	0.346	0.348	0.478	0.485
Observations	6,464	6,448	1,760	1,744	592	576
Institutions	404	403	110	109	37	16
F	15.17	15.35	22.03	22.57	123.72	266.96

+p<0.10, \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

Robust std errors in parentheses; errors clustered at institution level

utilized as specification checks for the results of this study: a) a full sample of public four-year institutions (with or without institutions located in Puerto Rico) and b) public four-year institutions located in states with other HSIs (with or without institutions located in Puerto Rico). The results from the event study described in Table IV.8 indicate that for each of the samples included in this study, four or more years prior to receiving a Title V award, six-year completion rates for Latino students enrolled at public four-year HSIs were lower than the completion rates for these students one year prior to receiving the Title V award. The coefficients associated with the variable (i.e., Year - 4 or more) were all negative, thus indicating both a statistically significant and negative relationship between the Title V program and six-year completion rates. The presence of these pre-existing trends for the outcome of interest (six-year completion rates) brings into question the credibility of the results from the DiD analysis. These results further indicate no relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year HSIs.

### **Other Predictors**

#### **Share of Part-time Faculty**

Tables IV.7 and IV.8 also present the results for the estimates on the relationship between the share of part-time faculty and six-year completion rates for Latino students at public four-year institutions. The predictor for the share of part-time faculty measures the change in the proportion of part-time faculty relative to full-time faculty. First, the results from the DiD analyses presented in Table IV.6 indicate that the share of part-time faculty has a significant and negative relationship with Latino six-year completion rates at public four-year institutions. In the case of the main specification (Table IV.7, columns 5 & 6) and the check of robustness that includes only public four-year institutions located in states with other HSIs (Table IV.7, columns

3 & 4), these results were only significant at .10 level. Yet, the collective results from the DiD analyses on the part-time faculty share predictor suggest that as the share of part-time faculty at public four-year institutions increases, Latino six-year completion rates decline.

Similarly, the results from the event study presented in Table IV.8 indicated similar findings. Across all six models, which include the main specification for HSIs and each of the additional checks for robustness (full sample & states with HSIs), the predictor for the share of part-time faculty had a significant and negative relationship with Latino six-year completion rates. The event study results for the main specification (Table IV.8, columns 5 & 6) and the additional robustness check on the sample that only includes public four-year institutions located in states with other HSIs (Table IV.8, columns 3 & 4), were only significant at .10 level. However, across every single model included in the event study, the estimates associated with the coefficients were statistically significant and also indicated a negative relationship with six-year completion rates for Latino students. Similar to the DiD, the results from the event study also suggest that as the share of part-time faculty at a public four-year institution increases, the six-year completion rates for Latino students decrease. These results were also the case for Latino students enrolled at HSIs.

### **Pell Grants and Low-Income Students**

A measure for the log of Pell Grant support per FTE was also included in each of the models to account for the socio-economic status (SES) makeup of the student body enrolled at public four-year colleges and universities in the United States. The results associated with this predictor also found a significant and negative relationship between Pell Grants awarded per FTE and six-year completion rates for Latino students at public four-year institutions. In the case of the DiD estimates presented in Table IV.7, the results for the main specification (HSIs,

columns 5 & 6) and the specification check that included public four-year institutions located in states with HSIs (columns 3 & 4), the results were statistically significant and exhibited a negative relationship with six-year completion rates for Latino students. Similarly, the result for the event study described in Table IV.8 also found a significant and negative relationship between the Pell grant predictor and six-year completion rates for Latinos. Both the DiD results and event study estimates were significant only for public four-year HSIs (columns 5 & 6), as well as for the sample of institutions that only included public four-year colleges and universities located in states with HSIs (columns 3 & 4). The results from the two analyses suggest that for the main specification of institutions (HSIs) and for the sample of institutions located in states with HSIs, the greater the number of Pell Grant students enrolled at a public four-year institution, the lower the six-year completion rates for Latino students. These results remained the same even after controlling for institutions located in the U.S. Territory of Puerto Rico.

### **Share of Revenues from State Support and Tuition**

The DiD and event study analyses also included a set of predictors that account for changes in the share of revenues at public four-year institutions. This includes a pair of covariates that measure the share of revenues derived from tuition and the share of revenue from state support (i.e., state appropriations, grants, and contracts). Tables IV.7 and IV.8 present the results for these two predictors, as they relate to their relationship on six-year completion rates for Latino students enrolled at public four-year institutions. In the case of the DiD estimates presented in Table IV.7, these results indicate that both the covariates for state support and tuition have a statistically significant and positive relationship on completion rates for Latino students enrolled at public four-year HSIs (columns 5 & 6). Additionally, the results from the event analyses (Table IV.8) indicate similar results to those from the DiD; however, in the case



of the event study results, the coefficients for both the tuition and state support predictors were only significant at the .10 level. However, they did exhibit a positive relationship with six-year completion rates for Latino students enrolled at HSIs (Table IV.8, columns 5 & 6). In other words, the results from the measure for state support for both the DiD and event study estimates, suggest that as the share of state support at public four-year HSIs increases, the six-year completion rates for Latino students will also increase. Similarly, the results for the effect of tuition on six-year completion rates in both estimates (event study and DiD) also found that an increase in the share of revenues coming from tuition at public four-year HSIs resulted in an increase in the six-year completion rates for Latino students. The results also remained the same for public four-year HSIs located in Puerto Rico.

