

FACULTY COMPOSITION AND GRADUATION RATES AT  
FOUR-YEAR INSTITUTIONS OF HIGHER EDUCATION

A Thesis

Presented to the faculty of the Department of Public Policy and Administration  
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by

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Department of Public Policy and Administration

Abstract  
of  
FACULTY COMPOSITION AND GRADUATION RATES IN  
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*Statement of Problem*

Funding reductions, increased demand for higher education, and poor economic conditions have forced universities across the United States to drastically cut costs and liabilities. This reality coupled with increasing pressure from political parties and business groups to “corporatize” higher education has led many universities to cut labor costs by replacing pricier full-time, tenure track professors with part-time, non-tenured “contingent faculty.” I employ a mixed methods approach, using both quantitative and qualitative analysis, to address the question: How has the continued trend of increased hiring contingent faculty at non-profit, four year, universities and colleges in the United States affected graduation rates?

*Sources of Data*

The data used to conduct the regression analysis in this thesis come from the National Center for Education Statistics’ Integrated Postsecondary Education Data System (IPEDS). Data from the 2010 United States Census was also used. In order to better understand the problem and

make useful policy recommendations higher education experts and stakeholders were interviewed as well.

### *Conclusions Reached*

Multiple regression analysis showed, controlling for institutional characteristics, student characteristics, and state demographic characteristics, a 1% increase in the percentage of contingent faculty at a university predicts a 0.21% *increase* in that school's graduation rate with 95% confidence. Although the effect is relatively small, this result counters much of the previous literature on this subject (Jacoby, 2006). One possible reason is that by hiring contingent faculty, universities are able to preserve their student to faculty ratio even in the face of budget cuts and this in turn allows them to maintain their relative graduation rates while increasing managerial flexibility and control. Interviews with four higher education experts and stakeholders supported my quantitative analysis noting that since contingent faculty are only required to teach and do not have to conduct research, advise students, or participate in faculty governance, they are able to focus solely on teaching which may lead to increased graduation rates. However, as the interviewees also note, without increased funding from the state and federal government along with increased institutional support for contingent faculty these benefits may not be fully realized.

\_\_\_\_\_, Committee Chair  
Dr. Rob Wassmer

\_\_\_\_\_  
Date

## DEDICATION

I would like to dedicate this thesis to my mother Karen and brother Brian. Thank you for all your love, support, and most of all, patience.

## ACKNOWLEDGEMENTS

Special thanks to Dr. Robert Wassmer and Dr. Su Jin Jez, my thesis advisors, for always being available and responsive to my many questions throughout this process. I would also like to thank Patricia Gumport, Steve Boilard, Kevin Wehr, and Karen Yelverton-Zamarripa for allowing me to interview them and all the brilliant insights they provided.



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## Chapter 1

### Introduction

A new economic motivation is driving states to redefine significant relationships in the world of higher education by pressuring academic institutions to become more accountable, efficient, and productive in their use of public funds. Federal, state, and local funding for higher education has steadily declined over the past two decades, creating what is becoming a contentious atmosphere between lawmakers and the academy. Though controversies over institutional autonomy and governmental control have been raging off and on since the 1960's, the past decade has revealed dramatic changes in the way governments interact with universities as governments no longer accept the traditional self-regulatory processes that have been pervasive in universities for centuries. This trend has been called the rise of "new managerialism" in higher education and it has arisen as a result of growing concerns over finances, accountability, degree of autonomy, and the productiveness of our institutions of higher education in terms of graduation rates, as well as learning outcomes. (Alexander, 2000).

Prior to World War II, only a small minority of the U.S. population—most of whom were male and white—continued schooling after high school. The advent of the G.I Bill of Rights to prevent a post war labor shortage and the large expansion of the middle class during the 1950's led to a period of rapid growth or "massification" of higher education in the U.S. after the war. Between 1950 and 1961 the number of part-time and full-time undergraduates doubled as a college education changed from being a privilege available to only the wealthy and the well-connected to being a ticket to upward social and economic mobility for the growing middle class. During the 1960s, enrollment doubled once again, and, by the mid-1970s, the college population had increased to five times its size in 1951 (Gumport, Iannozzi, Shaman, and Zemsky, 1997).

University enrollments continued to grow at a rapid pace throughout the 80's and 90's as policies intended to increase access, such as subsidized federal loans and Pell grants, created a large and more diverse student population. However, two recessions and a taxpayer revolt during this time period forced many state legislatures to embrace and develop measurements of institutional performance.. Drawing inspiration from the private sector, state governments in particular began to implement institutional objectives and periodic assessment of the progress toward those objectives using performance-based systems that incorporated fiscal incentives into the “new managerial framework” (Layzell, 1998), forcing institutions to become more productive in attaining predetermined objectives or risk reductions in annual appropriations. Given that on average state governments during this time period typically provided “over 35% of the operational funding to public higher education institutions” (Alexander, 2000: 420), it is not surprising that performance based budgeting policies have emerged as the model of choice for resource allocation to public universities (Alexander, 2000).

### **Academic Capitalism: The New Relationship Between Government and Higher Education**

Global economic competition increasingly dominated by knowledge-intensive technologies has resulted in the realization that to strengthen their competitive position, states and nations must increase their investment in and development of human capital through higher education. This realization has fundamentally changed the relationship between states and the system of higher education in the United States as states have increased the burden on higher education institutions to play a major role in transforming their outdated, manufacturing based economies into high-performance technology, based economies (Alexander, 2000). As higher education plays a larger and larger role in the economic policies of local, state, and federal government, universities that existed historically as “cultural training grounds” for the privileged

have become major agents of change and the engine for government investment in human capital and economic development.

Slaughter and Leslie (1997) note that this fundamental shift in the role of higher education has also coincided with a reduction in state funding. They argue that higher education institutions have had to engage in “market-like behaviors” and “for-profit endeavors” to make up for the reduction in funding as the public perception of higher education shifts from a public good to an individual good. Such market-like behaviors include for-profit activities on the part of institutions - activities such as patenting and subsequent royalty and licensing agreements, spin-off companies, arms-length corporations (corporations that are related to universities in terms of personnel and goals, but are chartered legally as separate entities), and university–industry partnerships when these have a profit component. Moreover, Slaughter and Leslie (1997) argue that the recent trend toward restructuring higher education under the new managerial framework<sup>1</sup> includes actions like the reduction or closure of departments, the expansion or creation of new departments, and the establishment of interdisciplinary units, together with associated changes in internal resource allocations and a substantive change in the division of academic labor with regard to research and teaching. These actions all stem primarily from the reduction in government funding and the increasing economic importance of higher education (Leslie and Slaughter, 1997). Thus as public funding for colleges and universities wanes, higher education institutions participate in more profit generating activity that in turn entrenches the new managerial model of evidence-based accountability. One major tenet of this new managerialism is that having “workforce flexibility” is of huge importance in order for organizations to evolve to meet the challenges of the rapidly changing market conditions and related technological advancements. Labor data, as noted below, clearly show that one way organizations are meeting

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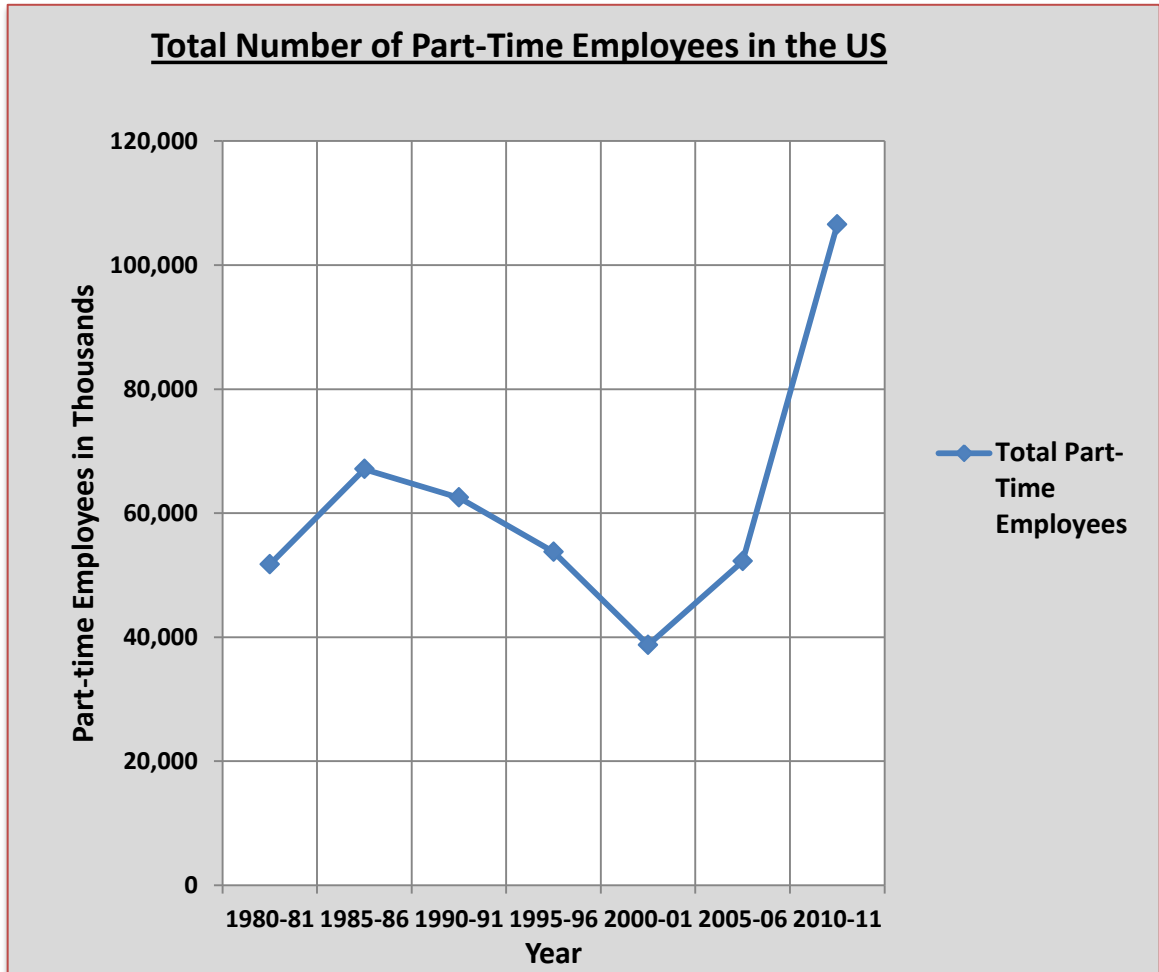
<sup>1</sup> The term “new managerialism” is generally used to refer to the adoption by public sector organizations of management practices and values more commonly found in the private sector (Deem, 1998).

this challenge is to the replace full time employees with contingent workers, a phenomenon not unique to the private sector. The expansion of these trends into the realm of higher education is clearly connected to these more general trends.

In fact, the steady, seismic shift of the U.S economy from manufacturing to services coupled with the decline in membership in labor unions over the past three decades has led to an increase in the use of temporary, part-time, and so called “contingent” jobs in a number of sectors of the economy, beyond the academy. Figure 1 below, using data from the National Bureau of Economic Research, for example, shows that between 1980 and 2010 the number of part-time employees over age 16 who work less than 35 hours per week has generally doubled, rising from 51,749,000 in 1980 to 106,539,000 in 2010 with the trend reversing course in the interim from 1985 to 2000 and then rising again exponentially in the past decade.



*Figure 1.*

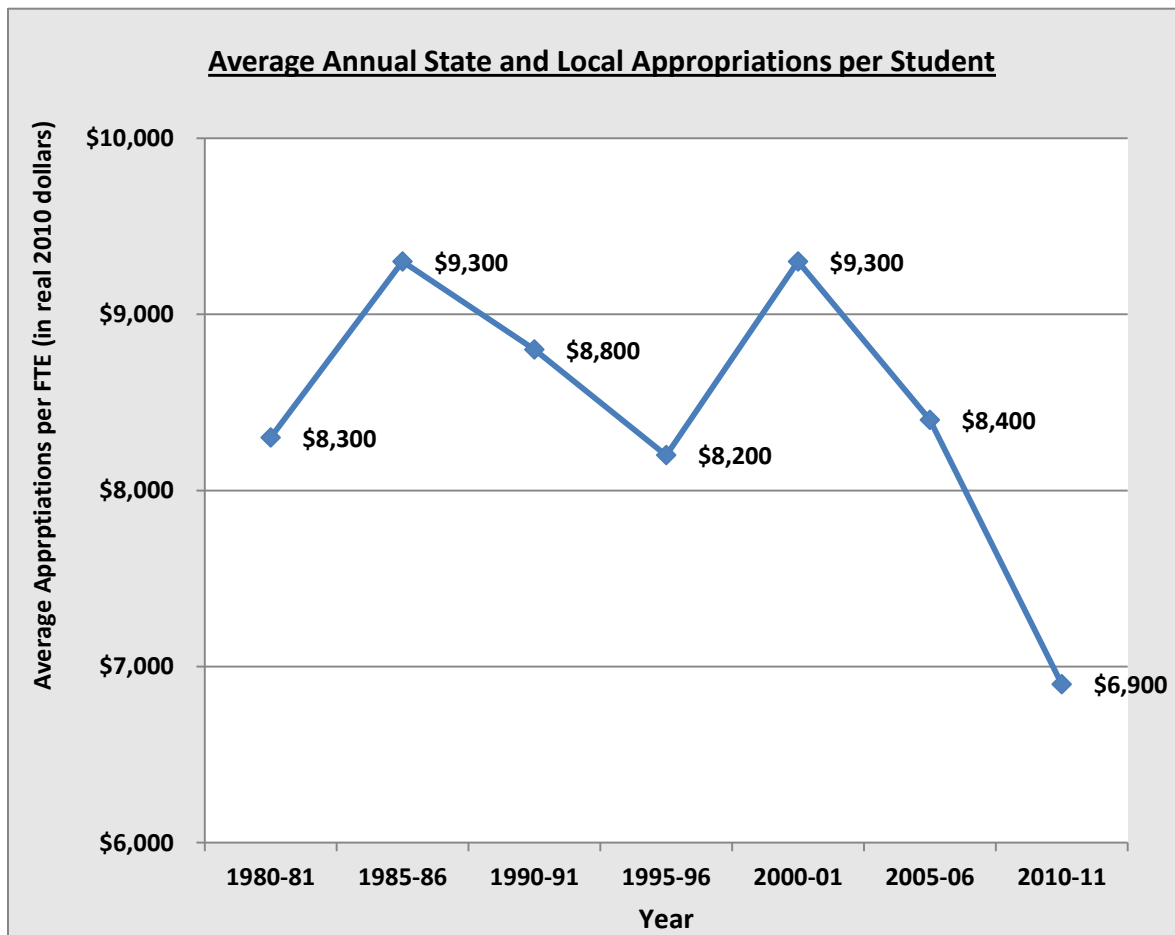


\*Source: National Bureau for Economic Research (NBER, 2011)

Not surprisingly, the academic faculty labor market in the United States has also followed this trend. What is surprising, however, is the magnitude of this shift. Between 1970 and 2001, the number of part-time faculty “increased by 376%, or roughly at a rate more than five times as fast as the full-time faculty increase (Schuster & Finkelstein, 2008: 70). Massive reductions in real state and local higher education appropriations for public universities and community colleges, shown below in Figure 2, are forcing higher education institutions to increasingly turn to

hiring part-time, non-tenure track, adjuncts, lecturers, and other “contingent faculty” to reduce their labor costs and increase efficiency.

