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A QUANTITATIVE ANALYSIS OF UNDERGRADUATE DEGREE COMPLETION AT THE UNIVERSITY OF RHODE ISLAND

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BY

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ABSTRACT

Over a period of several years, the University of Rhode Island (URI) implemented a number of strategies aimed to improve (a) undergraduate retention; and, (b) four-year degree completion. These efforts started amid continual increases in undergraduate tuition rates at the University and after just 38.5% of the first-time, fulltime undergraduates who began attendance in the fall of 2008 had graduated from URI by the summer of 2012. For the cohort of first-time, fulltime undergraduates who started at URI in the fall of 2014, the four-year graduation rate was 53%. Despite this increase in the statistic at the institution, it still means that many URI first-time, fulltime undergraduates are spending additional semesters, and thus tuition dollars, in pursuit of a bachelor's degree than is traditionally expected for full-time pursuit of college completion. This quantitative research sociodemographic data collected from six recent cohorts of first-time, fulltime URI undergraduates to operationalize Tinto's (1975, 1993) theorized factors of college student departure. These factors were analyzed using logistic regression to examine which, if any of the factors, were correlated with four-year degree completion at URI amid the retention efforts. High school GPA, expected family contribution, and institutional financial aid award were among the factors with the strongest relationship with timely degree completion.

Keywords: college retention, college student persistence, undergraduate degree completion, student debt

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CHAPTER 1: INTRODUCTION

Statement of the Problem

Over a period of decades, the funding of public higher education in America has rapidly shifted from the broader tax base to individual attendees via increases in the cost of tuition and associated fees (Barr & Turner, 2013). Federal student loans were the primary driver of this shift (Shermer, 2018) and that has resulted in total, outstanding student debt of over $1.7 trillion (Johnson Hess, 2020). While the aggregate rate of return on student loans is still positive for borrowers (Avery & Turner, 2012), Scott-Clayton (2018) projects that the default rate on student loans for undergraduates who began higher education attendance in 2004 could reach as high as 40% by 2023. Gladieux and Perna (2005) found that financial ramifications related to student debt are most negative for those who borrow but do not earn a postsecondary credential. Public higher education administrators who are required to offset declining state appropriations with tuition rate increases, but still want to minimize the amount students borrow to attain a degree can pursue institutional policies that support student persistence toward timely graduation (Klempin, 2014).

From 2008 to 2018, the undergraduate tuition price for one year of fulltime, undergraduate attendance at the University of Rhode Island (URI) increased nominally from $8,687 to $14,138 for Rhode Island (RI) residents and from $24,776 to $30,862 for out-of-state students (The Chronicle of Higher Education, 2019). These increases of 63% and 25%, respectively,

occurred mostly during a time when the State of Rhode Island reduced state spending on public higher education by over 16% (Mitchell et al, 2017). Concomitant to the enactment of these price increases, URI administrators implemented new policies, such as the introduction of a winter term, a marketing campaign to promote earning 15 credits per semester, and an increase in online summer courses, to better support undergraduate students in order to increase rates of student retention and degree completion. These institutional changes correlated with the URI four-year graduation rate increasing from 38.5% for the cohort of first-time, fulltime undergraduates that began in the fall of 2008 to 53% for the cohort of the same classification of students that began in 2014 (See Appendix A). Yet little is known about how timely graduation rates may have changed for the many subgroups within each cohort. This study aimed to better understand which students became more likely to achieve timely degree completion as URI redoubled retention efforts and the four-year graduation rate increased.

According to Tinto (2010), the implementation of successful retention strategies contributes to the cultivation of distinct social and academic systems on each campus of higher education institutions. Tinto (1975, 1993) theorized that students persist toward degree completion at a school when they feel sufficiently integrated into both the academic and social systems of the institution and adapt the institution's goals and values as their own (See Appendix B). In his model of college student departure, the likelihood of a student becoming both socially and academically integrated is influenced by

the following individual characteristics: family background, demographics, pre-college academic experiences, and the psychosocial attributes of goal commitment and institutional commitment (Tinto, 1975, 1993). Institutions can create campus conditions that facilitate increased academic and social integration for students and thus are more conducive to student persistence (Tinto, 2010). In devising strategies to foster these conditions, Tinto argues that university administrators must keep central the notion that strong student retention is the result of quality student education, for increased retention at the expense of the quality of education is a dubious goal (Tinto, 2010). The purpose of this study was to better understand which students benefited most in terms of realizing timely degree completion amid the implementation of numerous retention efforts at a single institution of higher education. While educational quality at URI was beyond the scope of this study, the findings in chapter 4 are discussed in chapter 5 in connection with evidence-based practices from the existing literature on college student retention that support both student learning and degree completion.

Background

While chapter 2 will contain a comprehensive literature review of the many factors of college institutional retention and student persistence, this section will provide an overview of the historical context in which this study is placed. Principally, this section will cover: (1) the origins of student loans in the United States (2), the transformation of student loans in the neoliberal era, (3) the US economic recession brought about by neoliberal public policy, and (4)

URI's institutional responses to the reductions to state budgetary appropriations in the wake of the recession.

The Origins of Student Loans in the United States

The National Defense Education Act of 1958 created the first federal student loan program for college students in the United States and the Higher Education Act of 1965 significantly expanded eligibility for federal student loans (Looney & Yannelis, 2015). When the federal government began issuing loans to high school graduates for them to pay the cost of attendance at institutions of higher education in 1958, the students had to pledge to pursue degrees considered important to the national interest, such as science, engineering, math, foreign languages, or education in order to qualify (Shermer, 2018). That this new loan program was written into law as part of the National Defense Education Act is telling. The American orthodoxy of the Cold War era was that the US would only emerge victorious if young entrants into the American workforce were prepared to engage in technological innovation at a rate exceeding Russia, and both lawmakers and voters committed significant public financial resources toward this end (Gilmore, 2007). Seven years later, with the Higher Education Act of 1965, President Johnson and congress expanded the number of students eligible to receive loans toward the cost of college, while also increasing federal funding committed to grants and work-study opportunities to ensure individuals would not be over reliant on loans to pay for higher education (Shermer, 2018). This piece of Great Society legislation, in comparison with the National Defense

Education Act, was framed by policymakers more as a policy of promoting social equality for poor- and working-class families than ensuring national security (Shermer, 2017).

This increased issuance of student loans to college attendees came amid an era of surging college completion rates and relatively steady national economic growth (Day & Bauman, 2000). Thus, the recipients of the loans were well positioned to earn an educational credential sufficient for eventual employment in a growing economy that would then allow for timely repayment of the loans. For the first 20 years after the signing into law of the Higher Education Act, American household debt remained relatively stable (Mian & Sufi, 2011). This suggests that, while access to student loans had increased, individuals who sought them were not incurring debt that was overly burdensome to repay.

Student Loans in the Neoliberal Context

The era of President Johnson's Great Society gave way to decades of neoliberal political hegemony, characterized by wide-ranging federal policies aimed to decrease government's role in mitigating the outcomes of the free market (Gilmore, 2007). Beder (2009) defines neoliberalism as a theory of government which advocates for the reduction of the size and role of government in a society by replacing government functions and services with those provided by private, profit-seeking firms operating in a marketplace deregulated by government oversight. Harvey (2006) asserts that central to the argument of neoliberalism is individual determination of well-being, based

on work ethic and savvy consumerism in the marketplace, with no state assistance. This neoliberal emphasis on individualism is coupled with the commodification of public spheres (Giroux, 2002). The emphasis on the marketplace has placed student loans as the main source of financing of the American higher-education system (Shermer, 2018).

The primacy of student debt in business models of colleges and universities, both public and private, is consistent with Harvey's (2006) observation that credit financing has been one of the few politically sanctioned social supports available to facilitate self-determination in the neoliberal era of American politics and society. In 1972, the Higher Education Act was reauthorized with the creation of Sallie Mae, a privatized clearing house for student debt, which inherited control of the student loan industry from congress and the executive branch (Shermer, 2018). Harvey (2006) suggests that the curtailment of state-subsidized access to public places, such as state-run institutions of higher education, is a logical progression of neoliberal policy aimed at accumulation of capital for the upper class. With the private sector now lined up to issue student loans, it did not take long for higher education administrators to realize that raising tuition rates was the most efficient method of balancing budgets, for even students who could not afford price hikes out of pocket could simply take on student debt (Shermer, 2018). Unprecedented American wealth inequality paralleled the rising higher education costs of attendance. From 1978 to 2018, the average annual cost of college tuition and fees outpaced inflation by 1,374% (Mislinski, 2019) and the share of pre-tax

income made by the top one percent of earners increased from 10% to 19% (Saez & Zucman, 2020). Once imagined in a bygone era as a catalyst for social mobility and equality, federal student loans are now responsible for over $1.7 trillion in outstanding consumer debt (Johnson Hess, 2020) with quickly increasing default rates (Scott-Clayton, 2018).

The US Economic Recession of 2007-2008

A series of reductions of the income tax rate on the top income tax bracket in America left it at 35% in 2003, down from a high of 94% in 1944 (Blodget, 2011). By 2006, the wealthiest one percent of Americans were earning more annual pre-tax national income than the bottom 50% (Long, 2016). The widening American wealth and income inequality of this time period slowed middle-class consumer demand such that it was no longer keeping pace with private sector capacity for production, prompting a reduction in interest rates to promote consumer borrowing from banks to sustain national economic growth (Beder, 2009).

Wacquant (2010) argues that primary among the manifestations of the transformation of the American Keynesian State into a Neoliberal state was the deregulation of the private investment of capital. Such deregulation in the US was highlighted by the Commodities Future Modernization Act of 2000, which allowed for more speculative investment on the future of commodities. When corporations began to realize that investment in production may have diminishing returns, because of waning middle-class consumption, alternative investments of capital were pursued. Many financiers were emboldened to

engage in this alternate, speculative investing once it became legal because the bets were essentially underwritten by the far less risky loans they were offering on the student market (Shermer, 2018). After the passage of the act, commodity futures and options went from 10 million contracts totaling $1 trillion in 2003 to 70 million contracts totaling $14 trillion by 2010 (Stein, 2012).

The necessity of the middle- and lower-class to take on debt to pay for everyday goods coupled with unregulated speculation on the future of commodities created the perfect storm for the US housing bubble and Great Recession. Aside from student loans, another common way for families and individuals to borrow was to turn to mortgages. Banks issued these mortgages, earned a fee for doing so, and then sold many of them as commodities to third parties, which made the banks less concerned about consumer ability to repay the mortgages in full (Beder, 2009). All these transactions were completed with the assumption that housing prices would continue to rise, so even if people stopped making mortgage payments, subsequent repossession, and sale of the property by the commodity owners would cover the outstanding debt (Beder, 2009). But that assumption proved false when rising housing prices led to a construction boom and a flood of homes for sale on the market (Beder, 2009). When consumers did start defaulting on mortgages, home equity was lost, and the commodity investors were left with homes worth far less on the housing market than the mortgages associated with them and the losses sustained on these properties put many American financial institutions on the brink of bankruptcy (Beder, 2009). This

set off the start of the Great Recession in 2007, which eventually resulted in American households losing a combined $16 trillion in net worth (Vo, 2013). The devastating economic crash, rather than being a death knell for the neoliberal economy in America, served to reify preexisting, neoliberal structures of economy, ideas, and politics in the decade to follow (Rodgers, 2018).

Public higher education financing provides one such example. During the three fiscal years, 2007-2009, of the recession, state governments in the United States combined to lose $100 billion in tax revenue (Gordon, 2016). Faced with reducing spending to balance the revenue shortfalls, many state legislatures cut public higher education spending as it is not tied to federal mandates or dollar-for-dollar matching (Barr & Turner, 2013). The budgetary implications for public colleges and universities were devastating and enduring. From 2007 to 2012, constant dollar state appropriations to higher education fell by 17% from $87.7 billion to $72.5 billion and per student spending at state colleges and universities decreased from $9k to $6,651 (Barr & Turner, 2013). From 2008-2017, 45 out of 50 states cut funding of public higher education institutions, with the respective inflation-adjusted percent reduction being as drastic as 53.8% (Mitchell et al., 2017). Over the same time period, every single state in the union increased tuition prices for attendance at four-year institutions of higher education, with the respective increases ranging from 4.4% to 100.7% (Mitchell et al., 2017). Amid this surge in pricing, national enrollment in public higher education still increased by 8%

from 2008 to 2016 (Mitchell et al., 2017). This is perhaps partially explained by the finding of Elliot and Lewis (2015) that bachelor's degrees from some public institutions still maintain a return on investment as high as 12%. Kamenetz (2006) argues that wage declines for entry level work for those without any postsecondary education have necessitated that high school graduates take on the pursuit of higher education credentials at almost any cost. This argument is supported by the finding of Saez and Zucman (2020) that for the bottom 50% of workers, average pre-tax income has slightly *declined* since 1980, despite overall GDP growth. The difficulty to find work was exacerbated in the wake of the recession, when the unemployment rate quadrupled to 20.5% (Stein, 2012).

There are also signs that the debt being taken on in the wake of the recession is not as easily paid off as that which was taken on by the earliest student loan borrowers in the 1960s. A generation after the federal government's increase issuance of student loans was followed by two decades of stability in US household debt (Mian & Sufi, 2011), default rates on federal student loan repayments more than doubled from pre-recession levels by the year 2011 (Maglione, 2013). And yet, the individuals struggling under the financial strain of student loan repayment now take on a disproportionate role in funding the federal government. As of 2018, student loans represent 45% of federal financial assets, making these the largest asset on the US Government balance sheet (Rainey, 2018). The centrality of student loan repayments to federal revenue developed during a period when the personal

income, corporate, and estate tax rates were regularly and drastically reduced (Saez & Zucman, 2020). Saez and Zucman (2020) estimate that, because of the rise of US companies that do not pay out dividends to shareholders, only a third of total capital income is now actually subject to income tax each year. Because of the reduction of taxable income and cuts to tax rates as student debt has ballooned, US revenue collection has become markedly less progressive.

URI's Post-Recession Reinvention

Among the three Rhode Island state institutions of higher education, URI's state appropriation was disproportionately slashed in the wake of the recession, with reductions totaling $26 million, or 30% of total state support (Fain, 2018). The financial support that URI receives from the state of Rhode Island remains nominally lower than during the 2007 fiscal year (Field, 2019). As such, the operation and maintenance budget of URI was increasingly funded by tuition costs and student fees paid by undergraduate attendees.

The rising prices of undergraduate tuition and fees increase the likelihood that students will need to finance the cost of attendance with student loans. Nationally, only 55% of dependent students who anticipate completing a bachelor's degree do so within six year of graduating high school and more than 33% of these students do not earn an associate's degree within this time period (Avery & Turner, 2012). This statistic makes an increased reliance on student loans among a student body at an institution problematic given that Gladieux and Perna's (2005) found that financial ramifications related to

student debt are most negative for those who borrow, but do not earn a postsecondary credential. Titus (2006) points out that the only upshot of reduced state support for an institution of public higher education and an associated increased reliance on tuition and fees is that the power to determine the priorities of expenditures is centralized at the campus level. At URI, concomitant to the enactment of tuition price increases, administrators implemented new policies to better support undergraduate students and to increase rates of student retention and degree completion. These policies included institutional investment in the hiring of professional academic advisors and 60 new tenure-track faculty members, the introduction of a winter term for credit-bearing courses, an increase in online summer courses, and an overhaul of the general education curriculum to make it more flexible for students, especially those who change majors (Fain, 2018). During this time, URI also increased by millions of dollars the amount of institutional financial aid offered to admitted undergraduates (Field, 2019). Aside from financial support, students also were exposed to greater academic support, including accessibility to major maps, which are PDFs that visualize a sequence of courses to be taken over eight semesters to ensure timely graduation with any given undergraduate program of study (Field, 2019). All these new supports were supplemental to earlier initiatives aimed at undergraduate retention, such as the introduction of URI 101, a first-year seminar, as a degree requirement in 1995 and the more than doubling of first-year students included in learning communities between 1999 and 2001 (Hoffman et al., 2002). These combined

efforts correlated with the four-year graduation rate increasing from 38.5% for the cohort of first-time, fulltime undergraduates that began in the fall of 2008 to 53% for the cohort of the same classification of students that began in 2014.

Purpose of the Study

This study used sociodemographic data collected from student admission applications and survey data from the MAP-Works survey (see Appendix C) for six recent cohorts of first-time, fulltime URI undergraduates to operationalize Tinto's (1975, 1993) theorized factors of college student departure. These factors along were analyzed using multilevel logistic regression to determine predictors of four-year degree completion for the entire sample and each of the cohorts represented in the sample.

Research Question

Accordingly, this research addressed the following, primary research question:

1. Within the policy context provided by the implementation of several retention strategies aimed to support first-time, fulltime undergraduates at the University of Rhode Island, which student factors, if any, maintain a predictive relationship with timely completion of a bachelor's degree for each cohort and which student factors, if any, are predictive of timely degree completion for one cohort, but not another?

Significance of the Study

One significant aspect of this study is that it used timely degree completion as the dependent variable. In their meta-analysis of 109 studies of

student outcomes in college, Robbins et al. (2004) found that just five used time to degree completion as a dependent variable. Thus, while there is a vast amount of research related to college student retention, this study can contribute to the knowledge related to timely degree completion, which is lacking in comparison.

This study analyzed data collected during and just after the most recent global economic crisis. The COVID-19 global pandemic seems likely to trigger similar, or perhaps worse, economic hardship for state governments, institutions of higher educations, families, and individuals. A study of retention strategies implemented 10 years ago is perhaps likely to become more relevant with each passing month in the near future.

Administrators at other institutions may also consider the findings of this study useful. While the findings are not generalizable to other universities, administrators at such institutions may devise a similar study to learn more about timely degree completion in their own setting.

Definition of Key Terms

Persistence - Student persistence is the process by which college students remain enrolled in higher education until degree completion (Tinto, 2010).

Retention –retention is an institutional goal that seeks to have students remain at the school until the culmination of degree completion.

Expected Family Contribution (EFC) - According to the Federal Student Aid Office (2019), expected family contribution is the measure of a family's financial strength and formula used to calculate each EFC is established by

law and accounts for family size, taxed and untaxed income, assets, and benefits.