### **Investment in Core Operations of the Institution**

Each of the analyses for this study also included a set of expenditure covariates for which prior studies determined have an effect on completion rates for students. It is also important to note that these previous studies did not specifically examine effects of expenditures on Latino students. Two of the expenditures measured included in this study yielded a statistically significant result in the analyses conducted for this study, which include the following measures: a) the share of expenditures associated with academic support and b) the share of expenditures related to research. These two predictors are often characterized as essential to the core operations and functions of colleges and universities.

First, the results for the DiD analysis presented in Table IV.7 found that the share of investments made in academic support by a public four-year institution are statistically significant and have a positive relationship with six-year completion rates for Latino students. The coefficients for these results were significant for the main specification of HSIs (Table IV.7,

columns 5 & 6) and for the sample of public four-year institutions located in states with HSIs (columns 3 & 4). In other words, the results from the DiD analysis on expenditures related to academic support suggest that an increased investment in this area of support will increase six-year completion rates for Latino students enrolled at public four-year HSIs and public four-year institutions located in states with HSIs. Additionally, the DiD results associated with the share of investments made in the research also indicated a statistically significant and positive relationship with six-year completion rates for Latino students. The results were significant for both the main specification of HSIs (Table IV.7, columns 5 & 6) and for the specification check that only included public four-year institutions located in states with HSIs (columns 3 & 4). It is also worth noting that the estimates for the coefficients associated with the sample of institutions located in states with HSIs (columns 3 & 4), were statistically significant only at the .10 level. Regardless of the level of statistical significance, the results from this predictor indicate that as investments in the share of expenditures related to research increase, the six-year completion rates for Latinos enrolled at public four-year HSIs and public four-year institutions located in states with HSIs will also increase.

Table 4.8 presents the results from the expenditure predictors included in the event study analysis. While the results for the share of expenditures made in academic support yielded similar results to the DiD, the results for the research predictor differed slightly. First, the results for the measure of academic support indicate a significant and positive relationship with six-year completion rates for Latino students at public four-year HSIs (Table IV.8, columns 5 & 6) and public four-year institutions located in states with HSIs (columns 3 & 4). These results suggest that an increase in the share of investment made in academic support will result in an increase in the six-year completion rates for Latino students, at public four-year HSIs, and at the subset of

public four-year institutions located in states with HSIs. In the case of the measure for the share of investments made in research expenditures, these results indicate a positive and significant relationship only for public four-year HSIs located on the U.S. mainland (Table IV.8, column 5). It should also be noted that the estimates associated with this variable were only significant at the .10 level. Nevertheless, for those institutions with public four-year HSIs in the 48 contiguous states, increased investments in the share of expenditure related to research will increase six-year completion rates for Latino students.

### **Summary of Results from Event Analysis**

In short, the results from both the difference-in-differences (DiD) and event study estimates did not identify a statistically significant relationship between Title V awards and six-year completion rates for Latinos students enrolled at public four-year HSIs in the United States. While these results call into question the efficacy of the Title V grant programming in terms of increasing completion rates for Latinos, the discussion in the next chapter (V) will draw on what is now available in evidence and place the findings of this study in context. It will explore the implications of and offer several explanations pertaining to a set of conclusions that can be drawn in response to the goals of this study and organized around the research questions that guided it.

## **Chapter V**

### **Key Findings, Implications, and Conclusion**

The majority of Latinos who enroll in a college or university in the United States do so at a Hispanic-Serving Institution (HSI). The more than 500 HSIs in this country represent 17 percent of all postsecondary institutions and educate nearly 70 percent of all Latinos; yet the brief history of HSIs is one of institutions that receive less funding per pupil, spend less money on academic and support services for students, and continue to be more reliant on state support for most of their revenue, in comparison to their non-HSI counterparts. In an effort to address resource disparities for HSIs and improve postsecondary attainment for the growing Latino population, Congress established the Developing Hispanic-Serving Institution (Title V) program in 1998. After more than two decades, no formal empirical evaluation has been made to determine whether the Title V program is meeting its stated goal of improving postsecondary educational attainment for Latino students. This study represents the first rigorous assessment of the Title V program's effectiveness in improving six-year completion rates for Latinos pursuing a baccalaureate degree in the United States. By the time we reach twenty-five years in the implementation of the Title V program (2023), it is imperative that we assemble the scientific evidence to know whether this is an effective way to support more members of one of the nation's fastest growing populations in earning a baccalaureate degree.

The assumptions and circumstances that were reflected in the adoption of the Title V program were pressing at the time it was enacted. They have borne out and intensified in the years since. This study of the program's effectiveness in terms of its goals comes at a time in which there is ongoing discourse pertaining to return on investment (ROI) in higher education, some signs of a reduction in federal support for higher education access, and even recent skepticism about the value of postsecondary credentials in our society. When one further considers the increased economic and political pressures following the recent pandemic, there is reason for further concern that public investment in higher education will receive ongoing debate and greater public scrutiny. Meanwhile, an increasing proportion of Latinos in the United States continue to enroll as undergraduates in the American system of higher education; yet persistent gaps remain baccalaureate completion rates between Latinos and their White peers. While the reasons for originally enacting the Title V program have been confirmed, and even exacerbated, what can we empirically demonstrate about the efficacy of the federal program?