*Figure 2.*



\*Including ARRA stimulus funds the 2010 appropriations are \$7,200

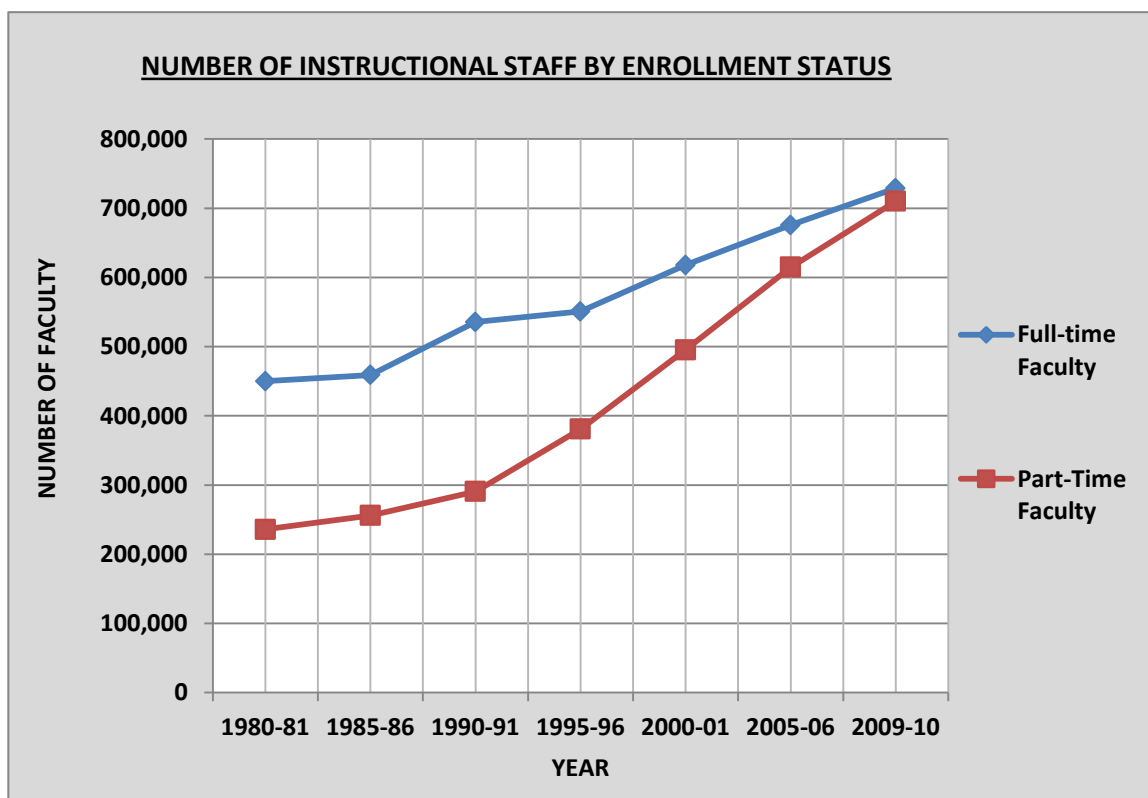
\*\*FTE = Full time, first time student

\*\*\* Source: The College Board, Trends in College Pricing 2011

For instance, in 1987, there were 0.8 million faculty in the United States, with 66% in full-time, tenure track positions and 34% in part-time, non-tenure track positions. By 2005, the number of faculty had swelled to 1.3 million, with only 52% in full-time, tenure track positions and 48% in the part-time, non-tenure track (Leatherman, 2007). Between the years of 1975 and

1995 there was a 92% increase in non-tenure track faculty in the academic profession, and that trend has only intensified since the most recent recession. Figure 3 below displays the accelerating pace of change in faculty job status at U.S. public higher education institutions.

*Figure 3.*

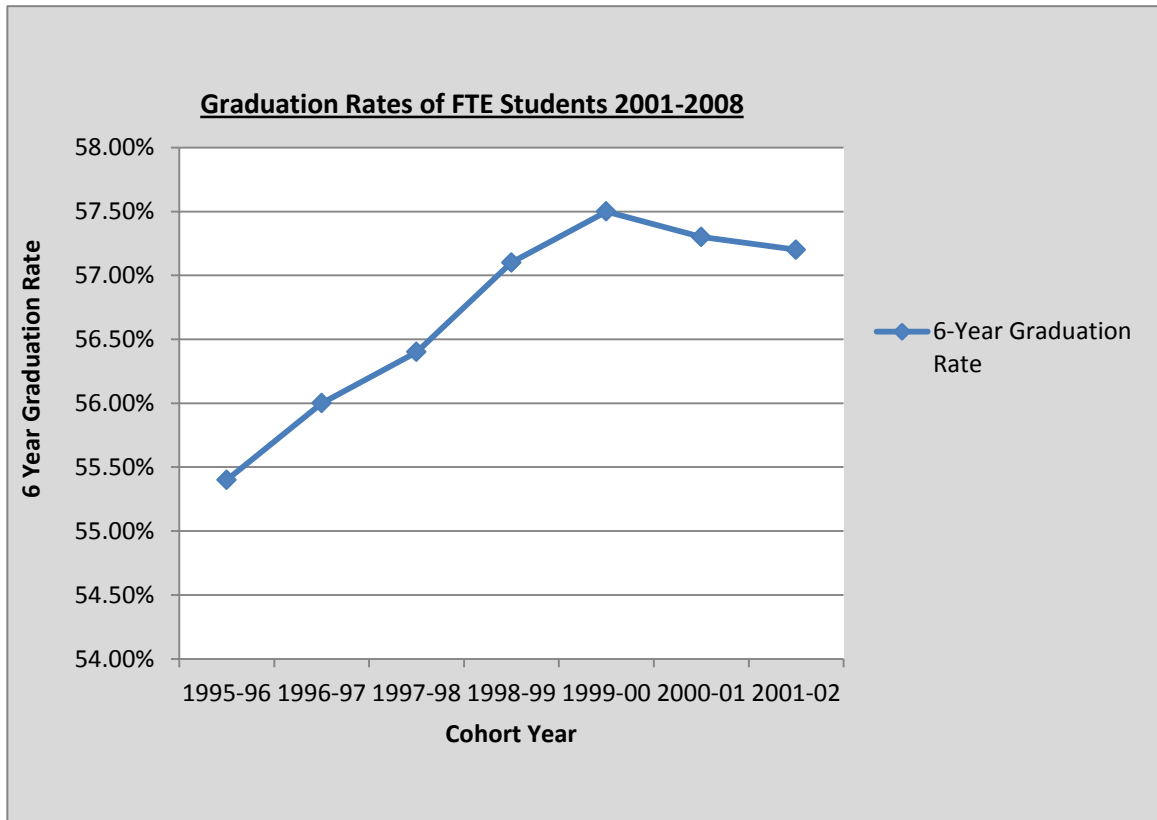


\*Number of instructional faculty in degree-granting institutions by employment status: Years 1980-2010

\*\* Source: NCES Digest of Education Statistics

At the same time, state legislators as well as other public officials are demanding more accountability from their public higher education institutions with the greatest emphasis now being placed on graduation rate metrics. Though as is shown in Figure 4 the data show that graduation rates of first-time, full time students (FTE) seeking four-year degrees at U.S. colleges and universities have largely stagnated over the past decade.

*Figure 4.*



\*Source: National Center for Education Statistics

Higher education remains one of the significant contributors to life-time earnings and to social mobility in general as well as to economic development. As recently as 2005, on average only 25% of the first-year students at public four-year institutions of higher education did not persist to their second year and generally only about 50% of those who enroll in college ever finish. Thus failure to complete college remains a problem of concern to many. As such, a significant question arises: *How has the continued trend of increased hiring of contingent faculty*

*at non-profit, four year, universities and colleges in the United States affected graduation rates?*

Answering this question is the focus of my thesis.

In the next section, I discuss the importance of higher education in a public policy context and why increasing graduation rates is important to the economic future of the United States. I also examine how the financial pressures exerted on states by the Great Recession and globalization have caused the hiring practices of universities to mirror those of other sectors in the overall economy by seeking to cut costs, reduce liabilities and increase flexibility with respect to their labor force. I then define “contingent jobs” and describe the myriad of factors that have led to the gradual replacement of traditional, full-time jobs with contingent work beginning in the 1970’s. Following this discussion I focus on the institution of tenure in the academy and how the increase in data driven evaluation and accountability, coupled with existing political and economic pressures have forced many universities to reexamine their tenure practices.

Finally, I discuss how the rapid raise of information technology and the emergence of for-profit universities have increased accessibility to information and reduced the roll of full-time, tenured faculty in delivering that information. Finally, I will describe the primary aim of this project and discuss how multiple regression analysis of data from four-year institutions and personal interviews with those knowledgeable about trends in higher education will help to further inform the debate surrounding the increase in contingent faculty and its effects on university graduation rates..

### ***Public Policy Context***

Higher education has been the driving force behind social mobility and economic opportunity in the United States since the end of World War II and it will continue to be so in a

globalized economy in which ability to access knowledge is the most valuable skill. Ben Bernanke, chairman of the Federal Reserve, stated at Harvard on Class Day 2008 that “the best way to improve economic opportunity and to reduce inequality is to increase the educational attainment and skills of American workers.” Bowen (2009, p.2.), former provost at Princeton, further notes that “the productivity surge in the decades after World War II corresponded to a period in which educational attainment was increasing rapidly” Education has clearly been a necessary prerequisite to economic opportunity. Significantly, both Bernanke and Bowen use the phrase “educational *attainment*.” The vast majority of public policies relating to higher education over the past three decades have been aimed at increasing *access* to college and such efforts have largely been successful. However, the benefits of simply *attending* college and actually *attaining* a college degree are vastly different for both the individual and society.

For example, data on unemployment rates continue to indicate that college graduates are much less likely to be unemployed and, if so, to have shorter episodes of unemployment, especially during the most recent recession. Government representatives and business leaders often point out the fact that without significant increases in the number of college graduates entering the workforce, businesses will have to turn to hiring foreign applicants to fill their open positions. For instance, due to changing demographic trends and the retirement of the Baby Boom generation, the Public Policy Institute of California predicts that California will have one million fewer college graduates than it needs in 2025—only 35 percent of working-age adults will have a college degree in an economy that would otherwise require 41 percent of workers to have a college degree (Johnson, Sengupta, 2009).

Furthermore, college dropouts are expensive. American colleges and universities currently graduate only slightly more than *half* of the students they admit. The students who do not graduate represent lost income tax revenue as well as wasted subsidies. According to the

American Institute for Research (2011), of the full-time students who started college in the fall of 2002 and were seeking a bachelor's degree but who failed to graduate six years later, approximately

- \$3.8 billion was lost in income by students in college who could have been working
- \$566 million was lost in federal income taxes; and
- \$164 million was lost in state income taxes.

These losses are for only one year and for just one class of students and therefore clearly understate the overall costs of low college graduation rates because losses for even this one cohort accumulate year after year (AIR, 2011).

Though stagnating graduation rates and their associated costs are a concern for policy makers, these concerns are magnified when viewed through the lens of the existing disparities in educational outcomes related to race, gender, parental education and income. In 2009, 36% of white women earned a bachelor's degree by age 26 compared with 22% of black women and 13% of Hispanic women. Just under 30% of white men earned a bachelor's degree compared with 11%-12% of black and Hispanic men respectively. Furthermore, 68% of the students who come from families in the top income quartile with at least one parent having received a college degree earned a bachelor's degree by age 26 compared with only 9% of those from families in the bottom quartile with neither parent having received a college degree (Bowen, 2009). These statistics represent demographic trends that clearly have adverse implications for the country's overall future level of educational attainment and potentially its economic growth as well.

Indeed, as the costs continue to rise, graduation rates stagnate, and inequities grow, policy makers, legislators, business leaders, and academic professionals have all begun to question whether the revered institutions of higher education in the United States should be

reformed. In addition, the financial pressures of a prolonged recession have given momentum and legitimacy to those who have called for a variety of reforms.

### *Financial Pressure*

Ironically, even though demand for college graduates is increasing exponentially, public funding for state universities is steadily declining as noted in Figure 2 above. According to David Schulenberger of the Association of Public and Land-Grant Universities (APLU) from 1988 to 2008 there was about a 10 percent decline per student in real state appropriations. Then we have seen another 10 percent decline over the past two years (Gwynne, 2010). Thus, public universities face increasing pressure to produce more college graduates at the same time that they are receiving less and less public funding to meet this demand.

State funding for higher education has traditionally been heavily influenced by the prevailing economic environment. Since universities are able to raise tuition and restrict enrollment to cut costs, funding for higher education is often viewed by legislators as more discretionary than other programs that cannot “easily” raise revenues. As such, fluctuations in state appropriations tend to have a greater impact on higher education (SHEEO, 2011). Furthermore, economic downturns like the Great Recession have resulted in significant reductions in market returns for university endowments and decreases in other funding streams such as gifts and grants.

California, like many other states, has sought to address its budget shortfalls related to the 2008 recession through tuition increases. The Department of Education’s college cost rankings show that between 2008 and 2011 University of California Campuses at Berkeley, Los Angeles, Merced, Riverside, Santa Cruz, San Diego, and Irvine as well as California State University campuses in Long Beach and Chico, among others, all experienced a tuition increase of at least



40% between those years (Shah, 2012). These tuition increases disproportionately affect members of the middle class since they have to take out increasingly larger loans to pay for these tuition hikes.

Currently this pressure has reached a boiling point in California. The California State University system has steadily increased tuition, reduced admissions, and frozen faculty salaries to address reductions in its appropriation from the state general fund. The CSU system has lost roughly \$970 million in state financing since 2008. Funding for the CSU system represented 5.16 percent of the state budget as early as 1970. It had fallen to 4 percent by the 1990-91 academic year and to 3 percent in 2005-06 where it has remained until after the recession when further significant decreases in state funding have been imposed. In response to this funding crisis and the resulting increases in tuition and fees, students and faculty alike have recently staged walkouts and protests. Faculty members on two campuses, Dominguez Hills and East Bay, held a strike last fall, the first in the faculty union's nearly three-decade history. The union has asked for a 1 percent raise and says administrators have asked to freeze faculty salaries, which have not increased since 2008. But even more concerning than the salary issue, they say, is the university's reliance on part-time lecturers, some of whom teach a full load of courses but do not have tenure. Some of those lecturers make roughly \$50,000 a year, about half of what a tenured professor makes on average ([Medina, 2012](#)). In many cases, however, they make much less. Given that further tuition increases would likely be politically unpalatable many universities have increasingly turned to replacing tenured faculty with non-tenured, contingent faculty and instructors.

***Tenure: Facts versus Myths***

The institution of tenure<sup>2</sup> in higher education has been polarizing for decades and difficult to define for the general public, particularly in poor economic times. As Chait (2002, p.9) notes, “From the perspective of citizens at large, the notion of guaranteed life-time employment (absent select conditions, which rarely materialize) seems outdated, even preposterous. Why should professors be insulated from the economic vicissitudes that routinely place lay citizens at economic risk?” Chait goes on to note that from a managerial standpoint as a lifetime commitment to a disciplinary specialist, tenure inhibits the strategic reallocation of resources from areas of low demand, priority, or quality to areas of greater need, urgency, or distinction (Chait, 2002).

The countervailing arguments in favor of tenure stress the importance of attracting top talent and protecting academic freedom. The institution of tenure, in the eyes of tenure supporters, presents a necessary carrot to encourage bright young students to forgo the 5-7 years of income they could be making in the market and spend it earning a Ph. D. However, the primary defense of tenure revolves around academic freedom. Tenure supporters argue that the institution of tenure allows them the freedom to pursue controversial topics in both their research and their classroom discussions. Tenure, for all intents and purposes, places the burden of proof on the institution to show that a professor’s publications, speech, or research constitute dishonesty, neglect of duty, or harm. Thus, by placing the burden of proof on the institution the professor is empowered to pursue topics of study that may be politically unpalatable, but may nonetheless be important and valuable.

Nevertheless, the cultural shift in higher education to a more “corporatized” model, embracing the new managerialism applied to non-profit institutions as well, has shifted the

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<sup>2</sup> It should be noted that in many institutions of higher education there are some full time non-tenure track positions, which are outside the tenure system.

prevailing view of tenure from an immutable principle of a profession to just another personnel policy. And, as the concepts of accountability and efficiency reign during poor economic times, presidents who have become “CEO’s” and boards of trustees who have become “management” have increasingly begun to view tenure as a policy that inhibits flexibility and reduces efficiency. Though many in the academic profession have portrayed this shift in a negative light it is not without merit or context. The globalization of the economy particularly in the 1990’s has led to large corporations and small businesses alike making downsizing, outsourcing, and contingent staffing common practice to address the rapid market fluctuations and shifts in market demand that are the hallmark of a more globalized economy.

Nevertheless, the basic justifications for tenure endure. The American Association of University Professors (AAUP), tenure’s most ardent supporters, argue that tenure ensures rigorous quality control by creating high barriers for entry, sustains a competitive position in the recruitment and retention of talented faculty, offsets lower salaries with employment security, and maintains academic freedom (Chait, 2002: p. 25). However, to assume that faculty support tenure unconditionally and have fought tenure reform whenever and wherever it is suggested is patently false. For example, a 1999 survey of a random sample of 130 professors (Chait, 2002) found that 52% of both tenured and untenured professors indicated that tenure should be modified but not eliminated. Professors’ most common concerns regarding tenure involve: ambiguous and often contradictory criteria; conflicts between institutional rhetoric and realities of reward structures; and clouded and clandestine review procedures. Though faculty seem to be more willing to accept tenure reforms than ever before it is difficult to tell whether this attitude stems from a genuine agreement that reform is necessary or is a direct response to the rapid pace with which tenured faculty are being replaced by contingent faculty.

