

STARS

University of Central Florida
STARS

Electronic Theses and Dissertations, 2004-2019

2014

The Social Function of For-Profit Higher Education in the United States

Andrew Baird
University of Central Florida

 Part of the [Sociology Commons](#)

Find similar works at: <https://stars.library.ucf.edu/etd>

University of Central Florida Libraries <http://library.ucf.edu>

This Doctoral Dissertation (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations, 2004-2019 by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

STARS Citation

Baird, Andrew, "The Social Function of For-Profit Higher Education in the United States" (2014). *Electronic Theses and Dissertations, 2004-2019*. 1201.

<https://stars.library.ucf.edu/etd/1201>



THE SOCIAL FUNCTION OF FOR-PROFIT HIGHER EDUCATION IN THE UNITED
STATES

by

ANDREW FREDERICK BAIRD
Masters of Arts- The University of West Georgia, 2010
Bachelors of Science- Florida State University, 2008

A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Department of Sociology
in the College of Sciences
at the University of Central Florida
Orlando, Florida

Summer Term
2015

Major Professor: J. Scott Carter

ABSTRACT

This study uses the competing Burton Clark's "Cooling Out Theory" and Daniel Bell's "Theory of the Postindustrial Economy" to examine the function that for-profit colleges and universities (FPCUs) play in American higher education and how it is different from non-profit traditional colleges and universities (TCUs). This was done through three sections of analysis. The first examined if students who enroll at these FPCUs are less academically prepared than those attending non-profit traditional colleges or universities. The second tested if academic preparedness is associated with postsecondary performance at FPCUs to the same degree it is at TCUs. The final section of analysis looked at FPCU graduates to see if they have different short-term job outcomes when compared to traditional college graduates. This research utilizes The Beginning Postsecondary Survey 2009- a restricted-use longitudinal data set produced by the National Center for Education Statistics that followed 16,700 first-time college enrollees from 2003 until 2009. This data set includes information on student demographics, academic performance, enrollment history, and job outcomes. The results of this study indicated that when compared to traditional college students, FPCU students are less likely to be academically prepared for college and are more frequently characterized by risk factors that previous research has shown makes it less likely they will complete their degree. This research also found that unlike TCUs, high school academic performance is not associated with post-secondary performance or likelihood

of degree attainment at FPCUs. Finally, it was observed that FPCU graduates were less likely to have jobs related to their degree and earned less income than TCU graduates, but had about the same degree of job satisfaction.

For my Grandfather.

ACKNOWLEDGEMENTS

To Dr. Scott Carter: Thank you for your consistent guidance and patience. I'm sure that no matter what I achieve in my career moving forward, I will owe much of it to you.

To Mom, Dad, and Erin: Thank you for continuing to support me through the challenges I have faced in the pursuit of my goals. I love you all.

To my cohort: I would not have made it to this point without the openness, levity, and comfort you have provided.

To Tom, Kris, Mike, and Justin: You are my brothers. None of us are the people we are today without each other.

To Stephanie: Thank you for making the year in which I wrote this one of the best of my life.

TABLE OF CONTENTS

LIST OF TABLES	xiii
CHAPTER ONE: INTRODUCTION	1
CHAPTER TWO: REVIEW OF LITERATURE, THEORY, AND PURPOSE.....	6
Contemporary Literature on For-Profit Higher Education.....	6
The Rise to Prominence of For-Profit Higher Education	6
Student Characteristics Influencing Enrollment at a For-Profit Colleges and Universities	10
Retention and Attainment at For-Profit Colleges and Universities	12
Professional Outcomes for Graduates of For-Profit Colleges and Universities	13
Competing Theoretical Frameworks	14
The Optimistic View of the Social Function of For-Profit Higher Education: Educating a New Population of Students for the Postindustrial Economy.....	15
The Darker View of the Social Function of For-Profit Higher Education: Burton Clark’s “Cooling-Out” Function of Education	21
Purpose, Research Questions, and Contribution to Literature.....	25

Research Question and Hypotheses: High School Performance, Risk Factors to Attainment, and Enrollment at a For-Profit College or University	26
Research Question and Hypotheses: The Association between Academic Preparedness, Risk Factors to Attainment, and Post-Secondary Performance at a Tradition versus For-Profit College or University.....	27
Research Question and Hypotheses: The Influence of Graduating from a FPCU on Employment Satisfaction, Benefits, Pay, and Professional Relevancy of Degree..	30
CHAPTER THREE: METHODOLOGY	33
Data	33
Measures.....	35
Enrollment/Graduation at a For-Profit College or University	35
Student Characteristics	36
Indicators of Academic Preparedness.....	37
Indicators of Postsecondary Performance	39
Indicators of Job Benefits.....	39
Indicators of Degree Professional Relevance	40
Indicators of Job Satisfaction	41
Post-Graduation Income	42

Analytical Strategy	42
Student Characteristics, High School Academic Performance, and For-Profit College or University Enrollment	43
The Association between Academic Preparedness, Risk Factors to Attainment, and Postsecondary Performance at Traditional of For-Profit School	45
The Influence of Graduating From a FPCU on Employment Satisfaction, Benefits, Professional Relevancy of Degree, and Pay	47
CHAPTER FOUR: HIGH SCHOOL ACADEMIC PERFORMANCE, RISK FACTORS TO ATTAINMENT, AND ENROLLMENT AT A FOR-PROFIT COLLEGE OR UNIVERSITY	50
Introduction	50
Application of Theory and Hypothesis	52
Student Demographic Characteristics by FPCU or TCU Enrollment	53
Age When First Enrolled in College	54
Gender	54
Race	54
Mean Income Percentile Rank	56
Academic Preparedness and Enrollment at a FPCU	57

T-Test of Means for High School GPA Category, SAT Score, and Risk Index Score	58
X ² Test of Frequencies for if Students Had Four+ Years of Core Subjects	61
Binary Logistic Regression Predicting Enrollment at a FPCU Using Indicators of Academic Preparedness	62
Chapter Summary.....	66
CHAPTER FIVE: THE ASSOCIATION BETWEEN ACADEMIC PREPAREDNESS, RISK FACTORS TO ATTAINMENT, AND POST-SECONDARY PERFORMANCE AT A TRADITIONAL VERSUS FOR-PROFIT COLLEGE OR UNIVERSITY	68
Introduction.....	68
Application of Theory and Hypothesis.....	69
Descriptive Statistics: Student Demographic Characteristics by FPCU Enrollment...	71
Descriptive Statistics: Post-secondary Performance by Demographic Factors and Type of Institution	74
Cumulative Postsecondary GPA by Demographic Factors and Type of Institution	74
Age at Enrollment.....	74
Gender	75
Race.....	75
Income Percentile Rank	76

Descriptive Statistics: Six Year Degree Attainment by Demographic Factors and Type of Institution	79
Age at First Enrollment.....	79
Race.....	80
Income	81
Bivariate Analysis between Institution Types: Cumulative Postsecondary GPA and Indicators of Academic Preparedness	83
T-Test of Independent Means for Taking Four or More Years of Core Courses	83
Pairwise Correlations by Institution Type: High School GPA Category, SAT Score, and Risk Index Score	86
Bivariate Analysis between Institution Types: Six-Year Degree Attainment and Indicators of Academic Preparedness	87
Chi2 Test of Frequencies between Institution Types: Taking Four or More Years of Core Courses.....	87
T-Test of Means between Institution Types: High School GPA Category, SAT Score, and Risk Index by Six-Year Degree Attainment.....	90
Multivariate Analysis between Institution Types: Indicators of Academic Preparedness as Predictors of College GPA	92
Indicators of Academic Preparedness as Predictors of College GPA at TCUs	92

Indicators of Academic Preparedness as Predictors of College GPA at FPCUs....	96
Multivariate Analysis between Institution Types: Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment	98
Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment at TCUs.....	98
Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment at FPCUs	102
Chapter Summary.....	104
 CHAPTER SIX: THE INFLUENCE OF GRADUATING FROM A FPCU ON EMPLOYMENT SATISFACTION, BENEFITS, PROFESSIONAL RELEVANCY OF DEGREE, AND PAY	
	106
Introduction.....	106
Application of Theory and Hypothesis	107
Demographic of Graduates with Jobs by University Type	108
Age at the Time of the 2009 Interview.....	109
Gender	109
Race.....	109
Mean Income Percentile	111
Analysis	112

X ² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Employers Benefits Received	113
X ² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Indicators of Professional Relevancy of Degree	115
X ² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Indicators of Job Satisfaction	118
T-Test of Means and Propensity Score Matched Estimated Treatment Effect for Personal Income	122
Chapter Summary.....	124
CHAPTER SEVEN: DISCUSSION.....	127
High School Performance, Risk Factors to Attainment, and Enrollment at a For-Profit College or University.....	127
The Association between Academic Preparedness, Risk Factors to Attainment, and Post-Secondary Performance at a Traditional Versus For-Profit College or University	129
The Influence of Graduating from a FPCU on Employment Satisfaction, Benefits, Professional Relevance of Degree, and Pay	131
Recommendations for Future Research	134
REFERENCES.....	137

LIST OF TABLES

Table 1: Student Characteristics by If They Enrolled at a TCU or FPCU	57
Table 2: T-Test of Means for Indicators of Academic Preparedness by Enrollment in an FPCU	60
Table 3: Chi2 Test of Frequencies of Indicators of Academic Preparedness by Enrollment at TCU or FPCU.....	62
Table 4: Odds Ratios Predicting if Student Enrolled at a FPCU by Indicators of Academic Preparedness	65
Table 5: Characteristics of Students Who Enrolled w/o Transferring from a TCU or FPCU Institution	73
Table 6: Mean Overall College GPA by Institution Type and Student Characteristics ..	78
Table 7: Six-Year Degree Attainment Percentage by Institution Type and Student Characteristics	82
Table 8: T-Test of Means for College GPA by Indicators of College Preparedness	85
Table 9: Pairwise Correlations between Indicators of College Preparedness and College GPA.....	86
Table 10: χ^2 Test of Frequencies between Indicators of College Preparedness and Degree Attainment	89
Table 11: T-test of Means between Indicators of College Preparedness and Degree Attainment	91

Table 12: OLS Regression Coefficients Predicting College GPA at TCUs by Indicators of College Preparedness.....	95
Table 13: OLS Regression Coefficients Predicting College GPA at FPCUs by Indicators of College Preparedness.....	97
Table 14: Odds Ratios Predicting Degree Attainment at TCUs by Indicators of Academic Preparedness.....	101
Table 15: Odds Ratios Predicting Degree Attainment at FPCUs by Indicators of Academic Preparedness	103
Table 16: Characteristics of Graduates w/ Jobs in 2009 by If They Graduated a TCU or FPCU	112
Table 17: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Job Benefits Offered.....	115
Table 18: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Indicators on Professional Relevance of Degree	117
Table 19: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Indicators of Job Satisfaction	121
Table 20: T-Test of Means and PScore Matched Predicted Treatment Effect on Indicators of Financial Outcomes	123

CHAPTER ONE: INTRODUCTION

The for-profit sector of higher education has seen exponential growth over the past three decades (Beaver, 2009, Ruch, 2001, Deming, Goldin, & Katz, 2012). By 2005, one in ten college students enrolled in the United States attended a college or university that operated on a for-profit basis (Blumenstyk, 2005). This growth coincides with overall college enrollments spiking by 32% from 2001 to 2011 (NCES, 2013). In spite of the rapid growth that these universities have seen and the countless more Americans they have brought into the fold of the higher education, their success has not been universally lauded. For-profit colleges and universities (FPCUs from this point forward) have been a frequent source of controversy as many scholars, law-markers, and other social commentators have claimed the value of the education they provide is questionable, and as are the prospects of upward social mobility for their graduates. (Deming, Goldin, & Katz, 2012, Beaver 2009, Kinser, 2007). A disproportionate number of their former students default on students loans compared to what is typically seen at more traditional non-profit colleges and universities (NCES, 2013). This has been said to be the result of few quality job prospects for FPCU graduates (Deming, Goldin, & Katz, 2012; Lang & Weinstein, 2012), FPCUs enrolling students who are not prepared or able to succeed (Shinoda, 2014), and an overall poor quality of education provided at

these schools (Kinser, 2007; Ruch, 2001; Beaver, 2009; Deming, Goldin, Katz, 2012).

Proponents of FPCUs claim that these schools educate portions of the population that historically have not attended college- providing them with tools to participate in a 21st century knowledge economy that demands a greater proportion of the workforce be college educated (Hentschke, Lechuga, Tierney, 2010, Ruch 2001, Beaver, 2009, Center for Analysis of Postsecondary Education and Employment, 2013). This line of reasoning echoes Daniel Bell's (1976) theory of the post-industrial economy. This theory, outlined by Bell in the 1960's, suggested that the 21st century would see a rapid increase in demand for highly-skilled, college-educated workers who could meaningfully contribute to an economic system that was largely predicated on knowledge rather than the heavy industry and manufacturing of the past. This means that alternative avenues to higher education would need to be opened in order to provide the needed education to a working class in the United States that has traditionally not pursued postsecondary education.

Detractors of FPCUs have claimed that these schools are taking advantage of disadvantaged populations that are often not prepared to complete a postsecondary degree by profiteering on their aspirations for upward social mobility (Caterino, 2014; Beaver, 2009; Ruch, 2001) - providing in the best case scenario that the student graduates, an education of marginal value at an absorbent cost that is financed by debt

in the form of federal guaranteed student loans (Beaver, 2009, Ruch, 2001). This interpretation of the role that FPCUs play is akin to the vision of higher education described by Burton Clark (1960). Clark saw highly-skilled jobs as becoming increasingly exclusive, leaving the vast majority of the working class population with little chance for upward social mobility. Higher education's role would thus be split in two. Some colleges would educate already established middle-class students for high-skilled jobs. Other colleges would enroll lower-SES students with little potential to gain middle-class employment to provide them an illusion of the prospect of upward social mobility. These less prepared students would either fail-out in due time or be provided with a degree of marginal value. The end-result leaves the students socio-economically stagnant, but left with the illusion that they were given a legitimate opportunity, thus pacifying them and leaving their fundamental faith in American meritocracy intact.

This research employs three different sections of analysis to test these competing views concerning the role FPCUs in the United States and establish if FPCUs are providing legitimate opportunity to a new breed of college students, or if they are profiting on a mirage of upward social mobility for students who never had a sincere chance to see the benefits of higher education. The first section of analysis examines those who enroll at FPCUs for characteristics that have been shown in previous literature to hinder a student's ability to complete a postsecondary degree. The second section examines the degree of impact these factors have on a FPCUs student's ability to graduate. Finally the last section explores the quality of jobs that are obtained by

FPCU graduates as well as the level of satisfaction that graduates derive from these jobs.

Previous research has shown that FPCU students tend to be of lower socio-economic status than students who attended traditional colleges and universities (TCUs). They are also more likely to be first-generation college students, racial minorities, and older than what is considered to be “traditional” college age (Deming, Goldin, & Katz, 2012; Beaver, 2009; Ruch, 2001). FPCU graduates have been shown to have career outcomes that provide less income than TCU graduates and less of an ability to payback student loans (Deming, Goldin, & Katz, 2012; Lynch, Engle, & Cruz, 2010; Beaver, 2009). What research has not demonstrated is if these students are demographically different in ways that hinder their ability to successfully complete a college degree. Previous research has also not performed any systematic analysis that may indicate the overall quality of education at these colleges or the quality of jobs received after graduation beyond merely indicators of income.

Analysis utilizes data that is drawn from the National Center for Education Statistics’ Beginning Postsecondary Survey 2009 to address the following guiding questions: (1) Are students who enrolled at a FPCU less academically prepared for higher education than students who enroll at a TCU? (2) Is the association between academic preparedness and postsecondary outcomes as strong for students at FPCUs compared to TCUs? (3) Do short term career outcomes for FPCU graduates with an

associate's degree or professional certificate differ from TCU graduates with the same credentials?

CHAPTER TWO: REVIEW OF LITERATURE, THEORY, AND PURPOSE

Contemporary Literature on For-Profit Higher Education

For-profit higher education has been a topic that has seen increasing coverage for both the press and in academia in recent years. Despite the fact that FPCUs have existed in the United States since its inception, they had not become extensively studied or written about until their exponential growth and string of controversies beginning in the 1990's (Beaver, 2009). This section will summarize much of what has been written about FPCUs to provide a coherent narrative about how these universities are different from their traditional college and university (TCU) counterparts and what is known about the function they serve.

The Rise to Prominence of For-Profit Higher Education

Higher education has been in a state of flux in recent decades. In the span of time from 2001 to 2011, enrollment at degree-granting institutions of higher education in the United States jumped from 15.9 million students to 21.0 million students. A spike of approximately 32% (NCES, 2013). Riding this surge in college enrollment in the United States has been the for-profit industry of higher education. While FPCUs have been present in US higher education since the 1600's, it was not until relatively recently that this sector of high education achieved the level of prominence that it enjoys today (Beaver, 2009). In 2005 the for-profit sector of higher education claimed approximately 10% of total post-secondary students in the United States. This exponential growth of

FPCUs has translated into lucrative returns for these institutions and many of their investors. As of 2005, the FPCU industry had a net value of \$48 billion dollars (Blumenstyk, 2005).

The growth of FPCUs is the result of a confluence of greater demand for higher education and an economic policy environment that is more conducive to FPCU growth, development, and operation in the US (Beaver, 2009). The 1970s and 1980s marked the beginning of many federal level policy reforms that encouraged the private sector to assume many of the roles that had traditionally been held by public sector institutions. This free-market based ideology in public policy is commonly known today as “neoliberalism” (Akard, 1992; Jenkins & Eckhert, 2000; Piven, 2007; Reich, 1993). What is arguably the most substantial policy shift favoring the growth of FPCUs came with the 1972 renewal of the *Higher Education Act*. The amendments added to the 1972 revision made FPCUs eligible for federal student loans and grants, a source of revenue that has been the life-blood of the for-profit higher education industry ever since (Beaver, 2009, Kinser, 2007, Blumenstyk, 2005, Deming, Goldin, and Katz, 2012). The rationale for including FPCUs as eligible to receive federal student aid was related to the populations of students they serve. As is the case today and has been the case for much of their existence, FPCUs serve populations that historically do not attend college. This includes poorer, minority, and first-generation college students. Political supporters of FPCUs claimed that excluding students who attend FPCUs from federal

student aid is tantamount to structural discrimination of under-privileged prospective college students (Breneman 1993; Zook 1994).

One key feature of for profit education may seem surprising and counter-intuitive. While these universities operate under the profit motive for the benefit of their investors and not any arm of the public sector, they are disproportionately more reliant on federal spending than their public or private non-profit counterparts. As of 2005, among undergraduates who attended a for-profit university, 89% of them received federal student aid. This is in stark contrast to students at TCUs, of whom approximately two-thirds receive federal student aid (National Center for Education Statistics, 2005). FPCUs also almost exclusively receive revenue from tuition, as the vast majority of these institutions do not engage in any form of research (Beaver, 2009; Ruch, 2001). The relatively stable flow of revenue from federal student aid has made for-profit universities that are publicly traded particularly popular targets for investors because of their inherently stable business model that sits upon practically guaranteed public sector support (Beaver, 2009).

Even before FPCUs were made eligible for federal student loans and grants, the industry had been plagued by controversy and vocal detractors (Clowes, 1995). Among the first accusations of wide-spread wrong-doing in the sector came when the US General Accounting Office (1951) found that 65% of FPCUs used practices it deemed questionable to overcharge the federal government for students who were financed by

the post-World War II GI Bill. This would be the first of a continuing string of disputes that the FPCU industry would have with their primary source of funding, the US Federal Government (Beaver, 2009). As the federal dollars that became the life-blood of FPCUs increased since the 1972 revision of the *Higher Education Act*, so did the number of controversies and accusations of fraud associated with these colleges and universities. By the 1990s FPCUs were estimated to account for as much as 75% of all cases of student loan fraud (Zook & Burd, 1994). Many subsequent disputes would revolve around accusations of substandard quality of education provided and unethical student recruitment practices utilized by FPCUs (Clowes, 1995; Beaver, 2009, Ruch, 2001).

By the 1990s and 2000s, student default rates at FPCUs became an area of increasing concern for federal lawmakers. Student loan rates of default at for-profits had historically been higher at FPCUs than was the case TCUs. As a result, congress passed regulations in the 1990's that made colleges and universities with default rates over 25% for three consecutive years ineligible to receive federal financial aid (Beaver, 2009).

Politically, the subject of FPCUs became an issue that was largely divided along partisan lines beginning in the 1990s and continuing into the current political climate (Beaver, 2009). Many Democrats who oppose the expansion of FPCUs argue that they serve primarily to exploit working-class Americans by making their profit from students

who take on exorbitant debt for a degree of marginal value. On the other side of the aisle, frequently more privatization-minded Republicans have responded the FPCUs provide opportunities for higher education to underprivileged populations that TCUs historically have overlooked, and FPCUs are preparing underprivileged students for a job market that increasingly demands a college education (Zook, 1994). This is an ideological schism that will be explored through the theoretical framework of this research.