CHAPTER 2: REVIEW OF LITERATURE

The purpose of this study was to better understand which students benefited most in terms of realizing timely degree completion amid the implementation of numerous retention efforts at a single institution of higher education. The first section of this chapter details the seminal theories of college student persistence and institutional retention. It then reviews the literature detailing the benefits of higher education, both those at an individual (Currie & Moretti, 2003; Hill et al., 2005) and societal level (Hill et al., 2005; Lochner & Moretti, 2004; Trostel, 2015). Additionally, this section explores evidence suggesting that these benefits disproportionately accrue to upper-class Americans. Since many institutions have enacted policies aimed at matching rising tuition rates with increased support of students to limit time to degree completion and minimize the cost of academic credentials (Klempin, 2014), an overview of studies related to timely degree completion and these many institutional efforts follows. Finally, this chapter discusses the literature related to the many factors that influence undergraduate student persistence in higher education.

Theories of College Student Persistence and Institutional Retention

The phenomenon of student persistence in higher education has been studied and theorized by educational researchers for decades (Astin, 1984; Bean, 1980; Tinto, 1975, 1993). An important distinction in this study is the difference between student persistence and institutional retention. Student persistence is the process by which college students remain enrolled in higher

education until degree completion, while retention is an institutional goal that seeks to have students remain at the school until the culmination of degree completion (Tinto, 2010). As the body of literature regarding student persistence has grown, it has provided new insights into why some students earn credentials at particular institutions, others are forced to leave, and still others voluntarily withdraw. No model of student persistence in higher education is perfect because they are all human based and human produced. But three in particular have made important contributions in their own right that inform the essential work that is performed on college campuses every day. The foundational works of Astin (1984), Bean (1980), and Tinto (1975, 1993) have informed the work of later scholars who continue to offer higher education policy makers, administrators, faculty, and staff new areas for concern, reasons for hope, and strategies for success that can be used to continuously improve the support of students.

Tinto's Theory of College Student Departure

Tinto (1975, 1993) posits that instances of voluntary college student departure are the result of students perceiving to be improperly integrated on campus either socially or academically or their inability or unwillingness to adapt institutional goals and values as their own. Academic integration for a student is a perceived congruence of their own abilities, skills, and interests and the academic expectations of an institution and a sufficiency of personal connections with peers, faculty, and staff within the academic system of the institution (Tinto, 1975, 1993). Similarly, student social integration on a campus is a perceived sufficiency in social interactions with other members of the university community

and a personal agreement with the dominant, collective value system at the institution (Tinto, 1975, 1993). Tinto asserts that family background, demographics, pre-college academic experiences, and the psychosocial attributes of goal commitment and institutional commitment are all factors in if and how a student is to become academically and social integrated at a given institution.

Bean's Theory of College Student Attrition

Whereas Tinto's theory is based in part on Durkheim's (1961) theory of suicide, John Bean's (1980) theory of college student attrition is guided by scholarly literature related to turnover in work organizations. Bean's model combines background characteristics of students and organizational determinants of institutions to suggest that different students find different levels of satisfaction within colleges and universities and then make dropout decisions accordingly. One of the key findings of Bean's analysis is that dropout decisions are governed by different factors for men and women, respectively. For both men and women, a lack of institutional commitment is highly predictive of eventual dropout. One key difference is that dissatisfaction with being a student is correlated with dropout decisions for women, but not men.

Astin's Theory of College Student Involvement

Astin's (1984) theory of college student involvement places the phenomenon of college student persistence on a continuum of involvement, defined as the exertion of physical and psychological energy on campus, with dropping out being the ultimate form of noninvolvement. Students on the other

end of the continuum become involved with faculty and peers on campus at an early stage and thus develop an understanding of the importance of involvement, which then increases the likelihood for future involvement and persistence. According to Astin's (1984) theory, the effectiveness of any institutional retention policy is only as effective as its capacity for increasing student involvement on campus.

Benefits of Higher Education

There are many public and private benefits of increasing per capita exposure to higher education. Cook and Ehrlich (2018) suggest that the Morrill Act of 1862, which allowed for the founding of land-grant colleges in the United States and greatly increased access to higher education, was a primary driver of America becoming the economic superpower of the 20th century. Dating back to the GI Bill of the New Deal, mass higher education has helped bolster national defense and aided business innovation (Shermer, 2018). A primary goal of those working in higher education remains increasing human capital for the continued growth of a strong workforce (Xu & Webber, 2018). Individuals with a college education contribute to society nearly five times the amount of philanthropic activity, defined as either time volunteered or charitable donations, than those with only high school (HS) education (Trostel, 2015). The college educated are also less likely to commit crime (Lochner & Moretti, 2004) and more likely to engage in electoral participation (Hill et al., 2005). College graduates pay more in taxes and are less reliant on government services (Trostel, 2015). The average lifetime earnings for an individual with a bachelor's degree is more than $1 million

greater than the holder of just a high school diploma (Hill et al., 2005). Mothers exposed to higher education are more likely to use prenatal care and have better birth outcomes and higher levels of school readiness in the next generation (Currie & Moretti, 2003).

The Importance of Timely Degree Completion

In a report titled *Time is the Enemy*, Complete College America (2011) responded to the increasing cost of college attendance and student debt accumulation by urging administrators of public higher education institutions to couple their rising tuition rates with better support of students who aspire to attain a bachelor's degree within four years. Students who do graduate on time as a result of increased institutional support are able to avoid the costs that would have been incurred by additional years of college attendance, when tuition prices and loan amounts tend to be highest (Complete College America, 2014). College financing can be complicated for many college students, but Klempin (2014) noted that schools have had success promoting timely degree completion with marketing initiatives focused on simple messages such as encouraging full-time enrollment every semester and avoiding the employment opportunity cost of spending more than four years pursuing a bachelor's degree.

Dwyer et al. (2012) found that for all but the most affluent students at public institutions, initial access to debt financing increases the likelihood of bachelor's degree attainment, but the accumulation of more than $10,000 decreases the probability of graduation. This suggests that most students should be open to taking on student debt to finance public higher education attendance,

but may need to adopt fiscal strategies to minimize the eventual cost of a bachelor's degree. Klempin (2014) points out that some universities have reduced the total cost of attendance paid by students by implementing structural reforms that make timely undergraduate degree completion the norm as opposed to the exception. This is in keeping with Xu and Webber's (2018) assertion that college and university decision makers have little control over factors external to their institutions and so should focus on matters under their influence.

Equity in College Enrollment and Completion

Bailey and Dynarski (2011) find that 30% of children born to families in the bottom income quartile enroll in college, compared with 80% from the top quartile. High-income students are also six times more likely than low-income students to earn a bachelor's degree before the age of 25 (Bailey & Dynarski, 2011). McKinney and Burridge (2014) found that community college students with federal loans were more than twice as likely to drop out of higher education over 3- and 6-year periods compared to those who could finance the cost of attendance without taking on debt.

Quality of Life for the Indebted

In a recent study of the relationship between student debt and hardship, the participants who had financed higher education with loans were more likely to skip payments toward housing, medical care, dental care, and to overdraw bank accounts, than the participants who were able to pay for college without debt as a form of financing (Despard et al., 2016). Gicheva (2011) found that an increase of $10,000 in additional student debt for an individual decreases their long-term

probability of marriage by 7 percentage points. According to the Federal Reserve Bank of New York, starting in 2011, individuals between the ages of 27 and 30 who had no history of student loans were more likely to be homeowners than those in the age group who had taken on student debt (Brown et al., 2013). This suggests that the federal student loan program is among the neoliberal policies that, as Bowles (1972) asserted, are serving to further stratify society into two groups delineated by health and economic security.

Institutional Factors related to degree completion

In this section I will summarize literature related to the various interventions that higher education administrators have implemented to increase institutional retention. To begin the section, I will review the increasing importance of grants in financial aid packages as the price of tuition and fees has increased. I will then provide an overview of the benefits that occur when diverse faculty are hired and promoted, how academic advising can support student success, how campus climate can promote or deter persistence, and the innovative retention efforts such as winter terms and learning communities.

Financial Aid

One outcome of the increase in the price of undergraduate tuition and fees is that colleges and universities have inherited from federal and state governments much of the responsibility of doling out financial aid to undergraduates, with higher education institutions more than doubling the percentage of tuition revenue reserved for institutional financial aid since the 1970s (Hossler, 2000). In this time, numerous studies now shape the public

understanding of how institutional choices about financial aid packages can affect institutional retention and facilitate student persistence. To underscore how much more likely students are to persist toward bachelor's degree attainment when receiving grants in place of some loans, I will review literature related to state-sponsored (Castleman & Long, 2013; Scott-Clayton, 2011) and institutional (Clotfelter et al., 2016) grants. Finally, I will discuss evidence that suggests how the structuring of these grants can maximize support for students.

In a study of Carolina Covenant, a debt-free financial aid package offered by The University of North Carolina at Chapel Hill (UNC-CH) to first-time, dependent, in-state attendees, who demonstrate a certain amount of financial need, Clotfelter et al. (2016) find that recipients were more likely to have earned 30 credits after one year of attendance at UNC-CH and 60 credits after year two, with a higher cumulative GPA than similar students at the school who have only slightly less financial need. The authors also suggest that Covenant-eligible students from these cohorts were slightly more likely to graduate within four years than their barely ineligible peers (Clotfelter et al., 2016).

While institutional financial aid may be far more prominent than it once was, state-supported financial aid packages for public institutions of higher education can be a boon to students and families striving to achieve degree completion. In a study of West Virginia PROMISE, a scholarship that covers the costs of tuition and fees for up to four years of attendance at in-state colleges and universities based entirely on academic merit, Scott-Clayton (2011) finds that recipients are nearly 10 percentage points more likely to complete 120 credits

after four years of college attendance than similar students who have only slightly lower standardized test scores that make them ineligible for the scholarship. The recipients are also nine percentage points more likely to maintain a 3.0 cumulative GPA and, most significantly, the awardees are also nearly 10 percentage points more likely to earn a bachelor's degree within four years and almost five percentage points more likely within five years (Scott-Clayton, 2011).

In a study of the Florida Student Assistance Grant (FSAG), a need-based grant of $1,300 awarded to Florida residents who are admitted to a public colleges and universities in Florida, Castleman and Long (2013) found that recipients were 3.2 percentage points more likely to graduate within five years, 4.6 percentage points within six years, and 5.2 percentage points within seven years, when compared with non-recipients. When FSAG awardees also received another state-sponsored financial aid award, the Bright Futures scholarship, Castleman and Long (2013) found that such students are more than nine percentage points more likely to complete a bachelor's degree within six years of the start of higher education attendance. In the period of the study, FSAG produced about 46 more bachelor's degree recipients per cohort and the cost of each new graduate was about $28k in public spending, with social and private benefits estimated to exceed the public costs within three years for each cohort (Castleman & Long, 2013).

In the context of this high tuition, high fees era of higher education, federal, state, and institutional policy makers need to be cognizant of how the structuring of financial aid packages can influence student behavior. Clotfelter et

al. (2016) note that when the Carolina Covenant aid package was reduced from nine semesters of eligibility to eight semesters in 2007, the cohorts starting attendance between 2007 and 2010 had better four-year completion rates than previous cohorts. For all the benefits of the Susan Thompson Buffett Foundation (STBF) scholarship, which is a five-year financial award to high school graduates in Nebraska, it depressed recipients' attainment of bachelor's degrees within four years (Angrist et al., 2016). Scott-Clayton (2011) asserts that students respond strategically in maintaining compliance with a financial aid program's incentive structure. Financial aid packages are particularly effective in promoting student degree completion when they are linked to institutional academic supports. STBF scholars with lower high school GPAs who were awarded the scholarship and placed in a learning community gained most from the treatment in terms of persistence toward degree completion (Angrist et al., 2016). Similarly, recipients of Carolina Covenant started outperforming similar peers at UNC-CH only after non-financial supports, such as a mentoring program and summer tutoring, were put in place to better serve the aid-awarded population (Clotfelter et al., 2016).

Retention Climate

Oseguera and Rhee (2009) define retention climate as a student body's aggregate intention to withdraw from their institution and found that this measure has an independent effect on whether individual students persist or dropout in a given higher education context. That retention climate is something that can be measured and manipulated by institutional policy is supported by what is referred to in organizational literature as environmental potency, which suggests that

when dominant patterns of experiences are consistent and congruent across an institution, it becomes easier for new entrants to assimilate to these norms (Berger, 2001). In higher education, strong environmental potency on a campus sets off academic momentum for students in that their initial course load sets them on a trajectory that strongly influences the odds of degree completion (Attewell et al., 2012). Retention climate is influenced not only by student intentions but by faculty attitudes and collective student and faculty experiences and a strong retention climate can influence students to persist toward degree completion even when their initial intention was to transfer or drop out of higher education altogether (Oseguera & Rhee, 2009).

Campus Climate

Capitalism creates scarcities of capital that set the stage for competition, fear, and antagonism directed across differences within society (Johnson, 2013). With wealth inequality (Saez & Zucman, 2020) and college access (Day & Bauman, 2000; Mitchell et al., 2017) increasing in tandem, colleges and universities now often serve as places where students from different classes, having lived through very different K-12 experiences, converge in learning for the first time in their lives. The outcomes of this convergence can vary by institution based on campus climate. Rankin and Reason (2008) define campus climate as the prevailing standards, behaviors, and attitudes of people on campus, which are shaped by access and retention, research and scholarship, curriculum, group relations, university policies, and external relations. A welcoming campus climate can minimize racial tension and competition among varying groups by

incentivizing campus leaders to be socialization agents and providing mandatory programming and student services that ensure a student-centered environment in which all students are supported in education and personal development (Hurtado et al., 1998). Positive learning and social outcomes accrue to all students when they are exposed to intentional multicultural experiences (Milem, 2003).

Unfortunately, unwelcoming campus climates can adversely affect students, particularly racial minorities. Nora and Cabrera (1996) found that for racial minority students, and especially African Americans, perceived discrimination in the classroom and in their personal lives on campus contributed to a sense of not belonging at their institution. According to Hurtado and Ponjuan (2005) Latino students who perceive a campus climate to be unwelcoming to diverse students also report a lower sense of belonging and students who spoke Spanish at home were more likely to perceive campus climate to be hostile. To be successful in creating campus climate that students of color perceive to be supportive, it is critical that institutions have a welcoming initial response to student entrance (Hurtado et al., 1998). Latino students in the Hurtado and Ponjuan (2005) study felt a greater sense of belonging and more confident in their analytic skills if they participated in academic support programming. Socially, ethnic student organizations and student support services for students of color can plan an important role on predominantly white campuses (Hurtado et al., 1998). Institutions of higher education can create a more welcoming climate by ensuring that academic support programs and social organizations and

services welcoming to students of color are sufficiently staffed, funded, and resourced.

While institutional commitment and sense of belonging for White students is not tied to factors of campus climate, there is evidence to suggest that some can express resentment toward the perception that racial minorities receive unfair access to institutional resources via academic support programs and social organizations (Nora & Cabrera, 1996). Yet, Gilliard (1996) found that, for White students, having non-White friends was positively correlated with sense of belonging. Thus, higher education leaders must continuously make the argument that allyship within a campus community that is welcoming is not something that privileged students must begrudgingly adopt exclusively for the sake of others, but is rather, as Pope et al. (2014) explain, the development of essential awareness, knowledge, and skills required to be socially and professionally successful in an increasingly complex and diverse world. Indeed, by grappling with their privilege, students can become partners in the pursuit of social change (Vaccaro, 2010).

Nora and Cabrera (1996) suggest that rewards can be institutionally established for faculty who commit themselves to quality, multicultural classroom experiences and improving support functions related to campus climate. It is equally important that institutions do not allow for faculty to be *penalized* for such efforts. Dee and Daly (2012) assert that faculty members should be prepared for the conflict that is likely to be produced by the empowering of multiple voices in learning environments and should expect to be the targets of hostility from

students who feel the discomfort of being decentered in learning for the first time. Female faculty of color and lesbian, gay, bisexual, and transgender faculty experience greater resistance challenges to authority from privileged students (Gayles et al., 2015). Higher education administrators need to have good institutional policies in place to be sure faculty are empowered in the classroom and are insulated from criticisms derived from creating challenging learning environments.

Creating and sustaining welcoming and supportive campus climates for admitted students cannot be done without an understanding of which specific aspects of the campus community members find unwelcoming (Vaccaro, 2012). Institutional policies and procedures are vital to the ways students make meaning of themselves in the context of campus climate (Vaccaro et al., 2015) and so it is crucial that policies and procedures now account for how the campus community engages with each other online. Institutions must be conscious of how the ubiquity of social media and the prevalence of hate speech posted by sometimes anonymous users on these platforms changes the way staff, administrators, and faculty will need to support students of color and others on campus (Gin et al., 2017). Some privileged students find it easy to disengage from initiatives to advance equity on campus (Vaccaro, 2010) and this disengagement is increasingly problematic in the internet age as these students gain new platforms for voicing resistance to institutional efforts. As such, it is no longer sufficient for retention strategies aimed at promoting social integration to simply account for physical interactions among students.

Diverse Faculty and Administrators

Tinto (2010) is clear in his belief that academic support is the most important type of support that students receive in college and that the most important place for academic support to occur is in college classrooms. Since academic activities largely take place in classrooms, it follows that faculty, who wield tremendous power in classrooms, are key to institutional efforts to increase student retention (Tinto, 2010). In terms of campus climate, increasing structural diversity of faculty, staff, and administrators is typically an initial step among these institutional efforts (Hurtado et al., 1998). To advance the goal of increased structural diversity, many institutions have hired a chief diversity officer. Yet Bradley et al. (2018) found such hires have not increased structural diversity at the faculty or administrative levels and assert that for universities with shared governance and hiring tasked to individual departments, it is unclear how structural diversity can be influenced at the executive level. Even for institutions that have been successful in increasing structural diversity, Rankin and Reason (2005) point out that while this step is important, it is not a singular catalyst for all positive student outcomes.