The results presented in the previous chapter of this dissertation suggest that the receipt of a Title V award has no relationship with the six-year completion rates for Latino students enrolled at public four-year HSIs. With no further information, these findings bring into question the efficacy of the Title V program—at least as it has operated for the last two decades—in meeting its stated goal of improving six-year completion rates for Latino students. If the Title V program had worked as it had been designed and implemented, then that fact should be celebrated, and best practices should be promulgated for other institutions to emulate. If the program does not meet its goal—as this study suggests—then research of this sort, conducted with rigor and guided by objectivity, is potentially even more valuable. Furthermore, it has the

potential to lead us away from what once seemed reasonable and instead nudge us to explore alternative strategies that could more effectively address an important national concern.

Respectful of the results of this study and cognizant of the insights provided by the previous scholarship that informed it, this chapter draws on what is now available in evidence and places the findings of this study in context. The chapter explores the implications of and offers several explanations pertaining to a set of conclusions that can be drawn in response to the goals of this study and organized around the research questions which guided it. The discussion draws on findings and considerations from the statistical estimates provided in the preceding chapters and incorporates several descriptive trends drawn from the data utilized for this study. Furthermore, this entire discussion will be guided by the propositions and assumptions as viewed through two major theoretical lenses that informed this study. Taken together, the two integrated perspectives posit that variations in the financial context of public institutions influence the strategies they select to help mitigate fiscal constraints and ultimately, affect student performance outcomes at these institutions. Admittedly, congressional policy decisions are not drawn along lines rendered from theoretical perspectives; nonetheless, these frameworks are valuable for researchers and scholars trying to assess and understand policy designs and outcomes. In discussing the findings of this study, the considerations offered by resource dependence theory (RDT) and the resource heterogeneity perspectives will be helpful in explaining what was found and how it may be applied in a policy environment.

### **Guiding Principle for Understanding the Key Findings**

The outcome of primary interest for this study is the six-year completion rate for Latino students. Results observed for most of the other key predictors included in this analysis also aligned with prior empirical findings that examined the relationship between the financial

context of a postsecondary institution and completion rates for Latino students (Nuñez & Elizondo, 2012; Flores & Park, 2015). The sections that follow build on the results discussed in the previous chapter and offer additional context in terms of answering each of the research questions guiding this study. The conclusions discussed here are not offered as a means of amplifying (or diminishing) the significance of the study itself, but to suggest its use as an additional tool in meeting the goal that inspired it and gave rise to the program which is central to its focus: improving educational outcomes for Latino students.

### **Discussion of Findings Related to State Support and Tuition Revenue**

The results from this analysis reconfirm the importance of state investment in public four-year colleges and universities. Relationships between the various states and their public institutions of higher education can be traced back to the Morrill Act passed midway through the 19<sup>th</sup> century. While the relationship that resulted from that historic legislation goes beyond funding, the exchange of resources (once measured in land) is a central tenet that continues to serve as the basis for state investment in public higher education (Thelin, 2011). The results from both the event study and difference-in-differences estimates indicate that increases in the share of resources coming from the state have a significant and positive effect on six-year completion rates for Latino students enrolled in public four-year HSIs. These findings not only affirm the important role that states play in ensuring the continued success of public postsecondary institutions, but as the following sections demonstrate, speak to the significance of this support in improving student outcomes, specifically as they relate to Latino student completion rates. These findings also reinforce an assumption inherent to the first sub-question (SQ) posed by this study:

**SQ1:** What is the primary source of revenue at public four-year institutions and do HSIs tend to exhibit a greater dependency on this resource relative to their non-HIS peers?

As the empirical trends described in the previous chapter demonstrate, throughout the period observed, HSIs, on average, relied more heavily on state support than their non-HSI counterparts (approximately 6 percentage points higher). However, support from the state declined by 18 percentage points at public four-year HSIs during the years 1997– 2012. Conversely, HSIs witnessed the average share of revenue coming for tuition increase during this same period, from less than a quarter (22 percent) in 1997 to more than half (52 percent) of all revenue shares in 2012. This trend suggests that as the average share of state support declined, public four-year institutions responded by increasing their reliance on tuition (**SQ1**). This relationship is supported by findings from prior empirical work in the higher education literature reviewed for this study, which also suggests that public postsecondary institutions tend to increase their reliance on tuition as a strategy to offset declines in state support (Bastedo & Bowman, 2010; Cheslock & Gianneschi, 2008; Jaquette & Curs, 2015). Interestingly, the results from analysis conducted for this study also indicated that increases in the shares of revenue coming from tuition have a significant and positive relationship with six-year completion rates for Latinos enrolled at public four-year HSIs (**SQ1**).

These are obviously complex factors at work in this regard that do not yield to simple explanations. But one possible reason for these findings is that under conditions of declining state support, tuition represents a discretionary resource, one that can be manipulated up to some point by institutional prerogative and can yield a substantial amount of revenue for an institution. This additional (or offsetting) revenue can in turn be invested in areas that support student



success. Or, as observed by most of the descriptive trends presented in this study, revenue from tuition allows institutions to maintain or protect investments in other core functions and operations of the institution—which, because it is fungible, may benefit activities that ultimately promote student success. Although revenue derived from tuition represented a sizable and increasing share of the total revenue available to public four-year HSIs (52 percent by 2012), it is also important to note that any strategy that draws heavily on tuition to help mitigate fiscal constraints has its limitations given its obvious dependence on the students' ability to pay. This of course is especially relevant to the case of HSIs that tend to enroll larger shares of socio-economically disadvantaged students (Nuñez & Elizondo, 2012; Nuñez et al., 2011).