Student Characteristics Influencing Enrollment at a For-Profit Colleges and Universities

As discussed previously, there is a greater aggregate demand for higher education in the United States. Much of this increase in overall percentage of individuals who pursue a college degree is accounted for in demographics that traditionally have not attended college (Tierney & Hentschke, 2007) The shift in demographics of college students in the United States cuts across many different dimensions of diversity including age, race, gender, class, and prior educational history (The National Center for Education Statistics, 2003)

This influx of new students who represent a broader cross-section of the United States populations have created a growing category of college student: the non-traditional student. The definition of what constitutes a “non-traditional” college student is currently widely debated (Ross-Gordon, 2011), but all current definitions set this group apart from more traditional college students in ways that are related either age,

race, gender, class, prior educational experience, or some sort of combination thereof. The most commonly used functional definition is The National Center for Education Statistics' (Metzner & Bean, 1994; National Center for Education Statistics, 2002) definition of non-traditional college students as, "... [a] heterogeneous population of adult students who often have family and work responsibilities as well as other life circumstances that can interfere with successful completion of educational objectives" (p.1). Almost regardless of which of the commonly used definitions of non-traditional students is used, FPCUs are flush with them compared to their TCU counterparts (Ruch, 2001; Beaver, 2009; Kinser, 2006). Ruch (2001), stated that the typical demographic profile for a student attending a FPCU is a, "27-year old female, ethnic minority (African American, Hispanic or Asian), U.S. citizen, married with one or two dependents, holding a full- or part-time job while going to school, and having some prior college experience" (p.32).

Deming, Goldin, and Katz's (2012) analysis of the BPS 2009 survey yielded a wealth of results that largely coincides with the previously published literature on FPCU student characteristics. They were able to conclude that FPCU students were disproportionately female, minority, low income, and older. Women comprise a disproportionate amount of the enrollment at FPCUs at approximately 65%. While women represent the majority of students across all sectors of higher education, this trend is much more pronounced at FPCUs than it is at community colleges and 4-year TCUs where they cover between 55% and 57%. Additionally, FPCUs had at least ten

percent more African Americans or Hispanics than were found at community colleges and 4-year TCUs. Not surprisingly, FPCU students in the BPS 2009 survey were also found to be older. Approximately 65% were age 25 or older. At TCUs this number varies between 30% and 40%, depending on if the TCU emphasizes 2 or 4 years programs. FPCUs were much more likely to have gotten a GED rather than graduated from a high school. In fact, over 17% of FPCU students had earned a GED before enrolling. This compares with approximately 10% at community colleges and approximately 2% at 4-year TCUs. Almost a quarter (22%) of FPCU students had a mother that was a high school dropout. This compares with 14% at community colleges and 5% at 4-year TCUs.

Retention and Attainment at For-Profit Colleges and Universities

FPCUs have historically been dogged by low graduation rates. The 6-year graduation rate for first time students at an FPCU was merely 32% percent in 2012. This is compared to 56% at public colleges and universities and 66% at private non-profit colleges and universities (NCES, 2014). Some of the largest and most financially successful for-profit universities are also some of the worst in terms of student graduation. At the largest corporate owned universities, such as the University of Phoenix and DeVry, well over half of the students who are enrolled leave the university without any sort of degree (Lynch, Engle, & Cruz, 2010).

There is scant research that has been done on the overall rates of retention at FPCUs. Much of this has been attributed to a lack of institutional transparency within these institutions (Kirp, 2001). Due to the relative cost of these institutions though, it can be assumed that the cost of not completing a degree at a FPCU can be quite high. Many of the students who leave a FPCU without a degree still leave with a sizable amount of student debt. Given that, as noted above, these institutions disproportionately attract those who are already disadvantaged, a five-figure amount of student debt with absolutely nothing gained in return can be financially crippling (Lynch, Engle, Cruz, 2010).

Professional Outcomes for Graduates of For-Profit Colleges and Universities

There has been much written about the professional viability of FPCU graduates in light of the U.S. Department of Education's recently adopted "gainful employment rule" for federal student loan and grant eligibility for an institution of higher learning. To be in accordance with this rule, "at least 35 percent of each cohort of graduates must be in repayment of their federal loans or if that annual loan payment for a typical student is 12 percent or less of annual earnings or 30 percent or less of discretionary income." (Deming, Goldin, & Katz, 2013; p.154). This rule has proven to be problematic for FPCUs. As of 2011, among academic programs with 30 or more students, only for-profit institutions failed to meet all three standards. Among corporate for-profit schools,

9% of these schools failed to meet at least one of the standards. Over half failed to meet all three standards (CAPSEE, 2013).

Given the number of FPCUs that have failed to meet the new federal guidelines for student loan repayment, it is perhaps not surprising that contemporary research has found FPCU graduates' income is substantially less than what is expected for graduates of TCUs (Chung, 2008; Deming, Goldin, & Katz, 2013; Lang & Weinstein, 2012). FPCU graduates generally have more difficulty finding employment and longer stints of unemployment or underemployment (Deming, Goldin, & Katz, 2011). Even when demographically similar students are compared using propensity score-matching, FPCU graduates generally see less financial return on their degree than students who get the same degree at a TCU (Lang & Weinstein, 2012). Yet FPCU students typically pay more for their degree, generally in the form of student loans (Deming, Goldin, & Katz, 2011).

Competing Theoretical Frameworks

This research provides two competing perspectives to serve as a point of reference for formulating research questions and interpreting the results of analysis. The first utilizes Daniel Bell's (1976) theory of "The Postmodern Economy" to justify FPCUs as necessary to create a better-educated work force for the 21st Century knowledge-driven economy. The second framework discussed is Burton Clark's "Cooling Out" theory, which is used to explain how FPCUs may exploit the college aspirations of ill-prepared,

lower-SES individuals without actually providing the benefit of a legitimate postsecondary education.

The Optimistic View of the Social Function of For-Profit Higher Education: Educating a New Population of Students for the Postindustrial Economy

FPCUs have faced political controversy since their inception but, as was noted previously, have in recent years found themselves increasingly on the defensive. FPCUs and those who have come to their defense have generally echoed a similar rhetorical defense. The stance frequently mounted by advocates of FPCUs is that they are embracing and educating a non-traditional population of college students that the more traditional public and non-profit universities have historically not made room for. The populations that for-profits have historically claimed to serve and cater to include: older students, minority students, poorer students, first-generation college students, and military veterans (Berg, 2005; JBL Associates, 2008).

The Bureau of Labor Statistics has projected for many years that the labor market would demand a work force that is better educated, and as result, a workforce that has increased access to higher education (Bureau of Labor Statistics, 2003). This structure shift translated into a cultural shift, as starting in 1966 and continuing through the 20th century, lower SES individuals came to view college education as increasingly necessary to have a shot at prosperity (Astin, 1998). This increased demand for an educated workforce occurs concurrently at a time in which TCUs have become more

selective. Much of this demand of a more educated workforce is in industries that FPCUs explicitly try and cater to including: information systems, business, and nursing (Hentschke, Lechuga, & Tierney, 2010).

Daniel Bell (1976) theorized a similar economic shift to what was just described in which an increasing premium is placed on developing a college-educated, highly-skilled workforce. This shift is what he called the move from an industrial to a “post-industrial” economy. The post-industrial economy comes to rely heavily on the production of knowledge and information. This changes drastically the nature of labor and its value. Bell defined the post-industrial economy and preceding forms of economy as follows in order of historical appearance in the modern world:

The Pre-industrial Economy: Uses primarily labor that is unskilled. The principle goal of most of the workers during this era is to effectively extract raw material from nature in order to be meeting the basic requirements in which to continue surviving. It is structured around what Bell called society’s “game against nature.”

The Industrial Economy: Uses labor that is semi-skilled and oriented around engaging in processing and changing raw materials. Empiricism becomes a driving force behind this form of economy thus necessitates the increase in the skills of the worker as the work involves an increasing amount of precision. This form of society is what Bell describes as “a game against fabricated nature.”

The Post-Industrial Economy: This form of economy is firmly oriented around workers that are highly skilled. These workers work in the financial sector, education, health care, government, and the service sector. Computers and other forms of information technology come to play a large role in how work is done. Rather than confront nature in any sort of physical way, mankind's efforts come to be increasingly characterized by abstract theorizing. The organization of knowledge becomes the key feature in this form of economy and not the relationship between man and nature. Thus it is what Bell calls, "a game between persons."

Bell describes several key features of the post-industrial society that are in stark contrast to the previous industrial society it comes to displace. The first being a move away from manufacturing and other forms of material production and toward the service and information sectors as the main force of the economy. As a result of this shift toward the service and information sectors, knowledge rather than property becomes an increasingly valuable commodity. Subsequently, society relies on technical expertise increasingly creating forms of social and political life that become more rationalized.

Bell thought one of the most substantial hurdles in transitioning toward a postmodern economy to be the grossly inadequate volume of workers that are college educated. He considered it inevitable that the proportion of college educated workers in the United States would come to be inadequate to the process of building the postmodern economy, and thus an expansion of the college system would be needed.

Occupational fields would become increasingly predicated on scientific forms of knowledge, and as a result the role of higher education was to increase exponentially. He expected the division of labor in society to become significantly more defused (or “organic” in the Durkheimian sense). This means that occupational forms of knowledge would become increasingly esoteric as labor itself becomes more specialized. While this naturally increases the level of training that is demanded from the average worker, it also increases the relative value of skilled-labor, especially in the initial years of the postmodern economy.

For Bell, the need for workers with higher education is directly proportional to three intertwined factors: The economic need to develop and adopt new technology, the overall age distribution of the American population, and the percentage of the American population that has already obtained or are attempting to obtain a higher education degree. Bell saw a long-term trend of shortage in college educated labor occurring as we breached and moved deeper into the 21st century.

In order for this shortage to be remedied, Bell suggested that it would inevitably be necessary to pull new college graduates from the ranks of working class families who intergenerationally did not attend college in the past. He rejected the notion that working class individuals had not traditionally attended college due to discriminatory barriers. In Bell's view, social achievement or lack thereof in a given population is the result of culturally transferred aspirations; And without a viable economic demand for

higher education, the working class simply lacked the aspirations for it. He saw this changing at the dawn of the post-industrial economy. Bell claimed, “By providing certain opportunities where they did not previously exist, latent mobility aspiration and achievement motives will be triggered and the previously deprived will be brought into the mainstream of an upwardly mobile and achievement oriented society” (p.142).

Bell saw social mobility in the post-industrial economy as something that would become unprecedentedly fluid. He saw education as the key mechanism of this, and given the nature of the knowledge-driven economy, its influence on social mobility was to become even more direct and profound. This is a stance that he became further endeared to when revising *Coming of the Post-Industrial Society* in 1999. He emphasizes that education, and higher education particularly, had become more accessible to working-class and minority populations, and as a result had led to increased social mobility since the initial publication of his book in 1976. He believed the full dividends of the opened-up education system had not paid off to that point to its potential, but they inevitably would once social capital (he uses this term in the sense of James S. Coleman) catches up within traditionally working class populations. Access to college education is to give working-class populations access to social networks that provide social capital to these populations slowly over time.

There is a wealth of evidence that support at least the portion of Bell’s hypothesis that suggests higher education would continue to become more in-demand in the late

20th and early 21st Century US. Since the period of time immediately after The Second World War, the percentage of US adults with college degrees rose substantially as did the proportion of the work force that was employed in white-collar or technical jobs (Ruggles et al., 2010; Bankston, 2011). An increasingly technical and data-driven knowledge economy has created a labor market that has seen a disproportionate increase in the demand for skilled-technical workers and analysts who either require esoteric skills or forms of knowledge that require at least two years of specialized training after high school graduation (Riech, 1993; Goldin & Katz, 2008). In 1940, approximately 5% of the US work force was employed in what the Bureau of Labor Statistics would define as “professional” or “technical.” By 2008, that proportion had jumped to nearly a quarter of the US labor market. The percentage of college graduates has kept pace on a very similar trajectory (Ruggles et al, 2010).

Many of those that represent FPCUs in the policy realm have long claimed that TCUs have not risen to meet the increased demand for higher education. Specifically they have failed to meet the demand for higher education that has come from populations that historically had not attended college in the past. This basic argument is the primary rationale espoused by the National Association of Private Sector Colleges, the lobbying arm of FPCUs, in opposing many of the regulations that have threatened to exclude many FPCUs from the federal student aid money that is their lifeblood (Devarics, 2011). A similar claim was also the justification for the 1972 revision of The Higher Education Act that made FPCUs eligible for federal student aid money in the first

place- jump-starting their ascension to the mainstream of higher education in the United States (Kinser, 2007).

The Darker View of the Social Function of For-Profit Higher Education: Burton Clark's "Cooling-Out" Function of Education

Burton Clark (1960) saw a substantial schism in the dynamics of all democratic societies. Modern democracies have become increasingly predicated on an egalitarian ideology that prizes open access and advancement based on merit, while minimizing the influence of social origin in dictating upward social mobility. While adherence to this core ideology by the majority of citizens is a perquisite of a functioning democratic society, it in most ways does not reflect the inherent reality of class structure and social mobility in such a society. To put it simply: democratic societies including the United States are nowhere near the meritocracies they are commonly thought to be by their citizens, but maintaining that delusion is essential.

Everyone within a democratic society must have the same aspirations and socially approved set of goals for upward mobility and life trajectory, but at the same time pragmatic reality of social stratification means that not everyone will have the same means to reach those goals. With this in mind, it is necessary not only to motivate those with the potential to succeed- a democratic society must also as Clark puts it "mollify" those who are denied the ability to succeed. When individuals encounter a disjuncture between their culturally provided goals and the structurally provided means

afforded to them, this creates frustration, disengagement from the social system, and the kind of strain described Robert K. Merton (1968) through his strain theory of social deviance.

Key to the success of any democratic society is the idea of meritocracy, and by association the idea of “equal opportunity.” Furthermore, in a modern social environment of increased labor specialization, open access to college becomes a key prerequisite to the value of equal opportunity. According to Clark, if much of society is denied access to higher education, they will quickly realize they are in a stagnant plight with little opportunity to advance up the socio-economic ladder.

“Democracy asks individuals to act as if social mobility is universally possible; status is to be won by individual effort, and rewards are to accrue to those who try. But democratic societies also need selective training institutions, and hierarchal work organizations to permit increasingly few persons to succeed at ascending levels. Situations of opportunity are also situations of denial and failure. Thus democratic societies need not only to motivate achievement but also to mollify those denied it in order to sustain motivation in the face of disappointment and deflect resentment.”

Clark’s theory is an analysis and critique of culturally espoused aspirations and goals versus the actual means that an individual has to obtain the goals that society suggests

that they should have. Naturally, the vast majority of people in a democratic, yet socially stratified society do not have the means to reach their goals in terms of status attainment and social mobility. Accordingly, more people are granted access to college in modern democratic societies, but no more proportionately are given access to upward mobility. Colleges and universities serve the dual function of being institutions in which individuals can achieve upward social mobility and be denied upward social mobility. This denial of social mobility is what Clark refers to as “cooling out.” This is the process by which individuals who do not have the means to reach a higher social strata are denied their aspiration in a way that mollifies them and creates the illusion that they were given a legitimate opportunity to achieve their goals. This is a process that maintains the social order of the status quo and protects the limited number of avenues of upward social mobility that are reserved for the few.

In denying a given student, the cooling out process in colleges can take the form of a “hard” or “soft” denial. A hard denial is largely defined by being openly defined as the denial and failure that it is. It generally takes the form of the students academically failing out of their institution of higher education. Denial of the avenues toward achievement is abrupt and frequently very public. The student’s life changes substantially and quickly as they lose the social status of “college student” and all of the privileges and insularity it entails such as financial aid and access to beneficial social networks (Simpson, Baker, & Mellinger, 1980).

A soft denial is not as abrupt, but more of a gradual process of reorientation of the student away from their aspirations, and sidetracking them toward a more feasible, but compromised route for their academic and professional future. This process involves encouraging the student to abandon their initial aspirations in favor of goals that are more attainable, but likely far less lucrative. Clark suggests that in more traditional public/non-profit two and four year colleges this may be done by getting the student to change their major. This may be done by default at FPCUs through their already limited number of degree programs offered, all of which are typically intended to link to a specific vocational career path (Beaver, 2009; Kinser, 2007; Ruch, 2001)

Clark suggests that students who are cooled out are those that lack the academic capabilities to succeed in higher education. This research though will expand on the concept of cooling out to apply to those that do not have the socio-economic, cultural capital, and/or time resources to succeed in degree attainment and subsequently obtaining quality employment after graduation. While prior academic performance has historically been a reliable predictor of success in both higher education and the labor market, these three forms of resources have been shown also to be relevant and effective predictors of one's ability to excel in college and subsequently find employment after graduation (Torres, 2003).

Clark's empirical work concerning his theory of cooling out was exclusively applied to the junior college setting. Given that Clark principally wrote on the subject in

the early 1960's, he developed his theory prior to the exponential rise of FPCUs in the United States as a major player in US higher education. Little research has been done that explores what are the latent and manifest social functions of FPCUs, not to mention if they indeed are the newest mechanism to serve this cooling out function Clark described more than half a century ago.

Purpose, Research Questions, and Contribution to Literature

Given that FPCUs themselves tend to be rather insular in terms of the data that they release (Kinser, 2007), the state of research on FPCU students, their academic success, and job market outcomes is still very much in a developing state. The research that has been done to-date has generally focused on a limited range of demographic characteristics or financial outcomes of graduates (Kinser, 2007, Beaver, 2009; Deming, Goldin, & Katz, 2012; Lang & Weinstein, 2012).

This research is divided into three sections of analysis that tests several hypotheses. Each section of analysis is designed to answer a key question that goes unanswered within current research on FPCUs and the students who attend them. The hypotheses associated with each question is drawn from the theoretical perspective of Burton Clark, which when applied to FPCUs assumes these intuitions serve the role of “cooling-out” students rather than providing a meaningful postsecondary education. Each hypothesis is tested in the proceeding sections using variables drawn from the National Center for Education Statistic's Beginning Postsecondary Survey 2009 dataset.

This data set and methods of analysis are discussed in the subsequent methodology section. Below, the basic research questions and associated hypothesis for each section of analysis will be discussed.

Research Question and Hypotheses: High School Performance, Risk Factors to Attainment, and Enrollment at a For-Profit College of University

Perhaps the most thoroughly researched aspect of FPCUs, is how their students are demographically different from students who attend TCU institutions. The consensus of research suggests that students who enroll at an FPCU are older, lower-SES, disproportionately female, and more racially diverse than students who enroll at TCUs (Deming, Goldin, & Katz, 2012; Ruch, 2001; Beaver, 2009; Hentschke, Lechuga, & Tierney 2010). While we know that these students are starkly different in terms of demographics, what has not be examined is how FPCU students are functionally different from TCU students in terms of their ability to succeed in a post-secondary academic environment. Clark's cooling out theory is predicated on the idea that many modern colleges subsume the social function of tempering expectations for students who are not academically prepared for higher education. By contrast, Bell suggests that the post-modern economy would create a new crop of non-traditional, yet academically viable students that will need to be absorbed by a vastly expanded sector of higher education. With the gaps in current research and these discussed theoretical perspectives in mind, the following research questions and specific hypothesis will be examined in this section of analysis:

Research Question #1: Are students who enrolled at a FPCU less academically prepared for higher education than students who enroll at a TCU?

- *H1: College students who enrolled at a FPCU will be carrying a lower average high school GPA and SAT score college students who never enrolled at an FPCU.*
- *H2: College students who enrolled at an FPCU will be more likely to carry demographic risk factors to degree attainment than students who never enrolled at an FPCU.*

Research Question and Hypotheses: The Association between Academic Preparedness, Risk Factors to Attainment, and Post-Secondary Performance at a Tradition versus For-Profit College or University

Accusations of grade inflation and artificially retaining students regardless of academic performance have historically dogged FPCUs; but research supporting these allegations has been exclusively qualitative, relying on anecdotal accounts from for-profit college faculty or students (Caterino, 2014; Beato, 2011; Field, 2011; Caterino, 2014; Ruch, 2001). Despite the anecdotal nature of the previous research, some common themes have proven to be salient and consistent. Instructors claim to be subjected to constant scrutiny from administrators who discourage giving grades that would displease students (Beato, 2011; Field, 2011). Another common theme is that faculty claim their grading decisions are frequently overridden by students appealing to administrators for higher grades (Caterino, 2014; Field, 2011). Faculty at for-profit schools also

disproportionately teach under an “adjunct” status compared to TCU faculty (Ruch, 2001; Beaver, 2009). This means they are employed on a semester-by-semester basis with no-guarantee of future employment once the semester ends. Faculty at all kinds of colleges, not just FPCUs, have long complained that the adjunct arrangement discourages honest grading as dissatisfied students are frequently a justification for not renewing an adjunct’s contract (Sonner, 2001).

While the specific claims about these methods of grade inflations cannot be quantitatively tested with any currently available data, the general presence of grade inflation at these institutions will be tested. To do this, this research will examine the relationship between high school academic performance and college level performance between the two types of institution. It has been shown in previous research that reliable predictors of college level performance at TCUs include high school GPA (Sawyer, 2013; Korbin & Patterson, 2011; Megert, 2005), SAT score (Sawyer, 2013; Korbin & Patterson, 2011; Cohn, Cohn, Balch, & Bradley, 2004), and the number of core academic courses a student took while enrolled in high school (Haycock, 2012; Maryland State High Education Commission, 1996). If the claims of grade inflation are true, it can be assumed that the this relationship between high school academic performance and college academic performance will not be nearly as pronounced at FPCU when compared to their TCU counterparts. Supporting this assumption through the BPS09 data would provide the most concrete and generalizable evidence to-date of

FPCU grade inflation. The following research questions and hypothesis guide the testing of this assumption:

Research Question #2: Is the association between academic preparedness and postsecondary outcomes as strong for students at FPCUs compared to TCUs?