### **New Technology and the Rise of the For Profit University**

Two new phenomena have also had profound effects on academic labor policy in higher education: the rapid development of information technology and the growth of for-profit universities. Advances in information technology have had significant effects on higher education changing the ways in which faculty and students interact, the way information is delivered to students, and the accessibility to information for research. Furthermore, a growing number of courses are being conducted online. Students and professors interact online using various forms of media, and students take exams and submit more assignments online than on paper, sometimes exclusively online.

Even though these technologies were at first assumed to primarily lighten faculty workloads it is not clear whether or not they do. Aside from the diversification of skills and professional development necessary for faculty to navigate the new digital world of academia, expectations of faculty accessibility have also increased as a result. Students expect feedback from professors at the same speed that they are able to access information on the Internet. Skype, social media platforms, and smart phones have also forced faculty to accept new norms regarding availability.

The ability to provide “virtual education” coupled with a surging demand for additional skills in a challenging economy have led to a rapid increase in firms attempting to enter the higher education market. The technological advances in online education have decreased the barriers to entry into the market and large, for-profit, online education providers like the University of Phoenix, UNext, and DeVry have made huge profits filling in for traditional universities. In fact as of fall 2010 the University of Phoenix which is publicly traded as Apollo Group on the NYSE had a total online enrollment of 307,965 and total net revenues near \$5 billion (NCES, 2012-001).

These for-profit universities (some of them exclusively online) have not only stolen a large chunk of market share from the traditional non-profit universities, they have also provided a competing model in which tenure is non-existent and faculty serve more as administrators and information organizers than educators in the traditional sense. Indeed, 95% of the 21,500 faculty listed as employees of the University of Phoenix are part-time adjuncts and lecturers (Yung, 2004). So large is this growing business that a two-year investigation was conducted into these for-profit institutions and their practices. The Senate Committee on Health, Education, Labor and Pensions, chaired by Senator Harkin of Iowa, has recently published the results of its investigation in a report entitled “For Profit Higher Education: The Failure to Safeguard the Federal Investment and Ensure Student Success” (July 29<sup>th</sup>, 2012).

### **Implications**

Before discussing the implications of these phenomena, I define the term “contingent faculty” in more detail. For the purposes of this thesis, I use the phrase “contingent faculty” as an umbrella term to capture both part-time faculty (those hired on a course-by-course basis, i.e. adjunct) and full-time, non-permanent faculty, which includes those hired on contractually limited term appointments. These positions are not considered part of the “tenure-track” system and thus do not carry the same potential benefits of employment security, among other benefits. .

Indeed, there are now clearly more contingent faculty than tenured or tenure-track faculty in the American professoriate. What does this mean for higher education? Is it good or bad? Does it hurt students? Has it lowered the quality of instruction or elevated it? Will it affect university governance? Has it increased institutional flexibility and accountability? Though conspiracy theories abound, this shift in university hiring practices appears to be largely reactionary. Funding cuts, market competition, rapidly rising demand, rising healthcare costs, the need to specialize, and increased political interest in accountability are some of the factors that

have led to the number of contingent faculty overtaking the ranks of the tenured faculty. History has shown, however, that reactionary policies that are not part of a larger strategic plan inevitably cause unintended consequences.

It is surprising to note then that few if any four-year universities have sought a data driven approach to understanding the implications of replacing tenured faculty with contingent faculty. Given that public funding for higher education has been declining for years and is one of the main reasons for this shift in the higher education labor force and the fact that state and federal governments subsidize higher education in order to produce college graduates that can compete in a global economy, the question remains *has this trend of increased hiring of contingent faculty at U.S universities caused in part a material reduction in graduation rates?*

The purpose of this thesis is to examine the problem both quantitatively and qualitatively by employing multiple regression analysis and interviewing stakeholders to shed some light on this question. In chapter two I explore the limited existing empirical literature on this subject. and identify common themes by examining previous studies that have attempted to determine the effects of contingent faculty on factors like graduation rates and student persistence using multiple regression analysis.

In chapter three I discuss the dataset that I developed from the National Center for Education Statistics' (NCES) Integrated Postsecondary Education Data System (IPEDS) and describe the quantitative methods used in my regression analyses. Using six-year graduation rates for first time, full-time students as the dependent variable and the percentage of contingent faculty at a given university as the main independent variable I show that under certain conditions an increase in the use of contingent faculty compared with tenure-track faculty actually has a small, but positive effect on graduation rates. Furthermore, I discuss the different methods I used to test the robustness of my regression results.

In chapter four I provide deeper context for the regression analyses discussed in chapter three by presenting information gleaned from interviews with key stakeholders (or their representatives) in higher education who shed light on the origins of this shift in the composition of the professoriate and the political atmosphere surrounding the many aspects of this issue. Specifically, interviews with leading academics studying the shift in faculty appointments and performance measures adds nuance to the often oversimplified arguments surrounding tenure and the use of graduation rates to judge universities. In addition to my interviews with several academic stakeholders I discuss my interviews with two administrative officials and policy makers in order to illuminate the importance of this topic within the world of higher education policy and I give voice to some of those whose voices have been muted in the previous literature examining the effects of the employment of contingent faculty on student outcomes.

Finally, in chapter five I examine several possible reforms and policy changes as well as their political feasibility to determine which, if any, would help preserve some of the benefits of tenure while also creating some degree of institutional flexibility and sustaining or increasing graduation rates, an increasingly significant marker of institutional effectiveness. In this final chapter I attempt to reconcile the results from my regression analysis with the stakeholder opinions and suggestions described in chapter four. By combining quantitative regression analysis with qualitative analysis of the views of key stakeholders I present a more complete and nuanced examination of the effects of increasing the percentage of contingent faculty at a college or university on the capability of these institutions of higher education to produce graduates, an important dimension of individual human capital and economic development in the society at large.

## Chapter 2

### Literature Review

In the first section of this chapter I describe the rise of contingent work in the global economy as well as discuss the lack of empirical evidence in the studies that have examined this phenomenon so far. In the second section of this chapter I review the work of the small, but significant number of scholars who have investigated the possible correlation between the decline in student persistence and related graduation rates and the growing use of contingent faculty in institutions of higher education. Academics studying the relationship between these factors have employed a diverse array of statistical methods in an attempt to identify a correlation and to understand the underlying causes of this decline in an important outcome measure for universities and colleges. A table included in Appendix B illustrates this diversity of statistical methods used in the existing research on this topic. My general discussion of the varied effects of the increased use of contingent faculty over time can be categorized under the following headings: *faculty job quality, teaching ability and commitment, and institutional outcomes*.

#### ***The Rise of Contingent Work***

Nearly one in five workers in the United States currently works part-time as noted in chapter one. Most of the increase in part-time work before 1970 was due to the growth of voluntary part-time work, mainly among women and young people who wanted to work part-time rather than full-time. However, since 1970 virtually all of the increase has occurred among those who would prefer full-time work. Part-time work in recent years has thus changed from an activity that mainly accommodates the needs of the workforce for shorter hours for a variety of



reasons to one that meets employers' needs and preferences for such things as lower labor costs (especially in benefits) and more flexible staffing (Kalleberg, 2000).

However, the existing literature describing the performance of contingent workers is inconclusive. Ang and Slaughter (2001), for example, suggest that contingent workers exhibit lower in-role performance than their permanent colleagues, while Ellingson et al. (1998) argue that although contingent employees often have more negative job attitudes than their full-time counterparts there is no direct link between contingent workers' volition and their performance. Indeed, Connelly and Gallagher (2004) suggest that given the obvious implications of contingent workers' performance on organizational-level outcomes, and considering the relatively small amount of research that has been conducted to date, additional investigation of contingent worker's performance is needed.

With respect to institutions of higher education though there is a wide variety of reasons for increases in the number of contingent workers and few have examined the unintended consequences of employing large numbers of tenure-ineligible faculty. Some scholars have asserted that reliance on contingent faculty negatively impacts undergraduate education. For instance Benjamin, (2002) and Jacoby (2006) suggest that overreliance on part-time faculty undermines successful student integration and therefore student persistence because they may often be unavailable to students outside of class and often use less challenging instructional methods.

Nevertheless, as Jacoby (2006) mentions, even though his results show that higher rates of employing contingent faculty had a negative effect on graduation rates, the reasons stated for this finding were not wholly supported by the empirical evidence. On the other hand, several studies have suggested that contingent faculty members are at least as effective in delivering instruction when compared to their tenure-track counterparts (Gappa and Leslie, 1993; Baldwin

and Chronister 2001). This theory stems from two schools of thought. First, contingent faculty tend to offer universities flexible scheduling options to meet the needs of students who may need to take classes late in the evening or on weekends. These students are often the least likely to complete their degrees due to the time constraints of family obligations and employment so offering more flexible scheduling allows these students greater opportunity to complete their degrees. Second, contingent faculty are thought to be less burdened by research expectations and are thus able to spend more of their time concentrating on teaching and engaging with students. Nevertheless, few if any of these claims are supported by empirical evidence and counter arguments abound. For instance, although contingent faculty may have more time to devote to teaching, their course loads are often higher than those of tenured professors, thus the time benefit of not having to meet research expectations may be negated by their heavier teaching loads. In fact, only Jacoby (2006) has empirically investigated the effect of the rise in the reliance on contingent faculty on graduation rates, the most commonly used performance measure for colleges and universities. In the next section I discuss the small number of studies that have attempted to quantify these effects and the nature of the unintended consequences of this major labor shift in higher education. I also describe the statistical methods and results of these studies.

### ***Faculty Job Quality***

Before exploring the effects of the increased use of contingent faculty on their students and the institutions they serve it is necessary to understand why these types of jobs are so cost effective for universities. First, hiring part-time faculty and fixed-term contract, full-time faculty allows universities to escape from or circumvent the rigid tenure system. Furthermore, it is widely understood that not only do contingent faculty lower long term labor costs through greater flexibility of employment, but also that contingent faculty are usually paid less (and have fewer

benefits) than do full-time faculty members providing short term savings as well. Monks (2008) compares contingent faculty salaries with the salaries of full-time tenure track faculty. Monks uses OLS regression to analyze data from the 1999 survey from the National Center for Education Statistics' National Study of Postsecondary Faculty (NSOPF). Controlling for individual and institutional characteristics in his regression analysis of salaries, Monks (2008) finds that part-time, non-tenure track faculty members consistently earn 80% less across institutional types. Furthermore, part-time tenure track faculty earn approximately 49% less than did full-time, assistant professors on the tenure track at doctoral-level institutions.

Furthermore, contingent faculty like many non-standard employees are most often denied benefits. Kalleberg, Reskin, and Hudson (2000) analyzed data from the 1995 Current Population Survey to determine the relationship between contingent jobs and exposure to "bad" job characteristics. The authors define a "bad" job using three positively correlated variables: low pay, no health insurance, and no pension benefits. The correlation between lack of health insurance and the absence of pension benefits was moderate ( $r=.48$ ); both lack of pension and health insurance were weakly correlated with low pay ( $r=.33$  for no health insurance and  $r=.32$  for no pensions). Consequently, Kalleberg, Reskin, and Hudson concluded that a job that is bad in one dimension tends to be bad on others. After running a multivariate, negative binomial regression using the means of three dependent variables: low wages, no health insurance provided, and no pension and controlling for type of employment (i.e. contract, temporary, self-employed etc.), employment security, unionization, occupational complexity, educational attainment, and demographic characteristics, the authors found that women and men who hold a contingent job experience 13% and 18%, respectively, more "bad" job characteristics, controlling for all other variables in their model. Additionally, they found that men and women covered by collective bargaining agreements have jobs with *half* as many bad job characteristics as workers

who are not covered by such agreements. These data might help explain why part-time faculty and graduate student unions are among the few unions that have actually been gaining in membership over the past two decades.

### ***Teaching Ability and Commitment***

Data show that contingent faculty are, not surprisingly, underpaid and are often not as integrated into university culture and processes. Consequently, it is necessary to examine whether this lack of compensation causes contingent faculty to be less motivated. This idea is grounded in social exchange theory. Social exchange theory posits that individuals form relationships with those who can provide valued resources. In exchange for these resources, individuals will reciprocate by providing resources and support. Thus individuals will exhibit greater commitment to an organization when they feel supported and rewarded (Rhoades, Eisenberger, & Armeli, 2001).

Indeed, Umbach (2008) asked to what degree do part-time faculty members differ from their full-time peers in their instructional approaches to teaching? (Umbach, 2008: 3). To answer this question, Umbach ran a hierarchical linear model (HLM) on the 2001 HERI Faculty Survey. Umbach (2008) states that he chose to use this model as opposed to OLS regression because faculty data were “nested” within the institutional data and multicollinearity was a possibility, potentially confounding the results. Thus, using a sample of 20,616 faculty from 148 institutions, Umbach found that part-time faculty spent at least half a standard deviation less time preparing for class and advising students than did full-time faculty, even after controlling for key institutional variables. Furthermore, he found that relative to full-time faculty, part-time faculty were 68% less likely to participate in a teaching workshop to improve their skills. These data seem to indicate that contingent faculty are indeed less motivated with respect to teaching when

compared to their full-time counterparts. However, there is a distinct possibility of bias in these findings. Given that universities volunteer to administer the HERI survey and that part-time faculty are usually not as integrated into their institutions, contingent faculty seem to be vastly underrepresented in the HERI survey. In fact, only 15% of the 20,616 faculty members who responded to the survey Umbach used to collect data held part-time appointments, while data show that in 2001 part-time faculty actually constituted close to 45% of the total professoriate, a significant differential

Equally important to determining how contingent faculty members differ from full-time faculty is establishing a link between individual student outcomes and instructors' characteristics. While data exist on the experiences of college students (Baccalaureate and Beyond and the National Education Longitudinal Study) and other faculty survey data (HERI survey, National Postsecondary Survey), it is difficult to link these data sources in meaningful ways (Bettinger & Long, 2004). Bettinger and Long (2004) of the National Bureau for Economic Research (NBER) attempted to establish this link and estimate the impact of adjunct instructors and graduate student instructors on student outcomes by examining their effects on student's course-taking behavior, and course completion.

Their study tracked 25,000 first-time freshmen students at twelve public, four-year universities in Ohio using student transcripts as well as information on the corresponding faculty member responsible for each course from fall 1998 to spring 2002. Bettinger and Long used a course fixed-effects model to eliminate bias due to course selection based on student characteristics such as ability differences. They also included campus fixed effects and various controls for faculty characteristics such as age, gender and race. They then compared estimated value-added coefficients for different types of instructors to estimate the impact of different

categories of instructors on student outcomes of interest, course-selection, subsequent enrollment and major choice.

The authors found that a student taking an introductory course from an adjunct faculty member reduces future enrollment in those disciplines by about .10 credit hours. This finding suggests that taking courses from adjuncts and graduate students reduces a student's motivation to continue in a given course of study. However, there are glaring problems with this study. First, the authors put far too much significance on the ability of the instructor to influence student major choice. Subject matter, course availability, and even time of day could have equally significant effects on student class choice, given that many students have to work. Furthermore, to control for student ability the authors limited their sample to students who took the ACT stating, "most Ohio students take the ACT." This decision eliminated 20% of their sample thus creating serious concerns regarding the representativeness of their findings.

### ***Institutional Outcomes***

Most important from a public policy standpoint are the institutional effects of the increased use of contingent faculty in higher education. Ehrenberg and Zhang (2004) were the first to examine the correlation between increased usage of contingent faculty and graduation rates. Ehrenberg and Zhang (2004) looked at panel data from the College Board 1986-87 and 2000-2001 and used OLS regression analysis to show that at American four-year and two-year institutions (other factors held constant) a 10% increase in the percentage of the faculty that is part-time at a public academic institution is associated with a 2.65% reduction in the institution's graduation rate (Ehrenberg and Zhang, 2004: 8), a fairly major effect. However, a detailed examination of the variables included in their study suggests that the study may not address the entire relationship. First, the dependent variable used in this study was 4, 5 and 6 year graduation rates over a four year period. This combination of separate rates was due to the fact that the

College Board kept 4-year graduation rates from 1986 to 1988, 5-year rates from 1988 to 1998, and 6-year rates from 1999 to the present. This is problematic when using a two-panel regression analysis due to the fact that the time to completion for the first panel year is in fact 50% less than the six-year rate used in the second panel.

Furthermore, numerous studies have shown that other institutional factors such as per pupil expenditure, size of minority population, and school size have significant effects on graduation rates. Additionally, geographic variables such as state appropriations to higher education, state population, and other demographic data could impact graduation rates.