### **Discussion of Findings Related to Investments in E&G Expenditures**

Given the precariousness surrounding state investment in public higher education and the limitations associated with tuition strategies, this study also examined trends related to investments (also referred to as expenditures in this study) in core operations of the institution. The patterns of investment within public colleges and universities have taken on an enormous level of importance, particularly at institutions that enroll greater shares of socio-economically disadvantaged students. Previous studies examining student completion at public four-year institutions have determined that investment in core areas such as academic support, instruction, research, and student services—to name a few—help facilitate and promote student success and completion (Flores & Park, 2015; Nuñez & Elizondo, 2012; Garcia, 2015). Each of these categories of expenditures are collectively referred to as education and general (E&G) expenditures in the higher education finance literature. In the case of HSIs, prior research has found that HSIs spend, on average, less in E&G expenditures than their non-HSI peers (Mulnix,

Bowden, & Lopez, 2002). It was these preexisting empirical trends that served as the premised for the second sub-question (SQ) guiding this study:

**SQ2:** What is the relationship between state support and expenditure patterns at public four-year HSIs?

Between 1997 and 2012, support from the state declined by 18 percentage points at public four-year HSIs. During this same period, the descriptive trends presented in prior chapters of this study demonstrated that HSIs invested nearly \$1,700 less per full-time equivalent (FTE) student in E&G expenditures when compared to the average dollar amount expended by all public four-year institutions included in this analysis. The gap in expenditures widened to about \$2,900 per FTE student when comparisons were limited to only include those institutions located in similar states. With regard to whether changes in expenditure patterns also influence student outcomes, the results from the analysis did not find any relationship between total E&G expenditures and six-year completion rates for Latino students. However, the results from the analysis did yield statistically significant results for two of the subcategories that make up E&G expenditures at an institution. These categories include investments in the areas of academic support and research expenditures. The combined results from the event study and DiD estimates found that an increase in the share of dollars per FTE student invested in either academic or research support, have a significant and positive effect on six-year completion rates for Latino students enrolled at public four-year HSIs. These results align with prior findings in the field of higher education that have also found that investments in academic support and research influence student completion (Titus, 2006a; Titus, 2006b; Garcia, Nuñez, & Sansone, 2019). The findings from this study provide a unique opportunity for researchers to extend prior results from

the literature in higher education related to student completion and apply them to mission-driven, public four-year HSIs in the United States.

### **The Share of Part-time Faculty as a Predictor of Latino Student Completion**

Previous research has found that faculty composition may affect student completion, particularly as it relates to shares of full-time versus part-time faculty employed at postsecondary institutions (Garcia, 2015; Gehrke & Kezar, 2015; Frye, 2017). Given these findings, this analysis included a predictor for measuring the relationship between the share of part-time faculty and Latino student completion at public four-year colleges and universities. It is important to also point out that faculty makeup at an institution is routinely used as a proxy for measuring the quality of instruction and universally considered a core function of the institution (Gehrke & Kezar, 2015; Frye, 2017). The descriptive trends described in prior chapters of this dissertation demonstrated how the share of general resources available to invest in areas of instruction at institutions are likely to influence decisions made about faculty hiring. In fact, throughout the period observed for this study, the share of part-time faculty employed at public four-year institutions increased from 30 percent in 1997 (on average across all institutions in the sample) to 41 percent at the end of the analytic period (2012). In the case of HSIs, the increased share of part-time faculty was even greater, 8 percentage points higher than the average share for the full sample of institutions—amounting to a 45 percent increase between 1997 and 2012. Also relevant to the restructuring that was occurring at HSIs during this period is that changes to its faculty composition occurred during a span of time (1997–2012) that also witnessed a decline in state support for public HSIs.

These trends are even more concerning when you consider the findings from the analyses conducted for this study. The results from both the event study and DiD estimates found a

significant, negative relationship between the share of part-time faculty at public four-year HSIs and the six-year completion rates for Latino students. In other words, as the share of part-time faculty at a public four-year HSI increased, six-year completion rates for Latino students declined. These findings are an extension to prior empirical assessments, few of which have examined the specific effect of part-time faculty on six-year completion rates for Latino students over time, and even less of which have examined this phenomenon from the perspective of mission driven-institutions such as HSIs. If the use of part-time rather than full-time faculty is proven to undermine student completion at HSIs, knowledge of this effect should provide a cautionary signal to institutional leaders. Additionally, it is important that future empirical examinations of student completion patterns account for the share of part-time faculty in their analyses, especially given the proliferation of this strategy to mitigate institutional fiscal constraints and the proven implications this has for degree completion by underrepresented students.

### **The Concentration of Low-Income Students Enrolled at HSIs**

Hispanic Serving Institutions were established, and the Title V program first launched largely due to the lack of state investment in colleges and universities that were providing postsecondary opportunities to the majority of Latino students in the United States. This policy intervention is not the only approach taken to improve completion rates for Latino students. Numerous students also benefit from other programs such as Pell Grants, which are also federal investments directed toward students from low-income families.