- *H3:* Average high school GPA will not be as strongly associated with college GPA for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H4:* Average SAT score will not be as strongly associated with graduating for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H5:* Taking four or more years of core high school level courses (math, science, and English) will not be as strongly associated with college GPA for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H6:* A the number of risk factors to academic attainment associated with a respondent will not be as strongly correlated with academic performance or attainment at FPCUs when compared to TCUs

Research Question and Hypotheses: The Influence of Graduating from a FPCU on Employment Satisfaction, Benefits, Pay, and Professional Relevancy of Degree

Deming, Goldin, and Katz (2012) found that FPCU graduates earn less than TCU graduates, carry greater student loan burdens, and are less satisfied overall with their the quality of education that they received. Their research though compared graduates of TCU to FPCU graduates regardless of the type of degree earned. When using the BPS09 data set as they did, this means that their sample contained nearly 5,000 TCU graduates with bachelor's degrees who had never attended a FPCU versus approximately 70 bachelor's degree holders who had attended an FPCU. The number of FPCU bachelor's degree holders dwindles to less than 50 when you exclude those that did not have a job as of 2009. The vast majority of respondents in the BPS2009 who both obtained a degree from a FPCU and held a job in 2009 did not hold a bachelor's degree, but rather they held an associate's degree or a professional certificate. This means that Deming, Katz, and Goldin compare a sample of TCU graduates that is rife with bachelor's degree holders to a sample of FPCU graduates that mostly hold associate's degrees or professional certificates. While they use degree type as a covariate in propensity score matching, it is only one of dozens of other covariates used in the nearest-neighbor matching technique.

This research compares samples that exclusively contain graduates with an associate's degree or professional certificate. This should give a more representative picture of the role that FPCUs play in the US system of higher and education and labor

market; as FPCUs accounted for approximately 5 percent of Bachelor's degree graduates in the US for 2008, but were the source of 42 percent of professional certificates and 18 percent of associate degrees in the same year (NCES, 2010). This research also builds on the results of Deming, Katz, and Goldin by examining job benefits the graduated respondent received, indicators of how relevant their education is to their work, and specific aspects of career satisfaction rather than just overall career satisfaction. This section of analysis will pursue the following research question and associated hypothesis in order to build on the current body of research on outcomes for FPCU graduates:

Research Question # 3: Do short term career outcomes for FPCU graduates with an associate's degree or professional certificate differ from TCU graduates with the same credentials?

- *H7: Students who graduated from an FPCU with an associate's degree or professional certificate will receive fewer employer benefits from their current job than students who graduated from a TCU with an associate's or professional certificate.*
- *H8: Students who graduated from an FPCU with an associate's degree or professional certificate will have a current job less relevant to their education than students who graduated from a TCU with an associate's or professional certificate.*

- *H9*: Students who graduated from an FPCU with an associate's degree or professional certificate will be less satisfied with their current job than students who graduated from a TCU with an associate's or professional certificate.
- *H10*: The results of Deming, Goldin, and Katz (2012) as well as Lang and Weinstein (2012) will be confirmed even when limiting the sample to associate's degree or professional certificate holders, and FPCU graduates will make less income and pay more toward student loans than FPCU graduates.

CHAPTER THREE: METHODOLOGY

Data

The data that is being used for analysis is drawn from the restricted-use Beginning Secondary Survey 2003-2009 (BPS: 03/09). The BPS 03/09 was collected by The National Center for Education Statistics (NCES), a division of the United States Department of Education. The survey examines a target population that consists of students who entered a postsecondary institution of education for the first time in the 2002-2003 academic year in one of the fifty U.S. states, The District of Columbia, or Puerto Rico. To be included, students must have attended an institution that was eligible to receive federal aid authorized by Title IV of the Higher Education Act. Data was collected on respondents' education and employment during the first six years after they enrolled at a postsecondary institution for the first time. Data was collected on respondents via official transcripts, matching of administrative records, and interviews.

The BPS 03/09 data was the culmination of a three stage process of data collection that utilized the National Postsecondary Student Aid Survey 2003 (NPSAS: 03) to develop the initial cohort, then subsequently performed follow-ups in 2006 (BPS: 03/06) and 2009 (the aforementioned BPS: 03/09 survey). The NPSAS: 03 drew from a universe that includes all students attending Title IV fund institutions who were "enrolled in either (1) an academic program, (2) at least one course for credit that could be applied toward fulfilling the requirements for an academic degree, or (3) an occupational

or vocational program that required at least 3 months or 300 clock hours of instruction to receive a degree, certificate or other formal award.” The universe excluded students who were enrolled in high school or a General Educational Development (GED) program at the same time they were also enrolled in courses for postsecondary credit. The final SPSAS: 03 sample, from which the BPS09 sample was drawn, included 101,010 eligible students and obtained data using student interviews, institutional records, and other administrative data sources.

The first follow-up study, the BPS: 03/06, constructed an initial sample that include 23,090 first time beginner (FTB) post-secondary students drawn from the broader SPSAS: 03 sample. The third and final follow up was performed in 2009 to provide a final sample of 18,640 students for the BPS: 03/09 data. Both follow-ups utilized interviews that were broken into four sections. (1) *Enrollment History*: This section established the greater narrative of a student’s academic experience including a student’s persistence and degree attainment. (2) *Enrollment Characteristics*: This was a section of questions that gathered information on student’s experience while enrolled including employment during enrollment, financial aid, major, and life obligations outside of education. This also included questions relevant to student’s personal goals for their education and rationale for pursuing their degree. (3) *Employment*. This section gathered data on a student’s status of employment, job description, job satisfaction, earnings, and other relevant aspects of a respondent’s working life at the time of the 2009 follow-up. (4) *Background*. The survey was administered either in-person, via

phone, or online. Each form of interview administration averaged approximately 20 minutes in length to complete. The BPS: 03/09 also was able to collect transcripts from 16,960 of the FTB students who were part of the final sample.

Measures

The BPS09 dataset includes questions that pertained to a student's demographic characteristics, high school and post-secondary performance, enrollment history, and short-term career outcomes. The following will describe the operationalization, conceptualization, and coding of the relevant variables utilized in the three sections of analysis within this research.

Enrollment/Graduation at a For-Profit College or University

The main outcome variable used in the first chapter of analysis is whether a student had ever enrolled at a FPCU as of June 2009 (ITFP6Y). Given that all students in the sample were FTB college students, this indicates both if they enrolled in a FPCU during the time frame of 2003 to 2009 or at any other time in their life prior to participating in the survey. This information was obtained through interviews during the 2009 wave of data collection. Students were asked to identify any institutions of higher education where they enrolled in at least one credit hour, regardless of if they completed credit or graduated. The institutions that we named by the respondent were then classified based on their for-profit status as established by the US Department of Education. The

specific variable used in analysis codes students who never enrolled at a FPCU as 0 and those who had enrolled in a FPCU as 1. The second chapter of analysis examines the post-secondary academic performance of students at TCU compared to FPCU. It was important to establish that respondents used in analysis had exclusively attended either a TCU or an FPCU. Thus a new variable was created (FPNT) based on the above discussed enrollment variable (ITFP6Y) that established a given respondent either enrolled at a TCU and never transferred to a FPCU (0) or enrolled at a FPCU and never transferred to a TCU (1). Students who had either transferred from a TCU to an FPCU or transferred from a FPCU to a TCU were coded as missing. For the third chapter of analysis, career outcomes for graduates are examined. Accordingly, a new variable was created (fpgrad) that included students who attended either a TCU or FPCU exclusively without transferring, obtained either an associate's or professional certificate, and had a job with income as of 2009.

Student Characteristics

Student characteristics included sex (sex), race (race), age (age), and mean income percentile rank (pctall). Gender was measured male (1) female (2), but recorded to male (0) female (1) so as to be more useful in regression analysis. Respondents were classified by race in the BPS09 as either: White, Black or African American, Hispanic or Latino, Asian, American Indian or Alaska Native, Native Hawaiian/ other Pacific Islander, other, or more than one race (coded 1 through 8 in the previously listed order

for descriptive statistics). The categories of American Indian or Alaska Native, Native Hawaiian/ other Pacific Islander, and other were collapsed into each other as these represent a relatively small proportion of the overall sample of 16,684 (just under 400 when all three categories are combined). For regression analysis the racial categories were coded into dummy variables with Whites serving as the reference group. Age of the respondent was measured as the age as of 12/31/2003. Because all students in the survey are FTB students, this also is their age during the first year of their enrollment in postsecondary education. The income percentile rank (PCTALL) compares each respondent's income percentile to other respondents of the same dependency status and then combines these rankings into a single variable for all of the respondents. Given this variable is a percentile ranking, it is continuous with a range of values between 1 and 100. If the respondent is a dependent student, the income percentile rank is established through their parent's income. If the respondent is an independent student, their personal income is used for the percentile ranking.

Indicators of Academic Preparedness

The indicators of academic preparedness include high school GPA category (hsgpa), SAT score (tesatder), if a student has four or more years of English (eng4), math (math4) or science (sci4), and their score on the index of risk factors to academic attainment (RISK). High school GPA was self-report and drawn from the initial BPS survey in 2003. It is divided into seven GPA categories that are coded in ascending

order from 1 to 7. These categories include: 0.5-0.9, 1.0-1.4, 1.5-1.9, 2.0-2.4, 2.5-2.9, 3.0-3.4, 3.5-4.0. SAT score was obtained from either the relevant testing agency (College Board or ACT) or from the college institution the student attended starting in 2003. The value for this variable either directly represents a student's SAT score on the 1200-points SAT scale used in 2003, or a student's ACT score converted to its equivalent score on the 1200-point SAT scale. There are three individual variables that were created to establish if a student had taken four or more years of high school math, science, and English respectively. For each of the variables concerning a core course, the respondent was coded as 1 if they claimed to take four or more years of the given core subject, and 0 if they had not. Many students reported taking more than four years of these given core courses despite attending high school for only four years because they were permitted to take high school level courses while still in middle school. For instance, many respondents had taken Algebra I in the eighth grade, allowing them to accrue a total of five years of high school math by graduation.

The risk index score ranged from 0 to 8 and as it is a composite of eight binary variables indicating a different characteristic that has been shown in previous research to be a risk factor to degree attainment at the postsecondary level (NCES, 2013). These variables are coded to indicate the presence (1) or absence (0) of the following characteristics: first generation college student, delayed enrollment after high school one or more years, no high school degree (typically GED instead), first-enrolled in

college as a part-time student, student is independent, student has dependents, students is a single parent, student is working full-time at the time of enrollment.

Indicators of Postsecondary Performance

There were two variables used as indicators of postsecondary performance. The first being cumulative grade point average across all postsecondary courses taken by 2009 (QEGPAALL). This is a continuous variable that was obtained through the transcripts supplement to the BPS09 interviews data. GPA is a continuous variable on a 0 to 4.0 scale that was calculated using normalized credit hour values that utilize a common scale so that credits units can be compared across students and institutions. The second indicator of postsecondary performance accounts for if the student had attained a college degree by the time of the last data collection in 2009 (ATT). This is derived from another BPS09 variable that examines 6-year persistence and attainment (PRATT6Y). The initial variable designated respondents as either: “Attained, still enrolled” (1), “Attained, not enrolled” (2), “No degree, still enrolled” (3), or “No degree, not enrolled” (4). For the new variable those who had attained a degree, regardless of enrollment status were coded 1, where are those that had not attained were coded 0.

Indicators of Job Benefits

All of the indicators of job benefits are simple self-report, binary variables in which the respondent affirms or denies that their current employer provides a given benefit.

Respondents were included in this line of questioning if they were employed, but not self-employed. The first variable simply asked if their “current employer provided life insurance” (JBEN09A). The second ask if their current employer “provided medical insurance and/or other health insurance such as dental or vision” (JBEN09B). Lastly, respondents were asked if their current employer “offered retirement or other financial benefits, such as a 401(k)/403(b)” (JBEN09C). For each of these variables, cases were coded 1 to indicate that the respondent did indeed receive the given benefit from their employer and 0 if they did not.

Indicators of Degree Professional Relevance

Four binary self-report variables were used that each in different ways indicate how relevant the respondent’s earned degree was to the job they held after graduation in 2009. The first simply asked if the respondent feels that their “job is related to their coursework” (JOBRCR09). The second consists of two variables that are originally separate into BPS09 collapsed into a single variable. These two variables asked if the respondent had “the same or a similar job to their current job before enrollment” (JOBSBE09) and “during enrollment” (JOBSIM09) respectively. Given the substantial overlap in the respondents that answered yes to both of these questions and the focus of this analysis toward examining post-graduation employment outcomes, the two variables were collapsed to account for respondents who had the same or a similar job either before or during enrollment (jobb4grad). The third variable related to degree

relevance indicates if the respondent thought their “undergraduate education helped advance their career” (JOBUG09). The final variable in this set indicates if the respondent felt their “current job would be difficult to get without their undergraduate coursework” (JOBDEF09). These questions were posed to students who were employed, but not self-employed. For each of these variables, cases were coded 1 if the respondent affirmed the statement and coded 0 if they did not affirm the statement.

Indicators of Job Satisfaction

Indicators of job satisfaction were measures which addressed different elements of the respondent’s current job starting with the common root question: “Are you satisfied with the following at your current job...?” Respondents then were given the following list of job features to indicate they were or were not satisfied with (JOBS09A through JOBS09G): fringe benefits, importance and challenge, job security, opportunity for future training, opportunity for promotion, opportunity to use education, and pay. Similar to the previous groups of job-related indicator variables, respondents were included who were employed as of 2009, but not self-employed. For each job satisfaction measure, cases were coded 1 if the respondent affirmed that they were satisfied with the given aspect of their job associated with a variable. If this is the respondent was not satisfied, the respondent was coded 0.

Post-Graduation Income

Three different continuous variables were used to examine the respondent's income after graduation. The first indicated the respondent's annual before tax income from their primary job as of June 2009 (INCRES09). The second of these variables indicates the respondent's total household income as of 2009. This included the respondent's total income and the income of his or her spouse if they were married (WTB000). Both of these measures were ratio variables in which zero indicates the absence of income and there is no theoretical upper-limit. Though, as will be noted in the sample design for the third chapter of analysis, only respondents who are employed with income were included in statistical analysis related to employment outcomes. The final variable indicates the percentage of the respondent's personal income that went toward their personal student loan repayments (EDPCT09). This does not include repayments of other individuals within the household, such as student loans that are held by a spouse. Given that it is measured as a percentage, there is a valid range of between 0 and 100.

Analytical Strategy

Each section of analysis employed a different analytical strategy depending on the specific hypotheses tested and the form of the given variables. The samples that are used also vary depending on the hypotheses tested. Each section of analysis begins by describing the basic demographic characteristics of the sample used. This is followed by bivariate analysis and finally multivariate analysis. All of the variables within each

section are coded the same throughout descriptive statistics, bivariate analysis, and multivariate analysis with the exception of dummy variables for race. For multivariate analysis, race is coded into dummy variables the categories of White, Black, Hispanic, Asian and Other. The original BPS data include separate categories for American Indian/Alaska Native, Native Hawaiian/Pacific Islander, other unidentified races, and more than one race. These are collapsed into a single dummy variable classified as “Other” for this analysis. This was done because the number of respondents in each of those given racial categories was too small to provide a meaningful coefficient.

Student Characteristics, High School Academic Performance, and For-Profit College or University Enrollment

The sample utilized in this chapter of analysis was created within the fewest parameters and thus was by far the largest. In order to be included in the sample, respondents had to have been included in the variable indicating they had or had not ever enrolled at an FPCU by the final BPS wave in 2009 (ITFP6Y). That included the vast majority of the 18,640 respondents within the BPS09 data set (N=16,684). The sample consisted of 14,424 students who had only ever enrolled at a TCU, and 2,260 students who enrolled at an FPCU at some point in the 2003-2009 time frame. Basic descriptive statistics for the same can be found in Table 1.

The first set of bivariate analyses conducted a T-Test of means for indicators of academic preparedness by if a student ever enrolled at a FPCU (Table 2). The

indicators included in this analysis were high school GPA category, mean SAT score, and mean risk index. Within the analysis mean high school GPA category and mean risk index score were utilized as continuous variables, but the percentage of respondents that fell into each category comprising these variables is also presented in the table. The second set of indicators (Table 3) pertain to whether or not the respondent took four or more years of high school English, math, and science. Given that these three variables are binary, they were tested using a χ^2 test of frequency.

Multivariate models were constructed that utilize odds ratios that predict the odds of a given student enrolling at an FPCU (Table 4). There were three models constructed. The first utilized in all of the previously discussed variables with the exception of the risk index. These include high school GPA category, SAT score, and three binary variables indicating the student took four or more years of high school level English, math, and science. The second model included all of the variables from model 1 plus the risk index. The final model included all of the previous variables, plus a set of control variables that account for a given respondent's demographic characteristics and income. The control variables from the third model included respondent's age (as of 2003), if the respondent was female, dummy variables for race with Whites as the reference group, and income percentile rank.

The Association between Academic Preparedness, Risk Factors to Attainment, and Postsecondary Performance at Traditional of For-Profit School

The second section of analysis used the same sets of indicator and control variables that were utilized in the first section of analysis. Although there were two different outcome variables: the respondent's cumulative college GPA and whether or not the student graduated. Sets of bivariate and multivariate analysis were performed for each of the two outcome variables. The sample used in this chapter of analysis is moderately smaller (N=9,984) than the previous sample as there are key additional parameters defining the sample frame. Given that in this chapter the outcomes are related to student performance in the form of college GPA and graduation rates, students who had transferred institutions were excluded. This was done for two reasons. First, this avoided the problem created by students who carried a GPA that may have spanned both a TCU and an FPCU. Secondly, excluding these students avoided validity concerns that would have arisen in gauging the academic performance of transfer students. Academic transfer has been shown to have differing impact on future postsecondary performance depending on what kind of institution a student transferred to or from (Wang, 2012; Best & Gehring, 1993) and the presence of programs at a school that are designed specifically to aid transfer students (Cejda, 1994). After removing all transfer students, the overall sample contained 8,666 students who had exclusively attended a TCU and 1,318 who had exclusively attended a FPCU. The specific descriptive of the sample is described in Table 5. The descriptive statistics for mean college GPA and

graduation rate by demographic characteristics can be seen in Table 6 and Table 7 respectively.

The bivariate tests for college GPA first included pairwise correlations with the continuous indicator variables of high school GPA category, SAT score, and risk index score (Table 9). For the binary variables indicating whether a student had taken four or more years of English, math, or science, a T-Test of means was performed (Table 8). This examined the difference in mean GPA for students at the two types of university who had and who had not taken four or more years of the given course subjects. A T-test of means was also performed to test the relationship between the binary outcome of graduating and the continuous indicators of high school GPA, SAT score, and risk index score (Table 11). The means were compared for each indicator variable between the groups of students who did and did not obtain a degree by the year 2009. A χ^2 test was performed to examine the relationship taking four or more years of each of the course high school subjects and graduating with a college degree (Table 10).

Two sets of OLS regression models were constructed. Both of these sets of models used the previously discussed indicator variables as predictors of college GPA. Coefficients predicted the change in college GPA that would be expected with every one unit increase in continuous indicator variables or the presence of a condition signified by a positive value for a binary indicator variable. The first set (Table 12) utilized a sample of students who had exclusively attended a TCU, while the second set

(Table 13) utilized a sample of students who had exclusively attended an FPCU. The model construction within the sets is similar to what was done in the first chapter of analysis. In both sets the first model included the indicator variables without the risk index, the second model added the risk index, and the final model included the demographic and income control variables that were utilized in the previous section of analysis.

Multivariate analysis for the binary outcome variable of degree attainment utilized a logistic regression with odd ratios to examine the effect of the indicator variables for TCU students (Table 13) and FPCU students (Table 14). Similar to what was done for college GPA, there are two sets of models- one for each of the type of school. Coefficients predicted the change in odds of degree attainment with every one unit increase in a continuous indicator variables or the presence of a condition signified by a positive value for a binary variable. Aside from the different forms of outcome variable and coefficients, model construction was identical to the previously constructed sets of models.

The Influence of Graduating From a FPCU on Employment Satisfaction, Benefits, Professional Relevancy of Degree, and Pay

The variables in this section are presented in four different tables that present both bivariate analysis and multivariate analysis in the form of propensity score matching. The first of these (Table 17) examines if the respondent's employer offered life

insurance, health insurance, or retirement benefits. The next (Table 18) examines if the respondent's job is related to their coursework, if they had a similar job before or during enrollment, if they believe their undergraduate education helped their career, and if they feel their current job would be difficult to get without the education they received. After that, a series of variables are examined that indicate if the respondent is satisfied with different aspects of his or her current job (Table 19). These include indicators for satisfaction with fringe benefits, job importance and challenge, job security, opportunity for future training, opportunity for promotion, opportunity to use education, and pay. Given that all of the variables in the previous three tables discussed are binary, χ^2 tests of frequencies are used for bivariate analysis. The final series of variables in this analysis examine different elements of the respondent's income (Table 20). These include the respondent's personal income from their job, the respondent's household income, and the proportion of household income that is used toward payments on the respondent's student loans. These are continuous variables, thus bivariate analysis utilizes a T-Test of means.