Research-intensive institutions of higher education have the most resources available to recruit and retain faculty of color (Bradley et al., 2018). Yet, these faculty are disproportionately employed at less prestigious institutions of higher education, less likely to be promoted, and unevenly distributed within academic departments (Delgado Bernal & Villalpando, 2010). This contributes to rendering the scholarship and knowledge of faculty of color to the margins of

academia. This rendering deprives students of color at many colleges and universities of cultural resources that can be empowering and nurturing in the face of oppressive institutional conditions (Delgado Bernal & Villalpando, 2010). Administrators must ensure that mentorship is available for assistant professors of color and make sure that tenure and promotion policies are inclusive and reflective of cultural assets (Martinez et al., 2016). In a study of the success of undergraduate Black men in STEM programs at Morehouse, Gasman et al. (2017) found that students benefited greatly from the mentorship and advice given by faculty of color, who serve as role models in fields in which the number of Black professionals is small.

Academic advising

Many students enter higher education with both an immediate need to confront complex challenges and high levels of uncertainty about their future and collaborative academic advising can help ensure seamless experiences for such students (Ackerson & Burnside, 2020). A Tyton Partners (2020) study of institutional retention found a strong correlation between recent gains in retention and high scores on a survey of collaboration between academic advising and student support units. As the importance of timely undergraduate degree completion has increased, so has the need for institutions to formalize the relationships between students and those who can lend expert advice on the process for completing the requirements for graduation. Xu and Webber (2018) find that Black students are more likely to be retained when they perceive an institutional commitment to academic quality and suggest that quality academic

advising is central to that perception. A study of first-generation college students by Swecker et al. (2013) found that for each academic advising meeting a student attended during the first year of college, the chance that the student returned to the institution for a second year increased by 13%. One way to ensure academic advising is maximizing institutional undergraduate retention is to integrate career counseling so that student goal commitment is strengthened through advising meetings (Xu & Webber, 2018). Another important aspect of academic advising is that advisors must discuss both course selection and faculty selection with students, given that instructor organization, preparation, and clarity can all be linked with student persistence and institutional retention (Braxton et al., 2000).

Living-learning communities

Gabelnick et al. (1990) define a learning community as a group of students for whom curriculum is purposefully linked to maximize coherence in learning and interaction with peers and faculty. In a study of sense of belonging, Hoffman et al. (2002) determined learning communities to increase both social and academic integration for undergraduates at a single institution. A recent study of first-generation college students found that those placed in living-learning communities (LLCs) had a better self-perception of their social and academic transition to college than those who were assigned to campus housing via a more traditional, less intentional process (Inkelas et al., 2007). Studies have also shown that living-learning communities can be particularly helpful for students in the disciplines of science, technology, engineering, and math

(STEM). In one study, women who were seeking a degree in a STEM field and assigned to a living-learning community were significantly more likely to earn a degree in a STEM field than those seeking the same degrees outside of an LLC (Maltby et al., 2016).

Summer and Winter Terms

A qualitative study of American students who withdrew from a four-year institution of higher education in the US before earning a bachelor's degree found that these students would have been more likely to persist toward a degree if there were more courses available that provide flexibility in scheduling (Johnson & Rochkin, 2009). In a case study of how three four-year institutions in various regions of America were able to successfully implement a mini semester in between fall and spring semesters, Harkness et al. (2014) noted that higher education administrators looking to improve student access to courses and enhance pathways to graduation should focus on the addition of a winter term as a primary consideration.

Summer terms are one of the longest-standing features of higher education, yet institutional administrators, policymakers, and academic researchers rarely conceive of them as retention interventions (Attewell & Jang, 2013). In a study of institutional and student factors related to degree completion, Attewell et al. (2012) found that first-year students who took a summer course ahead of sophomore year were much more likely to eventually earn a bachelor's degree. Similarly, Attewell and Jang (2013) found that students who take summer classes in between their first and second year of higher education

attendance are about seven percentage points more likely to graduate within six years and that students with lower college GPAs benefit the most from summer attendance in terms of likelihood of degree completion. Adelman (2006) found that while summer enrollment does seem to benefit all students, African Americans who earn more than four credits by way of summer classes along their path to graduation reduce their completion gap with White students by nearly 10 percentage points.

Factors Related to Student Persistence

This section will provide an overview of the literature related to factors that affect student persistence. First, I will review studies related to the factors of family background and demographics, such as race and gender, that Tinto (1975, 1993) theorizes influence how students integrate at institutions of higher education. I will then discuss student issues more related to student finances, which have become more prevalent barriers to student persistence since Tinto first authored his model.

Gender

According to the U.S. Department of Education (2019), for the cohort of first-time, fulltime undergraduates that began higher education attendance in 2012, the six-year graduation rate was 65 percent for females and 59 percent for males; it was higher for females at both public and private nonprofit institutions, but just barely higher for males at for-profit institutions. In Ishitani's (2006) study of degree completion, females were 56% more likely than males to graduate within four years. Eitel and Martin (2009) found that financial issues force first-

generation female students to compromise on career goals and delay time to degree completion.

Across multiple studies, women students are more likely to actively seek out interactions with faculty and have more positive experiences during those interactions (Hagedorn et al., 2000; Ryan et al., 1994). The aligns with the finding in Bean's (1980) study that men were more likely to have dropped out because of poor academic performance and academic boredom. One potential way to counteract potential academic boredom among college males is to increase campus diversity, given Strayhorn's (2008) finding that diverse campuses are more likely to facilitate sense of belonging for both Black and White men. While women students are now generally more successful in higher education by metrics of degree completion (U.S. Department of Education, 2020), Rankin and Reason (2005) found that White, women students report higher rates of experiencing gender harassment. Institutions of higher education can be intentional about reducing gender harassment on campus by increasing the number of relevant educational opportunities available to students, such as gender and women's studies courses (Rankin & Reason, 2008).

Financial Literacy

In the context of over $1 trillion in student debt, college enrollment is now a lottery with large, expected gains, but also significant probabilities of negative returns (Avery & Turner, 2012). To make informed college enrollment decisions, Avery and Turner (2012) argue that individuals now require substantial information regarding expected collegiate attainment, the present discounted

value of costs of college attendance, and their own earning potential. Yet, high school and college students have a higher-than-average failure rate on the most basic financial literacy tests and, as of 2012, only 17 states in America required the completion of a financial literacy course for graduation from high school (Brown et al., 2013). The key to ensuring financially literate high school students is modification of middle school curriculum. Peng et al. (2007) and Mandell and Klein (2009) found no long-term effects on financial knowledge for students who take a financial literacy course in high school. Mandell (2006), meanwhile, found that middle school students benefited substantially from a financial literacy seminar within school curriculum and the largest gains in financial knowledge were obtained by the youngest students. This is consistent with assertion of Kelchen and Goldrick-Rab (2015) that the systematic dissemination of general information related to higher education attendance should begin in middle school, as already does the track to college-level math. While less is known about how to increase the financial literacy of college students, there are numerous findings regarding how a lack of financial literacy manifests in college enrollment decision processes.

About 20% of all high school seniors do not believe it is acceptable to borrow money for education (Boatman et al., 2017). This is especially problematic considering that Horn et al. (2003) find that 11th grade students and their parents overestimate the cost of college by roughly 70%. Students who refuse to use even minimal debt financing can be declining higher education attendance that would otherwise lead to significant financial returns and this

contributes to generational gaps in wealth attainment because of foregone income (Boatman et al., 2017). This is consistent with argument by Bowen et al. (2009) that students who attend a less selective institution of higher education than their qualifications merit become less likely to achieve degree completion. There is evidence that among this type of student, racial minorities and low-income families are overrepresented. Cunningham and Santiago (2008) find that Asian and Hispanic college students are less likely to borrow and therefore more likely underinvest in higher education attendance because of loan aversion. Among high school and community college students, dependents of college attendees are less loan averse than their peers and Hispanic and Black students are more likely to be loan averse than White students (Boatman et al., 2017).

While financial literacy is clearly demonstrated to be an important determinant of college student success in the neoliberal context, Shermer (2017) notes that it is only useful to students who are discerning among enrollment decisions that may actually yield a positive educational and financial outcome. Students who have familial obligations, experience poor K-12 schooling, and already need to work to support themselves are unlikely to make more informed decisions because of having access to, and an ability to understand, data related to higher education attendance (Shermer, 2017).

Undergraduate Employment

According to Broton et al. (2016) nearly 75% of all undergraduates work for income while enrolled at an institution of higher education. The increase in the rate of undergraduate employment has been consistent with the increase in

higher education tuition costs over the past 50 years (Bowen et al., 2009; Goldrick-Rab, 2016). The rise in undergraduate employment is concentrated among college students who are younger and enrolled in a full-time course load (Scott-Clayton, 2012; Turner, 2004). Students from lower-income families are more likely to work while enrolled at a college or university than their more affluent peers (Perna, 2010; Walpole, 2003). Studies find that students who juggle work responsibilities and college attendance earn fewer credits (Darolia, 2014), achieve a lower GPA (DeSimone, 2008; Stinebrickner & Stinebrickner, 2003), and are delayed in degree completion (Bound et al., 2012). Yet, Vaccaro et al. (2015) point out, a workplace can promote the development of various forms of human, social, and cultural capital for employed students. This suggests that work-study opportunities, perhaps the oldest federal intervention to promote higher education access and persistence for students in need of financial assistance (Shermer, 2018), may be ideal in providing students benefits of workplace environments while limiting time spent away from campuses.

From Learners to Consumers

After his administration's efforts to federally fund operating costs for institutions of public higher education died in congress, President John F. Kennedy warned that continued reliance on tuition and fees to run these schools would lead people to perceive higher education as a private luxury, rather than a public good and civic necessity (Shermer, 2018). Rodgers (2018) asserts that neoliberalism has since transformed institutions of higher education into factories and attendees into objects with price tags in search of a future competitive

advantage in the job market. Tinto (1993) theorizes that institutional commitment can be developed in many ways and thus may be only partially explained by student perceptions of post-graduation career prospects. As students have become encouraged, perhaps even forced, to view themselves as consumers of higher education, they have become more likely to approach college attendance as a commercial transaction (Naidoo & Jamieson, 2005).

Naidoo and Jamieson (2005) go on to note that since consumers are generally external to an organization, students who take on the consumer identity on campus tend to place themselves outside of the intellectual community of colleges and universities and instead perceive themselves as passive recipients of education and credentials. Students who perceive themselves as external to a community may not have much hesitancy to disassociate themselves from it. According to Newman and Couturier (2001) when institutions of higher education treat students as consumers, students respond by attending multiple institutions to accomplish their academic goals. Molesworth et al. (2009) point out that college and university communities pervaded by the student-as-consumer mentality experience tension between the conception of higher education as financial investment as opposed to an undertaking of rigorous intellectual development. This can be especially problematic in terms of retention given Tinto's (1993) assertion that students with low levels of institutional commitment are more likely to drop out in the face of the first sign of academic adversity. Naidoo and Jamieson (2005) hypothesize that consumerism actually reduces innovation due to this type of waning student motivation to learn and instead

promotes a feeling of academic privilege among those who feel entitled to credentials because of the cost paid for attendance.

CHAPTER 3: METHODOLOGY

The study explored the relationship between student characteristics and timely degree completion for six cohorts of first-time, fulltime undergraduates amid a surge in the four-year graduation rate at that institution. The inclusion of student-level variables was guided by a conceptual framework that combines Tinto's (1975, 1993) theory of college student departure with a recognition that finances have come to play a central role in how students now navigate higher education. I used logistic regression to fit a model of timely degree completion using variables related to student family background, prior schooling, institutional commitment and goal commitment, and finances.

Conceptual Framework

Tinto (1975, 1993) posits that instances of voluntary college student departure are the result of students perceiving to be improperly integrated on campus either socially or academically or their inability or unwillingness to adapt institutional goals and values as their own. Academic integration for a student is a perceived congruence of their own abilities, skills, and interests with the academic expectations of an institution and a sufficiency of personal connections with peers, faculty, and staff within the academic system of the institution (Tinto, 1975, 1993). Similarly, student social integration on a campus is a perceived sufficiency of social interactions with other members of the university community and a personal agreement with the dominant, collective value system at the institution (Tinto, 1975, 1993).

Beekhoven et al. (2002) note that while there is theoretical importance to separating the constructs of academic integration and social integration, it is very difficult to do in the practice of research and so researchers may combine the two into one complex construct. In addition to not operationalizing academic and social integration as separate constructs, this study will also follow the suggestion of Lee at al. (2018) and refocus the framing of integration as how well students are supported by an institution, rather than how well individuals assimilate into dominant institutional culture. This is especially important given that some students, especially minoritized students, may seek support from both home systems and campus systems in persisting toward graduation, rather than fully integrating into campus systems (Guiffrida, 2006). Given the rising costs of tuition and fees, it is reasonable that the onus of student integration is shifted toward institutional responsibility to provide ample supports.

Saez and Zucman (2020) assert that the period of 1980 to 2020 has been characterized by extraordinary wealth accumulation by the upper class in the United States. The wealth inequality brought about by this development was unforeseen and unaccounted for by Tinto (1975) and others theorizing about the nature of and processes related to college student persistence in the mid and late 1970s. As a result, a shortcoming of Tinto's (1975) model is that it fails to properly account for the tremendous role that the rising cost of higher education and other financial factors external to colleges and universities can have in affecting student persistence (Xu and Webber, 2018). Indeed, in a more recent study of student persistence, Xu and Webber (2018) find that an inability to pay is

the only factor that increases the likelihood of dropout for all students, regardless of racial background.

In addition to increased financial strain for many students, higher education has changed in another important way since Tinto first began theorizing about student persistence. The neoliberal ethic of individualism now pervades all institutions of American society (Wacquant, 2010). Students socialized in this dominant, individualist culture are more likely to graduate high school with intrinsic motivations of autonomy and competency and an extrinsic motivation to eventually secure high-paying employment that are aligned with the norms of college environments (Guiffrida, 2006). Students who enter higher education after upbringing in a more collectivist-oriented culture, meanwhile, are more likely to be motivated to succeed in higher education by relatedness to others and social change, which can actually be negative predictors of college persistence (Guiffrida, 2006). Recognizing that student institutional commitment and goal commitment are shaped by varying intrinsic and extrinsic motivations that are acquired during upbringing provides a more comprehensive, multicultural understanding of student persistence (Guiffrida, 2006). It should be noted that one of the more common critiques of Tinto's (1975, 1993) model, that it is only applicable for traditional students at residential institutions (Lee et al., 2018), actually strengthens the case for the use of the model in this study, which has a sample of traditional college students at a primarily residential institution.

Research Design

I measured the change in student characteristics as predictors of timely degree completion at URI across cohorts by building a multilevel logistic regression model of degree completion with students grouped by cohort. If the relationship between student characteristics and timely degree completion changed as various retention interventions are implemented at URI, then I would expect to see much variance in timely degree completion to be attributed to the cohort level of the model. This was an exploratory study and so specific changes in the relationship between student-level factors and timely degree completion were not hypothesized. Global and national events made such student-level changes difficult to anticipate. Some students in this study entered URI during a time of national economic hardship while others enter as the country recovered, however slowly, from the recession. The alleviation of financial strain for some families over time that coincided with the student support initiatives undertaken at URI made hypothesizing changes at the student level difficult.

Setting

These data were collected at URI, a land- and sea-grant public research institution of higher education, which was founded in 1892, and is now regionally accredited by the New England Associated of Colleges and Schools. According to The Carnegie Classifications (2018), URI is a four-year, large, suburban, primarily residential, and selective institution. Based on Brown and Dancy's (2010) definition of a predominantly white institution, which is any institution of higher education for which White students comprise greater than 50% of the student body, URI is a predominantly white institution.

Sample

This study consisted of data from 17,371 first-time, fulltime undergraduates who began matriculating in a four-year bachelor's degree program at URI during the fall semester of each year between 2009 and 2014. The largest cohort, 2014, consisted of 3,085 students and the smallest, 2010, consisted of 2,664 (see Table 1).

Table 1

Students by Cohort

COHORT	Students
2009	2843
2010	2664
2011	2901
2012	2942
2013	2936
2014	3085

According to the Federal Student Aid Office (2019), the U.S. Department of Education defines an undergraduate student as full-time when the student expects to complete at least 24 college credits during instructional time within a given academic year. According to the Integrated Postsecondary Education Data System (IPEDS) (2019), the U.S. Department of Education defines first-time students as those who begin college attendance at the undergraduate level with no previous postsecondary experience aside from a prior summer term or credits earned from advanced standing.

Measures

Based on Tinto's (1975, 1993) model of college student departure, the independent variables of interest in this study, though they are all interrelated in meaningful ways, can be grouped into the following categories: family background, prior schooling, and goal commitment and institutional commitment. Additionally, student finances were added as a category of independent variables to account for the increases to the costs of attendance associated with higher education since the formulation of Tinto's (1975, 1993) model. The dependent variable was timely degree completion and will be fully defined later in this chapter.

Family Background

Family background was operationalized for each student as gender, ethnicity, and residency at the time of each student's application to URI. It must be noted that during the time that URI was collecting undergraduate application data for the 2009-2014 undergraduate cohorts, male and female, terms that describe biological differences between sexes, were used as a binder distinction of gender. Since URI used these terms as a representation of gender, that is how they were reported in this study. But the conflation of gender and sex, especially in that it excluded those whose identities are outside of the binary, was a limitation of this study. *MALE* is a dichotomous representation of each student's gender for which each individual in the study was coded either "male" (1) or "female" (0). Race and ethnicity were represented in the study as a vector of mutually exclusive, dichotomous variables including *BLACK, HISPANIC, ASIAN,*

2RACES, HAW_PI, AMER_IND, and *NOT_SPEC.* White students served as the reference group.

Student residency was another vector of mutually exclusive, dichotomous variables. This vector included *INSTATE* (value of 1 for a Rhode Island resident), *REG* (value of 1 for students who attended URI from specific New England states and were admitted into specific degree programs not offered at their in-state institutions, thus qualified for reduced tuition rates), *OUT_OF_STATE* (value of 1 for all students who reside in other US states but did not qualify for regional designation), and *OTCTR* (value of 1 for students who had permanent residency in another country prior to attending URI). This vector of information was conceptually important to the study because of the differing costs incurred by the respective groups of students based on the varying tuition rates. In-state students served as the reference group.