Jacoby (2006) found similar results when using IPEDS data for community college graduation rates in the 2000-2001 American, degree-seeking cohort. Jacoby expanded and improved Ehrenberg and Zhang's (2004) regression model to include more detailed institutional data such as, faculty to student ratio, part-time student ratio, and a subset of racial and ethnic percentages as opposed to lumping these students into one "minority" category as an independent variable. Jacoby also included in his model state dummy variables, state community college enrollment, and state ratio of 2 to 4 year students to account for geographic variation. When examining the three-year graduation rate at 1,209 community colleges in the 50 states, Washington D.C, and Puerto Rico for the year 2001 Jacoby (2006) found that a one-percent increase in the percentage of part-time faculty at a community college reduced graduation rates by 15%, also a very significant effect.

Eagan and Jaeger (2008) investigated the nature of this relationship more fully by unpacking the category "contingent faculty" into multiple separate groups and then examining the findings by group. They separated the contingent faculty category into three subcategories whose employment conditions are different - comparing graduate student instructors with full-time non-tenure track faculty, and part-time non tenure-track instructors. Although they also found a

significant negative relationship, Eagan and Jaeger (2008) concluded first that students are not significantly affected by having a graduate student instructor, second that full time non-tenure track faculty had no significant effect, and third that only part-time, non-tenure track faculty had a significant negative effect on student persistence. The significant difference between Ehrenberg and Zhang's work and that of Eagan and Jaeger is that Eagan and Jaeger's main dependent variable was student persistence from year one to year two, while Ehrenberg and Zhang's was the six-year graduation rate, a fairly major difference in outcome measures.

Another significant difference between these two studies is that Eagan and Jaeger also employed separate logistic regressions for each Carnegie classification of the universities they sampled (one doctoral-extensive university, two doctoral-intensive universities, and one master's comprehensive university) to examine the effects of contingent faculty exposure in introductory courses on students' likelihood to persist. They found that students at the doctoral extensive institution had nearly 25% of all of their gate keeping course credits with other types of part-time faculty, whereas at the doctoral-intensive institutions students took just 8% of their introductory level course credits from such faculty. Furthermore, among doctoral institutions they found that students were about 20% less likely to persist into the second year for every percentage point increase in exposure to other part-time faculty in gatekeeping courses, while at the masters' comprehensive school the effect was much larger with 37 percent of the students being less likely to persist.

### **Going Forward**

After examining the empirical studies described in some detail in this chapter there appears to be some evidence supporting a significant negative relationship between the increased usage of contingent faculty and the quality of higher education, but further study is needed. First,



all of the data studied so far were collected before the 2008 recession and thus there is a need to update these datasets to reflect the new, relatively stark economic conditions of higher education in the United States. Second, although it is increasingly clear that contingent faculty have a negative effect on student persistence at two-year institutions (Ehrenberg and Zhang, 2004; Jacoby, 2006), few studies have looked solely at four-year, non-profit universities. Third, though difficult, a more detailed examination is needed of whether the vocational experience of some types of contingent faculty may offset their lack of teaching experience and commitment.

In chapter 3, I attempt to synthesize and improve on the existing empirical studies that have sought to determine the consequences for students of the shift in faculty appointment type. As I detail in the next chapter I conducted multiple regression analysis of a new 2010 dataset from the Integrated Postsecondary Education Data System (IPEDS). Given that numerous studies already exist addressing the effects of contingent faculty on student and institutional outcomes at community colleges and that the vast number of college students in the U.S attend four-year universities I have chosen to focus on full-time students at public and private, four-year, U.S colleges and universities. Building on the theoretical models of Ehrenberg and Zhange (2004), Jacoby (2006), and Eagan and Jaeger (2008), I show that after controlling for geographic characteristics such as state demographics, student characteristics like percentage receiving financial aid, and institutional characteristics such as per pupil expenditure, percent admitted, and Carnegie classification, a higher percentage of contingent faculty in fact increases an institutions' graduation rate for the vast majority of U.S colleges and universities.

## Chapter 3

### Theoretical Model and Empirical Analysis

As I have argued it is important to investigate how changes in the composition of the faculty is affecting student outcomes in our institutions of higher education, in particular, student persistence and their eventual graduation rates. Comparing universities with respect to graduation rates, however, is often controversial. University administrators, faculty, students, and many academics who study higher education often reject or at least resist using graduation rates as a proxy for the success or failure of a school due to the myriad factors that can affect a school's graduation rate. Student ability, state policy, university wealth, alumni makeup, local K-12 school quality, and curriculum all could potentially affect graduation rates, among other factors. Thus, it is important to define what type of graduation rate I am using as my dependent variable, and it is necessary to describe the various control variables I am including in my model that take into account these alternative explanations of variations in graduation rates. In this chapter I review the dependent and independent variables, as well as the control variables, I have included in my regression model. I also discuss my predictions with respect to the effect of the independent variables relating to faculty composition on my dependent variable, graduation rates.

#### *Regression Model Details*

Before detailing my regression model it is first necessary to explain what multiple regression analysis is and why it is useful in exploring the relationship between faculty composition (proportion contingent faculty in my study) and graduation rates. Multiple regression analysis is a statistical technique for estimating the relationships between variables.

More specifically, regression analysis helps one understand how the value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held constant. This is especially useful when examining educational outcomes such as graduation rate because there are so many different factors that can cause variation in graduation rates. Socioeconomic status, university prestige, and demographic makeup of the student body have all been shown to affect graduation rates.

Multiple regression analysis thus allows one to measure the variation in rates of graduation caused by the percentage of contingent faculty at a given school while holding all other variables constant thereby isolating the effect of the proportion of the faculty that are contingent faculty on the graduation rate. For the purposes of this study I am using graduation rate as the main dependent variable. Currently the most widely accepted calculation of graduation rate is the six-year graduation rate. This is the measure of the number of first-time, full-time freshmen who graduate from their respective four-year colleges or universities within six years. I will present my general causal model and then discuss each specific variable and its measure in relation to the proposed model. All the data used in my analysis come from data sources for the 2009-2010 school year, the most recent year for which we have relatively complete data.

**Graduation Rate = f (Faculty Composition, Student Characteristics, Institutional Characteristics, Statewide Demographics)**

Each of the broad factors from the above model are listed below and broken down into their respective variables that I have used as proxies for those factors. Furthermore, I have indicated the expected sign of the regression coefficient next to the variable. If the expected sign is

unknown I have placed a (?) next to it.

**Faculty Composition (Proportion Contingent Faculty)** = Percentage of Total Instructional Faculty not on the Tenure-Track

**Student Characteristics** = f [Percent in Student Age Categories (?), Percent African-American (-), Percent American-Indian (-), Percent Asian (?), Percent Latino (-), Percent Female (+), Percent Receiving Financial Aid (-)]

**Institutional Characteristics** = f [Student to Faculty Ratio (-), Per Pupil Expenditure (+), Percent Admitted (-), Public Dummy (-), Masters Level Dummy (?), Doctoral Level Dummy (+)]

**Statewide Demographics** = f [State Percent African-American (-), State Percent American-Indian (-), State Percent Asian (?), State Percent Latino (-), State Poverty Percentage (-), State Percent Single Parent (-), State Percent with Bachelor's Degree (+)]

***Justification of Model and Expected Signs***

**Student Characteristics.** The percentages of students coming from various racial and ethnic groups have previously been associated with significant variation in institutional graduation rates. Though this variation is likely related to underlying social and economic factors the significance has been well established. The cost of higher education (tuition, housing, books, etc...) is regarded as a major barrier to completion of a bachelor's degree (Ehrenberg and Zhang 2004, Jacoby 2006). However, financial aid lowers net tuition, at least in the near term, so it is difficult to determine whether or not the percentage of students receiving financial aid should have a positive or negative effect on graduation rates. Nevertheless, a larger percentage of the student population receiving financial aid likely indicates a lower-income student population and

this factor has been shown to reduce graduation rates. Age of the students has also commonly been used to account for variation in graduation rates, however the age distribution at the large sample of four-year schools in this study was so concentrated that its impact was highly constrained and thus its effect was minimal and non-significant.

**Institutional Characteristics.** The student to faculty ratio is an interesting variable to consider with respect to the percentage of contingent faculty. One cannot look at the percentage of contingent faculty in isolation due to the fact that the decision to employ contingent faculty is part of a set of larger administrative decisions about how to allocate labor resources. Previous studies (Jacoby 2006, Scott Bailey Kienzl, 2006) have shown that increasing the number of faculty with respect to students has a positive effect on graduation rates. Therefore, I would expect that as the student to faculty ratio increases (leading to fewer students per faculty member) graduation rates will increase.

It is difficult to compare universities with respect to funding, particularly between private schools and public, though it is becoming easier as state funding for public universities dries up and state schools turn to more tuition increases to account for lost revenue. Nevertheless, by calculating per pupil expenditure it is easier to compare the amount per capita that each school is spending on instruction. Given that expensive services such as increased advising, tutoring, and providing more technology to students have been shown to increase graduation rates in previous studies and that higher per pupil expenditure could indicate a higher-income student population, I would expect the coefficient for this variable to be significantly positive.

University prestige and exclusivity are also known to have a significant effect on graduation rates. Higher prestige universities are able to select students they deem to be the most

motivated, and apt to complete their degrees in a timely fashion. Furthermore, these schools also have considerably larger endowments allowing them to weather economic downturns more effectively and they are able to spend more of the funds on faculty salaries. Consequently, it is essential to control for university prestige by including the percent admitted variable which I use as a proxy for school quality. I assume that this coefficient will be negative in that as the percentage of students admitted increases (indicating greater variance in quality of students admitted) the graduation rate should decrease.

Finally, public schools often are dependent in large part on funding from state general funds and are subject to state requirements regarding student admissions. For instance, the California State University system derives the majority of its funding from the California general fund and is mandated by the state to increase access to higher education for lower income and minority students. As such, these schools tend to be much larger, have a higher percentage of students in need of remedial education, and are more subject to greater variation in funding from year to year. Each of these factors has been shown to decrease graduation rates. Therefore, I would assume that the coefficient for public schools should be negative.

**Statewide Demographics.** Variation in state characteristics should also have a significant effect on student performance and outcomes. The most commonly noted barriers to student completion often occur outside the control of an institution. For instance, many students do not complete their degree due to the need to generate income for themselves or their families. The loss of jobs as a result of the Great Recession reduced the ability of students' parents and themselves to pay for their education. Furthermore, there is significant variation between states with respect to demographics, unemployment rates, and poverty levels. Consequently, I expect the percentages of minorities in the states, state percentage below the poverty line, and percentage of single

parents within a state to have negative coefficients reflecting negative effects on graduation rates. However, I would expect the percentage of state residents with a bachelors degree to have a positive coefficient since previous studies have shown that student's parents' education levels have significant positive effects on educational outcomes implying greater pressure on such students to complete their degrees.

### **Omitted Variables**

I have omitted a few variables that I included in an earlier analysis due to the fact that they either had little significant impact on the dependent variable or because the variation was explained by similar variables in my model. For instance, the effect of the variable - percentage of urban development in a state – was not included in my model because it tracked closely with the effects of the percentages of minorities and poverty in each state and was thus subsequently dropped from this analysis. Similarly, the effects of selectivity of a university were accounted for through inclusion in my model of the variables percent admitted, per pupil expenditure, and the degree granting dummies for masters' and doctoral institutions. Selectivity ratings are often published by the U.S News and World Report and the Princeton Review and are derived from a combination of factors similar to the variables I have named above. For example, the U.S News includes graduation rate, percent admitted, and total enrollment in its selectivity rating along with student high school class rank and standardized test scores.

### ***Data***

This section of the report presents further details and analysis regarding the variables included in my regression model. Specifically, I will discuss the sources of my data and present three tables to better organize these variables. The first table simply describes each variable and

indicates its source. The second table provides summary statistics for each variable. Finally, the third table presents a correlation coefficient matrix to show potential sources of collinearity.

### **Sources**

The National Center for Education Statistics (NCES) collects and tabulates data on community colleges, private universities, and public universities in its Integrated Postsecondary Education Data System (IPEDS). These data are primarily derived from NCES' annual surveys. IPEDS contains a plethora of data regarding graduation rates, faculty employment, student demographics, financial aid, and enrollment. Furthermore, IPEDS allows for the classification of individual schools by degree granting status, geography, as well as the Carnegie classification. However, given that graduation rates and institutional variation are also affected by state policy and demographics I collected additional data from the State Demographics section of the 2010 U.S Census. The U.S Census Bureau tabulates census data and categorizes the data by state. Combining the data provided by IPEDS and the 2010 Census should provide a more complete picture of the variation in university graduation rates and will also help isolate the effects of contingent faculty on those rates.

However, before presenting my data there are some important differences between my data set and those of previous scholars addressing this topic. First my data set is quite large encompassing all private non-profit and public, baccalaureate degree granting or higher, universities in the United States. I have excluded community colleges and for-profits institutions. Some of the descriptive statistics are somewhat skewed due to the fact that there are a large number of very small, private colleges with unique charters and specialized demographic characteristics. Even though the sample size is large enough that this factor should not drastically



skew the data, it is important to note.

**Table 1.** Table 1 below provides descriptions and sources for each variable I have included in my model. Two of the variables, Percent Contingent Faculty and Per Pupil Expenditure were calculated while the other variables were readily available on IPEDS and the 2010 Census. Percent Contingent Faculty was calculated by dividing the total amount of part-time, non-tenure track instructional employees by the total number of instructional employees at a given university to get the proportion contingent faculty, which was converted to a percentage. Per Pupil Expenditure was calculated by dividing the total amount of money spent by a university on instruction by the total undergraduate enrollment of that school.

**Table 1. Variable Identification, Description, and Sources**

Variable Name	Description	Source
<b>Dependent Variable</b>		
Graduation Rate	Percent of freshman who graduate with a bachelors degree within 6 years of enrolling in a 4 year, U.S college or university	National Center for Education Statistics' (NCES) Integrated Postsecondary Ed. Data System (IPEDS)
<b>Independent Variables</b>		
Percent Contingent Faculty	Percent of part-time, non-tenure track instructional employees out of the total number of instructional employees at a university	NCES: IPEDS
<b>Student Characteristics</b>		
Percent of Students Under the Age of 18	Percent of the student body under the age of 18	NCES: IPEDS
Percent of Students Age 18 to 24	Percent of the student body aged 18 to 24	NCES: IPEDS
Percent of Students Age 25 to 64	Percent of the student body that is aged 25 to 64	NCES: IPEDS

Percent of Students Over the Age of 64	Percent of the student body that is over the age of 65, this variable is excluded from the regression as it is the reference variable for student age	NCES: IPEDS
Percent African-American	Percent of the student body that is African-American	NCES: IPEDS
Percent American-Indian	Percent of the student body that is American-Indian or Alaskan Native	NCES: IPEDS
Percent Asian	Percent of the student body that is Asian, Pacific Islander, or Filipino	NCES: IPEDS
Percent Female	Percent of the student body that is female	NCES: IPEDS
Percent Latino	Percent of the student body that is Latino	NCES: IPEDS
Percent Receiving Financial Aid	Percent of the student body that is receiving some form of financial aid whether federal or otherwise	NCES: IPEDS
<b>Institutional Characteristics</b>		
Student to Faculty Ratio	Ratio of students to instructional staff on campus, a ratio of .15 means 15 students to 1 faculty member	NCES: IPEDS
Per Pupil Expenditure	Total instructional expenditure divided by the total undergraduate enrollment	NCES: IPEDS
Percent Admitted	Percent of applicants admitted	NCES: IPEDS
Carnegie Classification Doctoral Dummy	A dummy variable indicating that the school is at the doctoral degree granting level	NCES: IPEDS
Carnegie Classification Masters Dummy	A dummy variable indicating that the school is at the masters degree granting level	NCES: IPEDS
Public Dummy	A dummy variable indicating if a school is public	NCES: IPEDS
<b>State Demographics</b>		
State Percent African American	Percentage of state residents who are African-American	2010 U.S Census, State Demographic Profiles
State Percentage Latino	Percentage of state residents who are Latino	2010 U.S Census, State Demographic Profiles
State Percentage Asian	Percentage of state residents who are Asian, Pacific Islander, or Filipino	2010 U.S Census, State Demographic Profiles
State Percentage American Indian	Percentage of state residents who are American Indian or Alaskan Native	2010 U.S Census, State Demographic Profiles
State Percentage with Bachelors Degree	Percentage of state residents who hold a bachelors degree	2010 U.S Census, State Demographic Profiles
State Poverty Percentage	Percentage of state residents who are below the poverty line	2010 U.S Census, State Demographic Profiles

State Percentage of Single Parents	Percentage of state residents who are single parents	2010 U.S Census, State Demographic Profiles
State Dummy Variables	A dummy variables for each state	2010 U.S Census, State Demographic Profiles
*All percentages are written in their decimal form		

**Table 2.** Table 2 provides the summary statistics for each variable. Most of the variables have the same sample size, however there is some variation as not all schools in the sample disclosed data involving the faculty makeup or total instructional expenditures. Nevertheless, the overall sample size was well over 1,000 schools. The Percent African American and Percent Female variables have maximums and minimums of 100% and 0%, which is surprising at first, but can be accounted for due to the inclusion of some universities that enroll only these demographic groups. Most surprising and relevant to this study are the summary statistics for Percent Contingent Faculty. There were quite a few schools that reported only contingent faculty and some that reported having none. Only two schools, Texas College and Rust College, very small, rural schools located in Texas and Mississippi respectively reported having 100% contingent faculty. These schools should be considered outliers, however I did not want to drop them from my analysis because I wanted the sample to reflect the vast diversity of faculty makeup in U.S universities.