As mentioned previously, each series of variables in this section utilizes propensity score matching for multivariate analysis. Propensity score matching is a method that has historically been used as a means of overcoming selection bias, specifically with demographically different samples (Rosenbaum & Rubin, 1983). This is done by reducing a series of background characteristics to a single variable- the propensity score (Rubin, 1997). It is a technique used in this research to compare the

estimated treatment effect of graduating from a FPCU (as opposed to a TCU) by matching nearest neighbor pairs of cases that are most similar on a variety of selected covariates. This is intended to overcome the selection bias that inherently comes along with FPCUs enrolling and subsequently graduating students who, as previously mentioned, have been shown in previous research to be lower-SES, disproportionately minority, disproportionately female, and older. Each of these dimensions of diversity have been shown to impact short-term career outcomes of college graduates (Hu & Wolniak, 2013).

The first three groupings of variables (job benefits, job satisfaction, and degree relevancy) utilizes degree type earned (AA or certificate), income percentile, the respondent's gender, and race as covariates in the propensity score matching procedure. The last set of variables are related to income. One additional covariate was added- the respondent's income while enrolled. This is because previous research has demonstrated that FPCU students are much more likely to work full-time while enrolled (NCES, 2013, Ruch 2001). Including the respondent's income while enrolled as a covariate is intended to compensate for the effect of students whose post-graduation income is largely a reflection of their pre-graduation employment status.

CHAPTER FOUR: HIGH SCHOOL ACADEMIC PERFORMANCE, RISK FACTORS TO ATTAINMENT, AND ENROLLMENT AT A FOR-PROFIT COLLEGE OR UNIVERSITY

Introduction

FPCUs have made no secret that they attempt to attract and conduce to students who are markedly “non-traditional” in their characteristics. Purposely seeking out students who are demographically different from the traditional beginning college student has allowed these colleges and universities to grow exponentially in recent decades without directly competing for TCUs students (Kinser, 2007, Ruch 2001). As noted, there is already a previously established wealth of research that confirms that students who attend for-profit universities are demographically different than more traditional college students in terms of age, race, and income (Deming, Goldin, & Katz, 2012; Ruch, 2001; Beaver, 2009). Many of the ways in which these students are demographically different from their peers at TCUs have been said to also put them at higher risk of not attaining the degree for which they set out (Frishberg et al., 2010). One of the more common criticisms of FPCUs is they use overly aggressive recruiting practices to recruit vulnerable segments of the population that may be less than college-ready (Appel & Taylor, 2015; Beaver, 2009, Ruch, 2001).

Though not explicitly discussed as such by Deming, Katz, and Goldin (2012), many of the demographic variables they analyze are described as “nontraditional risks to academic attainment” in higher education by the US Department of Education

(NCES, 2013). These variables have been identified in previous government data such as National Postsecondary Student Aid Study or prior editions of the BPS survey as factors that potentially hinder students in completing a degree in higher education. The risk-factors that Deming, Katz, and Goldin found to be more prevalent among FPCU students compared to TCU students include: delaying enrollment after high school, being a single parent, being enrolled part-time, or not having a high school diploma (generally these are GED recipients).

This chapter of analysis will build on the analysis of Deming, Katz, and Goldin in two distinct ways. First, a “risk to attainment” index will be created for analysis that employs the above mentioned factors used by Deming, Katz, and Goldin, but will also include the following additional variables that are also noted by National Center for Education Statistics (2013) as risk factors to attainment. These include: being a financially independent student, working full-time while enrolled, and being a first generation college student. This index will provide a score associated with the number of these risk-factors that characterize a given student. Secondly, this research will examine indicators of previous high school performance and academic rigor. This will be done by including variables that account for a student’s high school GPA, SAT score, and if the student took four or more years of each of the core subjects (math, science, and English). If the student population enrolled by FPCUs is disproportionately at risk of non-completion, they are expected to score higher than their TCU counterparts on the described index and lag behind in the indicators of academic preparedness.

Students who are of lower socio-economic status and older have been shown to be more frequently associated with risk factors to academic attainment and poorer performance in high school (NCES, 2013). Given Deming, Katz, and Goldin (2012) demonstrated FPCU students meet these demographic criteria, it is to be expected that FPCU students will also show poorer performance in indicators of academic preparedness from high school compared to their TCU counterparts and be associated with a higher overall score on the index of risk factors to academic attainment.

Application of Theory and Hypothesis

For Bell (1967), the birth of the knowledge economy meant an influx of high-paying, white-collar jobs. He suggested the associated increasing opportunity to enter the middle-class would spur an “epidemic process” in which the desire to pursue higher education spreads to the working-class. This change in working-class mentality will lead to an increase in students who are prepared for and expect to go to college. In other words, prospective working-class students begin to look more similar to middle class students in terms of their level of academic preparedness as they become endowed with the ethos of a knowledge-economy. Clark (1960) by contrast saw colleges increasingly adopting an “open-door” policy, which results in students who are not prepared for college enrolling in increasing numbers, only to have their hopes of upward mobility cooled-out when they realize they lack the skills to thrive in higher education. If Bell is to be correct, it is assumed that FPCUs would be enrolling this

newly developed excess of well-prepared students. This would mean that students who enroll at FPCUs should be on-par with those that enroll at TCUs. If Clark is correct, it should be expected that analysis will show FPCUs are enrolling students in mass regardless of their preparedness for a postsecondary education. As a result, analysis should demonstrate students who enroll at FPCUs score lower in indicators of academic preparedness and be more likely to carry risk factors to academic attainment.

Accordingly, the following hypothesis, drawn from the theories of Clark, will be tested in this section of analysis:

- *H1*: College students who enrolled at a FPCU will carrying a lower average high school GPA and SAT score than college students who never enrolled at an FPCU.
- *H2*: College students who enrolled at an FPCU will be more likely to carry demographic risk factors to degree attainment than students who never enrolled at an FPCU.

Student Demographic Characteristics by FPCU or TCU Enrollment

The overall sample consisted of 16,684 FTB students who had never enrolled in higher education prior to 2003. Of the total sample, 14,424 had exclusively been enrolled at a TCU from 2003-2009, while 2,260 had enrolled at a FPCU during the same time frame.

Age When First Enrolled in College

The overall sample of FTB skewed toward what would be considered “traditional” college age. Among the entire sample, the average age when first enrolled in college in 2003 was just over 21 years old (21.22). Students who were exclusively enrolled in TCUs were just under the mean for the overall sample, at just under 21 years old (20.76). Students who at some point in their college career had enrolled at a FPCU were markedly older. The average age at first enrollment for these students was just over 24 years old (24.14).

Gender

The gender composition of the overall sample reflects contemporary literature that has noted increasing female participation in higher education in recent decades (NCES, 2013). Of all of the students included in the BPS09 survey, 58.79% of them were female. The percentage of females was 58.60% among those who exclusively enrolled at TCUs. The trend of increased female participation in higher education seems to be at least somewhat contributed to by the presence of the for-profit sector, as over two-thirds, 66.42%, of the BPS09 students who had enrolled at a FPCU were female.

Race

The overall BPS09 sample reflects a good deal of racial diversity within higher education. The majority of the FTB students, 64.36%, were White. The two largest

minority groups were Blacks and Hispanics, who represented 13.19% and 12.66% of the overall sample respectively. Asians consisted of 4.63% of the sample. The other racial groups that were present in lesser percentages included: mixed race (2.79%), American Indian or Alaska Native (0.70%), Native Hawaiian or Pacific Islander (0.29%), and other unidentified races (1.37%).

Students who had only enrolled in TCUs were slightly less diverse than the overall sample, with over two-thirds, 67.67%, being White. Blacks consisted of 11.65% of these students, while Hispanics were 10.75%. Asians and American Indians/Alaskan Natives were the only two identified minority group that were slightly more prevalent among TCU enrollees than the overall sample as they were 4.87% and 0.71% respectively. The exhaustive catch-all category of “Other” also increased slightly to 1.40%.

In examining the racial composition of FPCUs compared to that of TCUs, there is a notable difference in student body racial composition. FPCUs are by far the more diverse sector of higher education. Among those who enrolled at a FPCU, less than half, 43.23%, are White. The percentage of Black students is larger compared to TCUs by over 10%, at 23.05%. This is also the case for Hispanics who comprise 24.87% of those who enrolled at an FPCU. The other minority groups are either slightly less prevalent or have comparable prevalence as in the TCU exclusive sample. Asians are

3.10%, American Indian/Alaska Natives are 0.66%, Native Hawaiian/Pacific Islanders are 0.53%, “Other” races are 1.19%, and mixed race students are 3.36%.

Mean Income Percentile Rank

As noted previously in the methods section, income is measured as percentile rank of family income for dependent students and personal income for independent students. The mean percentile rank for the overall sample of students not surprisingly falls in the 50th percentile (50.73). Those that had exclusively enrolled at a TCU were slightly higher in percentile rank, with a mean of 52.39. Students who enrolled at a FPCU though generally had substantially less income. FPCU enrollees had a mean income percentile rank of 40.19.

Table 1: Student Characteristics by If They Enrolled at a TCU or FPCU

	All (N=16,684)	TCU (N=14,424)	FPCU (N=2,260)
Mean age when first enrolled in college	21.22	20.76	24.14
Gender			
Female	58.79%	57.60%	66.42%
Race			
White	64.36%	67.67%	43.23%
Black or African American	13.19%	11.65%	23.05%
Hispanic or Latino	12.66%	10.75%	24.87%
Asian	4.63%	4.87%	3.10%
American Indian or Alaska Native	0.70%	0.71%	0.66%
Native Hawaiian/Pac. Islander	0.29%	0.26%	0.53%
Other	1.37%	1.40%	1.19%
More than one race	2.79%	2.70%	3.36%
Mean Income percentile rank	50.73	52.39	40.19

The demographic characteristics of the samples mirror what Katz, Deming, and Goldin found. The sample of those that enroll at FPCUs appear to be non-traditional in each of the demographic dimensions. Relative to students who did not enroll at a FPCU, they are older, disproportionately female, more racially diverse, and have a substantially lower average income.

Academic Preparedness and Enrollment at a FPCU

Bivariate analysis were conducted to examine for significant differences between students who enrolled at an FPCU and those that exclusively enrolled at a TCU in terms of high school GPA category, SAT score (or converted ACT score), risk index score,

and if they had four or more years of high school core courses. Bivariate analysis was broke into two steps using either a T-test of independent means or a χ^2 test of frequencies depending on the form of the indicator variables involved.

T-Test of Means for High School GPA Category, SAT Score, and Risk Index Score

The first set of three variables, high school GPA category, SAT score, and risk index score, were each used in a bivariate T-Test that examined the difference in means between students who enrolled at a FPCU and those that exclusively attended a TCU. High school GPA category was treated as a continuous variable that ranged from 1 to 8, depending on which of the ordinal GPA categories the respondent fell into. The mean GPA category for TCU enrollees was 5.97, which is on the high end of the 2.5-2.9 GPA category. Students who enrolled at FPCUs average 5.20, on the lower end of the same category. This is a difference in means of 0.77 ($t=22.99$; $p<.001$). That average SAT score for those who solely attended a TCU was 1022.5 on a 1200 point scale, the mean for FPCU enrollees was 852.76. This constitutes a sizable and statistically significant mean difference of 169.68 points ($t=22.41$; $p<.001$).

There is a substantial difference between TCU enrollees and FPCU enrollees in terms of risk index score. Students who enrolled solely at TCUs carried an average of 1.56 of the eight risk factors found in the risk index, while those that enrolled at a FPCU carried an average of 3.12 of these factors. That is a 1.56 difference in means ($t=-38.08$; $p<.001$). By far the most common risk factor to attainment among for TCU

students was being a first-generation college student, as this was the case for 54.80% of these students. Less frequently seen among TCU students was delaying enrollment 1+ years after high school (23.88%), not having a high school degree (5.97%), initially enrolling as a part-time student (19.65%), being an independent student (18.30%), having dependents (11.67%), being a single parent (6.36%), and working full-time when initially enrolled (15.09%). An overwhelming proportion of those who enrolled at a FPCU were first-generation college students (80.40%). Two other risk factors characterized the majority of FPCU enrollees. Just over half of these students delayed enrollment after high school one or more years (55.13%) or were independent students (51.55%). Most of remaining risk factors characterized less than half of FPCU enrollees, but still more than their TCU counterparts. These include: students who did not have a high school degree at the time of enrollment (19.07%), students who have dependents (36.77%), students who were single parents (24.42%), and students working full time (27.57%). The only risk factor that was less common among FPCU enrollees than TCU enrollees was initially enrolling part-time (16.90%).

Table 2: T-Test of Means for Indicators of Academic Preparedness by Enrollment in an FPCU

	All (N=16,684)	TCU=0 (N=14,424)	FPCU=1 (=2,260)	Test Statistic Δ
Mean High School GPA Category	5.90	5.97	5.20	0.77***
0.5-0.9	0.18%	0.19%	0.08%	
1.0-1.4	0.62%	0.51%	1.66%	
1.5-1.9	2.67%	2.20%	7.04%	
2.0-2.4	11.31%	9.98%	23.73%	
2.5-2.9	13.54%	13.20%	16.70%	
3.0-3.4	34.40%	33.99%	38.29%	
3.5-4.0	37.28%	39.94%	12.50%	
Mean SAT Score (out of 1200)	1011.35	1022.45	852.76	169.68***
Mean risk index score (0 to 8)	1.77	1.56	3.12	1.56***
First generation student	53.35%	54.80%	80.40%	
Delayed enrollment after HS 1+ years	34.18%	23.88%	55.13%	
No high school degree	7.09%	5.97%	19.07%	
First-enrolled as parttime student	19.28%	19.65%	16.90%	
Student is independent	22.81%	18.30%	51.55%	
Student has dependents	15.07%	11.67%	36.77%	
Student is a single parent	8.80%	6.36%	24.42%	
Student is working fulltime at enrollment	16.78%	15.09%	27.57%	

* p<.05; **p<.01; *** p<.001

There is distinctive difference in means between the two forms of universities within all three categories. Mean high school GPA is notably higher at TCUs than is the case at FPCUs, as is mean SAT score. Perhaps the starkest contrast between the two forms of institutions is in regard to the risk index score. Students who enrolled at a FPCU have a mean risk index score that is exactly twice that of students who did not.

X² Test of Frequencies for if Students Had Four+ Years of Core Subjects

For each of the core subjects, the percentage of students who had taken four or more years was measured and the frequencies were examined using cross tabulations with a χ^2 test of frequencies between TCU and FPCU enrollees. Student who enrolled at a FPCU were shown to have less frequently took four or more years of all core subjects than students who enrolled exclusively as TCUs. The difference was most pronounced for the subject of math ($\chi^2=493.48$; $p<.001$). The majority of TCU enrollees had taken four or more years of math in high school (61.71%), while less than one-third of FPCU enrollees had done so (31.57%). There was also a substantial difference between the two categories of students in terms of science ($\chi^2=122.96$; $p<.001$). A minority of both groups had taken four or more years of high school science, but a much larger portion of TCU enrollees had done so (44.09%) than was found among FPCU students (28.99%). The two groups were more similar in terms of English, as 85.51% of TCU enrollees has taken four or more years of the subject and 78.43% of FPCU enrollees had, but the difference between them was still statistically significant. ($\chi^2=52.39$; $p<.001$).

Table 3: Chi2 Test of Frequencies of Indicators of Academic Preparedness by Enrollment at TCU or FPCU

	All (N=16,684)	TCU=0 (N=14,424)	FPCU=1 (N=2,260)	Test Statistic χ^2
Four or more years HS English***	84.76%	85.51%	78.34%	52.39***
Four or more years HS math***	58.54%	61.71%	31.57%	493.48***
Four or more years HS science ***	42.50%	44.09%	28.99%	122.96***

* p<.05; **p<.01; *** p<.001

It is clear that those who enrolled at a FPCU less frequently took four or more years of all four of the core subject areas. The most substantial discrepancy is in the subject of math, where FPCU enrollees take four or more years of math at approximately half the rate as students who did not enroll at an FPCU. The results are slightly less pronounced, but still similar for science.

Binary Logistic Regression Predicting Enrollment at a FPCU Using Indicators of Academic Preparedness

Three binary logistic regression models were utilized to examine the predictive power of the indicators of academic preparedness and risk factors to attainment discussed above. The results of this analysis are presented below in Table 4 with odds ratios. The outcome variable, whether a student did or did not enroll in a FPCU from 2003 to 2009, is coded as “1” if the respondent enrolled at a FPCU. Thus, indicator variables that are associated with a positive odds ratio can be read as increasing the odds of enrolling at a FPCU. The first model is comprised of only indicators of academic

preparedness without the risk index. These include high school GPA category, SAT score, and if the student took four years or more of the three core high school subjects. The second model includes all of these indicators, plus the index of risk factors to postsecondary degree attainment. The final model contains all of the previous variables, plus a litany of control variables. The control variables consist of: the respondent's age at the time of first enrollment, the respondent's gender, a series of dummy variables representing the respondent's race with White used as the reference category, and the respondent's income percentile rank.

In the first model, high school GPA category, SAT score, and years taking four or more years of science in high school were all significant predictors of enrolling at a FPCU. Each higher successive GPA category a student fell into was associated with a 15% drop in the odds of enrolling at a FPCU ($p < .001$). Each one point increase in SAT score was associated with 0.4% lower odds of enrolling at a FPCU ($p < .001$). When extrapolated, it is obvious that there is a substantial association between SAT score and odds of enrolling at a FPCU. A 10-point increase in SAT score would be associated with a 4% reduction in the odds of enrolling at a FPCU and every 100-point increase would nearly cut in half the odds of enrolling. Taking four or more years of science is associated with a 19% reduction in the odds of enrolling at a FPCU ($p < .01$). Neither taking four or more years of math nor English had a statistically significant effect. The overall χ^2 for the first model was 605.73 ($p < .001$).

In the second model the addition of the risk to attainment index increased the χ^2 to 748.99 ($p < .001$). In the second model no variables accounting for core classes were significant. Moving-up in GPA category was associated with a slightly smaller reduction in the odds of enrolling at a FPCU. This time the reduction in odds of enrolling is 13% for each increase in GPA category ($p < .001$). Similarly, each 100-point increase in SAT score was associated with a slightly less dramatic but still significant 30% reduction in the odds of enrolling ($p < .001$). Risk index proved to be substantial contributor to the overall effectiveness of the model as each one point increase in risk index score is associated with a 38% increase in the odds of enrolling at a FPCU.

Including the control variables created a slight difference between the second and third model, but the results were largely the same. X^2 is increased to 818.89, which was less of an increase than was observed between the first and second model after adding the risk index. The strength of high school GPA category increased slightly from the second model, as moving up in GPA category was associated with a 14% reduction in the odds of enrolling at a FPCU ($p < .001$). The effect of SAT score remains unchanged from the second model. The effect of risk index score is tempered as a one-point increase in risk index score was associated with a 30% increase in the odds of enrolling.

Table 4: Odds Ratios Predicting if Student Enrolled at a FPCU by Indicators of Academic Preparedness

Indicator Variable	Model 1		Model 2		Model 3	
	Odds Ratio	Z	Odds Ratio	Z	Odds Ratio	Z
High school GPA category	0.85***	-4.98	0.87***	-4.14	0.86***	-4.44
SAT Score (out of 1200)	0.996***	-16.25	0.997***	-13.29	0.997***	-9.59
Four or more years HS English	1.04	0.40	0.991	-0.09	0.97	-0.31
Four or more years HS math	0.87	-1.88	0.93	-0.97	0.91	-1.24
Four or more years HS science	0.81**	-2.58	0.86	-1.86	0.87	-1.76
Risk index score (0 to 8)	-	-	1.38***	12.35	1.30***	8.40
Control Variable	Odds Ratio	Z				
Respondent age	-	-	-	-	1.07	1.88
Respondent is female	-	-	-	-	1.12	1.53
Respondent is Black	-	-	-	-	1.29*	2.45
Respondent is Hispanic	-	-	-	-	1.80***	5.79
Respondent is Asian	-	-	-	-	1.09	0.43
Respondent is Other Race	-	-	-	-	1.21	0.85
Respondent's Income Percentile Rank	-	-	-	-	0.994***	-4.50
Model Statistics						
N	11,255		11,255		11,255	
LR chi2	605.73***		748.99***		818.89***	
Pseudo R2	0.09		0.12		0.13	

* p<.05;**p<.01;*** p<.001

High school GPA category and SAT score are both consistently strong predictors of enrolling at a FPCU, even after the addition of control variables. Enrolling in four or more years of any of the core course seems to have little predictive power as only the science core is significant predictor in the first model, but this effect is no longer significant once the risk index score is added to the second model. None of the core

class predictors are significant in either of the latter two models. The risk index seems to be a significant and relatively strong predictor of enrolling at a FPCU. The addition of the risk index improves the overall model R^2 in model two more than the addition of the control variables does in the third model.

Chapter Summary

As was expected, students who enroll at FPCUs prove to be less academically prepared for post-secondary education than students who enroll exclusively at TCUs. Bivariate analysis shows that there is a substantial difference in the two kinds of students in terms of high school GPA category, SAT score, and taking four or more years of the core courses. Though in multivariate analysis, only the former two of these sets of variables have significant predictive power. There proved to be a stark discrepancy between the two types of student in risk index score in bivariate analysis. The risk index score provide to be a significant predictor of FPCU enrollment.