Access to resources is both an institutional challenge and a challenge for the students attending HSIs. Descriptive trends presented in previous chapters of this dissertation have demonstrated that HSIs are among the most under-resourced segments of public four-year

institutions, but they also enroll a greater share of low-income students than their non-HSI public four-year counterparts. Guided by existing scholarship that has demonstrated the implications of resource pressures on student outcomes, this study also explored how these fiscal constraints might be operating in the case of HSIs. To do this, a predictor variable was included in the models to account for the total Pell grants awarded per FTE student to approximate the share of socio-economically disadvantaged students enrolled at these public institutions. On average, public four-year HSIs distributed about 75 percent more Pell grant dollars per FTE student than all other public four-year institutions in the panel. This finding is consistent with those offered by prior research that examined the demographic characteristics of students enrolled at HSIs (Flores & Park, 2015; Nuñez & Elizondo, 2012). Understanding more about the implications of economic circumstances common to students of HSIs and their institutions was then the goal of answering the following sub-question (SQ):

**SQ3:** What is the socio-economic makeup of students enrolled at HSIs?

The results from both the event study and DiD analyses found that Pell Grant support per FTE student has a significant, negative relationship with six-year completion rates for Latino students enrolled at public four-year HSIs. In other words, the higher the share of Pell Grant students enrolled at a public four-year HSI, the less likely it is that Latino students enrolled at these institutions will complete their program of study in six years. This result is consistent with prior research which determined that completion rates for Pell Grant recipients at public four-year institutions are lower than those for non-Pell students (Krogstad & Noe-Bustamante, 2020; Cuellar, 2015; Kelchen, 2017). In particular, a report published by the Brookings Institute during a period overlapping with that which framed this analysis tracked several cohorts of students and found that Pell Grant recipients were 7 percentage points less likely to earn a college credential

within six years when compared to non-Pell Grant recipients at similar institutions (Kelchen, 2017). It is also important to highlight that research examining the demographic composition of students enrolled at HSIs has determined that not only do public four-year HSIs enroll a higher share of low-income students, but these students are also more likely to be first-generation, underprepared, and have been given relatively weak K-12 preparation—all factors which have been shown to contribute to lower college success rates and suggest a need for additional resources if they are to be served adequately (Bailey & Morest, 2004; Flores & Park, 2015; Nuñez & Elizondo, 2012). Collectively, the results from this analysis and the descriptive trends from the sample, as well as prior findings from the research literature on HSIs, lead to the following claim: Public four-year institutions, most notably HSIs that enroll a higher share of low-income students, face additional challenges and barriers to improving student completion during periods of economic challenges and institutional fiscal constraints.

### **The Efficacy of the Title V Program in Context**

To date, the several studies provided through the work of Flores and Park (2015) combine to offer the most coherent and rigorous summary of a relationship between the institutional status of an HSI and the six-year completion rates for students enrolled at public four-year institutions. In their 2015 study, they reported that after taking student characteristics and institutional capacity into account, there is neither a consistent negative (nor positive) effect of HSI designation on student completion at public four-year colleges and universities. However, because of certain limitations and restrictions related to the availability of longitudinal data associated with the Title V program, no similar assessment on the influence of the Title V program on Latino student completion has been previously reported. Owing to its design,

construction, and analytic approach, this study addresses that omission. It offers the first longitudinal assessment of factors that address the primary research question (RQ):

**RQ:** What is the relation between the Title V program and six-year completion rates for Latino Students enrolled at public four-year HSIs in the United States?

The results from both the event study and DiD analyses did not find a statistically significant relationship between the Title V program and the six-year completion rates for Latino students enrolled at public four-year HSIs.<sup>9</sup> Given this finding, we are left with continuing questions about the efficacy of the Title V program in meeting its stated goal of improving Latino student completion. However, these results are best understood in context. One place to begin is by reconciling several of the findings highlighted in the prior sections of this chapter with the eligibility requirements established for the Title V program by the U.S Department of Education (ED).

First, ED policies require that HSIs seeking to compete for Title V awards must demonstrate that their average educational and general (E&G) expenditures are below the average expended by all other institutions that offer similar instruction (20 US Code §101). The apparent goal of this policy restriction is to ensure that Title V awards are directed toward the most under-resourced HSIs. Prior empirical research examined for this dissertation and confirmed by the findings of this study establish that HSIs are among the most under-resourced segments of public four-year institutions in the United States. As described in the earlier section of this study, results also demonstrate that during periods of fiscal constraints, HSIs shifted

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<sup>9</sup> Please note that while the results from the difference-in-differences estimates for the full sample of institutions indicate a significant and positive relationship between Title V awards and six-year completion rates for Latino students enrolled at public four-year institutions, these results were only significant at the .10 level. Given that the full sample of institutions includes public four-year institutions with characteristics that differ slightly from those included in the main specification (HSIs), these results are imprecisely measured with what is being asked in the primary research question guiding this study (See Chapter IV for a more detailed explanation of the results).

investments away from core educational functions, those that otherwise support student degree completion, in an effort to mitigate fiscal constraints. These findings are central to the first claim made in this dissertation regarding the efficacy of the Title V program: HSIs that receive a Title V award to assist in improving postsecondary success for Latino students are forced by policy to do so by proof of a position of deficit and disadvantage. In effect, HSIs seeking financial support through the Title V program argue from a position of weakness and need. Their subsequent performance upon receiving funding through the program serves to demonstrate that this need was indeed real—and not ameliorated by the added financial support.