The final two variables used related to family background were two more binary indicators, *TD*, for students who are Talent Development (TD) scholars, and *FIRSTGEN,* for students who were the first in their immediate family to attend higher education. The TD program at the URI was created in 1968 as a response to the assassination of civil rights leader Malcolm X. Since then, the mission of the program has been to provide an alternative means of admission to the University for "disadvantaged" Rhode Island students. The inaugural TD class was represented by 13 first-time, fulltime students who would not have otherwise met traditional URI undergraduate admission standards. The program continues to annually conditionally admit about 300 first-time, fulltime students

who do not otherwise meet the university's admission standards. To be fully admitted, each TD scholar must pass all classes in the credit-bearing Talent Development Summer Success Program (TDSSP) held ahead of each fall semester. Students who pass their classes through the TDSSP are each awarded an academic scholarship that covers the cost of full-time fall and spring enrollment for up to five years.

FIRSTGEN was a transformation of two survey items from the MAP-Works survey. Students who reported, on separate questions, an educational level for their mother/female guardian and father/male guardian as high school diploma or less were then coded as 1 to signify them as first-generation college students. All other students were coded as 0. This variable was conceptually important in this study because of Ishitani's (2006) finding that first-generation undergraduates are much less likely to earn bachelor's degrees in four or five years than other students.

Prior Schooling

Pre-college schooling for each student was operationalized as *HS_GPA* (high school grade point average as weighted by URI), *SATVERBMATH* (SAT test scores), *CLASSRANK* (high school class rank), *CLASS_PERCENTILE* (high school class rank percentile), *CLASS_SIZE* (high school class size), and *TRANSFER_CRS (*transfer credits accepted by URI upon undergraduate admission into the institution). Students could earn such credits via the completion of AP courses in high school, dual enrollment collaborations between institutions of secondary education and postsecondary education, and/or

participation in other pre-college programs sponsored by institutions of higher education.

Goal Commitment and Institutional Commitment

Goal commitment refers to the degree to which a student is committed to earning a higher education degree (Tinto, 1975, 1993). In this study, it was labeled as *GOAL_COMMT* and operationalized for each student as the average of their answers on a Likert scale to five questions on the MAP-Works Survey related to level of educational aspiration and academic resiliency during their first year (See Appendix D). The Cronbach's α for the five survey items related to goal commitment (see Appendix E) ranged between .808 and .837 for each cohort.

Institutional commitment is defined as the degree to which a student is committed to earning a higher education degree at a specific institution (Tinto, 1975, 1993). In this study, it was labeled *INST_COMMT* and operationalized for each student based on an average of how they answered six questions on the MAP-Works Survey related to commitment to persisting at URI (See Appendix D). The Cronbach's α for the six survey items related to institutional commitment ranged between .861 and .882 for each cohort (see Appendix F).

Student Finances

Student finances were operationalized for each student as *EFC* (their expected family contribution to the cost of college attendance as it was declared upon application to URI), *PELL_YR1 (*a binary indicator of Pell Grant eligibility for year one), *PELL_AWARD* (first-year Pell award), *INST_AID* (financial aid

received from URI for their first year), *STATE_AID* (additional aid received from the State of Rhode Island), *NET_TUITION_PRICE* (the resulting first-year net tuition price after accounting for federal, institutional, and state of RI grants), *FED_LOANS* (total federal loans), and *HOURS_WORK* (the number of hours per week spent working as reported on the MAP-Works survey).

URI Colleges

The final group of student-level variables was the URI college they were each admitted into for their first semester. This vector of mutually exclusive, dichotomous variables, with a value of 1 (student started as a major in the college) or 0 (student did not start as a major in the college), included *AS* (for students admitted into the College of Arts & Sciences), *BUS* (for students admitted into the College of Business Administration), *CELS* (for students admitted into the College of Environment and Life Sciences), *EGR* (for students admitted into the College of Engineering), *HSS* (for students admitted into the College of Human Science and Services), *NUR* (for students admitted into the College of Nursing), *PHARM* (for students admitted into the College of Pharmacy), and *UCOLL* (for students admitted into URI's University College, which is a non-degree-granting college for students undecided on their major program of study). Each college had different admission standards and degree requirements that could have certainly influenced timely degree completion. The College of Arts & Sciences, the largest college by undergraduate enrollment at URI, served as the reference group.

Timely Degree Completion

The focus of this study was on which students graduated within four years amid the myriad retention strategies implemented to support student success within the timeframe of the study. Timely degree completion in this study was operationalized as whether a student attained a bachelor's degree from the University of Rhode Island within four years of the start of fulltime attendance at the institution. IPEDS (2019) defines normal time to completion as the amount of time necessary to complete all degree requirements according to an institution's catalog. The URI degrees pursued in this study all had a normal time to completion of four years. *GRAD_4* is a dichotomous, outcome variable with values of 0 (did not earn a bachelor's degree from URI within four years) or 1 (did earn a bachelor's degree from URI within four years).

Data Collection

The e-Campus data were requested and obtained from the URI Vice Provost of Enrollment Management. The MAP-Works survey data were requested and obtained from the URI Director of New Student Programs. The two excel files were merged into a single file using the individual study number for each student in the sample.

Dataset

The MAP-Works survey was developed in 1988 at Ball State University to gather quality student data and centralize it for those who share in the responsibility of fostering student success (Woosley & Jones, 2011). A reliability analysis of the factors developed by exploratory and confirmatory analysis of student responses to MAP-Works survey questions produced a Cronbach's

Alpha of .62 or greater for each factor (Woosley & Jones, 2011). The responses to the questions on the MAP-Works survey that were used to operationalize goal commitment and institutional commitment were appropriate for this data collection because questionnaires are an ideal instrument for collective quantitative data regarding how many individuals are of certain attitudes (Kitzinger, 1994). At URI, the administering of the MAP-Works survey to first-year students was recently discontinued.

The rest of these data for this study were obtained from e-Campus, an online database which URI used to maintain student data. The e-Campus data related to student demographics, finances, and prior schooling were drawn from student admission applications. URI also used e-Campus to track degree conferrals and so timely degree completion data were also derived from it. All covariates in the study were entered on a standardized scale for interpretation purposes.

Empirical Strategy

Since my research question was focused on timely degree completion, a binary outcome, I used multilevel logistic regression to model the relationship between student characteristics within each cohort and the probability of earning a bachelor's degree from URI within four years of the start of attendance. A multilevel logistic model aims to predict the probability that an event will occur, but it also takes into account how data might be nested (Sommet & Morselli, 2017). I started with a null model, which presented the fixed intercept, a general constant term, and the random intercept variance for the model. In the null

model, the fixed intercept corresponds to the probability of timely degree completion for all students in the sample because no predictors are included. The probability of timely degree completion for the students in this study was 48%.

The null model also produced the calculation of the intraclass correlation coefficient (ICC). The calculation of the ICC uses the random intercept variance to quantify the degree of the homogeneity of timely degree completion within the cohorts. The ICC can be interpreted as the percentage of the variance of timely degree completion that can be explained by differences between cohorts (Sommet & Morselli, 2017). From this it was then inferred how much of the variance in timely degree completion was explained by differences within cohorts. The ICC for this null model was .0203 (see Table 2), which means that only about 2% of the variance in timely degree completion could be attributed to differences between cohorts.

Table 2

Multilevel Model ICC

Groups	Name	SD	Variance	ICC
COHORT	(Intercept)	0.144	0.0207	0.0203
Residuals		1.000	1.0000	.

Such a small amount of variance explained by cohort differences required a change in empirical strategy to better understand the phenomenon of the increase in the four-year graduation rate among first-time, fulltime undergraduates at URI. Since there were negligible differences among the cohorts in this study in terms of explaining the probability of timely degree

completion, accounting for when the students entered URI was no longer considered of paramount importance. Thus, instead of using a multilevel model to discern which student-level factors explained 2% of variance at the cohort level, I used a binomial logistic regression to determine which student characteristics were predictive of timely graduation for all students in the study. Binomial logistic regression is an appropriate statistical analysis for describing relationships between a binary categorical outcome variable and multiple predictor variables (Peng et al., 2002).

To build the model, I first fit a model of timely degree completion for each block of student-level variables: family background, prior schooling, institutional and goal commitment, and student finances. For each block, variables were added one at a time and variables that reduced the deviance statistic remained in consideration for inclusion in the final model. Predictors that, when added to the model, decrease the deviance statistic by more than 1 can be interpreted as making the model a better fit to the data (Singer & Willet, 2003). Each of the family background variables reduced the deviance statistic by more than 1 (See Table 3).

Table 3

Family Background Model Fit

Variable	Deviance
1 MALE	22369
2 RACE	21886
3 TD	21709
4 RESIDENCY	21694

Table 3

Family Background Model Fit

Variable	Deviance
5 FIRSTGEN	21683

For prior schooling, *HS_GPA*, *TRANSFER_CRS, SATVERBMATH*, and *CLASS_SIZE* all reduced the deviance statistic by more than 1 (See Table 4).

Table 4

Prior Schooling Model Fit

Variable(s)	Deviance
1 HS_GPA	13595
2 TRANSFER_CRS	13544
3 SATVERBMATH	13517
4 CLASS_SIZE	13510
5 CLASSRANK, CLASS_PERCENTILE	13507

But *CLASSRANK* and *CLASS_PERCENTILE* only reduced the deviance statistic by more than 1 when added together to the model. In doing this, the tolerance statistic for each variable dropped below 0.2 (See Table 5). Menard (1995) suggests that a tolerance statistic below 0.2 indicates highly correlated variables. Thus, *CLASSRANK* and *CLASS_PERCENTILE* were removed from the model.

Table 5

Prior Schooling Collinearity

Collinearity Statistics	VIF	Tolerance
HS_GPA	2.30	0.435
TRANSFER_CRS	1.02	0.977
SATVERBMATH	1.19	0.842
CLASS_SIZE	3.69	0.271

Table 5

Prior Schooling Collinearity

Collinearity Statistics	VIF	Tolerance
CLASSRANK	8.28	0.121
CLASS_PERCENTILE	6.76	0.148

Both *INST_COMMT* and *GOAL_COMMT* reduced the deviance statistic by more than 1 (See Table 6).

Table 6

Institutional and Goal Commitment Model Fit

Variable	Deviance
INST_COMMT	20303
GOAL_COMMT	20256

Of the student finances variables, only *EFC, INST_AID, FED_LOANS,* and *PELL_AWARD* reduced the deviance statistic by more than 1 (See Table 7). But *EFC* and *PELL_AWARD* each had a variance inflation factor (VIF) greater than 10 (See Table 8).

Table 7

Student Finances Model Fit

Variable	Deviance
EFC	3353
INST_AID	3331
PELL_YR1	3330
HOURS_WORK	3329
FED_LOANS	3324
STATE_AID	3324
NET_TUITION_PRICE	3323
PELL_AWARD	3293

Table 8

Student Finances Collinearity

Collinearity Statistics	VIF	Tolerance
EFC	10.33	0.0968
PELL_YR1	1.00	1.0000
HOURS_WORK	1.03	0.9703
INST_AID	1.71	0.5854
PELL_AWARD	11.75	0.0851
STATE_AID	1.20	0.8359
FED_LOANS	1.16	0.8607
NET_TUITION_PRICE	2.37	0.4218

According to Bowerman and O'Connell (1990), variables with VIF above 10 are highly correlated and should be considered for removal from the model. When multicollinearity exists between predictors, there is no statistical basis for determining which should be removed from regression analysis (Field, 2014). Since *EFC* was a variable that has implications for students beyond those who were recipients of Pell Grants, it, rather than *PELL_AWARD*, remained in the model.

After this preliminary analysis for each group of variables, I began adding the remaining variables into a logistic regression model with *COHORT* as a factor. Recall from the null multilevel model that differences among cohorts accounted for 2% of variability in timely degree completion. Also, because of the theoretical importance of *PELL_YR1* and *HOURS_WORK,* these two variables were added again as the final variables in the model to see if they had a meaningful statistical relationship with timely degree completion after accounting

for all other theoretically important student factors. With all these variables combined with *COHORT*, the following did not reduce the variance statistic by more than one: *CLASS_SIZE, SATVERBMATH,* and *FED_LOANS* (see Table 9). Both *PELL_YR1* and *HOURS_WORK* reduced the deviance statistic by more than one. Removing *CLASS_SIZE, SATVERBMATH,* and *FED_LOANS* resulted in Model 1:

(1) logit (p) =

$$\beta_0 + \beta_1 COHORT_i + \beta_2 MALE_i + \beta_3 RACE_i + \beta_4 TD_i + \beta_5 FIRSTGEN_i + \beta_6 RESIDENCY_i + \beta_7 HS\_GPA_i + \beta_8 TRANSFER\_CRS_i + \beta_9 INST\_COMMT_i + \beta_{10} GOAL\_COMMT_i + \beta_{11} EFC_i + \beta_{12} INST\_AID_i + \beta_{13} COLLEGE_i + \beta_{14} PELL\_YR1_i + \beta_{15} HOURS\_WORK_i$$

Table 9

Model 1 Fit Statistics

Variable	Deviance	R^2_{McF}
COHORT	9611	0.00392
MALE	9582	0.00692
RACE	9259	0.04047
TD	9151	0.05162
FIRSTGEN	9140	0.05275
RESIDENCY	9128	0.05406
HS_GPA	8884	0.07936
TRANSFER_CRS	8853	0.08251
CLASS_SIZE	8853	0.08252
SATVERBMATH	8852	0.08262
INST_COMMT	8737	0.09453
GOAL_COMMT	8724	0.09587
EFC	8687	0.09974
INST_AID	8652	0.10333
FED_LOANS	8651	0.10349
COLLEGE	8523	0.11673

Table 9

Model 1 Fit Statistics

Variable	Deviance	R^2_{McF}
PELL_YR1	8505	0.11861
HOURS_WORK	8491	0.12004

After removing the variables that did not reduce the deviance statistic by more than 1, I included the two-way interaction effect between each remaining variable and *COHORT* (See Table 10). The result was Model 2:

(2) logit(p) =

$$\beta_0 + \beta_1 COHORT_i + \beta_2 MALE_i + \beta_3 RACE_i + \beta_4 TD_i + \beta_5 FIRSTGEN_i +$$

$$\beta_6 RESIDENCY_i + \beta_7 HS\_GPA_i + \beta_8 TRANSFER\_CRS_i + \beta_9 INST\_COMMT_i +$$

$$\beta_{10} GOAL\_COMMT_i + \beta_{11} EFC_i + \beta_{12} INST\_AID_i + \beta_{13} COLLEGE_i + \beta_{14} PELL\_YR1_i +$$

$$\beta_{15} HOURS\_WORK_i + \beta_{16} COHORT\ x\ MALE_i + \beta_{17} COHORT\ x\ RACE_i +$$

$$\beta_{18} COHORT\ x\ TD_i + \beta_{19} COHORT\ x\ FIRSTGEN_i + \beta_{20} COHORT\ x\ RESIDENCY_i +$$

$$\beta_{21} COHORT\ x\ HS\_GPA_i + \beta_{22} COHORT\ x\ TRANSFER\_CRS_i +$$

$$\beta_{23} COHORT\ x\ INST\_COMMT_i + \beta_{24} COHORT\ x\ GOAL\_COMMT_i +$$

$$\beta_{25} COHORT\ x\ EFC_i + \beta_{26} COHORT\ x\ INST\_AID_i + \beta_{27} COHORT\ x\ COLLEGE_i +$$

$$\beta_{28} COHORT\ x\ PELL\_YR1_i + \beta_{29} COHORT\ x\ HOURS\_WORK_i$$

Interaction effects are new variables that are the product of two other variables and allow for researchers to account for variance among subgroups (Gelman & Hill, 2006). In this study, the use of interactions with all main effects and *COHORT* allowed for an examination of whether any student-level variables differed in relationship with timely degree completion at URI based on when undergraduates first began attendance at the institution.

Table 10

Model 2 Fit Statistics

Variable	Deviance	R^2_{McF}
COHORT	9611	0.00392
MALE	9582	0.00692
RACE	9259	0.04047
TD	9151	0.05162
FIRSTGEN	9140	0.05275
RESIDENCY	9128	0.05406
HS_GPA	8884	0.07936
TRANSFER_CRS	8853	0.08251
INST_COMMT	8739	0.09435
GOAL_COMMT	8725	0.09575
EFC	8687	0.09972
INST_AID	8652	0.10331
COLLEGE	8525	0.11649
PELL_YR1	8507	0.11836
HOURS_WORK	8493	0.11978
COHORT✻MALE	8470	0.12220
COHORT✻RACE	8443	0.12499
COHORT✻TD	8435	0.12582
COHORT✻FIRSTGEN	8432	0.12612
COHORT✻RESIDENCY	8419	0.12748
COHORT✻HS_GPA	8413	0.12808
COHORT✻TRANSFER_CRS	8403	0.12913
COHORT✻INST_COMMT	8398	0.12964
COHORT✻GOAL_COMMT	8391	0.13044
COHORT✻EFC	8382	0.13135
COHORT✻INST_AID	8361	0.13353
COHORT✻COLLEGE	8336	0.13612
COHORT✻PELL_YR1	8321	0.13767
COHORT✻HOURS_WORK	8317	0.13802

Based on the decreases to the deviance statistic, the inclusion of each interaction effect did slightly improve model fit.

CHAPTER 4: FINDINGS

In this chapter I first report the significant, main effects between student variables and timely degree completion. In this section I will refer to a table of the parameter estimates for Model 1. I will then present the interaction effects between *COHORT* and each student variable that have a significant relationship with timely degree completion. For this part of the analysis, one new parameter was created for each cohort (aside from the reference group of 2009) that is the product of the cohort effect and the effect of one of the student variables. Note in Table 11 that the cohorts are labeled numerically and in ascending order, starting with 2010 as *COHORT1* and ending with 2014 as *COHORT5*. Further discussion of these findings is provided in chapter 5.

Main Effects

The binomial logistic regression analysis shows that a number of student-level variables had a significant relationship with the probability of earning a bachelor's degree at URI within four years (See Table 11). The fifth column in the table presents, exp(B), or adjusted odds ratio (aOR), for each variable in the model. Adjusted odds ratio is a representation of the change in odds of the observation of the outcome variable based on a unit change in the predictor variable (Field, 2014).