Both the first and the second hypothesis are clearly supported through this analysis. In regard to the first hypothesis, students who enrolled at an FPCU are indeed associated with both a lower high school GPA category and a lower SAT score. The fact that FPCU students were observed to score substantially higher in the risk index firmly supports the second hypothesis. The fact that these universities enroll students who are significantly less prepared for higher education than their counterparts, lends credence to the theoretical assertion that FPCUs serve the cooling out function

described by Clark. This hypothesis and cooling out theory is further supported by the fact that FPCU students are less prepared for college and more likely to carry attainment risk factors even when controlling for other demographic factors. This means that the difference between FPCU and TCU students cannot simply be explained away by FPCU's common claim that they cater to more diverse populations that are traditionally overlooked by TCU institutions.

CHAPTER FIVE: THE ASSOCIATION BETWEEN ACADEMIC PREPAREDNESS, RISK FACTORS TO ATTAINMENT, AND POST-SECONDARY PERFORMANCE AT A TRADITIONAL VERSUS FOR-PROFIT COLLEGE OR UNIVERSITY

Introduction

FPCUs have frequently been accused of skewing their student retention and graduation rates through grade inflation and by pressuring their largely adjunct faculty (with little job security) (Henstschke, Lechug, & Tierney, 2010, Ruch, 2001) into passing students despite subpar performance (Caterino, 2014; Field, 2011; Beato 2011; Ruch 2001). Many FPCU faculty members have complained that they are frequently pressured to provide passing grades regardless of merit. If a faculty member refuses to do so, an administrator can do so manually at many FPCUs. Another common complaint among faculty is that students can easily circumvent their decisions by appealing to administrators to obtain higher grades or leniency (Field, 2011). Such practices are largely in-line with what Vicente Lechuga (2008) describes as the for-profit view of enrollees as “customers” rather than students. While FPCU students are given a relatively easy path to attaining the degree they paid for, these practices are seen as indicative of the lack of academic rigor that is thought to marginalize the value of an FPCU degree (Beaver 2009, Beato, 2011, Kinser, 2007, Berry & Worthen, 2012, Ruch, 2001)

While there is a wealth of qualitative evidence from interviews with current and former FPCU faculty that attests to the presence of practices designed to artificially inflate retention and graduation rates (Field, 2011, Legchuga, 2006, Berry & Worthen, 2012), there is little in the way of quantitative analysis that would back up these claims. This section of analysis is intended to test these claims by comparing how previous high school performance of students influence college performance at FPCUs versus to TCUs. If grade inflation and the other described practices are systemically present at FPCUs, then it is to be expected that students that were poorer-performing in high school will see better academic performance at FPCUs than at TCUs. High school performance will be evaluated through self-reported high school GPA and number of years of core academic courses taken including math, science, and English. College performance will be gauged via self-reported GPA and retention.

Application of Theory and Hypothesis

While neither Clark nor Bell explicitly discuss grade inflation or anything akin to the accusations that have plagued FPCUs, cooling out theory does suggest that the function of higher education for some institutions moves away from the actual process of educating. In the case of FPCUs, it has been suggested the process of legitimate education has become secondary to the profit motive (Ruch, 2001; Beaver, 2012; Kinser, 2007). If it is the case that these universities are providing sub-par education with marginal value, the end-game for FPCU would be keeping students enrolled (and

paying) for as long as possible before they are “cooled out” *after* graduation. In order to examine this particular application of Clark’s theory to FPCU, the following research question and hypothesis will be examined:

Research Question 2: Is the association between academic preparedness and postsecondary outcomes as strong for students at FPCUs compared to TCUs?

- *H3:* Average high school GPA will not be as strongly associated with college GPA for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H4:* Average SAT score will not be as strongly associated with graduating for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H5:* Taking four or more years of core high school level courses (math, science, and English) will not be as strongly associated with college GPA for students enrolled at an FPCU when compared to students enrolled at a TCU.
- *H6:* A the number of risk factors to academic attainment associated with a respondent will not be as strongly correlated with academic performance or attainment at FPCUs when compared to TCUs

Descriptive Statistics: Student Demographic Characteristics by FPCU Enrollment

As noted in the methods section, the sample drawn from the BPS09 for this section of analysis is slightly different than the previous chapter. Given that this chapter examines the post-secondary performance of students at TCUs and FPCUs respectively, students whose academic record spanned multiple institutions via transfer(s) were excluded. This prevented the inclusion of student who had attended both a TCU and an FPCU institutions at different points in their academic career. Excluding students who had transferred also avoided tainting the validity of results with the unpredictable influence that transfer between institutions has been shown to have on post-secondary academic performance outcomes in previous literature (Wang, 2012; Cejda, 1994; Best, & Gehring, 1993).

The resulting overall sample was reduced to 9,984 FTB students. That sample was split into students whose academic career was solely at one TCU institution (n=8,666) or one FPCU institution (N=1,318). Removing all students who transferred changed the demographic composition of the sample very little. The average age of the overall sample was just under 22 years old (21.98), with a slightly older mean age for TCU students (21.42) and a substantially older mean age for FPCU students (25.65). Females were still a majority of both the overall sample (59.67%) and TCU students (57.52%), while being approximately two-thirds of the FPCU students (66.24%).

The overall sample was mostly White (65.83%) with Blacks (12.23%) and Hispanics (12.56%) being enrolled in similar proportions. Asian students were a distant third in minority group representation (4.35%). The other various racial groups had marginal presence within the sample. These included American Indian/Alaska Native (0.77%), Native Hawaiian/Pacific Islander (0.25%), other unidentified races (1.36%), and mixed race (2.65%).

The sample of TCU students was slightly less diverse than the overall sample with Whites comprising an even greater proportion (69.10%). Blacks (10.84%) and Hispanics (10.48%) also see a slight drop in presence. Asians (4.63%), other identified races (1.37%), and mixed race (2.58%) students were all slightly more prevalent in the TCU sample. American Indians/Alaska Natives (0.76%) and Native Hawaiian/Pacific Islanders (0.24%) were still less than one-percent of the sample.

As was the case with the broader sample used in the first chapter of analysis, the sample of students who attended a FPCU and never transferred was much more diverse than their counterparts from TCUs and the overall sample. Less than half were White (44.31%). Black respondents were much more prevalent (21.40%) and Hispanics comprised over a quarter of the sample (26.25%). Asians (2.50%) were nearly half more prevalent in the FPCU sample than was the case in the TCU sample. Other unidentified races are also slightly less prevalent (1.29%). Mixed race students (3.11%),

American Indian/Alaska Native students (0.83%), and Native Hawaiian/Pacific (0.30%) are all slightly more prevalent in the FPCU sample than the TCU sample.

The overall sample of non-transfer students had a mean income percentile that was slightly above the 50th percentile (51.92). This was slightly higher than the mean income percentile for the sample used in the first chapter of analysis. The TCU sample had a mean income percentile of (53.69). Similar to the sample in the first chapter of analysis, the mean income percentile among TCU students (40.28) was substantially lower than their TCU counterparts.

Table 5: Characteristics of Students Who Enrolled w/o Transferring from a TCU or FPCU Institution

	All (N=9,984)	TCU (N=8,666)	FPCU (N=1,318)
Mean age when first enrolled in college	21.98	21.42	25.65
Gender			
Female	58.67%	57.52%	66.24%
Race			
White	65.83%	69.10%	44.31%
Black or African American	12.23%	10.84%	21.40%
Hispanic or Latino	12.56%	10.48%	26.25%
Asian	4.35%	4.63%	2.50%
American Indian or Alaska Native	0.77%	0.76%	0.83%
Native Hawaiian/Pac. Islander	0.25%	0.24%	0.30%
Other	1.36%	1.37%	1.29%
More than one race	2.65%	2.58%	3.11%
Mean Income percentile rank	51.92	53.69	40.28

The demographic composition of this sample was much the same as the sample used in the first chapter of analysis that includes students who had transferred during the BPS09 time frame. Once again, FPCU students were older, more likely to be female, more racially diverse, and have a lower mean income. The effect of the demographic control variables in multivariate analysis in this chapter of analysis should be approximately the same as was observed in the first chapter of analysis.

Descriptive Statistics: Post-secondary Performance by Demographic Factors and Type of Institution

Cumulative Postsecondary GPA by Demographic Factors and Type of Institution

Cumulative GPA was calculated from the transcripts of any period of academic enrollment during the survey time frame. The mean cumulative GPA between all students in the non-transfer sample were similar between types of institution. The overall sample had a mean GPA of 2.91. TCUs had the same mean GPA (2.91) as the overall sample. The GPA of students who had attended a FPCU was slightly higher (2.93).

Age at Enrollment

To describe how mean college GPA varied by age at first enrollment, three age groups were created. The first age group includes “traditional” college aged students of students age 18 through 22. The second included students slightly older than traditional

age, but still relatively young. This group included students age 23 through 29. The last group included all students age 30 and older.

The youngest, “traditional” aged group had a higher GPA at TCUs (2.91) than at FPCUs (2.70). The overall GPA for the age group was 2.89. The age group from age 23 to 29 performed poorer in GPA in the overall sample (2.87). Their GPA was substantially lower at TCUs (2.76), but actually performed better at FPCUs (3.15). The oldest age group, age 30 and up, outperformed the other age groups in terms of GPA with a mean of 3.11 in the overall sample. They performed notably better at FPCUs (3.24) than was the case as TCUs (3.07).

Gender

There is remarkable parity in how the respective genders perform between TCUs and FPCUs. Females had a mean GPA of 3.00 in both the overall sample and among the TCU students. Females performed nearly the same at FPCUs (2.99). Males had a mean GPA of 2.80 in the overall sample and within the TCU sample. Males in the FPCU sample had a slightly higher GPA (2.83).

Race

The type of institution attended is appeared to be associated with a substantial difference in GPA for some racial groups, while the difference is negligible for others. Whites had a GPA just above 3.00 across all samples. White students have a mean

GPA of 3.02 in the overall sample, 3.02 in the TCU sample, and 3.03 in the FPCU sample. Blacks saw somewhat more variation as their mean GPA was 2.44 in the overall sample, 2.42 at TCUs, and 2.55 at FPCUs. There was a good deal of variability among Hispanic students who saw a 2.76 mean GPA in the overall sample, a 2.68 mean GPA at TCUs, and a substantially higher mean GPA of 3.02 at FPCUs. The mean GPA for the remaining racial categories were not noted if they provided a sample that was less than 50. The sample for Native Hawaiians/Pacific Islanders was under 50 for the overall sample. Asian students had a mean GPA of 3.09 in the overall sample and 3.07 at TCUs, but were not present in adequate numbers in the FPCUs sample. The categories for other undefined races and mixed race students as well had a presence of less than 50 in the FPCU sample. Students of other unidentified races had a mean GPA of 2.88 in the overall sample and a similar 2.89 GPA at TCUs. Mixed race students has a mean GPA of 2.87 in the overall sample and a slightly lower mean of 2.87 at TCUs.

Income Percentile Rank

In order to describe how mean GPA varied by income percentile rank, the variable for income percentile rank was broken in four quartiles that break at the 25th, 50th, and 75th percentile. In each successively higher income quartile there is an observed increase in mean GPA across the overall sample, TCUs, and FPCUs. FPCU students did appear to do slightly better across each quartile. The first quartile (lowest income) had a mean

GPA of 2.60 in the overall sample, 2.59 at TCUs, and 2.64 at FPCUs. The second quartile had a mean GPA of 2.85 in the overall sample, 2.84 at TCUs, and 2.93 at FPCUs. The third quartile had a mean GPA of 2.97 in the overall sample, 2.95 at TCUs, and 3.16 at FPCUs. The fourth quartile (highest income) had a mean GPA of 3.14 in the overall sample, 3.13 at TCUs, and 3.29 at FPCUs.

Table 6: Mean Overall College GPA by Institution Type and Student Characteristics

	All (N=9,984)	TCU (N=8,666)	FPCU (N=1,318)
Mean College GPA	2.91	2.91	2.93
Age at Enrollment			
18-22	2.89	2.91	2.70
23-29	2.87	2.76	3.15
30+	3.11	3.07	3.24
Gender			
Female	3.00	3.00	2.99
Male	2.80	2.80	2.83
Race			
White	3.02	3.02	3.03
Black or African American	2.44	2.42	2.55
Hispanic or Latino	2.76	2.68	3.02
Asian	3.09	3.07	-
American Indian or Alaska Native	2.54	2.56	-
Native Hawaiian/ other Pac. Islander	-	-	-
Other	2.88	2.89	-
More than one race	2.87	2.86	-
Income percentile rank			
First Quartile	2.60	2.59	2.64
Second Quartile	2.85	2.84	2.93
Third Quartile	2.97	2.95	3.16
Fourth Quartile	3.14	3.13	3.29

Note: Excluded if N<50

Mean college GPA overall seemed to be similar between the two groups of students. FPCU students carried a slightly high GPA. Somewhat curiously, younger students seemed to perform better at TCUs while older students seem to perform better

at FPCUs. This may be the result of the common “adult education” orientation at many FPCUs. Black and Hispanic students carried higher mean GPAs at FPCUs than at TCUs. The difference for Whites appeared negligible. At both types of institutions, students who were higher in income percentile seem to perform better in terms of GPA. This effect looks to be slightly more pronounced among FPCU students.

Descriptive Statistics: Six Year Degree Attainment by Demographic Factors and Type of Institution

Six-year degree attainment was obtained via interviews in the last wave of data collection (2009). If a student had earned any degree that he or she had enrolled for since 2003, they were counted as “attained” regardless of if they re-enrolled for another degree or remained enrolled under a non-degree seeking status. The overall six-year rate of attainment was 59.47% in the overall sample that includes both TCUs and FPCUs. TCU students had a 61.08% degree attainment rate, notably higher than the 48.86% of students who had attained a degree among FPCU students.

Age at First Enrollment

As was done before, age was broken into three categories consisting of those between the ages of 18 through 22 years old, 23 through 29 years old, and those age 30 and older. The youngest group of students had the greatest rate of completion across the two different kinds of institutions, with an overall sample attainment rate of 65.66%. Their rate of completion was 67.16% at TCUs, and a notably lower 50.00% at FPCUs.

This is the only age group in which FPCUs had a lower attainment rate than TCUs. The age group of students in their later twenties had a much lower overall sample attainment rate of 37.03%. This group though performed much better at FPCUs than their counterparts at TCUs, as their TCU attainment rate was 31.14% versus 49.20% at FPCUs. The 30 and older group of students performed similar to the second age group of late twenties students. Their overall sample attainment rate was 38.00%, but they once again performed much better at FPCUs where their attainment rate was 47.84% compared to 34.58% at TCUs.

Race

Graduation varied by race in the overall sample in much the same way that it varied for cumulative GPA, but in general FPCU students performed worse than TCU students among many racial groups. Degree attainment for Whites was near two-thirds in the overall sample (64.62%) and at TCUs (66.10%), but their degree attainment falls just below half at FPCUs (49.49%). Black students performed worse in the overall sample (41.10%), the TCU sample (42.13%), and in the FPCU sample where they performed especially poorly (38.65%). Hispanic/Latino students were the lone racial category to perform notably better at FPCUs (54.62%) than at TCUs (44.27%), but the overall sample attainment rates were still below half (47.13%). Asian students performed the best in all three samples as almost three-fourths obtained degrees in the overall sample (73.73%) and at TCUs (74.31%), but they saw a markedly lower rate of degree

attainment at FPCUs (66.67%). None of the remaining racial categories included more than 50 respondents who attended a FPCU and never transferred. Native Hawaiian/Pacific Islander students were under 50 respondents for the overall sample. American Indian/Alaskan Native students had the lower attainment rate in both the overall sample (37.66%) and at TCUs (39.39%). Students of other unidentified races had an attainment rate above half in the overall sample (55.88%) and at TCUs (57.14%). This was also the case for mixed race students both in the overall sample (56.23%) and at TCUs (57.14%).

Income

In both the overall sample in at TCUs, the attainment rate moved up in conjunction with moving up in income percentile rank quartile. In the general sample the first quartile (lowest income) saw a rate of attainment below half (42.95%). The second quartile was just above half (56.95%). The third quartile was slightly better (61.81%). The fourth quartile (highest income) is approaching three-fourths attainment (70.77%). Within the TCU sample there were similar, but slightly better results for the first quartile (46.66%), second quartile (58.32%), third quartile (62.48%), and fourth quartile (72.20%). FPCU students had an attainment rate that was lower than TCU students in all quartiles. The first quartile (43.30%) was reasonably similar to the overall and TCU samples. As you move into the second (49.31%) and third (56.43%) you see FPCU students start to lag behind students in the same respective income categories at TCUs. Interestingly, the

fourth quartile (50.27%) of students saw a lower attainment rate than the third quartile at FPCUs.

Table 7: Six-Year Degree Attainment Percentage by Institution Type and Student Characteristics

	All (N=9,984)	TCU (N=8,666)	FPCU (N=1,318)
Overall Attainment Rate	59.47%	61.08%	48.86%
Age at Enrollment			
18-22	65.66%	67.16%	50.00%
23-29	37.03%	31.14%	48.20%
30+	38.00%	34.58%	47.84%
Gender			
Female	60.89%	62.67%	50.74%
Male	57.44%	59.92%	45.17%
Race			
White	64.62%	66.10%	49.49%
Black or African American	42.10%	43.13%	38.65%
Hispanic or Latino	47.13%	44.27%	54.62%
Asian	73.73%	74.31%	66.67%
American Indian or Alaska Native	37.66%	39.39%	-
Native Hawaiian/ other Pac. Islander	-	-	-
Other	55.88%	57.14%	-
More than one race	56.23%	57.14%	-
Income percentile rank			
First Quartile (Lowest)	42.95%	46.66%	43.30%
Second Quartile	56.95%	58.32%	49.31%
Third Quartile	61.81%	62.48%	56.43%
Fourth Quartile (Highest)	70.77%	72.20%	50.27%

Note: Excluded if N<50

FPCU students had a six-year attainment rate that was notably lower than that of TCU students. At both types of institution younger students appeared to have an advantage in attainment over older students. Though this discrepancy is much less pronounced at FPCUs than TCUs. There was a gender gap favoring females at both types of institution. This gender gap was a slightly larger among FPCU students than TCU students. Most racial groups fare worse at FPCUs in terms of degree attainment than TCUs. The lone exception to this is Hispanics. As was the case with GPA, attainment rates favored students of higher income. This trend was much more pronounced among TCU students than FPCU students. It should be noted that the third income quartile actually outperformed the fourth income quartile at FPCUs.

Bivariate Analysis between Institution Types: Cumulative Postsecondary GPA and Indicators of Academic Preparedness

T-Test of Independent Means for Taking Four or More Years of Core Courses

For all four of the core subjects, taking four or more years in high school was associated with a college GPA that is significantly higher among TCU students, but this is not the case for FPCU students. Among TCU students, those who had taken four or more years of high school level math had a mean GPA of 3.09 while those that did not had a mean GPA of 2.53. This is a difference of 0.56 ($t=28.01$; $p<.001$). This same association is not significant among FPCU students where students who took four or more years of high school math had a mean GPA of 2.72 while those who did not had

an almost identical mean GPA of 2.71. The difference of means of 0.001 was not significant ($t=0.02$). For TCU students who took four or more years of high school science, they had a mean GPA of 3.06, while those that did not had a mean GPA of 2.76. The difference of means was 0.29 ($t=-14.80$; $p<.001$). For students attending an FPCU, taking four or more years of science is associated a 3.06 mean GPA, while those who did not had a mean GPA of 2.76. The difference in means of 0.29 ($t=0.99$) is not statistically significant. For students attending a TCU, taking four or more years of high school English is associated with a 2.92 mean college GPA while those that did not were associated with a 2.77 GPA. That difference in means was 0.15 ($t=-5.19$; $p<.001$). This is notably smaller observed difference than was the case for TCU students who took four or more years of other high school core courses, but it was still significant at the highest level. For students who attended a FPCU, the mean GPA of 2.76 for those that took four or more years of high school English was only slightly higher than the 2.70 mean GPA for those that did not. The mean difference of 0.06 ($t=0.58$) was not statistically significant.

Table 8: T-Test of Means for College GPA by Indicators of College Preparedness

	All (N=9,984)	TCU=0 (N=8,666)	FPCU=1 (N=1,318)
Student had 4+ years of math			
Yes	2.97	3.09	2.72
No	2.55	2.53	2.71
Δ	0.42***	0.56***	0.001
Student had 4+ years of science			
Yes	2.92	3.06	2.74
No	2.71	2.76	2.64
Δ	0.21***	0.29***	0.11
Student had 4+ years of English			
Yes	2.82	2.92	2.76
No	2.71	2.77	2.70
Δ	.010***	0.15***	0.06

* p<.05; **p<.01; *** p<.001

At TCUs, there appeared to be a significant difference in mean GPA favoring students who took four or more of each of the core subjects. This was not the case for any of the core subjects among FPCU students. Students who took four or more years of math in high school and enrolled at a TCU carried an especially higher GPA than students that did not. This same difference in GPA was practically non-existent among students enrolled at FPCUs.