**Table 2. Variables: Summary Statistics**

Variable Name	Sample Size, N=	Mean	Standard Deviation	Minimum	Maximum
<b>Dependent Variable</b>					
Graduation Rate	1408	0.5367	0.1860	0.04	0.98
<b>Independent Variables</b>					
Percent Contingent Faculty	1419	0.2389	0.1545	0	1.0
<b>Student Characteristics</b>					
Percent of Students Under the Age of 18	1376	0.0258	0.0475	0	0.67
Percent of Students Age 18 to 24	1376	0.7791	0.1743	0.07	1
Percent of Students Age 25 to 64	1376	0.1937	0.1679	0	0.92
Percent of Students Over the Age of 64	1376	0.0005	0.0026	0	0.03
Percent African-American	1419	0.1314	0.2045	0	1.0
Percent American-Indian	1419	0.0071	0.0202	0	0.30
Percent Asian	1419	0.2394	0.1584	0	0.74
Percent Hispanic	1419	0.1598	0.1914	0	0.90
Percent Female	1419	0.5841	0.1193	0	1.0
Percent Receiving Financial Aid	1416	0.8793	0.1323	0	1.0
<b>Institutional Characteristics</b>					
Student to Faculty Ratio	1099	0.1508	0.0452	0.03	0.47
Per Pupil Expenditure	1392	8.958	7.250	1.1426	97.9236
Percent Admitted	1321	0.6493	0.1808	0.07	1.0
Public/Private Dummy	1419	0.3643	0.4814	0	1.0
Masters Dummy	1376	0.4121	0.4924	0	1
Doctoral Dummy	1376	0.1839	0.3875	0	1
<b>State Demographics</b>					
State Percent African American	1376	0.1260	0.0866	0.004	0.507
State Percent Hispanic	1376	0.1197	0.1070	0.012	0.463
State Percent Asian	1376	0.0394	0.03780	0.006	0.386
State Percent American Indian	1376	0.0092	0.01686	0.002	0.148

Variable Name	Sample Size, N=	Mean	Standard Deviation	Minimum	Maximum
State Percent Female	1376	0.5094	0.0054	0.480	0.530
State Percent with Bachelors Degree	1376	0.2785	0.0493	0.173	0.492
State Poverty Percentage	1376	0.1366	0.0253	0.078	0.212
State Percent Single Parents	1376	0.3436	0.0440	0.190	0.600
*State Dummy Variables not shown					
*Percentages in Decimal Form			*Per Pupil Expenditure in \$1000's		

**Appendix A.** Appendix A is a correlation matrix showing all of the variables excluding the state dummy variables. As evident in the matrix none of the variables have a correlation much higher than .50 indicating a low incidence of collinearity. However, in a larger correlation matrix including the state dummy variables the state specific variables such as the state race and ethnicity variables showed perfect collinearity with their respective state dummy variables. Consequently, I chose to run two separate regressions, which I will discuss further in the next section.

### ***Regression Results***

This section of the paper will report the results of my regression analysis. In addition, I will discuss the three different equations I used to analyze the data. I will also discuss the methods I used to check for multicollinearity and heteroskedasticity. I have included a table that shows the regression results for each variable in relation to the equation used as well as the Variation Inflation Factor for my preferred model.

**Table 3. Unstandardized Coefficients, Significance, and (Standard Errors)**

<b>Variables</b>	<b>Linear-Linear Quadratic Model 1</b>	<b>Linear-Linear Quadratic Model 2 (Includes State Dummies)</b>	<b>VIF for Linear – Linear Quadratic Model 1</b>
Percentage of Contingent Faculty	0.2143** (0.0571)	0.1980** (0.0581)	6.12
Percentage of Contingent Faculty - Squared	-0.3124** (0.08667)	-0.2926** (0.0874)	6.26
Percent African- American	-0.2575*** (0.2140)	-0.2547*** (0.0215)	1.55
Percent American- Indian	-0.3327*** (0.1785)	-0.3181 (0.2266)	1.21
Percent Asian	0.3189*** (0.0933)	0.3140*** (0.0938)	2.58
Percent Latino	-0.2471*** (0.0524)	-0.2397*** (0.0522)	1.78
Percent Female	0.0846*** (0.0309)	0.0828*** (0.0307)	1.19
Percent Receiving Financial Aid	-0.2019*** (0.0331)	-0.2125*** (0.0334)	1.70
Student to Faculty Ratio	0.1783*** (0.0648)	.1726*** (0.0655)	2.12
Per Pupil Expenditure	0.0041*** (0.0006)	0.0042*** (0.0007)	2.00
Percent Admitted	-0.0950*** (0.0224)	-0.0943*** (0.0223)	1.64
Public Dummy	-0.1231*** (0.0092)	-0.1225*** (0.0093)	2.18
Masters Dummy	0.0110 (0.0095)	0.0067 (0.0096)	0.0002
Doctoral Dummy	0.0648*** (0.0118)	0.0646*** (0.0119)	0.0010
State Percent African American	0.0803 (0.0595)	N/A	3.80
State Percent Latino	0.0813 (.0533)	N/A	3.15
State Percent Asian	-0.3232* (0.1522)	N/A	3.16
State Percent American Indian	-0.1542* (0.3423)	N/A	2.00
State Percent Female	3.2533*** (0.9370)	N/A	2.36
State Percent with Bachelors Degree	-0.2204 (0.1157)	N/A	3.07

Variables	Linear-Linear Quadratic Model 1	Linear-Linear Quadratic Model 2 (Includes State Dummies)	VIF for Linear – Linear Quadratic Model 1
State Poverty Percentage	-0.8793*** (0.2305)	N/A	4.37
Constant Term	-0.3392	0.9888	
Adjusted R-Squared	0.6050	0.6197	
Number of Observations	1278	1278	
Number of Significant Variables	16	14	

### Linear Quadratic Form and Multicollinearity

The regression equation that yielded the most significant results was the Linear-Linear Quadratic form. To determine which quadratic variables to test I squared each of the continuous variables that I listed in my model and ran them in a linear regression. The significant quadratic variables were *percentage of contingent faculty*, *percentage admitted*, *student to faculty ratio*, and *per pupil expenditure*. I then ran different combinations of each of these squared variables with my original model. Even though each iteration produced significant results, no iteration produced more significant results than solely using the squared and original form of my main independent variable *percentage of contingent faculty*.

However, I have included two quadratic models in my analysis. The main reason for this is multicollinearity. In the first model I include specific demographic data from each state such as poverty percentage and percentage of single parents along with ethnic and racial breakdowns. In the second model I have included dummy variables for each state in the United States. Not surprisingly, there is near perfect multicollinearity between the state dummy variables and the

specific state demographic variables. In other words, the state dummy variables account for all the variation between the specific state variables and the explanatory variable. Each specific state variable moves in the same direction as its correlated state variable. Though each model produces useful results I believe the specific information detailed in the quadratic model without the state dummies yields more accurate data with respect to the relationship between contingent faculty and graduation rates.

Nevertheless, in order to ensure that multicollinearity is not affecting the error term in my model I have employed two other tests to check for it as well. Previously in Table 3, I produced a correlation matrix of the independent and control variables and showed that the correlation between each variable was far below the .80 threshold most commonly used as a barometer for this problem. Furthermore, I have included the results from a VIF test to demonstrate the low level of multicollinearity in my model. Statisticians note as a general rule that if a variable has a VIF greater than 5 and is not significant then it is probably correlated with another independent variable. As you can see from Table 4 each variable included in my chosen model is significant except for *state percent with a bachelor's degree*, and *state percent of single parents*. Multicollinearity is not an issue with respect to *state percent with a bachelor's degree* (VIF of 3.07) but was with respect to *state percent of single parents* (VIF of 5.64). However, after dropping each non-significant variable and re-running the regression neither variable became significant so I decided to leave them in given that their VIF's were relatively low and omitting them did little to change the overall regression results.

### **Heteroskedasticity**

Heteroskedasticity occurs in regression analysis when the variables included do not have constant variance. In other words, the larger the disparity between the size of the observations of



the variables in a sample, the larger the likelihood that the error term associated with them will have different variances and therefore be heteroskedastic (Stundemund, 2001). I did not anticipate heteroskedasticity to be a significant problem for this analysis given that each variable in my analysis is either in percentage, ratio, or per capita form. Nevertheless, I ran a Breusch-Pagan test to ensure that this was not the case. The Breusch-Pagan test shows whether the estimated variances of the standard errors are dependent on the independent variables. The resulting p-value was 0.140 indicating that there was no significant heteroskedasticity in my model.

### ***Conclusion and Implications***

In this final section of my thesis chapter I will further discuss the significant variables identified in my regression analysis, including their 90% confidence intervals, and the resulting sign of the coefficient versus the predicted sign. I will also discuss the R-squared value of my regression results. Finally, I will interpret and discuss the results of my regression analysis with respect to their implications.

### **Analysis of Significant Variables**

Table 5 below list the significant variables in this analysis along with their 90% confidence intervals.

**Table 4. Coefficients and Confidence Intervals – Significant Variables Only**

<b>Variable</b>	<b>Regression Results</b>	<b>90% Confidence Interval</b>	
Constant:	-0.3392		
Percentage of Contingent Faculty	0.2143** (0.0571)	0.1022 to	0.3264
Percent African-American	-0.2575*** (0.2140)	-0.2995 to	-0.2156
Percent American-Indian	-0.3327* (0.1785)	-0.6830 to	0.0176
Percent Asian	0.3189*** (0.0933)	0.1360 to	0.5019
Percent Latino	-0.2471*** (0.0524)	-0.3499 to	-0.1443
Percent Female	0.0846*** (0.0309)	0.0241 to	0.1452
Percent Receiving Financial Aid	-0.2019*** (0.0331)	-0.2669 to	-0.1367
Student to Faculty Ratio	0.1783*** (0.1188)	0.0511 to	0.3055
Per Pupil Expenditure	0.0005*** (0.0006)	0.0029 to	0.0053
Percent Admitted	-0.0949*** (0.0224)	-0.1388 to	-0.0511
Public Dummy	-0.1231*** (0.1094)	-0.1412 to	-0.1051
Doctoral Dummy	0.0648** (0.0118)	0.0416 to	0.0880
State Percent Asian	-0.3232* (0.1522)	-0.6218 to	-0.0246
State Percent Female	3.2533*** (0.9370)	1.4149 to	5.0918
State Poverty Percentage	-0.8793*** (0.2305)	-1.3315 to	-0.4271

### **Main Independent Variable: Percent of Contingent Faculty**

Surprisingly, and opposite to conventional wisdom, the sign of the coefficient for *percentage of contingent faculty* is positive, though the effect is small. A 1% increase in the percentage of contingent faculty at a university predicts a 0.21% *increase* in that school's graduation rate with 95% confidence. Although the effect is inelastic, this result counters recent research on this subject (Ehrenberg & Zhang, 2004; Jacoby, 2006). In addition, there are several other key differences between the findings reported in these two articles and my results which may have contributed to the differences. For example, Jacoby (2006) decided to only include community colleges in his sample, and Ehrenberg and Zhang (2004) used a combination of four, five, and six year graduation rates in their two panel regression analysis. One possible reason is that by hiring contingent faculty, universities are able to preserve their student to faculty ratio even in the face of budget cuts and this helps maintain their graduation rates. Contingent faculty members in this scenario end up substituting for tenure-track faculty and allowing universities to maintain their student-faculty ratios, among other things.

**University Demographic Makeup.** The results concerning the student body demographic makeup largely mirrored my expectations in general: as the percentage of minority students increases a school's graduation rate decreases. Specifically, a 1% increase in % African American, % American Indian, and % Latino causes a .26%, 33%, and a .25% reduction in graduation rates respectively. Also, a 1% increase in the percentage of Asian students increased graduation rates by .32%, and a 1% increase in the percentage of women at a university increased

its graduation rate by .08%. Additionally, the percentage of students who receive some form of financial aid also had a significant on graduation rates. A 1% increase in the number of students who receive financial assistance causes a .33% decrease in graduation rates. Each of these control variables was significant at the 99% level, with the exception of % American Indian, which is significant at the 90% level.

**Institutional Characteristics.** The institutional variables were also significant at the 99% level and the signs of their coefficients were as predicted. Following established theory and empirical study a 1% increase in per pupil expenditure led to a .0005% increase in graduation rates and a 1% increase in the ratio of students to faculty led to a .18% increase. As anticipated a 1% increase in percent admitted (a measure of school quality), led to a .09 reduction in the graduation rate. Public schools also had significantly lower graduation rates than private schools at the 99% level. Furthermore, doctoral universities had significantly higher graduation rates than institutions that granted only masters and baccalaureate degrees.

**State Variables.** The state variables produced mixed results with respect to my predictions. In the second quadratic model in which I included state dummy variables the coefficients of the previously stated significant variables did not significantly change and the state dummies were not significant. In the first and my preferred linear-quadratic model in which I included specific state variables the results were somewhat surprising. With respect to demographics, a 1% increase in the percentage of women in a state led to over a 3.25% increase in graduation rates at the 99% significance level. On the other hand, a 1% increase in a state's Asian population led to a .32% decrease in graduation rates significant at the 90% level. However, predictably a 1%

increase in a state's percentage of individuals living below the poverty line caused a .88% decrease in graduation rate.

### **R-Squared Value**

The importance of the R-squared value is often over-emphasized, however with respect to regression analysis, it provides some useful information with respect to my study. The adjusted R-squared value for the first linear-quadratic model, robust for heteroskedasticity, was .6050, meaning that 60.50% of the variation in the dependent variable, graduation rates, was explained by the independent variables. However, when I added the state dummies in the second linear-quadratic model the adjusted R-squared only rose to .6197, meaning 62% of the variance in the dependent variable is explained by the model. Given that I added 50 new variables I would have expected a larger increase in the adjusted R-squared. This result combined with the confusing, non-significant results from inclusion of the specific state dummy variables in the first model leads me to question the impact of state specific effects on graduation rates. The small increase resulting from the addition of the state dummies also implies that I have included many of the most relevant aggregate state-level variables in my model (e.g. state poverty percentage) before adding the state dummy variables, thus they do not add any explanatory power.

### **Interaction Terms**

To determine whether the effect on graduation rates of the main explanatory variable, percentage contingent faculty, varies by type of institution in my dataset I added interaction terms to the model for category of institution (classified by highest degree granted) and proportion contingent faculty. The interaction terms were not significant, indicating that there are not separate main effects for percentage contingent faculty and institutional type on graduation rates.

The coefficient for the interaction term (master's degree institutions and percent contingent faculty) was  $-.0170$  ( $p=.865$ , ns) and the coefficient for the interaction term (doctoral degree granting institution and percent contingent faculty) was  $-.1805$  ( $p=.151$ , ns). It should be noted that this interaction term is significant at the 85% confidence level which is close to the standard 90% confidence level or ( $p= .10$ ).

### **Implications**

The results of my analysis counter the findings from much of the previous literature on the subject of faculty composition and graduation rates by showing that an increase in contingent faculty in fact actually increases the graduation rate if only by .21%, with 99% confidence. Given that previous studies have relied on data collected before the most recent economic recession (Ehrenberg and Zhang, 2004) I am not surprised that my results are different. I believe that the increased hiring of contingent faculty over the past decade has allowed universities to merely maintain their graduation rates by preserving their student to faculty ratios in the face of staggering cuts to funding. Previous studies have shown that regular meaningful contact with instructors is a key factor in student persistence. My results suggest that contingent faculty, though somewhat marginalized in status, have played an important role in allowing universities to weather this economic storm and the impact of greatly reduced levels of public funding.

However, the practice of hiring contingent faculty, abandoning the tradition of tenure, and corporatizing higher education may have more serious implications that an analysis of graduation rates alone does not measure or cannot reflect. For instance, without tenure contingent faculty often renew their contracts at the end of each year and one of the factors that they are evaluated on is how many of their students passed their classes. Much like the standardized

testing problems in K-12 education, contingent faculty members are incentivized to pass students who may not have learned the material simply to preserve their jobs.