HSIs seeking to compete for Title V funds must also demonstrate that at least 50 percent of the students enrolled at their respective institutions are receiving Title IV need-based aid (other than loans) and that a substantial percentage of these students are receiving Pell grants (20 US Code §101). Numerous studies (now further confirmed by the evidence in this dissertation) have consistently shown that six-year completion rates at public four-year institutions are lower for Pell Grant recipients than they are for non-Pell recipients (Krogstad & Noe-Bustamante, 2020; Kelchen, 2017). When you consider the implications of these two ED policy requirements taken together, they increase the likelihood that HSIs that receive Title V awards are among the most under-resourced public four-year institutions in the country and tend to enroll the highest share of low-income students, which research has consistently shown have lower six-year completion rates than to those institutions' non-low-income students. It is at the intersection of this proposition and the trends associated with the two criteria outlined above that this dissertation seeks to stake the following claim: The efficacy of the Title V program and its influence on six-year completion rates for Latino students is less a discussion about the programs and activities funded by this federal program; instead, it underwrites a narrative that directs



attention to implications resulting from the size of the institutional awards and the inherent connection of this factor to the funds invested in the Title V program by the U.S. Congress.

In some ways, the Pell Grant and Title V programs share similarities and, in the end, suffer similar conclusions as that of many policy initiatives aimed at alleviating disadvantage. They are “earned” based on an argument of need, and when the need is not fully alleviated by the intervention, we are tempted to conclude that this indicates a failure in policy. Take for instance that Pell Grant program, which represents the largest need-based federal grant aid program in the country. Its primary goal is to serve the most socio-economically disadvantaged students in the country. Similarly, the Title V program was established by Congress to help serve some of the most under-resourced institutions in the nation, HSIs. Research, including that introduced in this study, has demonstrated that both the Pell Grant and Title V programs have a negative relationship with six-year completion rates for its recipients—findings that on the face of it seem, at minimum, counter-intuitive and concerning. Nevertheless, they are findings that understandably influence determinations and characterizations made about the efficacy of the two programs.

This is where the similarities between the two programs end and the case for this dissertation begins. One key aspect that distinguishes Title V from a program such as that of the Pell Grant is the sheer size of the investment made in the Title V program by Congress. In an effort to further illustrate the point of this claim, a comparison can be drawn between the amounts invested per FTE student between the Pell Grant awards and Title V awards. This comparison is simply done to build a case for the relative impact of Title V awards. On average, HSIs distributed a \$1,295 Pell Grant award per FTE student during the period observed for this study. Figure V.1 describes the average dollar amounts per FTE student distributed by the Title

**Figure V.1:** Average Title V awards per FTE Student at public four-year Hispanic-Serving Institutions (HSIs), 1997-2012 (in 2012 dollars)



V program at these same institutions between the period observed for this study (1999 to 2012). In 2011, a year in which the Title V program hit its peak, the average amount available per FTE student at these institutions was \$434. In other words, even at its highest point, the average Title V award to an HSI (per FTE student) falls short of meeting the financial needs of the students it serves. When one considers that the Pell Grant program, with an average distribution per FTE student that is three times more than the average distribution per Title V, also fails to address the shortfall in resources to help meet the needs of the students enrolled at these institutions, it begins to make more sense as to why the Title V program is failing to meet some of its stated goals. This is an observation that future researchers must further explore in order to ensure that the goals and intent of the program are aligned with the Title V program's structure. That being said, the results from this assessment do indicate that the program is failing to meet the specific goal of improving six-year completion rates for Latino students enrolled at public four-year

HSIs, and it is possible that the policy intervention has its limitations—perhaps from it receiving too small an investment—to overcome the underlying factors which are used to justify it.

### **Implications for Theory and Research**

The very fact that this dissertation leaves us with further questions about the efficacy of Title V programs underscores the need for additional research on this issue. Fortunately, the study offers several important contributions which will assist future scholars in the analyses that should follow:

- a) This study provides the first longitudinal assessment of the Title V program that is focused on its primary objective of improving the six-year completion rates for Latino students;
- b) It builds an empirical case for how differences in the financial contexts of public four-year HSIs, when compared with those of their non-HSI counterparts, place HSIs responding to fiscal constraints at a disadvantage and show how these responses ultimately affect organizational performance;
- c) It extends prior empirical findings which have examined the relationship between the financial environments of public four-year institutions on completion rates for Latino students to also include HSIs;
- d) It offers a platform and elements of the design for future research on the efficacy of the Title V program or policy (and possibly other federal support programs to education) that can be studied over an extended period;
- e) It provides an integrated theoretical framework for future studies of this subject; and
- f) It makes available a refined data set, one that was required for this study and had not been previously constructed, that will be available to other researchers.

Researchers must continue to broaden their understanding about how colleges and universities are affected by changes in their financial environment, and they may have a new context for doing so, as we realize the full economic effects of a Great Recession in the first decade of this century and heavy borrowing from future revenues in response to a public health crisis that started in 2020. This research would offer a chance to integrate theoretical perspectives more effectively from across disciplines into higher education scholarship. One discipline that is well positioned to provide researchers with the analytical tools needed to examine contemporary problems and issues in higher education is the field of organizational research. This study was directly informed by assumptions and propositions advanced in both resource heterogeneity and resource dependence perspectives, two theories prevalent in the field of organizational studies, and shaped by constructs adopted from organizational, economic and policy studies. Considered together, interdisciplinary perspectives provide a stronger rationale for better understanding how certain organizational constraints affect the efficacy of key policy efforts and explain how public four-year institutions respond in their efforts to manage fiscal challenges, especially during periods of financial instability.