Pairwise Correlations by Institution Type: High School GPA Category, SAT Score, and Risk Index Score

For students in the sample of TCUs, the high school GPA category and SAT score were both positively correlated with college GPA ($r=0.42$; $p<.001$), as was SAT score ($r=0.22$; $p<.001$). A student's score on the risk index was negatively correlated with college GPA at TCUs ($r=-0.15$; $p<.001$). For students who attended a FPCU, high school GPA category was positively correlated with college GPA ($r=0.22$; $p<.001$), but not as strongly as it was for TCU students. Similarly there is a weaker correlation for FPCU students between SAT score and college GPA ($r=0.14$; $p<.01$). Perhaps most interestingly, there is a positive correlation between risk index score and GPA among students who attended FPCUs ($r=0.15$; $p<0.001$). The strength of this correlation is the same as between risk index score and college GPA are TCUs, but in the opposite direction.

Table 9: Pairwise Correlations between Indicators of College Preparedness and College GPA

	All (N=9,984)	TCU=0 (N=8,666)	FPCU=1 (N=1,318)
High School GPA Category	0.361***	0.42***	0.22***
1200 point scale SAT score (or ACT converted)	0.40***	0.46***	0.14*
Risk index score	-0.08***	-0.15***	0.15***

* $p<.05$; ** $p<.01$; *** $p<.001$

There showed to be a significant correlation between high school GPA category and college GPA at both TCUs and FPCUs, but clearly the strength of the correlation is much stronger at TCUs. The correlation between SAT score and college GPA was only significant at the lowest level for FPCUs and was relatively weak. It was much stronger at TCUs and significant at the highest level. Both of these indicators of academic preparedness appeared to be much more relevant to college GPA at TCUs than was the case at FPCUs. A student's risk index score showed the same statistically significant correlation with college GPA at TCU and FPCUs, but in different directions. At TCUs, a student's score in the risk index was correlated with a lower college GPA. Surprisingly, at FPCUs a higher risk index score was correlated with a higher GPA.

Bivariate Analysis between Institution Types: Six-Year Degree Attainment and Indicators of Academic Preparedness

Chi2 Test of Frequencies between Institution Types: Taking Four or More Years of Core Courses

Among the sample of students that attended a TCU, 78.85% of those who had taken four or more years of math attained a degree compared to 42.84% ($\chi^2=915.27$; $p<.001$). There was no significant difference at FPCUs between students who had taken four or more years of math and those who hadn't, as the attainment rates were 48.51% and 48.60% respectively ($\chi^2=0.0005$). TCU students who had four or more years of high

school science had a 76.47% degree attainment rate, those that did not had a 57.57% attainment rate ($\chi^2=289.39$; $p<.001$). Those who had four or more years of high school science and enrolled attended a FPCU had an attainment rate of 45.37%, which was actually lower than those who took less than four years of science ($\chi^2=1.17$). The result though was not significant. TCU students who had four or more years of high school English saw an attainment rate of 67.55% compared to 59.11% for those that did not ($\chi^2=27.82$; $p<.001$). Similar to what was the case in regarding the core subject of science, those at FPCUs who took four or more years of high school English actually had a lower attainment rate than those that did not, but the result was not significant. At FPCUs, those who'd taken four or more years of high school English had a 47.11% attainment rate. Those that did not had a 52.97% attainment rate ($\chi^2=1.90$).

Table 10: χ^2 Test of Frequencies between Indicators of College Preparedness and Degree Attainment

	All (N=9,984)	TCU=0 (N=8,666)	FPCU=1 (N=1,318)
Student had 4+ years of math			
Yes	69.85%	78.85%	48.51%
No	45.50%	42.84%	48.60%
χ^2	838.76***	915.27***	0.0005
Student had 4+ years of science			
Yes	67.37%	76.47%	45.37
No	53.13%	57.57%	49.81
χ^2	249.79***	289.39***	1.17
Student had 4+ years of English			
Yes	60.58	67.55	47.11
No	55.15	59.11	52.97
χ^2	22.23***	27.82***	1.90

* $p < .05$; ** $p < .01$; *** $p < .001$

Taking four or more years of each of the core subjects produced a statistically significant difference in frequencies for attainment among the sample of TCU students. This was not the case for any of the core subjects among the sample of SPCU students. At TCUs the effect was particularly noticeable for math. At FPCUs there was no statistically significant difference in frequencies. In fact, at FPCUs students who took less than four years of each of the core courses exhibited a slightly high attainment rate than those that did. Though, it should once again be noted this result was not statistically significant.

T-Test of Means between Institution Types: High School GPA Category, SAT Score, and Risk Index by Six-Year Degree Attainment

For this section of analysis the difference in means for indicators of academic preparedness are examined between those who did and did not attain a degree for both TCUs and FPCUs, rather than examining rates of graduation. Those who attained a degree at a TCU had a mean high school GPA category of 6.34. Those that did not had a mean high school GPA category of 5.49. That is a difference in means of 0.85 ($t=32.02$; $p<.001$). Among the FPCU sample, those who attained a degree had a mean GPA category of 5.17 compared to 5.05 for those that did not. The difference of 0.13 is not statistically significant ($t=-1.30$).

In the TCU sample, those that attained a degree had a mean SAT score of 1103.32. Those that had not attained a degree had a mean SAT score of 929.09. The difference in means was 174.23 ($t=174.23$; $p<.001$). At FPCUs, those who did attain a degree had a mean SAT score of 835.84 versus 846.83, the mean SAT score of those who had not attained a degree. The 13.99 difference of means ($t=-0.69$) is not statistically significant.

Among TCU students, those who attained a degree had a mean score of 1.00 on the risk factors to attainment index. Those that did not attain a degree had a mean score of 2.65, more than double that of those who attained. The difference in means was 1.65 ($t=43.03$; $p<.001$). Among FPCU students, those who attained a degree had a

mean risk index score of 3.22. Those who did not attain a degree had a mean risk index of score of 3.51. The difference in means was 0.30 ($t=2.88$; $p<.01$)

Table 11: T-test of Means between Indicators of College Preparedness and Degree Attainment

	All (N=9,984)	TCU=0 (N=8,666)	FPCU=1 (N=1,318)
High school GPA Category			
Degree Attained	6.15	6.34	5.18
No Degree Attained	5.50	5.49	5.05
Δ	0.64***	0.85***	0.13
1200 point scale SAT score (or ACT converted)			
Degree Attained	1057.40	1103.32	849.83
No Degree Attained	930.33	929.09	835.84
Δ	127.06***	174.23***	13.99
Risk index score			
Degree Attained	1.29	1.00	3.22
No Degree Attained	2.39	2.65	3.51
Δ	1.10***	1.65***	0.30***

* $p<.05$; ** $p<.01$; *** $p<.001$

Both high school GPA category and SAT score produced significantly different means between those who attained or did not attain a degree at TCUs. This similarly significant difference was not noted among the FPCU sample. This suggests that neither will be a significant predictor of degree attainment at FPCUs in multivariate analysis. Risk index score was substantially higher among those who did not attain a degree at a TCU compared to those that did, suggesting that the factors chosen for the index are indeed risk factors to degree attainment. Those who failed to obtain a degree at FPCU also carried a higher risk index score, but the difference in score between

those who did and did not attain a degree was far less pronounced at FPCUs than was the case for the TCU sample.

Multivariate Analysis between Institution Types: Indicators of Academic Preparedness as Predictors of College GPA

Three ordinary least square regression models were constructed to examine the predictive power of indicators of academic preparedness and the risk to attainment index for cumulative college GPA. Similar to the multivariate analysis in chapter one, this chapter of analysis includes: a first model that examines high school GPA category, SAT score, and if given student took four or more years of the three core subjects in high school; a second model that includes the index of risk factors to postsecondary degree attainment; and a final model the includes gender, race, and income percentile. The number of respondents remains consistent across the sets of models, but varies substantially between sets of models comparing the two types of institution. Models that included TCU students who had never transferred had 5534 respondents each. Models that included FPCU students who had never transferred contain a substantially lower 199 respondents.

Indicators of Academic Preparedness as Predictors of College GPA at TCUs

In the first model there are three statistical significant predictors of college GPA. These included high school GPA category, SAT score, and taking four or more years of high school math. For each progressively high school GPA category a student fell into,

it could be expected that they would see a 0.20 rise in college GPA ($p < .001$). Every one-point increase in SAT score is associated with a 0.001 increase in college GPA ($p < .001$). To extrapolate on that, every 100 point increase in SAT score was associated with a 0.10 increase in college GPA. Students who had taken four or more years of math in high school saw a 0.13 increase in GPA ($p < .001$). Neither the variables indicating a student as taking four or more years of high school English nor a student taking four or more of high school science were statistically significant predictors of college GPA. The overall model had an F-statistic of 428.13 ($p < .001$) and an R^2 of 0.28.

The second model added the risk index variable. The same variables that were significant predictors before remained significant in the second model. The risk index was also statistically significant. Every one increase in high school GPA category was associated with a 0.19 increase in college GPA ($p < .001$). This was a slight decrease from the first model. A one-point increase in SAT score was, like the first model, associated with a 0.001 increase in college GPA ($p < .001$). The coefficient for students who had taken four or more years of high school math decreased slightly in this model, as student who had done so were associated with a 0.11 higher GPA. For the risk index score, every one point increase in the score was associated with a 0.06 reduction in GPA ($p < .001$). Neither taking four or more years of English nor Science were statistically significant predictors of college GPA in the second model. The second model had a significant F-score of 365.92 ($p < .001$) and the R^2 was once again 0.28.

The third model, in which the control variables were included, changed very little in terms of the value of the coefficients or the statistical significance of the indicator variables. The influence of high school GPA category decreased slightly as moving up one high school GPA category is expected to produce a 0.17 increase in college GPA ($p < .001$). A one point increase in SAT score was expected to produce a 0.001 increase in GPA ($p < .001$), as was the case in the first two models. A student taking four or more years of high school math was associated with a 0.13 increase in college GPA ($p < .001$). This is slightly more than the second model, but the same value as the first. A one point increase in risk index score was once again expected to produce a college GPA that was 0.06 lower ($p < .001$). The F-score for the final model was 195.66 ($p < .001$) and the R^2 improved to 0.32.

Table 12: OLS Regression Coefficients Predicting College GPA at TCUs by Indicators of College Preparedness

Indicator Variable	Model 1		Model 2		Model 3	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
High school GPA Category	0.20***	0.01	0.19***	0.01	0.17***	0.01
SAT Score (out of 1200)	0.001***	0.00005	0.001***	0.00005	0.001***	0.00005
Four or more years HS English	0.0008	0.03	0.005	0.03	-0.006	0.03
Four or more years HS math	0.13***	0.02	0.11***	0.02	0.13***	0.02
Four or more years HS science	0.02	0.02	0.02	0.02	0.02	0.02
Risk index score (0 to 8)	-	-	-0.06***	0.009	-0.06***	0.01
Control Variable	Coefficient	Standard Error				
Respondent age	-	-	-	-	0.02	0.01
Respondent is female	-	-	-	-	0.23***	0.02
Respondent is Black	-	-	-	-	-0.24***	0.03
Respondent is Hispanic	-	-	-	-	-0.15***	0.03
Respondent is Asian	-	-	-	-	-0.03	0.04
Respondent is Other Race	-	-	-	-	-0.08	0.05
Respondent's Income Percentile Rank	-	-	-	-	0.0007*	0.0003
Model Statistics						
N	5534		5534		5,534	
F	428.13***		365.92***		195.66***	
R ²	0.28		0.28		0.32	

* p<.05; **p<.01; ***p<.001

At TCUs, both high school GPA category and SAT score were relatively strong predictors of college GPA. The strength of this predictive power though seemed to be mitigated somewhat once the risk index and control variables are added to the models. Taking four or more years of math consistently predicted college GPA across all

models, proving to be the only significant core subject to predict college GPA at TCUs. The risk index significantly predicted college GPA, but added little to the overall predictive power of the second model. The indicators of academic preparedness and risk index together appeared to provide notable predictive power of GPA, even when controlling for demographic factors.

Indicators of Academic Preparedness as Predictors of College GPA at FPCUs

When the same series of models was applied to students who attended a FPCU, the results were substantially different, as the same models were all far less effective at predicting college GPA. In each of the models, only the high school GPA category was a significant predictor. Beyond that, only the third model that included the control variables was significant at any level.

In this first model, for every rise in category of high school GPA a 0.13 increase ($p < .05$) in college FPCU is expected among the sample of FPCUs. This model has a non-significant F-score of 1.92 and an R^2 of 0.05. In the second model, moving up in high GPA category is associated with a slightly better 0.14 increase ($p < .05$), but the F-score is a non-significant 1.70 with an R^2 of 0.05 once again. In the third model a college GPA increase of 0.12 was expected for every increase in high school GPA category. This model was significant with an F-score of 2.28 ($p < .01$) and an R^2 of 0.14.

Table 13: OLS Regression Coefficients Predicting College GPA at FPCUs by Indicators of College Preparedness

Indicator Variable	Model 1		Model 2		Model 3	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
High school GPA Category	0.13*	0.06	0.14*	0.06	0.12*	0.06
SAT Score (out of 1200)	0.0004	0.004	0.0005	0.0004	0.0004	0.0004
Four or more years HS English	-0.05	0.17	-0.06	0.17	-0.09	0.16
Four or more years HS math	0.09	0.14	0.07	0.14	0.21	0.14
Four or more years HS science	-0.08	0.16	-0.08	0.16	-0.05	0.16
Risk index score (0 to 8)	-	-	0.03	0.05	0.008	.06
Control Variable	Coefficient	Standard Error				
Respondent age	-	-	-	-	0.09	0.07
Respondent is female	-	-	-	-	0.10	0.14
Respondent is Black	-	-	-	-	-0.12	0.21
Respondent is Hispanic	-	-	-	-	0.30	0.17
Respondent is Asian	-	-	-	-	0.53	0.42
Respondent is Other Race	-	-	-	-	-0.31	0.44
Respondent's Income Percentile Rank	-	-	-	-	0.008**	0.003
Model Statistics						
N	199		199		199	
F	1.92		1.70		2.28**	
R ²	0.05		0.05		0.14	

* p<.05; **p<.01; *** p<.001

Most of the indicators of academic preparedness that were significant predictors of college GPA at TCUs are not among the FPCU sample. Only the high school GPA category was statically significant in all three models. Given that it was only significant at the .05 level in all three models and only the third model with control variables is significant overall, this variable's predictive power should be considered suspect at best.

Multivariate Analysis between Institution Types: Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment

Like the multivariate models examining predictors of cumulative college GPA, two sets of three models to examine predictors of six-year degree attainment at among both TCU and FPCU students. These models utilize binary logistic regression with odds ratios similar to the first chapter of analysis to predict that odds that a student did or did not attain a degree during the six year time from of BPS09. Once again the number of respondents between sets of models remains consistent while between sets of models comparing different institutions there is a discrepancy. Models examining TCU students have an *N* of 6,123 respondents while those comparing FPCU students have an *N* of 301.

Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment at TCUs

All three of the models predicting six-year attainment were significant and contained a wealth of predictors that were also significant. Within each of the three models, the only category that was not a significant predictor of whether that student attained a degree was whether or not a student had taken four years or more of high school English.

Within the first model, for every GPA category a student moved-up they were expected to see 46% greater odds of degree attainment. ($p < .001$). Each one-point increase in SAT score was associated with a 0.3% chance of college graduation

($p < .001$). In more sensible terms: A 10-point increase in SAT score would be associated with a 3% increased odds of attaining a degree if enrolled at a TCU. Students who had taken four or more years of math in high school were expected to see an 83% increase in the odds of attainment ($p < .001$) and those who took four or more years of science would see a 26% increase ($p < .001$). The overall model had a χ^2 of 1177.87 ($p < .001$).

In the second model an increase in high school GPA category predicted a slightly less than 44% increase in the odds of attainment ($p < .001$), and a one point increase in SAT score had a slightly smaller 0.2% increase in the odds of attainment ($p < .001$). Having four or more years of math and science were associated with a 60% ($p < .001$) and 22% ($p < .001$) increase in the odds of attainment respectively. Both down from the increase they produced in the first model. A one point increase in risk index score predicted a 42% decrease in the odds of attainment ($p < .001$). The model had a χ^2 of 1454.78 ($p < .001$).

Including the control variables seemed to have only marginal effect on the influence of the full set of indicator variables. An increase in high school GPA category was associated with 41% increase in the odds of attainment ($p < .001$). This is marginally less than both the first and second model. The effect of a one point increase SAT score is left largely unchanged when adding control variables as it is still associated with a 0.2% ascension in the odds of graduating. Taking four or more years

of math was predicted to increase the odds of graduation by 62% ($p < .001$). While four or more years of science loses two levels of significance but still predicts a 20% increase in the odds of attainment ($p < .05$). The effect of the risk index score is actually strong in the third model, predicting a 40% decrease in the odds of attainment for every one point increase ($p < .001$). The overall model increased in χ^2 to 1554.18 ($p < .001$).

Table 14: Odds Ratios Predicting Degree Attainment at TCUs by Indicators of Academic Preparedness

Indicator Variable	Model 1		Model 2		Model 3	
	Odds Ratio	Z	Odds Ratio	Z	Odds Ratio	Z
High school GPA category	1.46***	11.29	1.44***	10.54	1.41***	9.62
SAT Score (out of 1200)	1.003***	14.61	1.002***	10.00	1.002***	8.36
Four or more years HS English	0.9	-1.12	0.92	-0.9	0.91	-0.94
Four or more years HS math	1.83***	8.46	1.60***	6.32	1.62***	6.41
Four or more years HS science	1.26**	3.28	1.22**	2.77	1.20*	2.57
Risk index score (0 to 8)	-	-	0.58***	-15.44	0.60***	-13.11
Control Variable	Odds Ratio	Z				
Respondent age	-	-	-	-	1.006	0.13
Respondent is female	-	-	-	-	1.59***	6.81
Respondent is Black	-	-	-	-	0.91	-0.8
Respondent is Hispanic	-	-	-	-	0.68***	-3.51
Respondent is Asian	-	-	-	-	1.32	1.56
Respondent is Other Race	-	-	-	-	0.60*	-2.42
Respondent's Income Percentile Rank	-	-	-	-	1.007***	5.36
Model Statistics						
N	6123		6123		6123	
LR chi2	1177.87***		1454.78***		1554.18***	
Pseudo R2	0.16		0.20		0.21	

* p<.05;**p<.01;*** p<.001

The same as was the case for college GPA at TCUs, high school GPA category, SAT score, taking four or more years of high school level math, and risk index score are all significant predictors of six-year degree attainment. Taking four or more years of science joins the other significant predictors in this set of model, but its significant was reduced to the .05 level once control variables are included. Risk index score seemed to have a substantial impact on the overall model.

Indicators of Academic Preparedness as Predictors of Six-Year Degree Attainment at FPCUs

None of the three model yielded any indicators variables that were significant predictors of whether or not a student at a FPCU would attain a degree within the six-year time frame. The first model provided a χ^2 of 5.09. The χ^2 in the second model increased slightly to 6.54 after the introduction of the risk index to the model. The largest jump in χ^2 occurred in the third model which provided a χ^2 of 19.13. Though like the previous two, the overall model was not significant and none of the variables (including the control variables) were significant predictors of academic attainment among FPCU students.

Table 15: Odds Ratios Predicting Degree Attainment at FPCUs by Indicators of Academic Preparedness

Indicator Variable	Model 1		Model 2		Model 3	
	Odds Ratio	Z	Odds Ratio	Z	Odds Ratio	Z
High school GPA category	1.04	0.40	1.03	0.11	0.97	-0.27
SAT Score (out of 1200)	1.0008	1.13	1.0006	0.0007	1.0002	0.24
Four or more years HS English	1.05	0.15	1.10	0.33	1.13	0.39
Four or more years HS math	0.79	-0.94	0.83	-0.74	0.85	-0.63
Four or more years HS science	0.63	-1.67	0.61	-1.78	0.60	-1.78
Risk index score (0 to 8)	-	-	0.91	-1.20	0.98	-0.15
Control Variable	Odds Ratio	Z				
Respondent age	-	-	-	-	0.90	-0.85
Respondent is female	-	-	-	-	1.41	1.35
Respondent is Black	-	-	-	-	0.60	-1.38
Respondent is Hispanic	-	-	-	-	1.26	0.73
Respondent is Asian	-	-	-	-	3.47	1.08
Respondent is Other Race	-	-	-	-	0.50	-1.03
Respondent's Income Percentile Rank	-	-	-	-	1.009	1.76
Model Statistics						
N	301		301		301	
LR chi2	5.09		6.54		19.13	
Pseudo R2	0.01		0.02		0.04	

* p<.05;**p<.01;*** p<.001

None of the predictor variables were significant predictors of six-year degree attainment at FPCUs. This included the risk index score that served as an effective predictor of attainment at TCUs. Considering that none of the overall models were significant, even after the addition of demographic control variables, there seems to be

little relationship between indicators of academic preparedness or risk factors to attainment and the six-year degree attainment among FPCU students.

Chapter Summary

There is clearly a different relationship at the two types of institution between indicators variables choose and both college GPA and six-year attainment. In relation to both college GPA and attainment at TCUs, there was a well-established association and predictive power for college GPA, SAT score, and taking four or more years of high school math. This is in line with what was expected. This same relationship is not present among the sample of FPCU students. This suggests that prior academic preparedness and risk factors to academic attainment have little influence on whether a student will graduate from an FPCU or what their GPA will be. This lends credence to the persistent claim that these universities merely try to retain students regardless of their academic capabilities.