Second is the issue of academic freedom. Universities have traditionally been places where commonly held ideas and opinions can be challenged and difficult topics explored without the threat of societal censure. Contingent faculty, without the protection of tenure, may begin to edit the material they teach in order to not draw unwanted attention and possibly risk losing their contracts.

Third, hiring contingent faculty reflects a larger societal trend in which firms are taking advantage of the economic downturn and surplus labor to weaken workers' rights and avoid paying for costly benefits like health care. From a policy standpoint, the increase in hiring contingent workers, whether they are unpaid interns at an insurance company or part-time faculty at a state university, merely means that in the near future taxpayers instead of firms will have to shoulder the societal costs for healthcare and retirement.

## Chapter 4

### Context and Reality

Regression analysis is undoubtedly a useful quantitative tool for examining the relationship between faculty composition and graduation rates, however drawing conclusions and making policy recommendations based merely on statistical analysis often neglects to incorporate important aspects of political and economic reality. Thus, I sought to augment my statistical analysis by conducting a small number of interviews with higher education policy experts and stakeholders to inform the interpretation of my findings and to discuss possible implications for policy. In this chapter I will briefly describe the methodology of the interview process, introduce the interviewees, and identify some common themes as well as areas of conflict and agreement in their responses. In Chapter 5 I discuss the overall implications of my quantitative analysis and my interviews for policy.

#### *Interview Methodology*

Given that the interviews I conducted were intended to provide additional context and to enhance the quality of my quantitative analysis I sought to identify specific individuals who were highly qualified to discuss higher education policy as well as those who are currently active participants in influencing and implementing higher education funding decisions and policy. With the help of my advisor, Dr. Rob Wassmer, I was able to identify and interview two higher education policy experts: Dr. Steve Boilard, Director for the Center of California Studies at Sacramento State University, and Dr. Patricia Gumport, Vice Provost for Graduate Education and Director of the Stanford University Institute for Higher Education Research. Furthermore, in order to explore the political debates surrounding faculty composition, higher education funding,



and tenure in the California State University system, I conducted interviews with Dr. Kevin Wehr Associate Professor of Sociology at Sacramento State and the university representative for the California Faculty Association (CFA), as well as Karen Yelverton-Zamarripa, MPPA, who is the Assistant Vice Chancellor for Advocacy and State Relations at the CSU Chancellor's office in Sacramento, California. I provide further detail on these individuals and their areas of expertise in the following section of this chapter.

I developed a set of questions that focused on three main issues: (1) the importance and role of tenure in higher education, (2) the sustained trend of replacing tenured and tenure track faculty with contingent faculty, and (3) the importance of accountability in higher education and how it should be measured. In addition, I presented the results of my regression analysis to each interviewee and questioned them as to why increasing the percentage of contingent faculty at a college or university might increase its graduation rate. I have included in Appendices C and D a copy of the interview transcript and a copy of the disclosure and consent form required by the Sacramento State Public Policy and Administration Department Human Subjects Committee. Aside from the interview with Karen Yelverton-Zamarripa, which took place over the phone, each interview was conducted in person in an informal setting. The interviews lasted from thirty minutes to one hour.

### ***Interview Participants***

Before exploring the political debates surrounding faculty composition and higher education outcomes, I give brief biographical sketches of each of the experts I interviewed. In the following sections, I discuss the themes that emerged in their responses to my interview questions. The first two interviewees I describe are with Patricia Gumport and Steve Boilard.

Dr. Patricia J. Gumpport

Dr. Gumpport is a well-known sociologist of higher education who has focused her teaching and research on important changes in the academic landscape and organizational makeup of American higher education. Aside from publishing 60 peer reviewed articles and 6 books on different aspects of higher education, she also has served on the editorial boards of three leading higher education journals. She has also been on the Executive Committee of Stanford University's AAUP chapter and has consulted for state higher education systems on undergraduate education, academic planning, academic program reviews, inter-organizational collaboration, and public higher education system design in Arizona, California, Illinois, Missouri, New York, North Dakota, and Texas. She directed the Stanford Institute for Higher Education Research for many years and now serves as the Vice Provost for Graduate Education, a post she has held since 2007.

Dr. Steve Boilard

Dr. Boilard has extensive experience in government and higher education. He accepted the position of Director of the Sacramento State Center for California Studies, which administers the prestigious and award winning Capitol Fellows Program in September of 2012. Previously Dr. Boilard served 14 years at the California Legislative Analyst's Office as managing principal analyst and director of higher education. Dr. Boilard received his doctorate in political science from UC Santa Barbara and was an assistant professor at Western Kentucky University.

**Tenure**

Dr. Gumpport and Dr. Boilard have very different backgrounds and their opinions on higher education and higher education policy reflect these differences. Though each individual noted that tenure is a necessary institution within higher education their opinions of the benefits

versus the costs of higher education diverged. For instance, Dr. Gumpport noted that tenure is an essential part of higher education in that it allows faculty to take risks in their research, teaching methods, and subject material. She further stated that academic freedom is necessary for much more than merely allowing faculty to research controversial subject matter. She notes that the public role of the university is also to critique society and much like a free press a higher education system that is free from political pressure is necessary for a robust democracy.

Dr. Boilard also noted that tenure serves to insulate faculty from political pressure. However, he also stated that in this current day and age he does not believe there is a “huge amount of political pressure” on faculty. Furthermore, Dr. Boilard discussed some of the well-known drawbacks of tenure. Though he and Dr. Gumpport alluded to the so-called “dead wood” problem with tenure, meaning that there are faculty members who have tenure and are no longer productive, Dr. Boilard stressed the fact the tenure creates a lack of accountability for faculty. However, to solve this problem he did not suggest that tenure be scaled back or abolished instead he proposed that peer review in academia be strengthened. He noted that faculty are often the most informed as to their peers’ level of effort and productivity and as such would be the most qualified evaluators of an individual faculty member’s performance. It should be noted that many colleges and universities currently employ this method, as does the University of California system, for example. However a peer review process with real teeth in which tenure could be revoked for poor performance is still extremely rare.

### **Accountability**

Given the popularity of the recent movement to increase the accountability of institutions of higher education for student outcomes, I asked each professor if tracking the six-year graduation rate was a fair measure of institutional performance. Surprisingly, each expert agreed

that *currently* this is the best measure of institutional performance. However, each interviewee also proposed new theoretical measures of accountability that they said would be more accurate as well as provide more useful information to evaluators. Dr. Gumpert noted that graduation rates do not track long-term student outcomes. Though it is difficult to imagine how this would be achieved she suggested that tracking students for ten even twenty years after they leave college would provide invaluable information on what types of conditions are necessary for students to succeed, as a few states such as Florida do. However, she also made clear the point that this theoretical information should be used in a reflective sense as opposed to tying student outcomes to institutional accountability for outcomes later in life.

Dr. Boilard, on the other hand, stressed the need for better short-term performance measures. For instance, he noted that focusing solely on graduation rates might create perverse incentives in which faculty, particularly contingent faculty, lower their standards and decrease student workload in order to ensure that they pass enough students and secure favorable student evaluations. Furthermore, Dr. Boilard also stressed that colleges and universities that admit more students from underserved communities have to provide far more remedial education due to poor K through 12 education and thus need more time to prepare students for graduation. Consequently, he proposed that students be assessed during their first year at a college or university as well as during their last year so that the relative academic progress of a student could be measured. Dr. Boilard argues that this value-added approach would provide a better measure of the effectiveness of a higher education institution because you would be able to better distinguish the knowledge and skills that the student gained while at the school. However, much like Dr. Gumpert's proposed method of accountability, theory and practice are far apart. Given the vast number and diversity of higher education institutions as well as fields of study, developing a general standardized test that could be used to measure relative student educational

attainment (collegiate learning assessment system) used in some educational institutions, remains controversial (Arum & Roksa, 2010). At the individual institutional or division level this might be more reliable and feasible.

### **Shift in Faculty Composition**

There are many positive as well as negative aspects of the relatively recent shift in faculty composition from a larger proportion of tenure-track faculty to the current situation in which contingent faculty are the majority in many institutions of higher education. Both Dr. Gumport and Dr. Boilard agree that the genesis of this shift, however, stems from sustained cuts to funding in higher education. Faculty salaries constitute 80% to 90% of a typical U.S. college or university budget, and tenure largely prevents administration from making significant cuts to this part of their budget during economic downswings. Hiring contingent faculty increases the flexibility of higher education institutions allowing them to hire faculty when enrollments are up and fire them when enrollments and funding decline. Given the volatile nature of the U.S. economy over the past two decades the argument that contingent faculty provide administrative flexibility seems to have weight.

Both experts also agree that there are significant benefits to having contingent faculty as a portion of the faculty makeup at a college or university. In fact, each interviewee including Dr. Kevin Wehr and Karen Yelverton-Zamarripa seemed to agree that since contingent faculty were simply required to teach and were not expected to conduct research, advise students, or participate in university governance, the time they could devote to teaching students would lead to higher quality instruction. Each interviewee also emphatically stated that the presumption that a faculty member who was not on tenure track was a less skilled educator than tenure track faculty was patently false. Furthermore, both Dr. Gumport and Boilard both suggested that the

professional experience outside of academia that contingent faculty have is a significant positive in a number of academic disciplines such as healthcare, business, and government. In these fields contingent faculty often make instruction more relevant, given their experience outside of academia.

The negative aspects of increasing contingent faculty mentioned by Drs. Gumport and Boilard, however, seem to come about more from a lack of institutional support for this type of faculty member than from any deficiency in ability or commitment of the contingent faculty themselves. For instance, both experts noted that the largest negative impact of contingent faculty on student outcomes is their lack of integration into the local institution and consequently commitment to their institution. Established theory states that the more contact that students have with faculty members the greater their commitment to their school and thus the greater their chance at completing their degree. Contingent faculty who are often not given office space and are not required to advise students have little incentive to spend their time and energy working with students outside of class. Furthermore, as Dr. Gumport noted, if a contingent faculty member is, for example, teaching a large number of introductory classes and feels besieged or undervalued by his or her institution this feeling could be conveyed to students and could negatively affect student commitment and persistence.

Dr. Gumport also highlighted some possible institutional dangers to replacing tenure track with contingent faculty. First, she noted that department and institutional prestige is often related to the number of tenured faculty. She warned that if contingent faculty were hired in response to student demand and were not evenly distributed across academic fields it could lead to a perceived decline in prestige of the most popular disciplines. This stratification of departments could lead to serious consequences for a given institution with respect to funding and quality of applicants.

### ***Political Context***

Higher education policy like other types of public policy does not exist in a vacuum. Particularly with respect to public higher education, funding is dependent upon state budget appropriations and faculty composition and salaries are collectively bargained between faculty unions and administration. With this in mind, I interviewed Dr. Kevin Wehr who is the union representative for the Sacramento State chapter of the California Faculty Association, the faculty union representing CSU faculty. I was also able to interview Karen Yelverton-Zamarripa, MPPA, who is the Assistant Vice Chancellor for Advocacy and State Relations with the CSU Chancellor's office in order to provide a more complete understanding of the reasons behind this shift in faculty composition and to inform the political feasibility of possible policy recommendations derived from my quantitative analysis. Not surprisingly, both Kevin Wehr and Karen Yelverton-Zamarripa expressed divergent views surrounding the benefits and costs of tenure as well as the nature of accountability in higher education.

### **Tenure**

The views expressed by Wehr and Yelverton-Zamarripa regarding the positives and negatives of tenure for the most part mirrored the larger debate surrounding tenure. Nevertheless, their divergent views helped to frame the competing views of faculty composition in higher education and served to highlight a number of possible aspects of higher education ripe for reform. Dr. Wehr noted that the academic freedom provided by tenure not only allows faculty to challenge their students but also allows them to critique society as a whole but more specifically to critique their own institution within the shared governance model of higher education. Similar to Steve Boilard's expressed view, Dr. Wehr noted that contingent faculty have little incentive to

challenge their students. However, Dr. Wehr went a step further in making the point that since contingent faculty are not required to produce research, advise students, or participate in governance they are only evaluated based on the performance of their students and as such are thus “shackled to their student evaluations.”

Karen Yelverton-Zamarripa took a differing view on the institution of tenure. Though she stated that she believes tenure has a place in academia she believes that it is outdated. Also similar to Dr. Boilard’s point of view, she stated that “we aren’t living in the 18<sup>th</sup> century anymore” making the point that she believes that political pressure being exerted on academics is a rare occurrence in modern society. Furthermore, Ms. Yelverton-Zamarripa stated she believes the institution of tenure has been co-opted by the collective bargaining process giving faculty too much negotiating power and allowing underperforming faculty to entrench themselves.

### **Shift in Faculty Composition**

Interestingly, both Wehr’s and Yelverton-Zamarripa’s views regarding the reason behind the shift from tenured faculty to contingent faculty were remarkably similar. Each interviewee stated that the shift is most likely a conscious attempt at implementing a more corporatized model allowing the chancellor’s office more freedom to hire and fire faculty based on performance and available funding. It should be noted that though Ms. Yelverton-Zamarripa stated that tenure has made it nearly impossible for her office to “enact real change” and that they would like more flexibility to hire and fire faculty, she is only speculating as to whether or not the chancellor’s office is shifting faculty composition to increase managerial flexibility. Nevertheless, the agreement surrounding the motivation behind this shift runs counter to the opinions of Dr. Gumport and Dr. Boilard who assumed that this was an unintended consequence of funding



reductions and not a planned policy shift. Dr. Wehr offered further evidence to support his assertion by pointing out that if the hiring of contingent faculty was merely a response to cyclical funding shortages then the percentage of contingent faculty would mirror this trend as opposed to the observed steady increase (see Figure 3).

Nevertheless, Karen Yelverton-Zamarripa also noted that contingent faculty provide huge value to the CSU in that their sole focus is teaching. She pointed out that the CSU charter is based on teaching and access not research and that teaching should be the main focus of CSU faculty. Furthermore, she rejected the argument that contingent faculty have a perverse incentive to reduce the difficulty of their courses as cynical, and stated that the fact that contingent faculty now teach the majority of remedial classes at the CSU is beneficial to students because contingent faculty have more time to spend teaching the students who need the most help.

### **Accountability**

Accountability is a politically charged topic in higher education and the debate over accountability is most contentious between faculty unions and university administration. As such, it is surprising to note that both Dr. Wehr and Ms. Yelverton-Zamarripa tended to agree that the six-year graduation rate is a fair assessment of institutional performance. However, Dr. Wehr stated that any discussion of accountability in higher education tends to focus on finding ways to make faculty more accountable to the administration and largely ignores student accountability as well as the administration's accountability to the state legislature. He indicated in our interview that he is accountable to his students as well as his colleagues and distrusts the Chancellor's Office when they mention accountability. In his opinion "increasing accountability" has less to do with student outcomes and is in fact an ideological argument for transforming higher education administration into a more corporatized, managerial model.

Though Karen Yelverton-Zamarripa did not dispute the view that the Chancellor's Office would prefer a more corporatized model she did note that without the flexibility to add and remove faculty she was largely unable to make real changes to benefit students at the CSU. Since faculty salaries constitute such a large portion of the CSU budget and are protected through a collective bargaining agreement, during economic downturns the Chancellor must often pass the majority of funding cuts on to students in the form of decreased services and higher tuition as opposed to spreading those cuts across the entire CSU budget. In her opinion the California Faculty Association has become so consumed with protecting faculty job security in this time of great economic uncertainty that they seem to have forgotten that their first priority should be producing well-educated students in a timely fashion.

All four of these experts agree that the issues surrounding the increased use of contingent faculty as a means to cope with budgetary constraints needs further examination, particularly greater investigation of the pros and cons of such a sweeping change over time in faculty composition and its effects on the quality of education being delivered as well as on the persistence of students and the completion of their degrees in a reasonable time frame. In the next chapter I focus more specifically on the range of policy options that might be considered given my quantitative results and the insights I was able to glean from in-depth interviews with those who are directly involved in higher education policy-making either as specialists in the field of higher education or as those deeply involved in administration or as tenure-track faculty.