The theoretical perspectives informing this study also provide background for interpretation of the descriptive trends surfaced in this study. They show how institutions that are less reliant on a primary source of revenue (i.e., state support) have certain advantages over other institutions—advantages which ultimately affect important organizational outcomes such as student rates of degree completion. The assumptions and propositions theorized by both the RDT and resource heterogeneity perspectives were also exemplified in the trends associated with investment strategies employed by public four-year HSIs observed in this study. In brief, the assumptions from the integrated perspectives suggest that the resources possessed by an

institution matter significantly. The fact that was borne out in this study is no surprise. It is made particularly ominous when paired with the realization that HSIs often resolved financial pressures by reducing investments in areas empirically proven to support educational attainment by their students, including a shift to employing a larger percentage of part-time faculty. Even in cases where HSIs made efforts to protect investments in core functions and operations of the institution that support student completion, the sparse resources available at these institutions inevitably gave way to wider gaps between HSIs and their non-HSI counterparts.

We can glean from this study previous research, and consistent with the two primary theories that were used in developing the current research questions, organizations must respond to changes in their environments or fail to survive. Not all colleges and universities are in the same position to respond, however. It appears that four-year public colleges and universities with more resources may be better protected from a turbulent environment and have advantages of additional time and additional options before they experience significant threats to their survival. Given this reality, it is logical that public four-year HSIs enacted strategies to reduce their dependence on state support, which included efforts to diversify their resources by securing alternative revenue in the form of federal support from Title V dollars. The assumptions from this theory posit that HSIs did so working from a position of disadvantage; in fact, their eligibility to be classified as HSIs under Title V is premised on proof of that disadvantage. Unlike their better resourced non-HSI counterparts, they did not possess the advantage derived from stable resources to respond to financial challenges from positions of strength. In fact, HSIs may have had to run to other strategies (reduction of full-time faculty for example) and in ways that may even complicate their disadvantages. In sum, the efficacy of the diversification strategies at HSIs are contingent on whether or not the marginal resources acquired through the

Title V program are adequate to close the historical funding gaps that have long persisted for these institutions.

### **Implications for Policy and Practice**

While there were important contributions made to further research through this study, perhaps even more compelling are implications for improving policy and practice in efforts to strengthen HSIs and to better serve the students who attend them. The trends reported here regarding expenditures, the role they play in facilitating desired student educational outcomes, and the combined results of the analysis examining a relationship between the Title V program and Latino completion rates are all pertinent for institutional leaders and policy makers. We need not lower our expectations, but we should carefully consider the metrics that we use to hold institutions accountable for certain student outcomes, particularly when trying to fairly measure the completion rates for the most vulnerable student populations attending under-resourced institutions. As federal and state efforts to promote access to higher education continue to bring new students to college campuses around the country, we must also consider the trends pertaining to the demographics of these new student groups. Unquestionably, we want—and we need—these students to complete their college degrees. For that to happen, short of any unanticipated shift in enrollments, HSIs will have to become better at moving students toward graduation. But for a number of these institutions, including many HSIs, the long-standing inequities in the distribution of resources available to them actually place them at a severe disadvantage when it comes to assuring that the aspirations of their students can be fully and consistently realized. It seems that we must hold on to the metric of degree completion, as it is crucially important in the long run, but complement it with other measures of student and institutional progress.

One step toward this end would be to situate the established metric in the context of things which affect it. Policymakers at all levels continue to rely on six-year completion as an indicator of institutional success, but less effort has been made to account for factors that may play an important part in determining completion outcomes. Researchers have routinely demonstrated that highly selective institutions that invest higher than average dollars per FTE have better six-year completion rates (Krogstad & Noe-Bustamante, 2020). Thinking more intentionally about the heterogeneity of resources among our public institutions of higher education will bring us a step closer to finding an equitable approach to increasing institutional accountability without further penalizing the most vulnerable institutions and the students they serve. This is particularly important when stakeholders seek to establish metrics that tie programs such as Title V to the rather distant policy goal of improved student outcomes and a better educated society. There are many steps and factors intermediate to the event of a modest investment in institutional funding and student degree completion rates, despite the fact that these very investment programs are argued on the basis of their anticipated positive effects. In this event, we need to distinguish political advocacy from science. Realistically, we know that the relationship between the policy intervention and the desired result is more complicated than the way it is frequently portrayed in rationalization of policy. With our awareness of that fact, the findings of this and other studies must not only point out the fact that some institutions are disadvantaged in their ability to achieve crucially important individual and societal outcomes but move toward understanding and changing this situation.

The findings from this study also challenge a number of assumptions that may influence policymakers as they make decisions about funding public higher education. Whether it is believed to be true or not—it is not possible to judge what leads to some policy positions—a

belief among decision makers is that all postsecondary institutions which possess similar abilities to generate alternative revenue may be operating in decisions to justify cuts in public support. The empirical trends in this study highlight that for many public institutions, these opportunities and the strategies that might follow from them are clearly differentiated. HSIs, faced with the need to replace state funding, are limited, and in most cases, they are entirely reliant on strategies that increase revenue through tuition. While on its face this may seem like an acceptable political strategy from the standpoint of the policy maker, we know enough about the limitations of this strategy when it comes to its effect on student outcomes and completion. As this study implies, the negative effects fall most heavily on students from lower socio-economic backgrounds, students of color, and the institutions that serve them.