Given that there was a sustainable difference in the relationship between both GPA and attainment and all of the predictor variables at the two different types of institutions, most of the hypothesis associated with this section of analysis were definitively supported. Among students at TCUs, high school GPA category, SAT score, and taking four or more years of high school level math were all significantly associated with a higher college GPA after the inclusion of the control variables. The third hypothesis is supported as high school GPA is strongly associated with both GPA

and attainment in colleges at TCUs, but not FPCUs. The fourth hypothesis is supported as respondents with a higher SAT score (or converted ACT score) are associated with a higher GPA and odds of degree attainment at TCUs but not FPCUs. The sixth hypothesis is supported by the findings, as risk factors to attainment prove to be just that at FPCUs, as a higher score in the risk index is associated with lower odds of degree attainment and a lower college GPA. At FPCUs this is not the case. Support is somewhat more dubious for the fifth hypothesis, which pertains to taking four or more years of core high school courses. This is not because they proved to be significant predictors of either college GPA or degree attainment at FPCUs. Rather, it is because only math was a significant predictor of both college GPA and attainment at TCUs.

CHAPTER SIX: THE INFLUENCE OF GRADUATING FROM A FPCU ON EMPLOYMENT SATISFACTION, BENEFITS, PROFESSIONAL RELEVANCY OF DEGREE, AND PAY

Introduction

It has been demonstrated that FPCU graduates typically can expect to learn less once they enter the job market than graduates of a more traditional institution. Perhaps more relevant to the contemporary policy debate, FPCU graduates are also demonstrated to be more likely to default of their federal student loans and carry a greater amount of aggregate student debt after graduation (Deming, Goldin, & Katz, 2012; Shinoda, 2014; National Center for Education Statistics, 2014).

What is absent in the literature an analysis of the indicators of overall job quality between FPCU and TCU graduates. This research intends to build on the previously established literature regarding FPCU graduate employment outcomes by examining indicators of job quality for these students. This includes indicators that examine how much a job provides the respondent: benefits, relevance of degree to their work, and job satisfaction. Considering that FPCU graduates have been show to lag behind TCU graduates in terms of income (Deming, Goldin, & Katz, 2012) and ability to repay federal student loans (Deming, Goldin, & Katz, 2012; Shinoda, 2014; National Center for Education Statistics, 2014), it is expected that this research will find that FPCU students also see significantly less satisfaction in their subsequent employment after graduation..

Application of Theory and Hypothesis

According to Clark's cooling out theory, many of the colleges that have a non-selective "open-door" policy, as is the case for the vast majority of for-profit schools (Hentschke, Lechuga, & Tierney, 2010; Ruch, 2001), frequently provide degrees of marginal real-world value. As just mentioned above, previous research such as Denning, Goldin, and Katz (2012) along with Lang and Weinstein (2012) has already demonstrated that FPCU graduates receive lower pay than TCU graduates in the year immediately after graduation. Accordingly, this research assumed that short-term career outcomes in terms of job benefits, job satisfaction, relevance of degree, and pay would be similarly less favorable for FPCU graduates when compared to TCU students. Thus the following research question and hypotheses are explored in this section of analysis:

Research Question # 3: Do short term career outcomes for FPCU graduates with an associate's degree or professional certificate differ from TCU graduates with the same credentials?

- *H7:* Students who graduated from an FPCU with an associate's degree or professional certificate will receive fewer employer benefits from their current job than students who graduated from a TCU with an associate's or professional certificate.
- *H8:* Students who graduated from an FPCU with an associate's degree or professional certificate will have a current job less relevant to their

education than students who graduated from a TCU with an associate's or professional certificate.

- *H9*: Students who graduated from an FPCU with an associate's degree or professional certificate will be less satisfied with their current job than students who graduated from a TCU with an associate's or professional certificate.

Demographic of Graduates with Jobs by University Type

The sample utilized for this chapter of analysis includes students who both graduated with an associate's of arts (AA) degree or professional certificate and held employment in 2009. Respondents with Bachelor's degrees were excluded from the analysis for two reason likely related reasons. FPCUs serve by for most students seeking an associate's degree or a professional certificate than students pursuing a bachelor's degree of higher (NCES, 2014; Ruch, 2001; Beaver, 2009; Lynch, Engle, & Cruz, 2010). As a result of this, the number of FPCU graduates with a bachelor's degree in the BPS09 data set is less than 50. As well, respondents who graduated with more than one degree were excluded from the sample

Not surprisingly, these additional sample parameters yielded a small sample size than was the case in the previous two chapters of analysis (n=1,818). Of the total sample, 1,242 graduated from a TCU compared to 576 that graduated from an FPCU.

Age at the Time of the 2009 Interview

Unlike the previous chapters of analysis which examined age at the time of first-time college enrollment, this chapter utilizes age at the time of interview. While there was a substantial disparity in age between students who enrolled at the two different types of school, there is much less of a difference in age when the sample is reduced to just include AA/certificate graduates. The average age for the overall sample (30.17), TCU graduates (30.09), and FPCU graduates (30.32) were all approximately 30 years as of 2009.

Gender

The gender distribution in this sample contains slightly more females than the previous samples drawn. This is perhaps a function of females graduating at a higher rate than males are both types of schools- as was demonstrated in the previous chapter. Females comprised just under two-thirds of the overall sample of graduates (62.92%). They are slightly less prevalent among the TCU graduates (60.00%), but they are slightly over two-thirds of FPCU graduates (69.27%).

Race

The trend of FPCUs proving to be more racial diverse than TCUs continues when examining graduates. In the overall graduates, the majority were White (64.63%). The White majority is even more pronounced among the TCU graduates (71.42%). This

majority is reduced to a plurality among FPCU graduates as Whites constitute exactly half (50.00%). Black respondents comprise a similar proportion of this sample as was seen in previous samples (12.54%). They are slightly less prevalent among the TCU graduates (9.98%) and notably more present among the FPCU graduates. The discrepancy between the two types of schools is much more notable when looking at the proportions of the Hispanic respondents. Hispanic respondents are slightly more prominent in the overall sample (15.57%) and among TCU graduates (11.84%) than Blacks. They comprise nearly a quarter of the FPCU graduates (23.61%). Asian respondents were present in relatively small numbers in the overall sample (3.08%). This proportion is even smaller among the TCU graduates (2.33%). This is presumably because the sample is limited to AA and certificate graduates, as Asian respondents were present in greater proportion in the previous samples. Asian respondents actually comprised a greater proportion of FPCU graduates (4.69%) than TCU graduates. American Indian/Alaskan Native respondents were near one-percent of the overall sample (0.94%) and the sample of TCU graduates (1.05%). Their presence drops slightly among FPCU graduates (0.69%). Native Hawaiian/Pacific Islander respondents are only marginally present in the overall sample (0.17%), the sample of TCU graduates (0.08%), and the sample of FPCU graduates (0.35%). Other unidentified races were just under one-percent in the overall sample (0.83%) and approximately one-percent among TCU graduates (0.97%). They were approximately half of one-percent among FPCU graduates (0.52%). Mixed race respondents were present in approximately the

same proportions in this sample as they were in the previous samples. The comprised approximately two-percent of the overall sample (2.26%), TCU graduates (2.33%), and FPCU graduates (2.08%).

Mean Income Percentile

Students who pursue an associate's degree or a professional certificate have been shown in previous NCES (2013) research to have a lower average income than students who pursue a bachelor's degree or higher. It then not surprising that the sample of AA and certificate graduates are somewhat below the 50th percentile in income percentile rank (46.99). Students who graduated from a TCU though were much closer to the 50th percentile (49.12). FPCU graduates lagged notably behind TCU graduates in income percentile rank (42.39).

Table 16: Characteristics of Graduates w/ Jobs in 2009 by If They Graduated a TCU or FPCU

	All (N=1,818)	TCU (N=1,242)	FPCU (N=576)
Mean age at time of interview	30.17	30.09	30.32
Gender			
Female	62.92%	60.00%	69.27%
Race			
White	64.63%	71.42%	50.00%
Black or African American	12.54%	9.98%	18.06%
Hispanic or Latino	15.57%	11.84%	23.61%
Asian	3.08%	2.33%	4.69%
American Indian or Alaska Native	0.94%	1.05%	0.69%
Native Hawaiian/Pac. Islander	0.17%	0.08%	0.35%
Other	0.83%	0.97%	0.52%
More than one race	2.26%	2.33%	2.08%
Mean Income percentile rank	46.99	49.12	42.39

The demographic characteristics of the AA and certificate graduates differs in ways that may potentially change their impact as covariates in multivariate analysis. The most notable change in this sample from the previous two is the flattening of the difference in age between the school categories. The proportion of female graduates from FPCU is particularly stark.

Analysis

In the following series of analysis is presented in tables that included both bivariate analysis in the form of X^2 tests of frequencies and estimated treatment effect using

propensity score matching. As discussed in the methods section, propensity score matching is an analytical technique that estimates the treatment effect on an outcome variable while matching cases based on multiple covariates. The treatment variable utilized propensity score matching is graduating from a FPCU with an AA or professional certificate as opposed to graduating from a TCU with the same type of degree. In this analysis the following covariates were utilized in propensity score matching: type of degree earned (AA or certificate), respondent's race (in dummy variables), respondent's gender, and a respondent's income percentile rank at the time in which they enrolled in college.

X² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Employers Benefits Received

Frequencies were examined for life insurance, health insurance, and retirement benefits using the bivariate and multivariate techniques. The least frequently offered of the benefits was life insurance (62.10%) in the overall sample. TCU graduates were offered life insurance benefits at a rate of 63.51% compared to 58.90% for FPCU graduates. Of the total sample, 79.67% were offered health insurance. The proportion of TCU graduates and FPCU graduates offered health insurance was similar, at 80.10% and 78.71% respectively. The greatest discrepancy between the graduates from the two types of schools was in regard to retirement benefits. Just over two-thirds of the total sample were offered retirement benefits by their employer (68.66%). This figure

was slightly higher at 70.79% for TCU graduates. The proportion drops considerably for FPCU graduates, of whom only 63.88% were offered retirement benefits.

The X^2 test yielded a significant difference for one of the three forms of benefits- this significant result being for retirement benefits ($X^2= 8.07$; $p<.01$). Despite this, the predicted difference between TCU and FPCU graduates in terms of retirement benefits was not significant after propensity score matching. While basic frequencies showed that 6.91% less of FPCU graduates were offered retirement benefits compared to TCU students, the propensity score matching procedure though predict that a 2.35% reduction in the of FPCU students receiving these benefits when covariates were taken into account. This difference was not significant. Neither of the other two variables for employer benefits yielded significant coefficients after propensity score matching. The matched coefficient predicted 1.28% reduction in probability that FPCU graduates would be offered life insurance compared to TCU graduates, compared to 2.62% fewer observed in the raw frequencies. Propensity score matching predicted a slightly inflated treatment effect in regard to FPCU student receiving health insurance, as it predicted 1.42% fewer FPCU graduates would receive this benefit compared to the raw difference in frequency suggesting a 1.39% decline. Though this coefficient like the others was not significant.

Table 17: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Job Benefits Offered

	All (N=1,818)	TCU=0 (N=1,242)	FPCU=1 (N=576)	χ^2	Δ	Matched Δ (Robust SE)
Life Insurance	62.10%	63.51%	58.90%	3.23	-2.62%	-1.28% (3.24%)
Health Insurance	79.67%	80.10%	78.71%	0.44	-1.39%	-1.42% (2.55%)
Retirement	68.66%	70.79%	63.88%	8.07**	-6.91%	-2.35% (3.08%)

* p<.05;**p<.01;*** p<.001

The frequencies do show that a greater proportion TCU graduates receiving each of the employer benefits examined compared to FPCU graduates. Although this difference though is not pronounced enough to draw any meaningful conclusions for life insurance or health insurance. The only difference between the two groups that was statistically significant, proportion receiving retirement benefits, likely can be attributed to one or more of the covariates as propensity score matching mitigates the vast majority of this difference.

X² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Indicators of Professional Relevancy of Degree

Indicators of degree relevancy included if a graduate's current job was related to their coursework, if they had the same or a similar job before or during enrollment, if their undergraduate education helped their career, and if their current job would have been

difficult to obtain without the undergraduate education that they received. Each of these variables indicated that FPCU graduates were less likely to find the degree they earned relevant to their current career path. The difference was statistically significant in an X^2 test of frequencies for each of these variables as well.

Among the total sample of graduates, 56.74% considered their current job related to their coursework. This proportion was 60.89% among the TCU graduates, but dropped to 50.35% for FPCU graduates ($X^2=11.60$; $p<.01$). Perhaps speaking to the relative value of an AA or a certificate degree, 76.79% of the graduates reported having the same or a similar job to their current post-graduation job before or during their college enrollment. This was the case for slightly fewer of the TCU graduates, as their proportion was 73.91%. The frequency of students in a same or similar job is a relatively higher 82.99% for FPCU graduates ($X^2= 18.17$; $p<.001$). Despite such a large share of the overall sample claiming to have the same or a similar job before graduating, a 60.67% thought that their undergraduate education had helped their career. This includes 63.69% of TCU graduates, but only 53.20% of the FPCU graduates in the sample ($X^2= 14.95$; $p<.001$). Less than half, 47.85%, of the overall sample thought that their current job would be difficult to get without their undergraduate education. The number does slightly eclipse half at 50.50% for TCU graduates, but with a notably lower proportion of 42.36% for FPCU graduates ($X^2=10.20$; $p<0.01$).

Propensity score matching seems to confirm the results found in X^2 analysis even after the inclusion of the covariates. The relative degree and the significance of the treatment effect is though somewhat more tempered than the results of the bivariate testing. When compared to TCU graduates, the matching procedure produced a coefficient that predicted FPCU graduates would see a 9.36% decrease in the probability of finding their current job related to their coursework ($p < .05$), and a 9.42% increase in the odds that their current job was the same or similar to their pre-graduation job ($p < .001$). Matching predicted that 9.48% fewer FPCU graduates would believe their undergraduate education helped their career ($p < .01$). It also predicted 7.42 reduction in the probability that an FPCU graduate thought their job would be difficult to obtain without their education.

Table 18: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Indicators on Professional Relevance of Degree

	All (N=1,818)	TCU=0 (N=1,242)	FPCU=1 (N=576)	χ^2	Δ	Matched Δ (Robust SE)
Job Related to Coursework	56.74%	60.89%	50.35%	11.60**	-10.54	-9.36%* (4.1%)
Had a Similar Job Before and/or During Education	76.79%	73.91%	82.99%	18.17***	9.08%	9.42%*** (2.5%)
Undergrad Education Helped Career	60.67%	63.69%	54.20%	14.95***	-9.49	-9.48%** (3.08%)
Job Would Be Difficult to Get w/o Education	47.85%	50.50%	42.36%	10.20**	-8.14	-7.42* (3.05%)

* $p < .05$; ** $p < .01$; *** $p < .001$

It is evident that the FPCU graduates in the sample were less likely to view their degree relevant to their current career regardless of indicator variable examined. Though it should be noted that because all of the variables used were self-report, measurements may be influenced by personal perception of the respondent. Regardless, the fact the same significant results found in bivariate analysis remained significant after the matching procedure suggests that this difference is in one way or another linked to the treatment of graduating from an FPCU.

X² Test of Frequencies and Propensity Score Matched Estimated Treatment Effect for Indicators of Job Satisfaction

Each variable in this set measured if the respondent was satisfied with a different element of their current job. These elements included: fringe benefits, importance and challenge, job security, opportunity for future training, opportunity for promotion, opportunity to use education, and pay. Typically the majority of the people in the overall sample reported being satisfied with each of these features of their current employment. At or just below two-thirds of the total respondents were satisfied with their fringe benefits (66.69%), opportunity for promotion (61.22%), and pay (61.34%). Slightly more of the total sample were satisfied with their opportunity for future training (70.47%) and the opportunity to use their education (71.94%). That latter of which was surprising given how few respondents reported that their job was related to their coursework. A large majority of the graduates were satisfied with the importance of the challenge associated with their job (79.91%) and the job security that it provided (80.49%).

Between graduates of the two different types of schools, the frequencies for most of the satisfaction variables were similar, with TCU graduates showing slightly more satisfaction than FPCU graduates. Both kinds of graduates saw about a two-third rate of satisfaction with fringe benefits, with 67.65% of TCU graduates being satisfied and 65.40% of FPCU graduates being satisfied. A greater proportion of both groups reported being satisfied with the importance and challenge of their job. Among 79.76% of TCU graduates were satisfied with this feature compared to 77.00% of FPCU graduates. Of the TCU graduates 80.27% were satisfied with their job security and FPCU graduates reported a similar 80.99%. Among the TCU graduates, 71.80% were satisfied with opportunities for future training. This was slightly more than the 67.49% satisfied among the FPCU graduates. The proportions of graduates satisfied with the opportunity for promotion were nearly identical between the two groups as 61.30% of TCU graduates were satisfied with this compared to 61.03% of FPCU graduates. Despite the differences in these variables generally favoring TCU students, none of them were statistically significant. The only significant differences were found for satisfaction in the opportunity to use education and pay. The majority of TCU graduates, 74.17%, were satisfied with the opportunity they received to use their education while a notably lower 66.90% were satisfied with this ($X^2=9.49$; $p<.01$). TCU graduates also were satisfied with their pay in greater numbers than their FPCU counterparts, as the rates of satisfaction with pay were 63.17% and 57.22% respectively ($X^2=5.42$; $p<.05$).

When covariates were included in analysis via the matched predictions only one remaining indicator variable remained significant- a respondent's opportunity to use their education with their current job. For this variable, the matching procedure predicted that FPCU students were 7.61% less likely to be satisfied with the opportunity they were afforded to use their education in their job ($p < .05$). This is similar to what was shown in bivariate analysis. The non-significant predictions were less congruent with the bivariate results. Matching predicted FPCU graduates would be 3.06% more likely to be satisfied with fringe benefits, 2.82% more likely to be satisfied with job security, and 0.36% more likely to be satisfied with opportunity for promotion. Propensity score matching also predicted FPCU graduates would be 1.73% less likely to be satisfied with importance and challenge of their job, 3.06% like likely to be satisfied with opportunity for future training, and 5.20% less likely to be satisfied with pay.

Table 19: χ^2 Test of Frequencies and PScore Matched Predicted Treatment Effect on Indicators of Job Satisfaction

Respondent is satisfied with:	All (N=1,818)	TCU=0 (N=1,242)	FPCU=1 (N=576)	χ^2	Δ	Matched Δ (Robust SE)
Fringe Benefits	66.69%	67.65%	65.40%	0.84	-2.25%	3.06% (2.88%)
Importance and Challenge	79.91%	79.76%	77.00%	1.67	-2.76%	-1.73% (2.62%)
Job Security	80.49%	80.27%	80.99%	0.12	0.72%	2.82% (2.38%)
Opportunity for Future Training	70.47%	71.80%	67.49%	3.25	-4.31%	-3.06% (2.92%)
Opportunity for Promotion	61.22%	61.30%	61.03%	0.01	-0.27%	0.36% (2.99%)
Opportunity to Use Education	71.94%	74.17%	66.90%	9.49**	-7.27%	-7.61%* (3.13%)
Pay	61.34%	63.17%	57.22%	5.42**	5.95%	-5.20 (3.11%)

* p<.05,**p<.01,*** p<.001

Most of the differences between the two types of students seemed to be either not be statistically significant in bivariate analysis or, as was the case for satisfaction with pay, mitigated when covariates accounting for the difference in student demographics and degree type were taken into account. The results for both bivariate tests and propensity score matching though seem to confirm what is found in the previous analysis on degree relevancy. It would appear that when compared to TCU graduates, FPCU graduates viewed their degrees as less relevant to their current job and were less satisfied as a result.

T-Test of Means and Propensity Score Matched Estimated Treatment Effect for Personal Income

There were three indicators of personal income. These included income from job in 2009, household income in 2009, and average percentage of total monthly household income that went toward student loan payments each month in 2009. Because these variables were all continuous, bivariate analysis consisted of a T-Test of means between the two types of universities. The results of bivariate testing in once again compared with the result of multivariate propensity score matching in the table below. As discussed in the methodology section, the additional covariate of income during enrollment was used in propensity score matching for this set of variables, as FPCU students have been shown in previous literature to have pre-established careers before and during enrollment (Ruch, 2001).

The total sample had an average yearly income from their job of \$30,711, with an average household income of \$40,255 a year, an average of 2.50% of that went toward the repayment of the respondent's student loans in 2009. TCU students average \$31,589 a year of personal income from their job with an average of \$41,417 per year in household income. An average of 1.90% of household income went to the repayment of the respondent's student loans. FPCU graduates performed worse by all of the metrics. They averaged \$28,816 per year in personal income from their job, that is \$2,773 less than TCU graduates ($T=3.17$; $p<.01$). FPCU graduates earned an average of \$3,669 less per year than TCU graduates in household income ($T=2.97$; $p<.01$) at

\$38,748. FPCU students also spent an average 3.78% of their annual household income on the respondent's student loan repayment. This is 2.86% more than TCU graduates (T=2.86; p<.01).

Propensity score matching provided slightly tempered results, but they remain significant and confirm the results of bivariate analysis. Propensity score matching predicted that students who graduated from a FPCU expected to see \$2,327 less in person income from their job (p<.05). It also predicted that FPCU graduates would see \$3,137 less in annual household income (p<.05), of which they will pay 2.60% more toward the respondent's student loans (p<.01).