Table 11

Model 1 Parameter Estimates

Names	Effect	Estimate	SE	exp(B)	z	p
(Intercept)	(Intercept)	0.60298	0.0664	1.828	9.0772	< .001

Names	Effect	Estimate	SE	exp(B)	z	p
COHORT1	2010 - 2009	-0.37623	0.0830	0.686	-4.5336	< .001
COHORT2	2011 - 2009	-0.25275	0.0780	0.777	-3.2399	0.001
COHORT3	2012 - 2009	-0.21635	0.0770	0.805	-2.8093	0.005
COHORT4	2013 - 2009	-0.10047	0.0768	0.904	-1.3079	0.191
COHORT5	2014 - 2009	-0.19149	0.0763	0.826	-2.5097	0.012
MALE1	1 - 0	-0.30788	0.0472	0.735	-6.5287	< .001
BLACK1	1 - 0	-0.40360	0.1109	0.668	-3.6397	< .001
HISPANIC1	1 - 0	-0.51980	0.1148	0.595	-4.5280	< .001
ASIAN1	1 - 0	-0.27528	0.1186	0.759	-2.3219	0.020
2RACES1	1 - 0	-0.24796	0.0876	0.780	-2.8319	0.005
AMER_IND1	1 - 0	-1.00158	0.5437	0.367	-1.8422	0.065
HAW_PI1	1 - 0	-1.49048	1.1501	0.225	-1.2959	0.195
NOT_SPEC1	1 - 0	-0.04543	0.0751	0.956	-0.6046	0.545
TD1	1 - 0	-0.62043	0.0956	0.538	-6.4894	< .001
FIRSTGEN1	1 - 0	-0.10171	0.0676	0.903	-1.5036	0.133
OUT_OF_STATE1	1 - 0	-0.29931	0.0591	0.741	-5.0678	< .001
REG1	1 - 0	0.14392	0.1062	1.155	1.3548	0.175
OTCTR1	1 - 0	0.55820	0.5821	1.748	0.9589	0.338
HS_GPA	HS_GPA	0.35332	0.0247	1.424	14.3040	< .001
TRANSFER_CRS	TRANSFER_CRS	0.12015	0.0233	1.128	5.1521	< .001
INST_COMMT	INST_COMMT	0.28338	0.0226	1.328	12.5658	< .001
GOAL_COMMT	GOAL_COMMT	0.07411	0.0224	1.077	3.3096	< .001
EFC	EFC	0.10648	0.0261	1.112	4.0808	< .001
INST_AID	INST_AID	0.16642	0.0268	1.181	6.2045	< .001
BUS1	1 - 0	0.55270	0.0774	1.738	7.1377	< .001
HSS1	1 - 0	0.40098	0.0704	1.493	5.6977	< .001
UCOLL1	1 - 0	-0.21537	0.0690	0.806	-3.1207	0.002
EGR1	1 - 0	-0.37714	0.0803	0.686	-4.6962	< .001
NUR1	1 - 0	-0.06766	0.0917	0.935	-0.7375	0.461
CELS1	1 - 0	-0.00489	0.0693	0.995	-0.0705	0.944
PHARM1	1 - 0	-0.14365	0.1847	0.866	-0.7777	0.437
PELL_YR11	1 - 0	-0.31782	0.0557	0.728	-5.7041	< .001
HOURS_WORK	HOURS_WORK	-0.09571	0.0226	0.909	-4.2435	< .001

The variables of *HS_GPA, TRANSFER_CRS, INST_COMMT, GOAL_COMMT, EFC, INST_AID,* and *HOURS_WORK* were standardized in scale so that the associated fixed effects in the model could be interpreted as the changes in the odds of timely degree completion based on a one standard deviation difference for each variable.

As expected, after fitting the multilevel null model, *COHORT* (χ^2=25.971, p < .001) explained a small amount of variance in timely degree completion for students in the study. It is notable that, with 2009 as the reference group, the estimate for every other cohort was negative. This signals that the difference in odds of timely graduation between the reference group of students (White, non-TD women who enter the College of Arts and Sciences with average prior schooling, financial metrics, institutional commitment, and goal commitment) and all other students was greatest for the 2009 cohort.

When accounting for the rest of the factors in the model, men (aOR=0.735; p < .001) were 26.5% less likely to achieve timely degree completion than women. In terms of race, the estimate was negative for each minoritized group and significant for *BLACK* (aOR=0.668; p < .001), *HISPANIC* (aOR=0.595, p < .001), *ASIAN* (aOR=0.759; p < .05), and *2RACES* (aOR=0.78; p <.01). In the model, *TD* (aOR=0.538, p < .001) students were about 46% less likely to earn a degree from URI within four years. Of the residency variables, only *OUT_OF_STATE* (aOR=0.741; p < .001) was significant. In the model, students who originate from US states other than Rhode Island were about 26% less likely to achieve timely degree completion. This is a surprising result given

that such students in the study had a higher four-year graduation rate than Rhode Island residents and international students (see Table 12).

Table 12

Timely Degree Completion by Residency

	Residency	GRAD_4
Mean	INSTATE	0.444
	OTCTR	0.459
	OUT_OF_STATE	0.521
	REG	0.575

It was notable that once other student factors are accounted for, out-of-state students then became less likely to graduate within four years.

HS_GPA (aOR=1.424; $p < .001$) had the highest odds ratio that is significant for any question predictor in the model. A one-unit change in high school GPA correlated with an 42% change in the odds of achieving timely degree completion. A one standard deviation difference in *TRANSFER_CRS* (aOR=1.128; $p < .001$) had a smaller effect, as the associated change in probability of graduation within four years was about 13%. The average of the MAP-Works survey items for *INST_COMMT* (aOR=1.328; $p < .001$) and *GOAL_COMMT* (aOR=1.077; $p < .01$) were both positively correlated with timely degree completion.

The probability that a student graduated within four years changed by about 11% with a unit change in *EFC* (aOR=1.112; $p < .001$) at the time of admission. A difference of one standard deviation of self-reported *HOURS_WORK* (aOR=0.909; $p < .001$) during the first semester at URI changes

the probability of timely graduation by about 9%. A unit change in *INST_AID* (aOR=1.181; $p < .001$) during year one at URI was associated with about a 18% difference in the probability of timely degree completion. Students who were eligible for a Pell Grant upon admission to URI were about 27% less likely to achieve timely degree completion.

Interaction Effects

While all the two-way interaction effects in the model improved model fit, only a few had a significant and precise relationship with timely degree completion. The estimate of the interaction effect between *COHORT* and *MALE* was positive for each cohort and significant for *COHORT1 x MALE* (aOR=1.4961; $p < .05$, *COHORT2 x MALE* (aOR=1.6042; $p < .01$), and *COHORT4 x MALE* (aOR=1.7170; $p < .01$). This finding suggests that URI did make some progress in increasing the rate of timely degree completion for students categorized as male as these cohorts entered and exited the institution.

The estimate of the interaction effect between *COHORT* and *REG* and *COHORT* and *OUT_OF_STATE* was negative for each cohort and significant for *COHORT2 x OUT_OF_STATE* (aOR=0.5058; $p < .01$), *COHORT3 x OUT_OF_STATE* (aOR=0.4577; $p < .001$), and *COHORT5 x OUT_OF_STATE* (aOR=0.4674; $p < .001$). This finding suggests that Rhode Island residents were a key subgroup in increasing the four-year graduation rate over the period covered in this study.

The estimate of the interaction effect between *COHORT* and *HS_GPA* was negative for each cohort and significant for *COHORT5 x HS_GPA*

(aOR=0.8261; $p < .05$). This finding suggests that the positive, correlational relationship between *HS_GPA* and timely degree completion became weaker over the time of the study. Conversely, the strength of the relationship between *INST_COMMT* and earning a bachelor's degree from URI increased over the time elapsed in the study. The estimate of the interaction effect between *COHORT* and *INST_COMMT* was positive for each cohort and significant for *COHORT3 x INST_COMMT* (aOR=1.229; $p < .05$) and *COHORT4 x INST_COMMT* (aOR=1.191; $p < .05$). The interaction effect between *COHORT* and *GOAL_COMMT* was both positive and significant for only one cohort, *COHORT1* (aOR=1.245; $p < .05$). This is noteworthy in that *COHORT1* (2010) was the only cohort with a lower four-year graduation rate than the reference cohort of 2009. When URI's four-year graduation rate was lowest in the study, a student's commitment to earning a bachelor's degree was most strongly related with timely degree completion.

The estimate of the interaction effect between *COHORT* and *INST_AID* was positive for each cohort and significant for *COHORT3 x INST_AID* (aOR=1.219; $p < .05$), *COHORT4 x INST_AID* (aOR=1.224; $p < .05$), and *COHORT5 x INST_AID* (aOR=1.49; $p < .001$). The average *INST_AID* award that students received increased dramatically over time in the study (See Table 13).

Table 13

INST_AID by Cohort

	COHORT	INST_AID
Mean	2009	5956

Table 13

INST_AID by Cohort

COHORT	INST_AID
2010	7048
2011	8342
2012	8503
2013	8709
2014	8950

That the positive relationship between *INST_AID* and timely degree completion strengthened as URI increased institutional financial aid spending has enormous implications for the future of the institution and the undergraduates who attend it.

CHAPTER 5: DISCUSSION

The findings of this study align with much of the existing literature regarding factors of student persistence (Allen et al., 2008; Bridgeman et al. 2000; Ishitani, 2006) and models of institutional retention (Bean, 1980; DesJardins et al., 2003; Oseguera & Rhee, 2009; Robbins et al., 2004; Titus, 2006) in the study of undergraduate degree completion. It is well understood that students of differing gender identity (Allen et al., 2008; Bridgeman et al., 2000; Ishitani, 2006), racial background (Hurtado & Ponjuan, 2005; Lundberg & Schreiner, 2004; Nora & Cabrera, 1996; academic preparation (Robbins et al., 2004; Zwick & Sklar, 2005), and abilities to pay (Allen et al., 2008; Attewell et al., 2011; Titus, 2006) have varying experiences while engaged in higher education. Yet not each of these key groupings of student characteristics have a meaningful relationship with the odds of timely degree completion in *every* higher education context. This study provided exploratory insight into the relationship between these characteristics and timely degree completion at URI amid a steady increase in the four-year graduation rate for first-time, fulltime undergraduates. In this chapter, these findings are discussed with an ethic of care that, as stated by Baker et al. (2020), raises scrutiny as opportunity for reflection and improvement. As stated previously, the research question for this study was:

1. Within the policy context provided by the implementation of several retention strategies aimed to support first-time, fulltime undergraduates at the University of Rhode Island, which student factors, if any, maintain a predictive relationship with timely completion of a bachelor's degree for each

cohort and which student factors, if any, are predictive of timely degree completion for one cohort, but not another?

The answer to the research question is now discussed with an examination of the relationship between timely degree completion and each grouping of independent variables: family background, prior schooling, institutional commitment and goal commitment, and student finances. The implications of these findings will be reviewed as they relate to URI's next Academic Strategic Plan, which is set to be released in 2022. The chapter will close with an account of the limitations of this study and recommendations for future research related to the topic of timely degree completion at URI and other institutions of public higher education.

Family Background

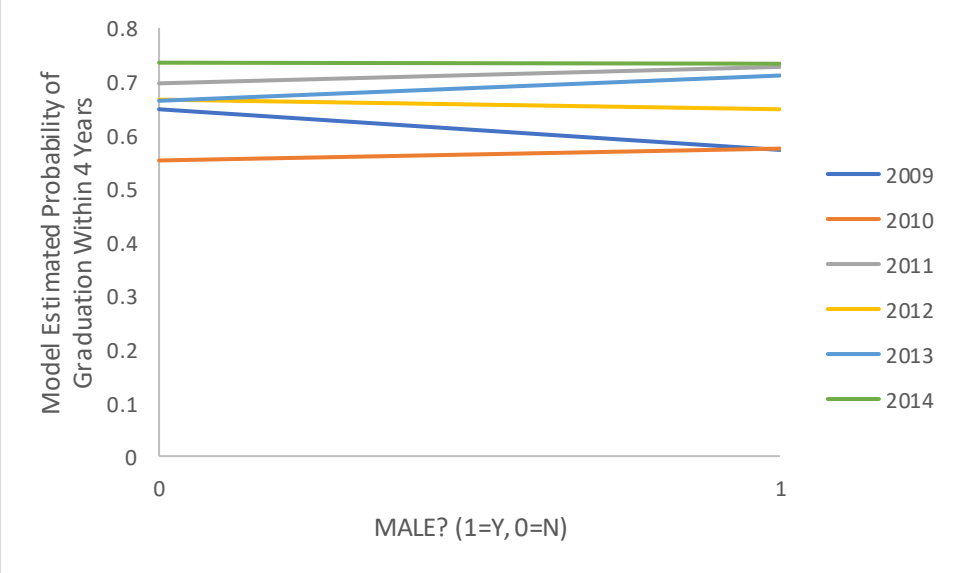
Family background was operationalized for each student as gender, ethnicity, and residency at the time of each student's application to URI. That students categorized as female outperformed those categorized as male in terms of timely degree completion in the time covered by this study aligns with past research related to bachelor's degree attainment (Allen et al., 2008; Bridgeman et al., 2000; Ishitani, 2006) and national graduation rate statistics (U.S. Department of Education, 2019, 2020). In the context of American society, this sizeable achievement gap among first-time, fulltime students could at least partially be explained by market forces in the job market since men are, on average, compensated better than women in the workforce between the ages of 25-34 (Graf et al., 2019). It could be that some portion of young men are attuned

to their earning potential in the job market and leave college early to start a career as early possible while young women recognize that they will need to maximize educational attainment in order to transcend the pay gap. Such external forces, if they have any explanatory power, are mostly outside the control of institutions of higher education.

While in Model 1 URI students in the study who were categorized as males were 26.5% less likely to remain at URI and complete their degree within four years, this is one variable that does vary significantly by cohort in terms of relationship with timely degree completion (See Figure 1).

Figure 1

MALE Four-Year Graduation Rate by Cohort



Starting with the 2010 cohort, being male stops having such a negative relationship with graduating from URI within four years and that remains the case as the odds of degree completion increases with each successive cohort.

That the categorization between male and female stopped having such a strong relationship with timely graduation over time in this study is an encouraging development for URI. Trying to establish which retention efforts may have helped reduce the timely graduation gap between male and female students was beyond the scope of this study. Still, the existing literature provides some guidance for future analysis. There is evidence that female students more frequently seek out interpersonal interactions with faculty and report better experiences with these interactions (Hagedorn et al., 2000; Ryan et al., 1994). In the URI context, male students seemed to have been at greater risk of falling behind in terms of timely degree completion as recently as 2009 and Schreiner et al. (2011) find that high-risk students are least likely to seek out interactions with faculty. This is especially problematic considering that the greater at-risk students are academically, the more they stand to benefit from increasing their interactions with faculty (Lundberg, 2003).

That male students, on average, might be less willing or less sure of how to approach faculty for help or any other type of further engagement seems to align with Bean's (1980) finding that these students are more likely to stop persisting toward degree completion because of poor academic performance or academic boredom. URI's adoption of Starfish, a student success online platform designed to do many things including promote connectedness between students and faculty, presents an opportunity to see how frequency of interaction between faculty and subgroups of students may have changed over time. In terms of exploring the degree to which academic boredom was once or continues to be

afflicting male students at URI, it may be useful to check participation rates by gender for experiential education opportunities such as service learning, study away programs, and career-oriented courses. If male students are or were underrepresented in any or all such programming, then new approaches of marketing these opportunities may be a successful way of engaging males at a negligible cost to stimulate greater persistence toward a URI degree.

The findings regarding the relationship between out-of-state students and timely degree completion were the most surprising in this study. Such students, when only grouped by residency, have a much higher four-year graduation rate than in-state residents and international students. At this level, the findings were consistent with other retention studies at a single institution of public higher education, such as DesJardins et al.'s (2003) analysis of degree completion at the University of Iowa. Yet once other student factors were accounted for in the model, the relationship between *OUT_OF_STATE* and *GRAD_4* became negative. Holding constant the variables related to family background, prior schooling, finances, and institutional and goal commitment, out-of-state students in Model 1 were about 26% less likely to graduate within four years. That out-of-state students were overrepresented among those with higher high school achievement and better ability to pay is not necessarily surprising given the higher prices and stricter admission standards applied to these students for URI admittance. But out-of-state students being so much less likely to graduate within four years than other students when everything else is equal was unexpected. Even more unexpected still was that the interaction effect between *COHORT* and

OUT_OF_STATE produced lower adjusted odds ratios for later cohorts. Even though *NET_TUITION_PRICE* was not a significant variable in Model 1, it is notable that the adjusted odds ratio of timely degree completion for out-of-state students decreased as tuition rates and the overall four-year graduation rate increased in tandem across later cohorts. It is a stark reminder of the importance of DesJardins et al.'s (2003) assertion that out-of-staters may need more assistance upon arrival in adjusting to the environment of a state institution of public higher education.

White students, on average, outperformed each minority racial group in this study in terms of four-year graduation rate. The relationship between their race and timely degree completion was negative and significant for Black students, Hispanic students, Asian students, and students of two or more races. In the model, Black students have odds of timely graduation that are about 33% less likely, Hispanic students have about 40% lower odds, Asian students have 24% lower odds, and those of two or more races have about 22% lower odds.

Unfortunately, there are many reasons racial minorities are historically less likely to persist within institutions of higher education. Many racial minority students often feel estranged on college campuses and this results in a sense of meaninglessness and powerlessness (Nora & Cabrera, 1996). These feelings detract from sense of belonging which, while not operationalized in this study, is often found to be a key factor in institutional retention. Hurtado and Ponjuan (2005) found that Latino students who negatively perceived campus climate in terms of welcomeness to diversity reported significantly lower sense of belonging

at their institution. Nora and Cabrera (1996) found that for racial minorities, especially African Americans, sense of belonging was most drastically reduced by perceived discrimination in college classrooms. Lundberg and Schreiner (2004) found that while African Americans sought out faculty interaction more frequently than other students, their satisfaction with such encounters were significantly lower. It follows that this strongly supported relationship between reduced sense of belonging and negative experiences with faculty has implications for how minority students develop institutional commitment. Xu and Webber (2018) found that institutional commitment for Black students was most strongly influenced by perceived commitment to academic quality. Hurtado and Ponjuan (2005) found that participation in academic support programs not only increased Latino students' sense of belonging but also their confidence in their analytical skills.