## **Conclusion**

The emerging financial environment surrounding America's colleges and universities, while complicated by the uncertainty of the recent pandemic, threatens significant challenges for higher education institutions and for the students they serve. These circumstances will likely bear most harshly on aspiring students from some of our nation's most vulnerable populations. As this dissertation contends, Hispanic-Serving Institutions serve the greater share of first-generation, low-income Latino students in the United States and are most directly at risk within this fiscal landscape. Latinos also represent one of the fastest-growing segments of students enrolling at U.S. colleges and universities; yet at this very moment of reckoning, a division in viewpoint separates those who insist we should invest in improving the most challenged of our institutions from those who believe we should invest in those institutions that seem to offer the most promise for a return on public investment. As one result of this divergence in thinking, members of



Congress routinely call for demonstrated outcomes and evidence of measured success as a justification for all federal investments.

The Title V program was developed by Congress with an intention of addressing postsecondary educational attainment gaps for the growing Latino population. Given the role that HSIs have historically played—and continue to play—in meeting the needs of Latino communities, programs like Title V continue to be crucially important. The Title V program is anchored in the ideas of its founding era and, as this study suggests, there is a pressing need to re-examine the program from both a contemporary and empirical perspective. The advances the field of higher education has made in improving our understanding of the factors that effectively influence postsecondary completion for Latino students highlight several programs, policies, and practices that hold great potential and some that have empirically demonstrated success. Researchers examining this important phenomenon have been able to identify individual, societal, fiscal, and organizational level factors that inform promising policy and best practices to help close the postsecondary attainment gaps that persist between Latino and White students in the United States. Therefore, it is imperative that these findings and determinations be incorporated into a re-design of the Title V program and help inform future decisions about the methodology and rationale used to make determinations about the ways Title V grants are awarded to institutions. This will improve the program, further the attainment of its goals, and may further help to secure the Title V program from the risk of disinvestment.

For policy makers and other individuals or organizations in a position to influence future policy and investments related to the Title V program, the findings from this study demonstrate that current funding levels for the program have repeatedly failed to offset the growing fiscal needs of HSIs. As a result, the program has not met one of its primary goals of improving

postsecondary completion outcomes for Latino students. The findings from this study suggest a need to continue to call for a closer examination of the Title V program and its relationship with improving postsecondary success for the growing Latino population in the United States.

Moreover, there is an immediate need to significantly increase the total investment made in the Title V program, or a need to limit—if only temporarily—the number of institutions that receive Title V dollars in order to make additional dollars available to HSIs with the greatest financial needs. As this study makes clear, HSIs serve large numbers of socio-economically disadvantaged students and given the unpredictable state investment in public higher education following the impact from COVID-19, there will remain an even greater need for investment in institutions that serve students who are the most expensive to serve.

Yet this call for an increased investment in the Title V program must be coupled with an expectation for accountability on the part of HSIs that receive Title V awards with evidence to demonstrate that funds are effectively meeting the goal of improving Latino postsecondary success. In order to effectively evaluate the efficacy of the Title V program and its associate goals, efforts must also be made at the federal level to improve the publication and utility of higher education data that will allow for researchers to assess inequities in the availability of high-quality postsecondary opportunities for students. While the data acquired for this study was obtained from the U.S. Department of Education through the Freedom of Information Act (FOIA), the information was not easily accessible for all years of the program and some of the information that was acquired was incomplete and not easily identifiable. Efforts are currently underway at the federal level to improve the transparency and reliability of higher education data that include proposed changes outlined in the Foundations for Evidence-Based Policy Making Act of 2018 (“Evidence Act”), which requires the federal government to improve the way it

manages and uses the information it collects and that it makes more of this information publicly available. Making data available and improving the transparency of data is a priority essential to holding HSIs—and all postsecondary institutions in the United States—accountable to improving postsecondary success for all students in the United States.

Finally, in thinking through the findings and implications of this study, the question becomes what can I—and others—learn from it that can be applied to help alleviate the challenges faced by institutions of higher education in a turbulent fiscal environment? One lesson is that some postsecondary institutions are seriously threatened in terms of their survival, and quite often, it is those institutions that serve our most vulnerable student populations. In fact, I would also contend that it is a threat to a great many more institutions, many of which hesitate to identify themselves for fear that it may threaten their financial viability.

This dissertation set out to offer the first comprehensive assessment of the efficacy of the Title V program in meeting its policy goal of increasing six-year degree completion rates for Latino students. The study challenged conventional notions in the public policy environment which suggest that all institutions possess a similar capacity to manage fiscal constraints—an assumption that continues to impede equitable policy in both the development and enactment of educational and social policy in this country. Moreover, it did so by pushing the traditional boundaries of theory and offered up an integrated theoretical approach to help guide thinking about how we frame and broaden our understanding of differentiated effects of fiscal constraints in public higher education.

To raise questions about the efficacy of a program as it approaches twenty-five years since its implementation is neither disrespectful nor particularly brave. The prior research that informed this dissertation and the sum of its findings point to the fact that educating a growing

population of Latinos in our society is important now and will be even more important for our future. If the current policy interventions are not accomplishing what they intend to do, if we are not fully and clearly meeting the needs of those we are pledged to serve, then we must use every tool available and take every available opportunity to find and argue for better strategies. If that takes courage, then we should find it.

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