## Chapter 5

### Policy Recommendations

The results of my quantitative analysis coupled with the insights gleaned from interviews with higher education policy experts has enabled me to make a set of specific policy recommendations regarding faculty composition and funding which I detail in this chapter. However, after further reflection on the results of my analysis I believe it is also necessary to begin a larger discussion on the role and importance of higher education in a modern democratic society. This chapter first lays out three specific policy recommendations with reference to the CSU system, state funding for higher education in California, and the federal government. Second, I discuss the current state of higher education funding in California, the false dichotomies often used to justify funding cuts, and why increased investment in higher education is essential to the future of the state. Third, I discuss the role of the university in modern society, its importance to democracy, and the dangers of applying business models such as that reflected in the “new managerialism” to the management of institutions of higher education. Finally, I will discuss some of the limitations of this analysis and suggest possibilities for future research

The results of my quantitative analysis indicate that at the aggregate level a 1% increase in the percent contingent faculty increases the six-year graduation rate of a given U.S, four- year college or university by .21%. This finding stands in contrast to predictions that the general increase in the use of non-tenure-track faculty would have more negative consequences for undergraduate education and, more specifically, for student persistence. The underlying assumptions, while not fully articulated in much of the research on this subject, seem to focus on lower commitment of these faculty and perhaps lower quality instruction given that contingent faculty often have to piece together part-time jobs at different institutions and have less time for

professional development and advising students. While my quantitative results cannot address these underlying assumptions or the nature of the actual causal connections between percent contingent faculty and graduation rates, they do suggest that such concerns may be overdrawn.

The comments from the experts I interviewed provide some additional insights into the findings I obtained and also suggest other related issues that should be examined more closely in future research on this topic. It is clearly a topic that those I interviewed had a great deal to say about. For example, each of the interviewees was not particularly surprised that a higher percentage of contingent faculty could lead to higher graduation rates. Given that contingent faculty's sole responsibility is teaching, they noted that the quality of education at colleges and universities with large percentages of contingent faculty could in fact be better than those with more tenure track faculty. Furthermore, each expert sought to dispel the notion that non-tenure track faculty are less capable teachers than their tenure-track counterparts, noting that achieving tenure often has less to do with a faculty member's teaching ability and more to do with the amount and quality of the research they produce.

### ***Mission of the Institution***

The intended mission of a college or university also must be considered when examining the relationship between contingent faculty and graduation rate. For example, in California the UC and CSU systems have distinctly different missions. The California Master Plan for Higher Education developed in 1960 by the State Legislature designates UC as the primary state-supported academic research institution. It also gives UC exclusive jurisdiction in public higher education for doctoral degrees (with the exception that CSU can award joint doctorates) and for instruction in law, medicine, dentistry and veterinary medicine. The Master Plan also established an admissions principle of universal access and choice, assigning UC to select its freshmen

students from the top one-eighth of the high school graduating class and CSU from the top one-third. Essentially, the primary mission of the UC system is to produce research while the primary mission of the CSU system is to increase access to college and produce college graduates. This is an important distinction to make particularly when discussing faculty composition in the aggregate. Given the difference in the mission of the two higher education in California systems it appears evident that changing faculty composition to include more contingent faculty matches up with the mission of the CSU system far more than that of the UC system, and my analysis bears this out. Though I included dummy variables for degree granting status in my regression model I sought to further understand the relationship that degree granting status had with the effects of contingent faculty on graduation rate. First, I split off the doctoral granting, research oriented schools and ran the regression. Though the control variables were still highly significant the effect of percentage of contingent faculty on graduation rate at these schools was insignificant. Second, I ran the regression on the remaining schools which granted only masters and baccalaureate degrees. These results largely mirrored the results I reported in Chapter 3 with contingent faculty having a significant, positive affect on graduation rate at the 99% level. These results suggest that the benefits of increasing the percentage of contingent faculty will largely be realized by schools whose mission stresses teaching over research.

Interestingly, in my interviews two of the respondents, Kevin Wehr and Karen Yelverton-Zamarripa mentioned a resolution that was meant to address faculty composition at the CSU system a little over a decade ago. This resolution was passed at a time when the economy was booming in California and those in the legislature were apparently concerned about increasing the quality of education at the CSU system. The legislature assumed that the link between hiring contingent faculty and educational quality was negative -- in part because contingent faculty did less advising and were less available for administrative work thus increasing the burden of

fulfilling these obligations on the tenure-track faculty and thereby decreasing the amount of time they had to devote to instruction. The bill, Assembly Concurrent Resolution 73, contained the following resolutions:

*Resolved by the Assembly of the State of California, the Senate thereof concurring, That the Legislature of the State of California urges the Trustees of the California State University to study its faculty hiring practices over the past decade in order to effectuate improvements in those practices; and be it further*

*Resolved, That the Legislature urges the Trustees of the California State University, the Academic Senate of the California State University, and the California Faculty Association to jointly develop a plan that will accomplish all of the following:*

*(a) Raise the percentage of tenured and tenure-track faculty to at least 75 percent, with the unit of measurement to be developed jointly by the entities described in this resolved clause.*

*(b) Provide that no lecturers currently employed by the university will lose their jobs as a result of implementing the plan.*

*(c) Provide that qualified lecturers will be seriously considered for tenure-track positions.*

At the time that the state legislature passed this bill, the percentage of full time, tenured and tenure track faculty in the CSU system was 63%. According to the Profile of CSU Employees (2011) report for the fall of 2011, of the 21,910 faculty members employed in the CSU system, 10,581 are part-time, non-tenure track faculty. In percent terms that means that as of 2011 only 52% of the faculty at the CSU are now full-time tenured or tenure track faculty, constituting an 11% drop in the ranks of tenured and tenure-track faculty since the state legislature voted to recommend that the CSU system increase its percentage of tenure and tenure-track faculty to 75%. In fact, a joint report addressing ACR 73 written in 2002 by Jacquelyn Kegley, Chair of the Academic Senate for the CSU, Susan Meisenhelder, President of the California Faculty Association, and David S. Spence Executive Vice Chancellor and Chief Academic Officer of the CSU stated:

*Lecturers play an important role in the education of CSU students. However, lecturer faculty members generally do not serve as academic advisors and generally do not participate on university committees. Thus as the proportion of the permanent*

*(tenured/tenure-track) faculty declines, the weight of these non-teaching duties falls upon fewer permanent faculty with negative implications for educational quality.*

In order to achieve this ambitious goal the CSU developed a set of policy recommendations which they presented in the report noted above. They were as follows:

1. *A ratio of 75 percent tenured and tenure-track faculty to 25 percent lecturer faculty, measured in terms of Full-Time Equivalent Faculty (FTEF) can be achieved incrementally over an eight-year period of time.*
2. *Achieving this goal is the joint responsibility of the CSU administration, the CSU faculty, and the state.*
3. *To achieve this goal, the CSU must conduct between 1,800 and 2,000 annual searches for new tenure-track faculty.*
4. *To insure that these searches yield new hires from a national hiring pool, at the current CSU success rate of 75 percent, the state must provide expanded funding for recruitment and hiring. The CSU must broaden its success at the top of the pool, not deepen its penetration into the middle of the pool if it is to maintain educational quality.*
5. *To attract and retain the best faculty, the state must provide compensation funding for new positions at least equivalent to the average of current CSU employment offers. These new positions are necessary to achieve the goal of 75 percent tenured and tenure-track faculty without jeopardizing the employment status of current lecturers.*
6. *Annual funding requirements for this plan range from \$4.8M to \$35.6M.*

\*Source: (Kegley, Meisenhelder, and Spence. *Response to ACR 73(Strom-Martin)*, 2002)

However, between 2002 and 2010 the six-year graduation rate for the CSU system actually increased from 48.9% to 54.9% according to IPEDS. The CSU system had a major focus on increasing graduation rates during this time frame and, like many institutions of higher education, benefitted from recession increased selectivity. It must also be recognized that the massive recession of 2008 drastically reduced the state general fund and subsequently state appropriations for higher education. Since 2008 the CSU budget has been cut by \$175 million dollars declining from \$4.158 billion in 2008 to \$3.983 billion in 2012. The increase in graduation rates over this time period coupled with the increase in contingent faculty seems to support the results of my quantitative analysis and counter the assumptions made by the legislature. I believe that the

institutional flexibility provided by shifting faculty composition to contain a larger portion of contingent faculty allowed the CSU system to adapt more quickly to funding cuts and shift its labor force to meet student demand while still providing quality instruction.

Though I applaud the state legislature for attempting to improve the quality of the CSU system, I believe there are two major reasons why it has yet to be implemented. First, there is a lack of empirical evidence to support the assumption that contingent faculty lower the quality of education. Though it is true that increasing the number of contingent faculty will increase the amount of time that tenure track faculty spend advising students and participating in university governance and reduce the time that they spend teaching students, it is false to assume that quality of instruction provided by contingent faculty is less effective than the instruction provided by tenured faculty. In fact, according the experts I interviewed, given that contingent faculty can spend more time focusing on teaching it seems plausible that the quality of instruction may improve. Second, given the need for flexibility in a down economy, mandating that each school in the CSU system maintain faculty composition of 75% tenure-track and 25% non-tenure track seems arbitrary. Schools within the CSU system should be given the flexibility to determine their own faculty composition that reflects that school's academic strengths and weaknesses, priorities, and funding.

### ***Institutional Support for Contingent Faculty***

Given the increasing importance of contingent faculty to the CSU system it must do a better job in providing support for these faculty, as several of the experts I interviewed suggested. Dr. Gumport noted that if contingent faculty feel overworked, underappreciated, and lack the necessary resources to do their job effectively they could feel besieged and pass this feeling on to students. She further noted that the role model impact of faculty should not be underestimated.



Faculty members who are engaged and energetic about their subject matter have significantly positive impact on their students' motivation to complete their coursework and degrees. In order to address this issue I suggest a stratified approach to faculty composition given the level of funding. Full time, non-tenure track faculty who have been at a given institution for an extended period of time (seven years or so) and spend the majority of their time teaching at that institution should be given office space, included in faculty meetings, and be provided with opportunities for professional development. This would increase institutional stability as these faculty would be able to provide leadership and mentor younger contingent faculty. Part-time, non-tenure track faculty and lecturers provide institutional flexibility and are necessary to the CSU system, however, they should be given three to five year contracts in order to provide them a sense employment stability and to help better integrate them with their institution. By clarifying the hiring process and providing more structure the CSU system would be better able to capture the benefits provided by contingent faculty while also minimizing the costs.

### ***Higher Education Funding in California***

According to the State Controller's Office the 2012-13 California General Fund appropriations for higher education were \$9.43 billion and represent 10.33% of the state general fund. In comparison, real state appropriations for the Department of Corrections in the budget for 2012-2013 were \$8.89 billion representing 9.73% of the general fund, a difference of only 0.6% (State Controller's Office, 2012). During my interview with Ms. Yelverton-Zamarripa, who is an advocate for the CSU at the California State Legislature, she mentioned a quote by former State Senator and current chair of the California Democratic Party, John Burton, that she said typified the attitudes of state legislators toward the UC and CSU system. He stated to her, "If my choice is between taking food away from a child or the elderly and raising fees in the higher education system, I'll feed that child every time." This is, in fact, a prime example of the false dichotomies

often used by state legislators to justify cutting higher education funding. These choices are constructed as zero-sum and, in some cases they are. But, the choice he proposes could just as well be between incarcerating more teenagers and raising fees on higher education, or between funding a new highway and raising higher education fees. Legislators in California tend to raise fees on higher education primarily because it avoids a political battle and allows members of both parties to cut costs and raise revenue without cutting social services (a position typically supported by democrats) or raising taxes (a position frequently supported by republicans).

Some might argue, as was mentioned by Dr. Steve Boilard, that higher education has a greater operational elasticity than other state funded enterprises and is thus better able to handle budget cuts than other state run programs. For instance, Dr. Boilard mentioned that there are universities that operate on a high cost model and those that operate on a low cost model and each seems to be able to serve their students, on his account. This may very well be true at private universities, which, according to my analysis, have significantly higher graduation rates than their public counterparts. However, the vast majority of U.S college students attend public universities. According to the National Center for Education Statistics (NCES) 8.1 million students are expected to attend public four-years institutions in 2012 versus 5.6 million who will attend private four-year institutions. Given that faculty salaries account for such a large part of public school budgets the things that are most likely to be cut when facing budget reductions are student services such as writing centers, English as a second language programs, and computer labs which have been shown to increase graduation rates (Ehrenberg and Webber, 2010). Furthermore, my analysis showed that an increase in per pupil expenditure led to a small but significant increase in graduation rates. This seems to support Dr. Wehr's assertion that "the low cost model produces college students not college graduates." Though there should be a debate as to how much of a funding increase would be effective in helping produce more college graduates,

it is hard to dispute the fact that current funding levels are too low. As Hans Johnson, Associate Director of Research at the Public Policy Institute of California, noted in the *Riverside Press-Enterprise* on May 10, 2009, by 2025 California will have a shortage of one million college graduates and without significant investment in higher education this gap will only grow with negative consequences for the future of the state economy (Johnson, 2009).

### ***Federal Funding for Higher Education***

The Pew Research Center produced a report in May of 2011 entitled “Is College Worth It?” In this study they find that, according to the 2010 census, college graduates on average make \$20,000 dollars a year more than high school graduates (Taylor et. al, 2011). Furthermore, the report noted that the majority of young adults age 18 to 34 in the U.S do not attend college and 48% of those who are not attending college or have a bachelor’s degree state that they cannot afford to go to college. President Barack Obama, Chairman of the Federal Reserve Ben Bernanke, Governor Jerry Brown, and a myriad of local, state, and federal politicians have argued that the future of the U.S economy critically depends on funding and supporting a robust higher education program.

In his 2012 State of the Union Address President Obama stated, “Higher education cannot be a luxury,” and further warned colleges and universities “If you can't stop tuition from going up, the funding you get from taxpayers will go down” (Obama, 2012). The funding provided to higher education, however, from the federal government accounts for only 0.6% of the total federal budget (U.S Office of Management and Budget, 2011). Furthermore, the vast majority of this funding takes the form of federal loans and grants to help increase *access* to higher education. Though these programs have been undoubtedly successful in increasing access to higher education many students do not finish their degrees and are thus saddled with massive

loans, no degrees, and no possibility of declaring bankruptcy. I would encourage the federal government to consider providing a tax credit to individuals who *complete* college. Even though there may be some equity challenges with this proposal, I think that incentivizing completing college as opposed to merely attending college would help to increase the number of college graduates produced and reduce taxpayer burdens. An alternative would be to tie federal financial to student demonstration of steps toward degree completion. The state and federal governments should also figure out ways to support students in ways that do not increase their debt burden. Though these policy recommendations may significantly help the CSU accomplish its mission of producing more college graduates, without increased state and federal funding in the future this mission may become increasingly difficult.

### ***The Role of Higher Education in Modern Society***

Any discussion of increased funding for government services either for higher education or for improvements to infrastructure must be accompanied by a discussion of accountability. Evidence based practices and the application of the scientific method to organizational management has undoubtedly helped to increase the efficiency and effectiveness of business and government alike. However, as evidence based practices or the “new managerialism” has been applied to higher education public investment in higher education has come to be justified largely in terms of economic growth and preparing students for the workforce. This is one reason why contingent faculty have become so prevalent in higher education and why online education is increasing in popularity. If education is defined as merely the transfer of information from one subject to another and the role of faculty is merely to impart the knowledge necessary to produce a skilled workforce then the traditional form of the university is outdated and obsolete. While this outcomes based approach to measuring the value of higher education can be helpful it

undervalues the social benefits of higher education. Higher education exists not only to impart knowledge but to teach students to think critically not just about their chosen field of study but also their culture, history, government, and society at large. Higher education should exist to teach students to question authority and the nature of reality, as well as, teach them where to find the information they lack and how to evaluate and organize the information they already have. A democracy can only function if its citizens are well informed and have the ability to think critically. Higher education serves to accomplish both of these goals and to judge it simply in market-based terms is to misjudge its benefits.

### ***Limitations and Opportunities for Future Research***

Policymakers, practitioners and other researchers, however, should be cautious in generalizing from these findings. First, using the six-year graduation rate as the dependent variable is problematic for a number of reasons. Students who transfer are not tracked in the graduation rate and in fact count against the school that they first attended even though they may graduate at another institution. Currently there is no mechanism in place to track students once they drop out or transfer and graduation rates only account for first-time, full-time students. As the methods for delivering higher education become more diverse it will become increasingly important to be able to track students as they complete high school and begin their advanced degrees to get a better measure of effectiveness. Second, my quantitative analysis only examines data from 2010. In future research, by examining data over a period of years, perhaps a decade, it would be easier to establish the causal relationships between the factors I have included in my model as opposed to a correlational analysis of the links between faculty composition and graduation rates. Third, a more nuanced approach to the study of this relationship would also begin to unpack the term contingent faculty. The term contingent faculty as currently measured

lumps together an amalgam of different types of faculty, adjuncts, and lecturers, often with different types of credentials. For instance, it might be necessary in future research to separate full-time contract faculty from part-time faculty, or to look specifically at the relationship between the proportion of lecturers and graduation rates. Finally, although I tried to control for as many factors that affect graduation rates as possible there are always limits to the sample and to the available data. A full investigation of this set of issues would entail a longitudinal database with a wide range of outcome measures for both students and faculty, as well as better measures of faculty composition over time. Given the importance of higher education for the society and for those who receive it in terms of their own success in life, research on this topic should be high on the agenda of those involved with assessing the impact of our system of higher education. If, in the near future, we need to do more with less at both the state and federal levels with respect to the availability of funding, we will want access to information that only first-rate research on these topics will provide.