While it is essential that these differing graduation rates be thoroughly examined in terms of academic support, there is also a broader cultural dynamic to explore. Guiffrida (2006) asserts that because of prior socialization, many minority students are more likely to hold collectivist values and these can be in conflict with the dominant, more individualistic culture of predominantly white institutions of higher education. According to Lee et al. (2018) this conflict makes integration on campus difficult and potentially not even desirable. Collectivist-oriented students at PWIs can be at risk of academic underachievement and ultimately departure if they have few university-sponsored opportunities to fulfill their intrinsic need for connectedness to others and are instead forced to focus

on more individual rewards such as GPA (Guiffrida, 2006). It is a mistake for higher education practitioners to treat any subgroup of students as a monolith, but motivational orientation is an important consideration for students of many races. As leaders at URI begin will soon be analyzing responses to campus-wide climate survey, it will be important to pay special attention to emergent themes of students feeling a lack of connective spirit on campus. It can rightfully be feared that students with collectivist-oriented motivation may have struggled the most with the transition to distance learning during the COVID-19 pandemic.

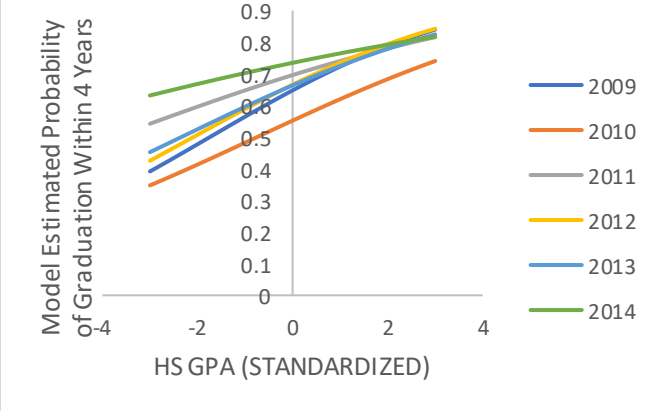
This study did not use primary language as a variable of interest, but it is often associated with race in the study of retention. Zwick and Sklar (2005) note that an increasing number of college students are immigrants, or the children of immigrants and this population is less likely to have English as a first language. Hurtado and Ponjuan (2005) found that Spanish-dominant speakers were more likely than students with English as a first language to perceive campus climates as hostile to diversity. Zwick and Sklar (2005) found that Hispanic, Spanish-speaking students were more likely to have lower family income and lower levels of parental education than Hispanic students with English as first language. Lower perceptions of campus climate, lower family income, and lower levels of parental education can all lead to lower rates of persistence in higher education contexts. A URI commitment to the better support of the persistence of students of all races should include the determination of barriers for minority students that might be caused by a lack of accommodations for those who do not speak English as their primary language.

Prior Schooling

That high school GPA had the highest statistically significant odds ratio of any independent variable in the study is consistent with other studies of timely bachelor's degree completion (Robbins et al., 2004; Zwick & Sklar, 2005). For all students in the study, a change of one standard deviation in high school GPA was associated with a 42% change in the probability of achieving timely degree completion. Given the past research suggesting this type of strong relationship, it was a notable finding of this study that this variable is one of the few that changes significantly in relationship with timely degree completion by cohort (See Figure 2).

Figure 2

HS_GPA and GRAD_4 by Cohort



For the 2014 cohort, students with the cohort mean HS GPA have about the same odds of timely degree completion as students in the 2011 cohort with a HS GPA three standard deviations higher than the cohort mean. Figure 3 shows that students who enter URI with a very high HS GPA have very high odds of graduating within four years across all cohorts. But students in the later cohorts,

especially the 2014 cohort, with an average or below average HS GPA had higher odds of timely degree completion relative to the two earliest cohorts.

In this study, combined math and verbal SAT scores, on average, did not have a significant relationship with the odds of timely degree completion. It is important to note that for selective institutions such as URI that use SAT as a factor in admissions decisions, the correlations between SAT scores and metrics of retention and degree completion are constrained by the range in scores that the institution deems acceptable for admissions (Robbins et al., 2004). This finding comes just after URI has announced that students may apply for undergraduate admission with the option of not submitting a standardized test score through the 2022 admissions cycle and amid a sea change in national attitudes about the validity of such tests in the college admissions process. The Fiske Guide to Colleges, calling into question the accuracy, validity, and fairness of admissions test score averages, will soon be dropping SAT and ACT average student scores from college reviews (Jaschik, 2021). The use of standardized achievement testing in college admissions has been controversial for some time (Robbins et al., 2004), but the COVID-19 epidemic has drastically reduced the number of students taking such tests and accelerated the debate as to their usefulness (Jaschik, 2021). URI administrators should pay close attention to the graduation rates of these test-optional cohorts and consider making this policy permanent to make the college application process more affordable for students and families.

The relationship between transfer credits at the time of admission and timely degree completion stayed steady across the cohorts in the study. In the model, a one standard deviation change in these credits was correlated with about a 13% difference in achieving timely degree completion. This finding again aligned with DesJardins et al.'s (2003) study of degree completion at the University of Iowa. Aside from the obvious fact that students with these credits need to earn fewer credits over the course of four years as an undergraduate, it is also possible that the process of earning the credits early provides more realistic expectations for college demands (DesJardins et al., 2003). URI has increasingly partnered with the State of Rhode Island to provide more opportunities at more RI high schools for students to earn college credits. Furthering that partnership can be viewed as a potential retention strategy.

Institutional Commitment and Goal Commitment

A one standard deviation change in *INST_COMMT* was associated with a 33% change in probability of earning a URI bachelor's degree within four years and this relationship is in keeping with other retention studies (Oseguera & Rhee, 2009; Robbins et al., 2004). In this study, consistent with Tinto's (1993) notion that initial institutional commitment has considerable influence over student experiences, institutional commitment was operationalized as a snapshot of students' commitment to URI early in their first year of attendance at the institution. Thus, this finding was also similar to DesJardins et al.'s (2003) finding that students who indicated that University of Iowa was their first choice for

college attendance were about 67% more likely to earn a bachelor's degree from the institution.

Nora and Cabrera (1996) found that White students, despite not perceiving to be personally subject to prejudice or discrimination, reported the highest level of feeling alienated from their institution. This finding begs the question of what is the cause of such alienation? Nora and Cabrera (1996) speculated that White students were particularly susceptible to disenchantment with what an institution can offer in terms of future job opportunities and immediate prestige. Image potency refers to the collective attitudes that can form about an institution of higher education in social circles regarding prestige and high image potency can create strong expectations for students ahead of admittance (Berger, 2001). Allen et al. (2008) found that the likelihood of student departure increases among students of high socioeconomic status when academic performance decreases. This seems to support Tinto's (1993) theory that students with low levels of institutional commitment are more likely to drop out at the first instance of academic adversity and Molesworth et al.'s (2009) notion that an ethic of consumerism among students interferes with institutions of higher education serving as centers of rigorous intellectual development. At URI, it is worth investigating the degree to which students with low levels of institutional commitment are more likely to view higher education with a consumer lens. Increasing campus-wide levels of institutional commitment might require emphasizing the benefits of higher education that are not tied specifically to the job market.

The relationship between *GOAL_COMMT* and *GRAD_4* was not quite as strong and this is a common finding (Robbins et al., 2004; Titus, 2004). A one standard deviation change in *GOAL_COMMT* was associated with about an 8% change in the probability of achieving timely degree completion. According to Guiffrida (2006) intrinsic motivation and goal commitment are positively correlated. Thus, Xu and Webber (2018) suggest that goal commitment can be strengthened within an undergraduate population by a strong link between academic advising and career advising so that students in all majors develop a clear and consistent understanding of how their degree can eventually help achieve their personal goals. During the time in this study, URI reorganized structurally so that professional academic advisors and career advisors were grouped by academic college. This organizational change seems to have positioned URI to help students align their academic pursuits with their personal motivations.

Student Finances

In Model 1, *EFC*, *HOURS_WORK*, *INST_AID,* and *PELL_YR1* all had a significant relationship with *GRAD_4.* It was notable that neither *NET_TUITION_PRICE* nor *FED_LOANS* had, on average, a statistically significant relationship with timely degree completion. While neither variable was a perfect representation of the financial strain that was put on students and families by the URI tuition hikes during the period covered by this study, these findings do suggest that the retention interventions implemented simultaneously did at least partially mitigate the cost of attendance increases.

Similar to this study, Attewell et al. (2011) found that financial aid and work hours were significant predictors of degree completion and socioeconomic was as well in all but the most selective institutions. While numerous other studies have also found that hours spent working for pay detract from college achievement (Bound et al., 2012; Darolia, 2014; DeSimone, 2008; Stinebrickner & Stinebrickner, 2003), Titus (2004) did find a small, positive relationship between average hours worked per week and student persistence. Students can benefit from working a paid job while persisting toward degree completion by developing human, social, and cultural capital in the workplace (Vaccaro et al., 2015). That hours worked during the first semester had a negative relationship with timely degree completion in this study but seem to be beneficial in other higher education contexts make it all the important that URI develop a new way to track where and how many hours per week students are working. With the discontinuation of the MAP-Work survey being administered to first-year students, it is not clear how URI administrators can monitor and measure work for pay among undergraduates.

The probability that a student graduated within four years changed by about 11% with a one standard deviation change in first-year EFC. Obviously, EFC can change for a student over the course of four years, but it does seem that EFC upon admission is particularly critical. Titus (2006) found that by the end of their first year, students in the lowest socioeconomic status quartiles on average have a lower GPA and are less likely to declare a major.

When tuition price hikes offset decreases to state appropriations for public college and universities, increases in institutional financial aid are the best way to reduce negative effects of low socioeconomic status (Titus, 2006). The interaction effect between *COHORT* and *INST_AID* showed that at URI during the time in this study, the relationship between *INST_AID* and *DEGREE_4* strengthened over time as total financial aid awarded increased with each successive cohort, but the effect of *EFC* on timely degree completion remained essentially static. For the 2014 cohort, a standard deviation change in *INST_AID* correlates with a 49% change in odds of timely degree completion. This result, that a large reduction in the net price of tuition and fees is so strongly correlated with increased odds of graduation within four years, lends credence to Xu and Webber's (2018) assertion that ability to pay has become the dominant factor in student persistence. As Titus (2006) notes, higher education administrators must make decisions about the strategic allocation of institutional resources based at least partly on changes external to the institution. For URI in the post-recession era that has meant leveraging institutional aid to attract students in order to balance budget shortfalls brought about by cuts to the state appropriation. That financial aid has become so central to recruitment limits how it can be used more specifically as a retention intervention and it seems that low-EFC students feel this effect the most.

Critics of policies that have led to the high tuition, high institutional aid reality that has become so prevalent among public colleges and universities note that by locating so much aid allocation responsibility with school administrators,

institutional goals are often prioritized over what might be best for society (Hossler, 2000). While more aid for the students and families that have the most need would likely produce many societal benefits, financial aid administrators have competing priorities to consider. Given the stagnation of middle-class income since 1980 (Saez & Zucman, 2020), middle class students and families are now more reliant than ever on financial aid to afford the cost of higher education (Shermer, 2017). Administrators in public higher education likely understand that students with lower EFC would be more easily retained with additional institutional aid but ultimately prioritize precious institutional aid dollars for students with slightly less financial need and thus more money available to pay tuition and fees out of pocket.

Implications

Differences across the cohorts examined in this study explained just 2% of the variance in odds of earning a bachelor's degree from URI within four years of the start of attendance. This suggests that while the timely degree completion gains among first-time, fulltime undergraduate students at URI during the time in this study were admirable and encouraging, they were not the product of transformational change among the relationships between family background, prior schooling, ability to pay, and institutional and goal commitment and timely degree completion. The administrators at URI publish an academic strategic plan every five years and the next one will be made public in 2022. The findings of this study suggest that URI can make changes to better support students through timely degree completion by focusing on each group of student variables. Based

on the results of this study, one path URI can consider is to simply stop admitting students who are, on average, less likely to graduate within four years. Institutional selectivity is highly correlated with completion rates (Titus, 2006). But increasing timely degree completion just for the sake of bettering rates is a dubious goal and inconsistent with the mission of a public institution. Instead, over the next five years URI can attempt to further increase timely degree completion among first-time, fulltime undergraduates by better supporting students with Pell Grant eligibility with financial aid advising, restructuring the Talent Development scholarship, finding a replacement mechanism for the MAP-Work survey to routinely capture and track student attitudes and behaviors related to student retention, and analyzing the results of the ongoing campus climate survey to better support students belonging to various minority groups.

Year-Round Pell

Ahead of the 2017-2018 academic year, the federal government reinstated the Year-Round Pell grant. This grant allows a Pell-eligible student to receive an additional annual financial aid award toward a third semester, such as a summer term, that is pulled from the student's sixth year of Pell funding (Delisle & Miller, 2015). Pell-eligible students who use Year-Round Pell awards to graduate in fewer than six years both accelerate their use of federal financial aid and maximize the government's contribution to the cost of their higher education by using dollars from an aid term that would have otherwise been foregone. Making better use of Year-Round Pell in financial aid and academic advising to promote enrollment in URI Summer courses can better support Pell-eligible

students, who in Model 1 were, on average, 27% less likely to graduate from URI within four years. Attewell et al. (2012) found that summer courses are key in sustaining academic momentum but that students who can most benefit from them are underrepresented in enrollment. Fundamentally speaking, students who earn more credits in more academic terms within four years are moving closer to the finish line of earning a degree (Attewell & Jang, 2013). Berger (2001) asserts that college administrators who make meaning of the external environment structurally and symbolically for students prompt better connections with them. Attewell et al. (2012) note that the Pell Grant, without use of Year-Round Pell, allows for six years of enrollment, and thus does a poor job of incentivizing academic momentum. Thus, it is up to the administrators, faculty, and staff at URI to link how this relatively new aspect of the Pell Grant connects with the many benefits of timely degree completion for first-time, fulltime students.

Before the Year-Round Pell Grant was temporarily suspended and then reinstated, there was evidence that non-profit institutions of higher education were not doing enough to encourage students to take advantage of the third annual award it allowed. For-profit institutions were receiving 32% of the funds set aside for Year-Round Pell, but only enrolled 25% of Pell recipients (Delisle & Miller, 2015). This is emblematic of how summer terms are too often perceived by public higher education administrators as periphery programming rather than an important and relatively inexpensive retention intervention (Attewell & Jang, 2013). In the instance of using Year-Round Pell to promote summer enrollment and academic enrollment, there is no actual incremental cost. In fact, when a

student body is using Year-Round Pell funding, they are not only maximizing the federal government's contribution to their own education, but also maximizing their institution's revenue from the federal government in a given year.

Viewed this way, an institution that helps Pell students sustain academic momentum by way of earning credits every summer via their year-round award is actually increasing a revenue stream, however relatively small, that can then be reinvested in student support. And this is where URI can go further and truly innovate in how the Year-Round Pell Grant is leveraged to help students achieve timely degree completion. While the Year-Round Pell Grant formula covers the cost of part-time summer enrollment for many students, URI should use some portion of the federal revenue generated by increased use of Year-Round Pell to create a new institutional aid grant. This new, last-dollar institutional grant can ensure that all students who qualify for Year-Round Pell and enroll in enough summer credits, six by current legislation, to earn it then have any remaining balance for the summer term covered by the University. By supplementing the Year-Round Pell Grant, URI can symbolize to Pell-eligible students how serious the institution is about improving timely degree completion for these students. Making it institutional policy that all Pell-eligible students are able to take six credits at no cost also make advising easier for faculty and staff. There is some evidence that when federal financial aid is supplemented locally, associated marketing efforts benefit those who do not even gain any additional aid dollars by the local supplement. In Tennessee, when Knox residents were guaranteed two years of community college at no cost through Knox Achieves, participants who

received no additional financial aid through the program because their federal financial aid already would have covered the cost of their attendance actually were the ones whose participation rates increased the most by way of the program (Carruthers & Fox, 2016). Student success is heavily dependent on students being able to clearly identify and understand the goals, expectations, and values on campus in order to engage in appropriate behavior (Berger, 2001). Therefore, it is incumbent upon URI administrators, faculty, and staff to make it the norm that first-time, fulltime students understand that their six-year Pell Grant can and often should be manipulated to make timely graduation a more likely outcome.

TD Aid

Students who enroll in a summer bridge program between high school and college are much more likely to enroll in future summer terms as undergraduates (Attewell & Jang, 2013). At URI, Talent Development scholars are the only students required to complete such a bridge program as a condition of undergraduate admittance. Many TD scholars are also Pell recipients and so these students stand to benefit from better advising and a new form of institutional financial aid related to Year-Round Pell. But that is not the only way that URI can better support TD scholars, who, in Model 1, were, on average, about 46% less likely to achieve timely degree completion. The financial aid package offered to TD scholars by URI should be reduced from a five-year award to a four-year award without the total amount of the TD financial aid budget being reduced. At the University of North Carolina-Chapel Hill, students in the Carolina

Covenant program, a program similar to TD, had their aid package reduced from nine semesters to eight semesters in 2007 and the three cohorts afterward had better four-year graduation rates than the cohorts that received the longer award (Clotfelter et al., 2016). In Nebraska, STBF recipients, who receive a five-year financial aid package, have increased persistence rates in the first three years relative to similar peers, but not a better four-year graduation rate (Angrist et al., 2016). Scott-Clayton (2011) asserts that students respond strategically in maintaining compliance with a financial aid program's incentive structure. They will, on average, graduate within the timeframe allowed by their financial aid packages.

It is essential that, for this potentially politically risky decision to work, that URI strategically reinvest the savings from reducing the duration of the award into retention interventions designed to ensure that TD scholars are better supported over the course of their four years of attendance. Recipients of Carolina Covenant started outperforming similar peers at UNC-CH only after significant non-financial supports, such as a mentoring program and summer tutoring, were put in place to better the aid-awarded population (Clotfelter et al., 2016). There are many potential interventions that can be promising. One idea is to allow TD scholars to enroll in up to four credits at no cost during each winter term while they are enrolled. This approach is not only in keeping with the academic momentum perspective, but also provides an additional benefit. URI honors housing and meal plans for the month of January at no cost when students are enrolled in a winter term course. Thus, URI would not only be

incentivizing credit completion, but also helping reduce housing and food insecurity during a time of the year when these things can become problematic for college students. A mentoring program similar to the one enacted for Carolina Covenant students also seems to be something that can be funded with the savings. Webber and Xu (2018) suggest that when students of the same racial background establish a mentee, mentor relationship, it encourages students to be more socially proactive and encourages them to stay connected with peers on campus.