Table 20: T-Test of Means and PScore Matched Predicted Treatment Effect on Indicators of Financial Outcomes

Respondent is satisfied with:	All (N=1,818)	TCU=0 (N=1,242)	FPCU=1 (N=576)	T	Δ	Matched Δ (Robust SE)
Income From Job (\$)	30,711	31,589	28,816	3.16**	-2,773	-2,327* (1,016)
Household Income (\$)	40,255	41,417	37,748	2.97**	-3,669	-3,137* (1,442)
Student Loan Payment % of Income	2.50%	1.90%	3.78%	-2.86**	1.88%	2.60*** (-0.61)

* p<.05;**p<.01;*** p<.001

As noted above, FPCU graduate perform worse in each of the three income metric than their TCU graduate counterparts. It would be easy to dismiss the results of bivariate analysis considering the FPCU graduates have been shown to be substantially demographically different from TCU graduates. Propensity score matching though suggests that the difference in income and income devoted to student loan repayment

was indeed because of the treatment effect of graduating from a FPCU and not because of extraneous factors related to demographics.

Chapter Summary

The results of this section of analysis were more mixed than what was seen in the previous sections of analysis. The seventh hypothesis was not supported, as bivariate analysis showed that there was no significant difference between FPCU and TCU graduates in the frequency in which they receive health benefits or life insurance. A χ^2 test of frequencies showed that TCU graduates were more likely to receive retirement benefited from their employer. There was though not a significant difference observed for any of the job benefits after propensity score matching. This suggests that the initially observed difference in retirement benefits was largely the result of the demographic differences between FPCU and TCU graduates.

The two groups of graduates showed significant differences in all indicators of degree relevance. These differences were first observed in bivariate analysis and then confirmed through propensity score matching. The treatment effect of graduating from an FPCU appeared to causes a student to be more likely have a job that the graduate believes is not related to their coursework and would not be difficult to obtain without the education they obtained. Not surprisingly, FPCU graduates were less likely to believe their education helped their career. These results may be related to the fact that FPCU graduates were significantly more likely to be working a post-graduation job that was the

same or similar to the job they held before or during their enrollment. The eighth hypothesis has been shown as largely supported, as by all measures FPCU graduates were demonstrated to have jobs that were less relevant to their job as of 2009.

There was not a significant difference between the two groups of students in satisfaction for the vast majority of elements of their job. The only aspect of job satisfaction in which there was a significant difference was in opportunities for the respondent to use their education. FPCU graduates were less likely to be satisfied with this aspect of their job. This echoed the above mentioned findings. Despite the fact there was at least one aspect that job satisfaction in which FPCU students differed through bivariate analysis and propensity score matching, there is simply not evidence to claim the ninth hypothesis as supported. By-in-large, the evidence suggests that FPCU graduates and TCU graduates are associated with roughly the same frequency of job satisfaction in most regards.

The results in terms of income were very much in line with what was found in the previously discussed literature. Thus, it can be said that the tenth hypothesis was supported. FPCU graduates saw less personal income from their jobs than TCU graduates. They also had a small household income. As well, more of their personal income was spent repaying student loans. These are results that held true both in bivariate analysis and after propensity score matching. This means that the difference can be attributed to the relative value of the respondent's degree and not merely the

demographic difference between the graduates or the amount of money that the respondent may have made before earning his or her degree.

CHAPTER SEVEN: DISCUSSION

The goal of this research was to build on the existing body of research on the nature of for-profit higher education in the United States. To do this, FPCUs were compared to TCUs in terms of the academic preparedness and relative risk to attainment of the students they enroll, the relationship of high school academic experience and risk factors to attainment with postsecondary performance, and short term employment outcomes for graduates with an associate's degree or professional certificate. It can be concluded that each of the three sections of analysis suggests a notable difference between FPCUs and TCU. Below the major conclusions drawn from each sections of analysis and their relevance to the current body of literature will be discussed.

High School Performance, Risk Factors to Attainment, and Enrollment at a For-Profit College or University

As has been demonstrated in previous literature, students who enroll at FPCUs are very much “non-traditional” when compared to students who enroll at TCUs. As discussed before, a plethora of previously published studies have suggested that FPCU students are older, poorer, more racially diverse, and disproportionately female (Beaver, 2009, Ruch, 2001; Deming, Goldin, & Katz, 2012; Lang & Weinstein, 2012; Chung, 2009). This research confirms this. While FPCUs frequently tout the fact that they are educating a population that is neglected by traditional higher education, they are not

enrolling the most academically viable students from these populations. Poorer academic performance in high school, fewer core courses taken in high school, and a higher number of demographic risk factors to postsecondary attainment were all positively associated with enrolling in an FPCU. If it is the case the Bell's theory is correct and there are more low-SES, first-generation students who have both the academic qualifications and the dreams to attend college, it is not FPCUs that are enrolling them. The role of FPCUs seems to be more akin to what is described by Clark, in which colleges that adopt an open-door policy to herd through swaths of unprepared students who do not have the prerequisite skills to use post-secondary education as a legitimate means to upward social mobility.

At least part of what was observed is theoretically accounted for through the frequent mission of FPCU to serve "working adults" (Spaid & Duff, 2009). Because these schools frequently seek to attract older students with established careers with curriculum that is expedited and disproportionately online (Beaver, 2009; Ruch, 2001), it is not surprising that non-traditional risk factors to academic attainment are positively associated with enrolling at a FPCU. The degree in the strength of this association may be somewhat surprising though, given that students who enroll at FPCU carried approximately twice the number of risk factors to academic attainment than their TCU counterparts. This is indicative of aggressive and clearly effective efforts on the part of FPCUs circumvent competition with TCUs by enrolling non-traditional college students.

This analysis builds on the previously mentioned research, especially that of Katz, Deming, and Goldin (2012) and Lang and Weinstein (2012), by demonstrating that students who enroll at FPCUs are not only demographically different from those who enroll at FPCUs but functionally different in terms of their ability to succeed in college. It also confirms what other authors have suggested frequently over the last decade: FPCUs are filling their course roles regardless of student academic potential in an effort to remain profitable (Appel & Taylor, 2015, Beaver, 2009, Ruch, 2001). Furthermore, the results suggest that these are places of “cooling out” in which non-academically viable students are enrolled regardless of having any perquisite ability to succeed in higher education.

The Association between Academic Preparedness, Risk Factors to Attainment, and Post-Secondary Performance at a Traditional Versus For-Profit College or University

The results of this analysis clearly lend support to claims made in qualitative research that suggest that FPCU systemically inflate grades, or at least provide passing grades much more easily than would be the case at a TCU (Henstschke, Lechug, & Tierney, 2010, Ruch, 2001; Caterino, 2014; Field, 2011; Beato 2011). While this research does not provide evidence the faculty are coerced into inflating grades, it is apparent that the academic performance at FPCUs is less associated with student’s academic capabilities than is the case at TCUs.

When presented with such evidence, proponents of FPCUs may claim that less-academically prepared students who carry risks to academic attainment perform especially well at FPCUs because of some unique method of pedagogy that is not seen at TCUs. There is though no evidence to date to support that FPCUs have developed any sort of academic system that transcends the fact that students who perform worse on the SAT and in high school GPA perform worse in their post-secondary education. Given the monetary incentive that FPCUs have to keep student enrolled, it is much more plausible that the claims made through interviews with former FPCU students and faculty are in fact true.

The broader implication of these results is that standard metrics of academic performance and student retention cannot be applied in the same way to FPCUs as they are for TCUs. If grades are inflated and the path to a degree is artificially greased at FPCUs, then comparing their overall rates of degree attainment to TCUs does not make sense. That said, descriptive statistics show that FPCUs still have a *lower* degree attainment rate overall than is the case for TCUs. This means that there are unidentified factors that cause FPCU students fall off their degree attainment path at higher rates than TCU students, but these factors have little or nothing to do with a student's level of academic preparedness or demographic risk factors to attainment.

In terms of the theoretical implication of these findings, the results suggest that FPCUs are not institutions in which there is a premium placed on providing a legitimate

education associated with a reputable degree. This means that these students are likely not being prepared for the complex knowledge driven economy described by Bell. Rather, they are being cooled-out, albeit slowly so as to stay enrolled and profitable for the given FPCU in which they attend.

The Influence of Graduating from a FPCU on Employment Satisfaction, Benefits, Professional Relevance of Degree, and Pay

Career outcomes for for-profit students is perhaps the area of this research that has been most extensively studied previously as researchers such as Deming, Katz, and Goldin (2012) and Lang and Weinstein (2012) have used the BPS09 data to demonstrate the FPCU graduates see significantly less pay than students who graduate from a TCU. These same researchers also show that FPCU graduates must spend proportionately more of the income that they do receive to pay back their student loans. When delving deeper into examining career outcomes provided a mix of results, some of which proved to be counter-intuitive in light of previous research.

When limiting the sample to contain exclusively associate's degree and professional certificate graduates, the financial outcomes observed for FPCU students support what was found in the above mentioned previous research. FPCU graduates, as they made significantly less personal income from their jobs, had significantly less household income, and paid a significantly higher proportion of their household income toward the student loans of the respondent. All of these results more or less directly

mirrored contemporary research. Also similar to previous research, these results were confirmed after accounting for demographic covariates through the propensity score matching technique.

Despite the fact that FPCU student was shown to earn a small income, they were not significantly less likely to be offered health insurance or life insurance. While FPCU graduates were shown to be significantly less likely to receive retirement benefits compared to TCU graduates, this relationship is no longer significant after using propensity score matching. There may be an explanation why there is a significant difference in pay between the two types of graduates, but not job benefits offered. As shown in the analysis discussed below, FPCU students were shown to be more likely after graduation to be working the same or a similar job to one held during enrollment. This means that disproportionately more of the FPCU graduates were holding the same job in 2009 that they held while enrolled in school, which means that their job tenure may be on average longer. Job tenure though could not be controlled for in multivariate analysis, as there is no variable in the BPS09 data that accounted for the length of time spent in a respondent's job as of 2009. By contrast, there was a variable for personal income while enrolled, and thus that was able to be controlled for in multivariate analysis concerning income.

Also somewhat surprisingly in light of evidence that FPCU graduates made less income, is they are approximately as satisfied with most elements of their job. Once the

propensity-score matching technique was applied, there is even no statistically difference rate of satisfaction with pay, despite the fact that FPCU graduates received less pay. FPCU graduates though were significantly less likely to be satisfied with the opportunities their job afforded them to use their education. Not surprisingly, FPCU graduates were less likely to feel their education or degree was used or needed in their job. This is a result that, as will be discussed below, how the potential to be expounded on in future research using the BPS09 data set.

The results of this analysis, much like the other sections of analysis, tend to confirm previous research on FPCUs and lend theoretical support for Clark's theoretical model rather than Bell's. The previous research of Deming, Goldin, and Katz (2012) and Lang and Weinstein (2012) is confirmed even when a sample of exclusively associate's degree and professional certificate graduates is used. These FPCU graduates are once again demonstrated to make less money than TCU graduates and carry a larger student debt burden. This suggests that the cooling-out process may begin when graduates hit the job market with their degree. What perhaps is the most damning indictment of Bell's theory is that the economic environment appears to have not opened up a place for FPCU graduates, as disproportionately FPCU graduates were as of 2009 working in jobs that were not related to the education that they received. Despite this fact, FPCU graduates do seem to be satisfied with their jobs, at least on a level that is on-par with TCU graduates with the same level of education. This is

perhaps a function of more general trends in job satisfaction that have little or nothing to do with the type of degree a student earns.

Recommendations for Future Research

Future research has the potential to refine the picture of FPCU enrollment by comparing FPCUs with other institutions that enroll disproportionately non-traditional populations. Are the defining features of FPCU enrollment poorer previous academic performance and higher demographic risk factor to attainment, or are these factors merely part-in-parcel with enrolling more marginalized populations of students? This question could be tested by doing similar analysis to what was done in this research, but specifically comparing FPCUs with community colleges and other institutions that have similar enrollment patterns to FPCUs. This is something that could easily be done using the BPS09 data by refining the sample size among TCUs to include only institutions with similar demographic characteristics to that of FPCUs. The BPS09 data set does include a variety of institutional-level data that was not used in this research that should provide ample opportunity for future research to do so.

In regards to the conclusions in the second section of analysis, if neither a student's degree of academic preparedness nor demographic risk factors serve as predictors of degree attainment at FPCUs, future research should go about explaining what does. The BPS09 survey contains a litany of variables that account for both postsecondary drop-outs and stop-outs. "Stop-outs" being a term to denote when a

student does not withdraw from an institution, but goes through a period of consecutive semesters in which they do not enroll in classes. The BPS09 survey specifically asks students who dropped-out or stopped-out why they did so. If TCU students and FPCU students drop-out/stop-out for different sets of reasons, research should be on the correct path to understanding how student retention and attainment work different at the two different types of institution.

This section final section of analysis brings to light a notable deficiency in the BPS09 dataset. The data simply does not contain enough FPCU graduates with a four-year degree to do meaningful analysis. While the majority of FPCU graduates still earn a terminal two-year or less degree, the proportion of students graduating with a four-year degree from FPCUs has steadily increased in the years since the BPS09 survey's baseline year (NCES, 2013). Accordingly, substantial analysis that examines professional outcomes of FPCU graduates with a Bachelor's degree would be a valuable contribution to the literature. This though would require using a different source of data than the BPS09. It all likelihood this would entail an entirely new longitudinal study produced by The National Center for Educational Statistics or another government source of information with the same breadth of resources enjoyed by NCES.

One additional direction for future research, one that can be done using the BPS09 dataset, is examining the industries the FPCU graduates typical get jobs in.

During the 2009 wave of interviews respondent were asked about the specific industry in which they work. Possible responses were divided into categories such as “retail,” “manufacturing,” or “healthcare.” If FPCU graduates a flocking to certain industries relative to TCU graduates, it may go a long way to explaining why they receive less pay and are less likely to do forms of work that is relevant to their education.

REFERENCES

- Akard, P. (1992). Corporate Mobilization and Political Power: The Transformation of U.S. Economic Policy in the 1970s. *American Sociological Review*, 57(4), 597-615.
- Astin, A. (1998). The changing American college student: Implications for educational policy and practice. *Higher Education*, 21(2), 129-143.
- Bankston, C. (2011). The Mass Production of Credentials. *The Independent Review*, 15(3), 325-349.
- Bell, D. (1976). *The coming of post-industrial society: A venture in social forecasting*. New York: Basic Books.
- Berry, J., & Worthen, H. (2012). Faculty Organizing In The Higher Education Industry: Tackling The For-Profit Business Model. *WorkingUSA: The Journal of Labor and Society*, 427-440.
- Best, G. A., & Gehring, D. D. (1993). The academic performance of community college transfer students at a major state university in Kentucky. *Community College Review*, 21(2), 32-41
- Clark, B. (1960). The "Cooling-Out" Function in Higher Education. *American Journal of Sociology*, 65(6), 569-576.

- Beaver, W. (2009). For-profit higher education: A social and historical analysis. *Sociological Viewpoints*, 53-73
- Berg, G. (2005). Reform higher education with capitalism? *Change: The Magazine of Higher Learning*, 28-34
- Blumenstyk, G. (2005). For Profit Outlook. *The Chronicle of Higher Education*, A.14.
- Breneman, D. (1993). Guaranteed Student Loans: Great Success or Dismal Failure. In *ASHE reader on finance in higher education*. Needham Heights, MA: Ginn Press.
- Bureau of Labor Statistics. (2003), *Tomorrow's jobs 2006 and projected 2016: Occupational outlook handbook*. Washington, DC: U.S. Department of Labor.
- Center for Analysis of Postsecondary Education and Employment (2013) "For-Profit College: Growth, Outcomes, Regulation." Research Brief
- Cejda, B. D. (1994). Reducing transfer shock through faculty collaboration: A case study. *Community College Journal of Research and Practice*, 18(2), 189–199.
- Clowes, D. (1995). *Community colleges and proprietary schools: Conflict or convergence?* San Francisco: Jossey-Bass.
- Cohn, E., Cohn, S., Balch, D., & Bradley, J. (2004). Determinants of undergraduate GPAs: SAT scores, high-school GPA and high-school rank. *Economics of Education Review*, 23(6), 577-586.

Deming, D., Goldin, C., & Katz, L. (2012). The For-Profit Postsecondary School Sector: Nimble Critters or Agile Predators? *Journal of Economic Perspectives*, 26(1), 139-164.

_____ (2013). For-Profit Colleges. *The Future of Children*, 23(1), 137-163.

Field, K. (2011). Faculty at for-Profits Allege Pressure to Keep Students Enrolled: Instructors Say They Have Been Encouraged to Dumb down Courses and Change Failing Grades. *Education Digest: Essential Readings Condensed For Quick Review*, 77(2), 21-27.

Goldin, C., & Katz, L. (2008). *The race between education and technology*. Cambridge, Mass.: Belknap Press of Harvard University Press.

Haycock, K. (2010). Building Common College-Ready Standards. *Change*, 42(4), 14-19.

Hentschke, G., V.M. Lechuga, V., & Tierney, W. (2010). *For-profit colleges and universities their markets, regulation, performance, and place in higher education*. Sterling, Va.: Stylus Pub.

Hu, S., & Wolniak, G. C. (2013). College student engagement and early career earnings: Differences by gender, race/ethnicity, and academic preparation.

Review Of Higher Education: Journal Of The Association For The Study Of
Higher Education, 36(2), 211-233.

JBL Associates. (2008), *2008 Fact book: A profile of career colleges and universities*.
Washington, DC: Imagine America Foundation.

Jenkins, C., & Eckert, C. (2000). The Right Turn in Economic Policy: Business Elites
and the New Conservative Economics. *Sociological Forum*, 15(3), 307-338.

Kinser, K. (2007). From main street to wall street, the transformation of for-profit higher
education. Jossey-Bass Inc Pub.

Kobrin, J. L., & Patterson, B. F. (2011). Contextual Factors Associated With the Validity
of SAT Scores and High School GPA for Predicting First-Year College Grades.
Educational Assessment, 16(4), 207-22

Lang, K., & Weinstein, R. (2012). Evaluating Student Outcomes at For-Profit Colleges.
Cambridge, Mass. : National Bureau of Economic Research, 2012

Lynch, M., Engle J., & Cruz J. (2010) Subprime Opportunity: The Unfulfilled Promise of
For-Profit College and Universities. The Education Trust.

Maryland State Higher Education Commission. (1996). Relationship between High
School and College Performance by Maryland Students. Student Outcome and
Achievement Report.

- Megert, D. A. (2005). The Relationship between High School Math Courses, High School GPA, and Retention of Honors Scholarships. *Journal Of Student Financial Aid*, 35(2), 51-60.
- Merton, R. (1968). *Social theory and social structure* (1968 enl. ed.). New York: Free Press.
- Okay-Somerville, B., & Scholarios, D. (2013). Shades of grey: Understanding job quality in emerging graduate occupations. *Human Relations*, 66(4)
- National Center for Education Statistics. (2010). *NCES Digest 2010*. Washington DC: The United States Department of Education
- National Center for Education Statistics (NCES). (2013). *Digest of education statistics 2012*. Washington DC: The United States Department of Education.
- National Center for Education Statistics. (2014). *The Condition of Education 2014*. Washington DC: The United States Department of Education.
- Piven, F. (2007). The Neoliberal Challenge. *Contexts*, 6(3), 13-15
- Reich, R. (1993). *American competitiveness and American brains*. New York, N.Y.: Baruch College, City University of New York.
- Rosenbaum, P., & Rubin, D. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70(1), 41-55.

- Rubin, D. (1997). Estimating Causal Effects from Large Data Sets Using Propensity Scores. *Matched Sampling for Causal Effects*, 127(8), 443-454.
- Ruch, R. S. (2001). *Higher ed, inc.: The rise of the for-profit university*. Baltimore: Johns Hopkins University Press.
- Ruggles, S.J., Alexander T., Genadek K., Goeken R., Schroeder M.B., & Sobek M., (2008). *Integrated Public Use Microdata Series: Version 5.0*. Minneapolis, MN: University of Minnesota.
- Sawyer, R. (2013). Beyond Correlations: Usefulness of High School GPA and Test Scores in Making College Admissions Decisions. *Applied Measurement In Education*, 26(2), 89-112.
- Shinoda, B. (2014). Enabling Class Litigation as an Approach to Regulating For-Profit Colleges. *Southern California Law Review*. 87(4), 1085-1121.
- Simpson, C., Baker, K., & Mellinger, G. (1980). Conventional Failures and Unconventional Dropouts: Comparing Different Types of University Withdrawals. *Sociology of Education*, 53(4), 203-214.
- Sonner, B. S. (2000). A Is for 'Adjunct': Examining Grade Inflation in Higher Education. *Journal Of Education For Business*, 76(1), 5.
- Spaid, R., & Duff, E. D. (2009). Working Adults in Accelerated Cohorts: More than a Learning Community. *Journal Of Continuing Higher Education*, 57(2), 104-109.

- Torres, C. (2003). *The international handbook on the sociology of education: An international assessment of new research and theory*. Lanham, Md.: Rowman & Littlefield.
- Wang, X. (2012). Academic Performance of Community College Transfers: Psychological, Sociodemographic, and Educational Correlates. *Community College Journal Of Research And Practice*, 36(11), 872-883.
- Zook, J., & Burd, S. (1994). House Grants Proprietary Schools One Year Delay in Revenue Role. *The Chronicle of Higher Education*, A38.