Berger (2001) asserts that campus sub-cultures are liable to understand institutional symbols differently. Imagine a student who entered URI during the time period of this study as a TD scholar and Pell recipient. This student is exposed to a university-wide marketing campaign that states taking 15 credits a semester is the key to graduating in four years. The student receives a t-shirt with the message on it and works with an advisor to create such a schedule for their first semester. But the student also received a five-year financial aid award from the school and a six-year financial award from the government. What is the student to make of these varying and somewhat contradictory messages? Could it be that both school and government think that this student will inevitably fail now or later? Campus symbolism is particularly important for students from diverse backgrounds who are historically underrepresented in higher education and thus may construct meaning differently than students from the dominant culture. URI can better serve such students by aligning financial aid awards with

the stated duration of programs of study and then providing academic support within the confines of that timeframe.

Climate Survey

URI is currently administering a campus climate survey. The results of this survey will be key in addressing the racial gaps in timely degree completion that were indicated in this study. To this end, I echo the assertion of Rankin and Reason (2008) that administrators have the mandate to address the power and privilege of social hierarchies that exist on a campus. Students are being encouraged to speak their truth in responding to the survey and so URI is provided with an opportunity to combine the voices of students and best practices for supporting minority students to create a more welcoming campus climate.

The survey is a smart way to address the racial gap in four-year graduation rate because it is one way to proactively respond to student needs to find ways to involve them in decision-making processes (Berger, 2001). One aspect of creating a supportive campus environment for students of color is to focus on a welcoming initial response to the entrance of students (Hurtado et al., 1998). Thus, URI administrators should be particularly attuned to feedback received about the first-year experience for undergraduates. One way to ensure that minority students feel welcomed at a PWI campus is to ensure that ethnic and cultural student organizations exist to help welcome them. According to Guiffrida (2006), such organizations can help students with collectivist motivation orientation to fulfill their salient need for relatedness and connectedness. At

PWIs, it is essential that ethnic and cultural student organizations are properly staffed, funded, and resourced (Hurtado et al., 1998). After nearly three semesters during which students have been required to adapt to distance learning and asked to keep small social pods, cultural student organizations may take on an even greater social role on campus in the immediate future at URI. If the URI campus climate survey results suggest that these organizations need to be more ingrained into the dominant campus culture, especially in the near term, URI administrators should view investments to make that happen as investments in retention.

Campus climate surveys have found that White students were resentful of what they perceive of as preferential treatment toward minority students in terms of access to institutional resources (Nora & Cabrera, 1996). Should this be found to be the case at URI it will be essential that URI administrators devise a clear and emphatic communications strategy to debunk this perception and make clear to such students the many ways that they benefit from a diverse campus. White students are found to have higher degrees of sense of belonging when they have non-white friends (Gilliard, 1996). This link between sense of belonging and structural campus diversity is strongest for White men (Strayhorn, 2008). Titus (2006) points out that, on average, the benefits of structural campus diversity accrue to White students, but not the underrepresented minorities who create the diversity. Hurtado et al. (1998) suggest that administrators can ease racial tension on a campus by ensuring the campus environment is student centered. By thoughtfully explaining to White students how they also benefit from

institutional investment in structural diversity, a more student-centered environment can be created. It is important that if this type of communication campaign is required that administrators remember that students attend higher education to learn and develop, not to be scolded. Humanistic administrative behavior leads with concern for student well-being and ultimately results in decreased attrition rates (Berger, 2001).

Depending on the extent to which campus climate is deemed problematic for minority students at URI, the solution to rectifying that may need to be viewed as a human resource and performance management issue. Nora and Cabrera (1996) assert that rewards can be established for faculty who concern themselves with the quality of classroom experiences and improve the support provided to students. Providing such rewards is essential because in terms of changing student outcomes, faculty are the most important agents on campus (Pascarella & Terenzini, 1991). Schreiner et al. (2011) found that students who attribute their persistence to the intervention of particular university employees valued very small investments of time and energy. If small actions of faculty and staff can go a long way in supporting faculty and staff, it figures that the institutional cost of incentivizing such actions should not be enormous. While faculty at URI are subject to a rigorous tenure and promotion process, the performance management of staff is comparatively quite lax. Staff are subject to a six-month review and a one-year review from their supervisor. After the first year, there is no formal and required university-wide performance management for staff. Without such a system, incentivizing certain behaviors is nearly

impossible. Schreiner et al. (2011) suggest that since the genuineness and integrity of faculty and staff seems to be so important to students, then that ought to be reflected in the hiring processes that a college or university has in place.

Faculty and Administrators of Color

Finding a way to better incorporate behaviors and attitudes that support students into hiring practices and performance management is not the only human resource strategy to improve the four-year graduation rate. Research suggests that an increased presence of faculty from underrepresented groups impacts positively student outcomes and perceptions of climate (Milem, 2003; Pascarella & Terenzini, 1991). Gilliard (1996) found that for black students, no other factor was worse for campus climate than their perceptions of racial discrimination by college administrators.

Toward the end of diversifying faculty and administrators on campus, the position of associate vice president of Community, Equity and Diversity was created in 2012 to serve as the university's chief diversity officer. Bradley et al. (2018) found that despite the number of PhDs being earned by underrepresented minorities exceeding the overall rate of PhDs awarded since 2016, there was no evidence that hiring a chief diversity officer altered the rate of diversity hiring at the administrative or faculty level. This finding suggests that changing patterns of hiring, a mostly decentralized process, may require more than a centralized solution overseen or executed by a chief diversity officer. Certainly, a chief diversity officer can still help advance a goal of reducing the racial gap in timely degree completion, but there are other indicators that increasing structural diversity at

URI among faculty and administrators will be a difficult task. Bradley et al. (2018) found that Black, non-tenured faculty are more likely to be hired in large or mid-sized cities, Hispanic administrators are concentrated in large urban areas, and Hispanic, tenure-track faculty are overrepresented in the western part of the United States. URI, as a suburban institution in the northeast, may simply not be an intriguing or desirable destination in the job market for many diverse faculty and administrators. Working against these trends may require increasing hiring budgets and highlighting opportunities to work at the two URI campuses in the city of Providence.

MAP-Works

Given the findings of this study that institutional commitment, goal commitment, and self-reported hours worked during the first year of attendance all had a statistically significant relationship with timely degree completion, it is surprising that URI stopped administering the MAP-Works survey during the later time that this study covered, and it has not been replaced with another way to measure these important factors related to student success. Oseguera and Rhee (2009) also found that initial institutional commitment had a strong relationship with later persistence. Allen et al. (2008) also note that institutional commitment and integration develop over time. Thus, it might follow that URI administrators would want to be capturing these factors more frequently rather than not at all. Tracking these factors by way of an annual, campus-wide survey seems to be a low-cost retention strategy with upside.

Limitations

This study was limited in at least five ways. First, as mentioned earlier, from 2009-2014, URI collected data related to sex and labeled these binary categorizations as gender. Thus, the study was unable to discuss the relationship between students' gender identity, especially non-binary identity, and timely degree completion. During this time, URI also used very broad categories related to race and residency. Using Asian as a category of race lumped together students from a variety of cultures. Tanaka (2002) suggests that research is more authentic when it allows for the study of the multiple and shifting sources of power and social location of each Asian-American. Similarly, grouping all International students into one residency prevented nuance in the relationship between various countries of origin and degree completion. There were also variables not included in the study that likely have a relationship with the likelihood of degree completion. For example, living on campus, rather than off campus, can often increase odds of degree completion (Titus, 2004). By the time this study was started, URI Residential Life no longer had first-year residency records for the 2009-2014 cohorts. Lastly, because URI implemented so many retention efforts nearly simultaneously and then this study was conducted *ex post facto*, the effect of any single retention effort on how the relationship between student factors and timely degree completion changed over time could not be meaningfully discussed.

Recommendations for Future Research

Given that the relationship between institutional aid and timely degree completion at URI strengthened significantly over time, that relationship seems to

be a logical topic for future research. In terms of practice, it will be most beneficial for URI administrators to know which students benefit the most in terms of timely degree completion from receiving institutional aid so that the aid budget can be managed as efficiently as possible on an annual basis. It may also be worth using time survival analysis to incorporate longitudinal credit completion data to get a better sense of how subgroups of students do and do not persist toward degree completion over time.

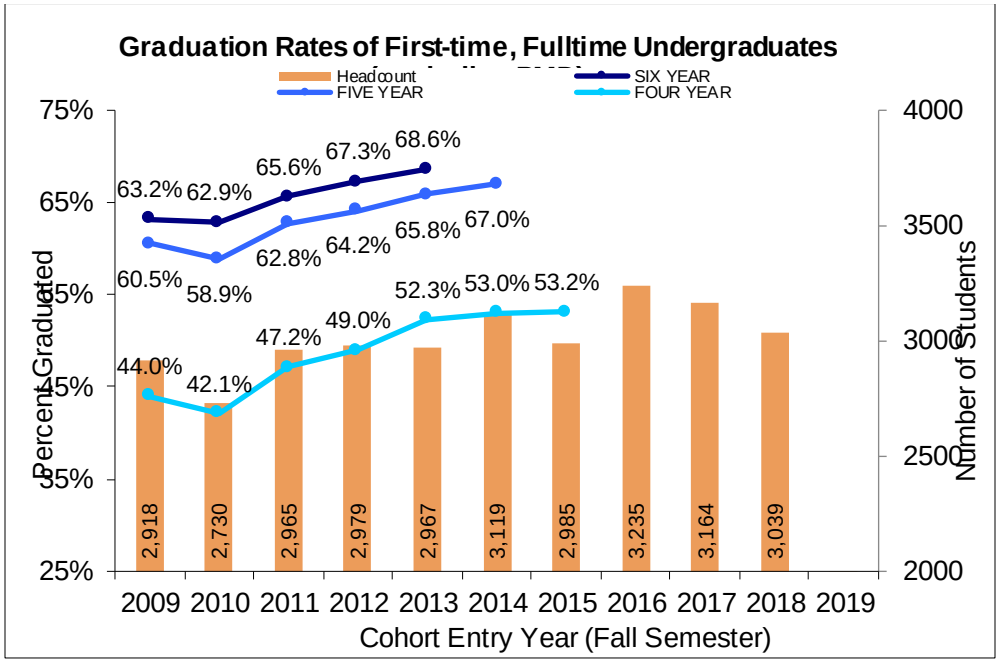
Conclusion

Based on these data and the .0203 ICC produced by null multilevel model, it is reasonable to conclude that the rising four-year graduation rates observed among URI undergraduates during the time covered by this study were not the result of any single transformational change related to a relationship between a specific student characteristic and timely degree completion. Rather, the findings of this study suggest that the increase in the propensity of URI students to earn a bachelor's degree from the institution within four years of the start of attendance was the product of many relatively small changes in the relationships between student characteristics and timely degree completion. Based on these findings, the next URI Academic Strategic Plan should focus on retention interventions designed to support ethnic minority students, Pell-eligible students, and TD scholars with an emphasis on efficient use of financial aid and the implementation of strategies for increasing the structural diversity of the URI workforce.

APPENDICES

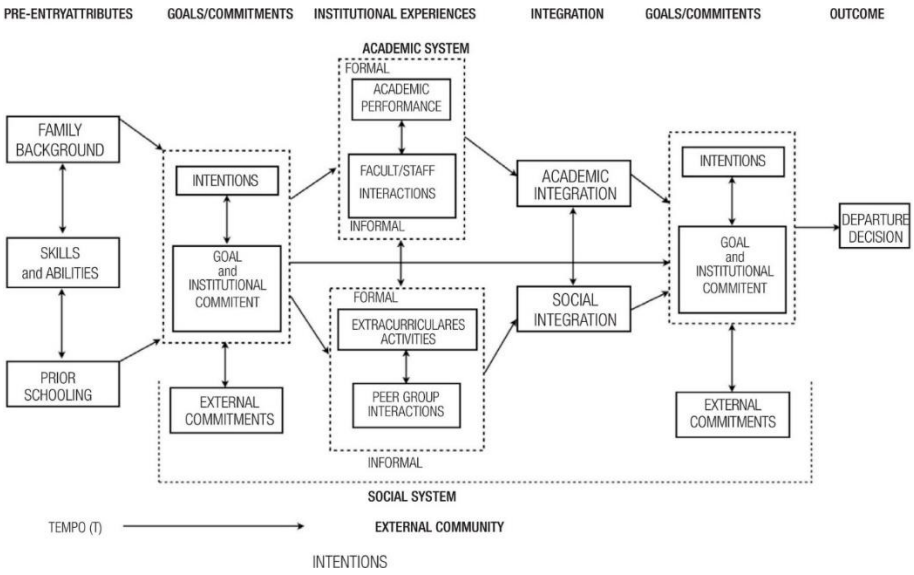
Appendix A

Recent First-time, Fulltime Graduation Rates at the University of Rhode Island



Appendix B

Tinto's Theory of College Student Departure



Appendix C

MAP-Work Survey Key

Question Text
MAP-Works Risk Indicator at time of data file download
Survey Rating
Date the survey was taken
Level of Commitment - To what degree are you committed to completing a: Degree/certificate/licensure
Level of Commitment - To what degree are you committed to completing a: Degree/certificate/licensure at this institution
What is the highest level of education you aspire to achieve?
Intent to Return - To what degree do you intend to come back to this institution for the: Spring term
Intent to Return - To what degree do you intend to come back to this institution for the: Next academic year
If you do not return to this institution next term, which of the following best describes your plan:
Did you intend to transfer when you entered this institution?
If you decide to transfer to another institution, what would be the most likely reason?
If you know, please indicate to which institution you plan to transfer:
Financial Means - What percentage of your financial need is being met through financial aid (loans, grants, scholarships)?
To what degree are you confident that you can pay for: Next term's tuition and fees
To what degree are you confident that you can pay for: Monthly living expenses (e.g. room, board, utilities, rent)
To what degree are you confident that you can pay for: Social activities (e.g. eating out, going to movies) with your friends
Self-Assessment of Academic Skills - How would you rate yourself on the following skills: Writing composition
Self-Assessment of Academic Skills - How would you rate yourself on the following skills: Reading comprehension
Self-Assessment of Academic Skills - How would you rate yourself on the following skills: Math ability
Self-Assessment of Academic Skills - How would you rate yourself on the following skills: Problem-solving skills
Self-Assessment of Management Skills - To what degree are you the kind of person who: Is self-disciplined
Self-Assessment of Management Skills - To what degree are you the kind of person who: Follows through with what you say you're going to do
Self-Assessment of Management Skills - To what degree are you the kind of person who: Is dependable
Self-Assessment of Management Skills - To what degree are you the kind of person who: Plans out your time
Self-Assessment of Management Skills - To what degree are you the kind of person who: Makes "to-do lists"

Self-Assessment of Management Skills - To what degree are you the kind of person who: Balances time between classes and other activities (work, student activities, etc.)
Self-Assessment of a Healthy Lifestyle - To what degree do you: Sleep enough (i.e. not tired most days)
Self-Assessment of a Healthy Lifestyle - To what degree do you: Exercise the amount of time to remain physically healthy
Academic Experiences - How many courses are you taking?
Academic Experiences - Of those, how many courses are you struggling in?
Struggling in a Course - Regarding the course you're having the most difficulty with, to what degree are you struggling
Regarding the course you're having the most difficulty with, to what degree: Have you talked with your instructor regarding your difficulties
Regarding the course you're having the most difficulty with, to what degree: Have you turned in assigned homework
Regarding the course you're having the most difficulty with, to what degree: Have you done the required readings
Regarding the course you're having the most difficulty with, based on your current performance what would your grade be?
Regarding the course you're having the most difficulty with, what type of course is it?
Please identify the course in which you are having the most difficulty (ex: English 101):
Class Attendance - How many of your scheduled classes have you attended this term?
Interference with Coursework - To what degree are the following factors interfering with your ability to complete coursework (e.g. attending class, studying, homework, practice): Family obligations
Interference with Coursework - To what degree are the following factors interfering with your ability to complete coursework (e.g. attending class, studying, homework, practice): Work obligations
Academic Self-Efficacy - To what degree are you certain that you can: Do well on all problems and tasks assigned in your courses
Academic Self-Efficacy - To what degree are you certain that you can: Do well in your hardest course
Academic Self-Efficacy - To what degree are you certain that you can: Persevere on class projects even when there are challenges
Academic Resiliency - To what extent do the following statements describe you: You do everything you can to meet the academic goals you set at the beginning of the semester
Academic Resiliency - To what extent do the following statements describe you: You are a hard worker in your classes
Academic Resiliency - To what extent do the following statements describe you: When you know a course is going to be difficult, you put in extra effort
Academic Resiliency - To what extent do the following statements describe you: When you get a poor grade, you work harder in that course
Expected GPA - What do you think your GPA will be this term?
Expected GPA - What do think your cumulative GPA will be when you complete your degree/certificate?
Academic Behaviors - To what degree are you the kind of person who: Attends class
Academic Behaviors - To what degree are you the kind of person who: Takes good notes in class

Academic Behaviors - To what degree are you the kind of person who: Turns in required homework assignments
Academic Behaviors - To what degree are you the kind of person who: Spends sufficient study time to earn good grades
Academic Behaviors - To what degree are you the kind of person who: Participates in class
Academic Behaviors - To what degree are you the kind of person who: Communicates with instructors outside of class
Academic Behaviors - To what degree are you the kind of person who: Works on large projects well in advance of the due date
Advanced Study Skills - To what degree are you the kind of person who: Studies in a place where you can avoid distractions
Advanced Study Skills - To what degree are you the kind of person who: Studies on a regular schedule
Advanced Study Skills - To what degree are you the kind of person who: Reads the assigned readings within a day before class
Stressors - Thinking about your role as a college student, to what degree do you know: What is expected of you in your classes to be successful
Stressors - Thinking about your role as a college student, to what degree do you know: How to allocate the correct amount of time to meet each of your obligations (e.g. social life, work life, family, student organizations, coursework)
Thinking about your role as a college student, to what degree do you feel: You are unable to balance major commitments in your life (e.g. studying, social life, relationships, working, etc.)
Thinking about your role as a college student, to what degree do you feel: There is not enough time during the regular school week to do everything that is expected of you
To what degree are you experiencing stress regarding: Being responsible for yourself (e.g. getting to class, doing your homework, etc.)
To what degree are you experiencing stress regarding: Motivating yourself to get your work done on time
When you have a test, to what degree do you: Have an uneasy, upset feeling before taking an examination
When you have a test, to what degree do you: Feel anxious about an exam even when you're well prepared
When you have a test, to what degree do you: Perform worse on exams because you're worrying that you'll do badly
Study Hours - How many hours, on average, did you spend studying for a test in high school?
Study Hours - How many hours, on average, do you expect to spend studying for a test in college?
Study Hours - How many hours, on average, did you spend studying for a test during your last college term?
Study Hours - How many hours, on average, do you expect to spend studying for a test this college term?
New Student Information - Among the institutions that admitted you, was this institution your:
Your high school cumulative GPA:
How many years has it been since you were in an educational setting (high school, technical school, or college)?
Campus Involvement - During this term, to what degree do you intend to: Participate in a student organization
Campus Involvement - During this term, to what degree do you intend to: Hold a leadership position in a college/university student organization

Peer Connections - On this campus, to what degree are you connecting with people: Who share common interests with you
Peer Connections - On this campus, to what degree are you connecting with people: Who include you in their activities
Peer Connections - On this campus, to what degree are you connecting with people: You like
On-Campus Living - To what degree are you: Hanging out with other residents
On-Campus Living - To what degree are you: Making friends with others in the hall/building
On-Campus Living - To what degree are you: Satisfied with the social activities in your hall/building
On-Campus Living - To what degree are you: Adjusting to living in on-campus housing
On-Campus Living - To what degree are you: Able to study in your room/hall
On-Campus Living - To what degree are you: Able to sleep in your room
How many people are assigned to live in your bedroom (including yourself)?
On-Campus Roommates - To what degree do your roommate(s): Respect your sleep time
On-Campus Roommates - To what degree do your roommate(s): Respect your property
Overall, to what degree are you having problems with your roommates
Off-Campus Living - When are you predominately on-campus?
To what degree are you: Able to study in your room/home
To what degree are you: Able to sleep in your room/home
To what degree are you: Satisfied with your overall living environment
To what degree are you: Able to find parking on campus
Is there a convenient place on campus for you to relax between classes?
To what degree do transportation issues interfere with your ability to attend class or arrive on time to class
Please specify other factors that interfere with attendance or completing your coursework:
Are you living away from home?
Homesickness - To what degree do you: Miss your family back home
Homesickness - To what degree do you: Miss your old friends who are not at this school
Homesickness - To what degree do you: Miss your boyfriend/girlfriend who is not at this school
Homesickness - To what degree do you: Regret leaving home to go to school
Homesickness - To what degree do you: Think about going home all the time
Homesickness - To what degree do you: Feel an obligation to be at home
Homesickness - To what degree do you: Feel that attending college is pulling you away from your community at home
Parents/Guardians - How many times have you communicated with your parents/guardians (i.e., phone call, text message, email, etc.) within the past seven days?
Campus Activities - During this term, to what degree do you intend to get involved in: Campus or community service organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Intramural athletics
Campus Activities - During this term, to what degree do you intend to get involved in: Major/academic field organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Music, drama and arts organizations

Campus Activities - During this term, to what degree do you intend to get involved in: Political organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Racial or ethnic organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Religious organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Special interest organizations
Campus Activities - During this term, to what degree do you intend to get involved in: Student government
Campus Activities - During this term, to what degree do you intend to get involved in: Student media (radio, tv, newspaper)
Academic Major - Have you decided what your major/program is or will likely be?
Have you officially declared your major/program with this institution?
How many credit hours have you completed in your major/program?
Do/did you have to be accepted by your college/school in order to complete a degree/certificate in your major/program (e.g. Nursing school, Architecture school, Engineering school)?
If yes, what would likely happen if you weren't accepted into your major/program?
To what degree are you experiencing stress regarding choosing a major/program?
Planned Time - In an average day, how many hours do you spend sleeping on nights before classes?
Planned Time - In an average day, how many hours do you spend relaxing or socializing?
In an average week, how many hours do you spend working for pay?
In an average week, how many hours do you spend studying/out-of-class school work (e.g. homework, practice time, lab time, studying)?
In an average week, how many hours do you spend exercising or playing sports?
Overall Adjustment - Overall, to what degree are you: Keeping current with your academic work
Overall Adjustment - Overall, to what degree are you: Motivated to complete your academic work
Overall Adjustment - Overall, to what degree are you: Learning
Overall Adjustment - Overall, to what degree are you: Satisfied with your academic life on campus
Overall, to what degree: Do you belong here
Overall, to what degree: Are you fitting in
Overall, to what degree: Are you satisfied with your social life on campus
Overall Evaluation of the Institution - Overall, to what degree: Would you choose this institution again if you had it to do over
Overall Evaluation of the Institution - Overall, to what degree: Would you recommend this institution to someone who wants to attend college
Overall, please rate your experience at this institution:
Comments - What do you like most about college?
Comments - What do you like least about college?
Comments - Name the person at this institution who has helped you the most in your college success:
Student Athlete - Is this your first term as a NCAA/NAIA student athlete at this institution?

Student Athlete - Are you actively training for your sport now?
Student Athlete - Which term is your sport predominantly played:
Student Athlete - During this term, how many hours on average per week do you expect to spend on your sport (i.e. conditioning, training, traveling for games or events, playing your sport)
Student Athlete - What percentage of your tuition/fees/living expenses is covered by an athletic scholarship?
To what degree do you feel the following will happen this term: Miss class due to your student sport activities (i.e. conditioning, training, traveling for games or events, playing your sport)
To what degree do you feel the following will happen this term: Have difficulty balancing your study time with the time spent on your student sport activities
If you do not get sufficient playing time at this institution, which of the following would likely happen:
Do you want to play your sport professionally?
If yes, to what degree are you confident that you'll be drafted or offered the opportunity to play at the professional level
What is the most difficult aspect of being a student athlete at this institution?
Served in Military - Which of the following best describes your deployment history?
Served in Military - When did you last serve in a combat zone?
Served in Military - Which of the following best describes your current military status?
Served in Military - During this term, how many hours on average per week do you expect to spend in military-related activities?
How likely do you think it is that you will do or experience each of the following during this term: Miss class due to military events/issues
How likely do you think it is that you will do or experience each of the following during this term: Have difficulty balancing your study time with the time spent on your military events/issues
What is the most difficult aspect of being a student with a military background at this institution?
MAP-Works Participant Profile 2014-2015 - Profile: Survey Cohort
MAP-Works Participant Profile 2014-2015 - Profile: Official Class Standing
MAP-Works Participant Profile 2014-2015 - Profile: Student Entry Type
MAP-Works Participant Profile 2014-2015 - Profile: Student Gender
MAP-Works Participant Profile 2014-2015 - Profile: Student Race/Ethnicity
MAP-Works Participant Profile 2014-2015 - Profile: Student Birth Year
MAP-Works Participant Profile 2014-2015 - Profile: Student High School Graduation Year
MAP-Works Participant Profile 2014-2015 - Profile: International Student
MAP-Works Participant Profile 2014-2015 - Profile: Year Student Entered Institution
MAP-Works Participant Profile 2014-2015 - Profile: SAT Critical Reading/Verbal
MAP-Works Participant Profile 2014-2015 - Profile: SAT Writing
MAP-Works Participant Profile 2014-2015 - Profile: SAT Math
MAP-Works Participant Profile 2014-2015 - Profile: ACT Composite
MAP-Works Participant Profile 2014-2015 - Profile: ACT English
MAP-Works Participant Profile 2014-2015 - Profile: ACT Math
MAP-Works Participant Profile 2014-2015 - Profile: ACT Reading

MAP-Works Participant Profile 2014-2015 - Profile: ACT Science
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS Reading
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS English
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS Pre-Algebra
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS Algebra
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS Trigonometry
MAP-Works Participant Profile 2014-2015 - Profile: COMPASS Calculus
MAP-Works Participant Profile 2014-2015 - Profile: Accuplacer College Math
MAP-Works Participant Profile 2014-2015 - Profile: Accuplacer Elementary Algebra
MAP-Works Participant Profile 2014-2015 - Profile: High School Cumulative GPA
MAP-Works Participant Profile 2014-2015 - Profile: High School Percentile Rank
MAP-Works Participant Profile 2014-2015 - Profile: FAFSA Information Received for Current Year
MAP-Works Participant Profile 2014-2015 - Profile: Expected Family Contribution (EFC)
MAP-Works Participant Profile 2014-2015 - Profile: Amount of Unmet Need
MAP-Works Participant Profile 2014-2015 - Profile: In-State or Out-of-State
MAP-Works Participant Profile 2014-2015 - Profile: Student Permanent City
MAP-Works Participant Profile 2014-2015 - Profile: Student Permanent State
MAP-Works Participant Profile 2014-2015 - Profile: Student Permanent Zip Code
MAP-Works Participant Profile 2014-2015 - Student: Mother/Female Guardian Educational Level
MAP-Works Participant Profile 2014-2015 - Student: Father/Male Guardian Educational Level
MAP-Works Participant Profile 2014-2015 - Student: Number of High Schools Attended
MAP-Works Participant Profile 2014-2015 - Student: Number of Dependents
MAP-Works Participant Profile 2014-2015 - Student: Student Athlete
MAP-Works Participant Profile 2014-2015 - Student: Current Residence
MAP-Works Participant Profile 2014-2015 - Student: Active Military or Veteran
MAP-Works Participant Profile 2014-2015 - Student: Primary Academic Major
MAP-Works Participant Profile 2014-2015 - Pre-Fall Launch: Cumulative GPA
MAP-Works Participant Profile 2014-2015 - Pre-Fall Launch: Number of Credits Enrolled at the Beginning of the Fall Term (only include credits that count toward a degree)
MAP-Works Participant Profile 2014-2015 - Pre-Fall Launch: Number of Credits Enrolled at the Beginning of the Fall Term in Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Pre-Fall Launch: Total Number of Credits Earned to Date
MAP-Works Participant Profile 2014-2015 - Fall Mid-Term: Number of Credits Enrolled at Fall Mid-Term (only include credits that count toward a degree)
MAP-Works Participant Profile 2014-2015 - Fall Mid-Term: Number of Credits Enrolled at Fall Mid-Term in Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Fall Mid-Term: Credit Hour Change
MAP-Works Participant Profile 2014-2015 - Fall Mid-Term/Academic Update: Student Identified as Academic Risk
MAP-Works Participant Profile 2014-2015 - Fall Mid-Term: Student Pre-Registered for Spring

MAP-Works Participant Profile 2014-2015 - Fall Term Outcomes: GPA Earned in Fall Term Courses
MAP-Works Participant Profile 2014-2015 - Fall Term Outcomes: Student Performance in Developmental/Remedial Courses in Fall Term
MAP-Works Participant Profile 2014-2015 - Fall Term Outcomes: Number of Credits Earned in Fall Term Courses (only include credits that count towards a degree)
MAP-Works Participant Profile 2014-2015 - Fall Term Outcomes: Number of Credits Earned in Fall Term Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Fall Term Outcomes: Graduated with a Degree or Completed Education with a Certificate/Licensure
MAP-Works Participant Profile 2014-2015 - Pre-Spring Launch: Is this student new to MAP-Works this term?
MAP-Works Participant Profile 2014-2015 - Pre-Spring Launch: Fall-to-Spring Persistence
MAP-Works Participant Profile 2014-2015 - Pre-Spring Launch: Number of Credits Enrolled at the Beginning of the Spring Term (Only include credits that count towards a degree)
MAP-Works Participant Profile 2014-2015 - Pre-Spring Launch: Cumulative GPA
MAP-Works Participant Profile 2014-2015 - Pre-Spring Launch: Number of Credits Enrolled at the Beginning of the Spring Term in Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Spring Mid-Term: Number of Credits Enrolled at Spring Mid-Term (only include credits that count toward a degree)
MAP-Works Participant Profile 2014-2015 - Spring Mid-Term: Number of Credits Enrolled at Spring Mid-Term in Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Spring Mid-Term/Academic Update: Student Identified as Academic Risk
MAP-Works Participant Profile 2014-2015 - Spring Mid-Term: Credit Hour Change
MAP-Works Participant Profile 2014-2015 - Spring Mid-Term: Student Pre-Registered for Fall
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: GPA Earned in Spring Term Courses
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: Student Performance in Developmental/Remedial Courses in Spring Term
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: Number of Credits Earned in Spring Term Courses (Only include credits that count towards a degree)
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: Number of Credits Earned in Spring Term Developmental/Remedial Courses
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: Cumulative GPA
MAP-Works Participant Profile 2014-2015 - Spring Term Outcomes: Graduated with a Degree or Completed Education with a Certificate/Licensure
MAP-Works Participant Profile 2014-2015 - Fall 2014 Retention: Student Returned for the Next Fall Term
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 1
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 2
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 3
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 4
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 5
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 6
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 7
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 8

MAP-Works Participant Profile 2014-2015 - Custom Profile Item 9
MAP-Works Participant Profile 2014-2015 - Custom Profile Item 10
MAP-Works Participant Profile 2014-2015 - Residency
MAP-Works Participant Profile 2014-2015 - Centennial Scholar
MAP-Works Participant Profile 2014-2015 - Honors Program
MAP-Works Participant Profile 2014-2015 - MIDTERM
MAP-Works Participant Profile 2014-2015 - RETD
Group: Building
Group: Building Room #
Group: College
Group: DSS
Group: Faculty/Staff Users by College/Dept
Group: Freshmen Seminar
Group: Freshmen Seminar Course Sections
Group: Honors
Group: Housing
Group: HPAC
Group: Living Learning Community
Group: LLC
Group: LLC Building
Group: Majors
Group: Minority Groups
Group: Orientation
Group: Orientation Group
Group: PASS
Group: SOC
Group: Student Athletes
Group: Talent Development
Group: UC Academic Advising
Group: G2C
Group: Residency
Group: Athlete
Group: RETD
Group: MIDTERM EMAIL
Institution Specific Questions - To what degree have you found it helpful to live in a residence hall with other new students who have similar majors to you?
Institution Specific Questions - Which of the following activities are you most interested in attending this semester?
Institution Specific Questions - Consider the courses in which you are currently enrolled, how would you rate the following classroom experience: Size of class
Institution Specific Questions - Considering the courses in which you are currently enrolled, how would you rate the following classroom experiences: Teacher's interest in your success

Institution Specific Questions - To what degree are you able to understand what is expected from you in your courses?
Institution Specific Questions - To what degree do you need help in your courses?
Institution Specific Questions - What do you need help with in order to be more successful in your courses? (choose all that apply)
Institution Specific Questions - To what degree are you aware of the career opportunities associated with your major?
Institution Specific Questions - Are you aware that you must take 5 courses (15 credits) each semester to graduate in 4 years?
Institution Specific Questions - Are you interested in taking a winter or summer course at URI? (will you earn at least 30 credits this year? If not, you may want to consider taking a winter or summer course)
Institution Specific Questions - Please indicate your level of agreement with the following statements regarding your RA: My RA has made an effort to get to know me
Institution Specific Questions - Please indicate your level of agreement with the following statements regarding your RA: My RA is available and accessible in the residential area
Institution Specific Questions - If I have a problem, concern, or question, I feel comfortable speaking with (choose all that apply)
Institution Specific Questions - To what degree do you agree with this definition of student success: "student success is on-time graduation in a major that fits for career choices"
Commitment to the Institution
Self-Assessment: Communication Skills
Self-Assessment: Analytical Skills
Self-Assessment: Self-Discipline
Self-Assessment: Time Management
Financial Means
Basic Academic Behaviors
Advanced Academic Behaviors
Academic Self-Efficacy
Academic Resiliency
Peer Connections
Homesickness: Separation
Homesickness: Distressed
Academic Integration
Social Integration
Satisfaction with Institution
On-Campus Living: Social Aspects (Module)
On-Campus Living: Environment (Module)
On-Campus Living: Roommate Relationship (Module)
Off-Campus Living: Environment (Module)
Test Anxiety (Module)

Appendix D

MAP-Works Survey Items Related to Goal Commitment and Institutional Commitment

Goal Commitment
Overall, to what degree are you: Motivated to complete your academic work
Overall, to what degree are you: Learning
To what degree are you certain that you can: Do well in your hardest course
To what degree are you certain that you can: Do well on all problems and tasks assigned in your courses
To what degree are you certain that you can: Persevere on class projects even when there are challenges

Institutional Commitment
To what degree are you committed to completing your: College degree at this institution
Overall, please rate your experience at this institution:
To what degree do you intend to come back to this institution for the: Spring term
To what degree do you intend to come back to this institution for the: Academic Year
Overall, to what degree: Would you choose this institution again if you had it to do over?
Overall, to what degree: Would you recommend this institution to someone who wants to attend college

Appendix E

Reliability Analysis of MAP-Works Survey Items Related to Goal Commitment

Cohort 2009 Scale Reliability Statistics

	Cronbach's α
scale	0.828

Cohort 2010 Scale Reliability Statistics

	Cronbach's α
scale	0.808

Cohort 2011 Scale Reliability Statistics

	Cronbach's α
scale	0.831

Cohort 2012 Scale Reliability Statistics

	Cronbach's α
scale	0.837

Cohort 2013 Scale Reliability Statistics

	Cronbach's α
scale	0.819

Cohort 2014 Scale Reliability Statistics

	Cronbach's α
scale	0.824

Appendix F

Reliability Analysis of MAP-Works Survey Items Related to Institutional Commitment

Cohort 2009 Scale Reliability Statistics

	Cronbach's α
scale	0.877

Cohort 2010 Scale Reliability Statistics

	Cronbach's α
scale	0.882

Cohort 2011 Scale Reliability Statistics

	Cronbach's α
scale	0.876

Cohort 2012 Scale Reliability Statistics

	Cronbach's α
scale	0.876

Cohort 2013 Scale Reliability Statistics

	Cronbach's α
scale	0.875

Cohort 2014 Scale Reliability Statistics

	Cronbach's α
scale	0.861

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