**Appendix A: Table 3 Variable Correlation Matrix**

	Percent Contingent Faculty	Percent African- American	Percent American- Indian	Percent Asian	Percent Hispanic	Percent Female
Percent Contingent Faculty	1.00					
Percent African- American	0.1966	1.00				
Percent American- Indian	0.0101	-0.0915	1.00			
Percent Asian	-0.1145	-0.1516	-0.0365	1.00		
Percent Hispanic	-0.0307	-0.0774	-0.0177	0.2588	1.00	
Percent Female	0.1263	0.2098	-0.0131	-0.1152	0.0677	1.00
Percent Receiving Financial Aid	0.1360	0.1657	-0.0184	-0.3739	-0.1266	0.1753
Student to Faculty Ratio	0.0498	0.0679	0.0678	-0.0306	0.1581	-0.0667
Per Pupil Expenditure	-0.1362	-0.1290	-0.0384	0.3480	-0.0315	-0.2185
Percent Admitted	0.0423	-0.1803	0.1051	-0.2644	-0.0445	0.0709
Public/Private Dummy	0.0410	0.0799	0.1491	0.0460	0.0750	-0.1395
State Percent African American	0.1832	0.4775	-0.1467	-0.1639	-0.1251	0.1070
State Percent Hispanic	-0.0506	-0.0941	0.0116	0.4039	0.6370	-0.0279
State Percent Asian	-0.0320	-0.1238	-0.0363	0.6944	0.3209	0.0300
State Percent American Indian	-0.0021	-0.1511	-0.0708	0.2210	0.1121	0.0431
State Percent with Bachelors Degree	-0.0806	-0.1511	-0.0708	0.2210	0.1121	0.0431
State Poverty Percentage	0.1524	0.2849	0.0466	-0.1243	0.0684	0.0100
State Percent Single Parents	0.1174	0.3760	-0.0540	-0.1306	-0.0007	0.0714
	Percent Receiving Financial Aid	Student to Faculty Ratio	Per Pupil Expenditure	Percent Admitted	Public/P rivate Dummy	State Percent African American
Percent Receiving Financial Aid	1.00					
Student to Faculty Ratio	-0.0915	1.00				

Per Pupil Expenditure	-0.3832	-0.4236	1.00			
Percent Admitted Public/Private Dummy	0.3032	0.2387	-0.4807	1.00		
State Percent African American	0.3171	0.6142	0.1557	0.1313	1.00	
State Percent Hispanic	0.0858	-0.0327	-0.0103	-0.1871	0.0344	1.00
State Percent Asian	-0.2093	0.1112	0.0732	-0.1264	0.0333	-0.1659
State Percent American Indian	-0.2483	-0.0757	-0.0341	0.1454	0.1508	-0.2252
State Percent with Bachelors Degree	-0.0021	-0.0929	0.6303	-0.0206	0.0465	-0.0405
State Poverty Percentage	-0.0806	-0.1511	-0.0708	0.2210	0.1121	0.0431
State Percent Single Parents	0.1524	0.2849	0.0466	-0.1243	0.0684	0.0100
	0.1174	0.3760	-0.540	-0.1306	-0.0007	0.0714
	State Percent Hispanic	State Percent Asian	State Percent American Indian	State Percent with Bachelors Degree	State Poverty Percentage	State Percent Single Parents
State Percent Hispanic	1.00					
State Percent Asian		1.00				
State Percent American Indian	-0.0241	0.0757	1.00			
State Percent with Bachelors Degree	-0.2327	-0.1715	0.1673	1.00		
State Poverty Percentage	0.1370	0.1409	-0.0908	-0.0257	1.00	
State Percent Single Parents	0.0994	0.0078	-0.0098	-0.1360	0.0175	1.00



**Appendix B: Table of Literature and Statistical Methods**

Publication Date, Author	Statistical Method	Unit of Analysis, Data Set	Research Focus	Major Conclusions	Statistical Significance and Magnitude of Influence
Bettinger, E., & Long, B. T. (2004)	OLS, Course Fixed Effects, Value Added	First time Freshman Ohio Universities N= 25,762	Comparing student outcomes to instructor characteristics	Adjunct and graduate students are negatively correlated with student interest in a course of study	At 5% significance level, adjunct faculty reduce future enrollment in a given subject by .10 credit hours
Eagan, K. M., & Jaeger, A. J. (2008)	Regression Analysis, Logic Regression	First time freshman 4 public universities, N= 30,730	Relationship between contingent faculty exposure and student persistence to second year	Student persistence is negatively correlated with exposure to part-time, non-tenure faculty	At 5% significance level a one percent increase in part-time faculty exposure led to a 20% reduction in student persistence to second year
Ehrenberg, R. G., & Zhang, L. (2004)	Regression, Time Series T-test	All 4 and 2 year American Colleges 1986-2000 N=1159	Relationship between percent of contingent faculty and graduation rate	Graduation rates are negatively correlated with percentage of contingent faculty	No significance level specified, A 10% increase in percentage of non-tenure, part-time faculty is associated with a 3% reduction in graduation rate
Jacoby, D. (2006)	Regression, OLS	All American 2 year colleges N= 935 in 18 States	Relationship between percent of contingent faculty and graduation rate	Graduation rates are negatively correlated with percentage of contingent faculty	At 99.9% significance level a 1% increase in percentage of contingent faculty is associated with a 15% reduction in graduation rate
Kalleberg, A., & Reskin, B., & Hudson, K. (2000)	Binomial Regression Analysis	1995 Current Population Survey	Relationship between contingent employment and exposure to "bad jobs" characteristics	Contingent jobs are positively correlated with "bad job" characteristics	99% confidence that women and men who hold a contingent job experience 13% and 18%, respectively, more "bad" job characteristics, controlling for all other variables in their model
Monks, J. (2004)	OLS, Natural log of median salaries	NSOPF Survey (1999) N= 18,043	Earnings of contingent faculty compared to tenure track faculty	Contingent faculty make significantly less than tenure track faculty	At the 1% significance level non-tenure track faculty earn consistently 80% less across institution type

Publication Date, Author	Statistical Method	Unit of Analysis, Data Set	Research Focus	Major Conclusions	Statistical Significance and Magnitude of Influence
Umbach, P.D. (2008).	Hierarchical Linear Modeling	HERI Faculty Survey (2001) N= 616	Effect of proportion of part-time faculty on instruction and commitment	Contingent faculty exhibit lower levels of commitment to their institutions	At 5% significance level contingent faculty are 68% less likely to participate in a teaching workshop

## Appendix C: Sample Interviewee Consent Form

### Consent to Participate in Research

Introduction: You are being asked to participate in research conducted by Kevin Cook as a thesis requirement for the Master of Public Policy and Administration program at California State University, Sacramento.

Purpose of the research: I am completing my master's thesis in Public Policy and Administration in December at Sacramento State University my research project investigates the effects that increasing the percentage of contingent faculty has on a U.S college or university's six year graduation rate. In order to make informed policy recommendations based on these results I am interviewing experts on the subject as well as stakeholders.

Funding for the research: This research will be funded in its entirety by the researcher.

Research Procedures: I am conducting brief interviews asking 5 questions about faculty composition, tenure policies, and graduation rates.

Compensation: You will not receive compensation for participating in this study.

Benefits: My thesis findings could inform higher education policy. I am happy to share my results with you

Risks Involved: The research will be published as a thesis and may be publicly accessible in digital or print formats. You may decline to answer any question if you wish. Your participation in the interview is entirely voluntary. Please refer to the section "Confidentiality" for information about risks associated with making public statements.

Confidentiality: Everything you say in the interview will remain confidential unless you grant explicit permission to be identified by name and/or organization in the final report. Please make your request known at the start of the interview and check the appropriate box below. You may change your request at any time during or after the interview.

"I wish to be identified by name in the written research report."

"I request that my name not be disclosed, but consent to being identified as a representative of the organization I represent. I consent to particular quotes from the interview to be attributed to my organization. I acknowledge that given the small number of people being interviewed, it may be possible for readers of the thesis to infer my identity even if I am not identified by name."

"I request that nothing I say be publicly attributed to me, my employer, or clients I represent. However, I acknowledge that given the small number of people being interviewed, it may be possible for readers of the thesis to infer my identity even if I am not identified by name."

Conflicts of Interest: None.

Contact Information: If you have any questions about this research, you may contact me at [\(xxx\)](#)

xxx-xxxx or email me at [kevinwarrencook@gmail.com](mailto:kevinwarrencook@gmail.com), or you may contact my primary academic advisors in the Department of Public Policy and Administration at

California State University, Sacramento.

Dr. Rob Wassmer, Chair Department of Public Policy and Administration

[rwassme@csus.edu](mailto:rwassme@csus.edu)

Your participation in this research is entirely voluntary and you may withdraw from participation at any time. Your signature below indicates that you have read this consent form and agree to participate in the research.

\_\_\_\_\_ Signature of  
Participant Date

\_\_\_\_\_ Name of Participant (printed)

## Appendix D: Sample Interview Script

I am completing my master's thesis in Public Policy and Administration in December. It uses the method of multiple regression analysis to determine the effect that increasing the percentage of contingent faculty has on a U.S college or university's six year graduation rate. Later we will talk about my findings, but first I want to get your professional opinion as an (expert, analyst, stakeholder, etc.) on some related topics.

Specifically, I would like to talk with you about some trends in higher education and what seems to be a change in the way colleges and universities are staffing their instructional programs.

On tenure:

First, I would like to focus on what seems to be somewhat controversial - the tenure system at institutions of higher education.

1. What is your view of tenure? What is the desired purpose of granting it? Is this purpose still necessary? Are there downsides to granting someone tenure? How does the magnitude of the positives of tenure compare to the negatives?

Many institutions are hiring contingent or part-time faculty instead of hiring into the tenure line. On the effects of hiring more contingent faculty:

2. Why do you think this is happening? What do you think are the negative or positive effects of this substitution of part-time for full-time labor?

3. What, if any, effects do you think it has (or will have) on things like student learning, retention, and graduation rates?

4. What do you think are some of the unintended consequences of replacing full-time tenure-track or tenured faculty with part-time non-tenure track faculty?

On accountability:

There is a movement to increase the accountability of institutions of higher education for student outcomes.

5. What things do you think should be tracked as measures of overall institutional accountability for student outcomes in higher education? Does tracking 6-year graduation rates, for example, and/or first-year persistence rates make sense? What are the pros and cons of using such measures?

On the quantitative results of my thesis:

6. In my research I have found that a one percentage point increase in percentage of contingent faculty at a college or university (holding other explanatory factors constant that are also expected to change 6 year completion rates) results in a .10% increase in 6 year graduation rate. Is this the direction and magnitude of the effect you would have anticipated? Why or Why not?

Here are the other factors that I controlled for to try and get an accurate accounting of this effect: Student characteristics including student age, ethnicity, gender, and percentage of students

receiving financial aid. I also included control variables accounting for institutional characteristics such as per-pupil expenditure, degree granting status, whether it is public or private, student to faculty ratio, and percent of applicants admitted. Finally to account for geographic variation I added variables controlling for state ethnicity, poverty percentage, percentage of single parent households, and state percentage of individuals with a bachelors degree. Can you think of something I may have left out?

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**References:**

- Alexander, F. K. (2000). The changing face of accountability: Monitoring and assessing institutional performance in higher education. *Journal of Higher Education*, 411-431.
- Ang, S., & Slaughter, S. A. (2001). Work outcomes and job design for contract versus permanent information systems professionals on software development teams. *mis Quarterly*, 25(3), 321-350.
- Arum, R. & Roksa, J. (2010). *Academically adrift: Limited learning on college campuses*. University of Chicago Press.
- Benjamin, E. (2002). How over reliance upon contingent appointments diminishes faculty involvement in student learning. *Peer Review*, 5(1), pp. 4–10.
- Bettinger, E., & Long, B. T. (2004). Do College Instructors Matter? The Effects of Adjuncts and Graduate Assistants on Students' Interests and Success. *National Bureau of Economic Research, working paper 10370*. Retrieved from <http://www.nber.org/papers/w10370>
- Bland, C. J., Center, B. A., Finstad, D. A., Risbey, K. R., & Staples, J. (2006). The impact of appointment type on the productivity and commitment of full-time faculty in research and doctoral institutions. *The Journal of Higher Education*, 77(1), 89-123.
- Bowen, W., & Chingos, M., & McPherson, M. (2009). *Crossing the Finish Line: Completing College at America's Public Universities*. Princeton, NJ: The Princeton University Press.
- Budget of the United States Government Fiscal Year 2012, (2011). *U.S Office of Management and Budget* (February)

California Department of Finance. (2012). General Fund Program Distribution. (July, 2012) Retrieved from: [http://www.sco.ca.gov/state\\_finances\\_101\\_state\\_spending.html](http://www.sco.ca.gov/state_finances_101_state_spending.html)

Carlin, J. F. (1999). Restoring sanity to an academic world gone mad. *Chronicle of Higher Education*, 46(11), A76.

Chait, R. (2002). *The Questions of Tenure*. Cambridge, MA: Harvard University Press

Connelly, C., & Gallagher, D. (2004). Emerging Trends in Contingent Work Research. *Journal of Management* 30(6), 959–983.

Deem, R. (2001). Globalisation, New Managerialism, Academic Capitalism and Entrepreneurialism in Universities: is the local dimension still important?. *Comparative education*, 37(1), 7-20.

Jaeger, A. J., & Eagan Jr, M. K. (2009). Unintended Consequences Examining the Effect of Part-Time Faculty Members on Associate's Degree Completion. *Community College Review*, 36(3), 167-194.

Ehrenberg, R. G., & Zhang, L. (2005). Do tenured and tenure-track faculty matter?. *Journal of Human Resources*, 40(3), 647-659.

Ellingson, J. E., Gruys, M. L., & Sackett, P. R. 1998. Factors related to the satisfaction and performance of temporary employees. *Journal of Applied Psychology*, 83: 913–921.

Gumport, P. J. (1997). *The United States country report: trends in higher education from massification to post-massification* (Doctoral dissertation, University of Pennsylvania).



Gwynne, P. (2010). Public Universities Face Funding Crisis. *Research-Technology Management*, Vol. 53, No. 5 (September/October, 2010)

Hodson, P., & Thomas, H. (2003). Quality assurance in higher education: fit for the new millennium or simply year 2000 compliant?. *Higher Education*, 45(3), 375-387.

Jacoby, D. (2006). Effects of part-time faculty employment on community college graduation rates. *The Journal of Higher Education*, 77(6), 1081-1103.

Kalleberg, A., & Reskin, B., & Hudson, K. (2000). Bad Jobs in America: Standard and Nonstandard Employment Relations and Job Quality in the United States. *American Sociological Review*, 65 (April), 256-278.

Kegley, J., & Meisenhelder, S., & Spence, D. (2002) *Response to ACR 73(Strom-Martin)*, July 22, 2002

Layzell, D. T., (1998). Linking Performance to Funding Outcomes for Public Institutions of Higher Education. *The U.S. European Journal of Education* 33, 103-111.

Levin, J. S., & Shaker, G. G. (2011). The Hybrid and Dualistic Identity of Full-Time Non-Tenure-Track Faculty. *American Behavioral Scientist*, 55(11), 1461-1484.

Leatherman, C. (2000). Union Movement at Private Colleges Awakens after a 20-Year Slumber. *Chronicle of Higher Education*, 46(20).

Medina, J. (May 5, 2012). At California State Protesters Start Fast. *New York Times*. Retrieved from [www.nytimes.com/2012/05/06/us/california-state-students-plan-to-fast-in-protest-over-cuts.html](http://www.nytimes.com/2012/05/06/us/california-state-students-plan-to-fast-in-protest-over-cuts.html)

Monks, J. (2007). The relative earnings of contingent faculty in higher education. *Journal of Labor Research*, 28(3), 487-501.

Profile of CSU Employees, (2011). Office of the Chancellor, California State University (July, 2012)

Rhoades, L., Eisenberger, R., & Armeli, S. (2001). Affective Commitment to an Organization: The Contributions of Perceived Organizational Support. *Journal of Applied Psychology*, 86, pp.825-836

Schneider, M., & Yin, L. (2011). The high cost of low graduation rates: How much does dropping out of college really cost? Washington, DC: American Institutes of Research

Schuster, J. H. & Finkelstein, M. J. (2006). *The American Faculty: Restructuring Academic Work and Careers*. Baltimore, MD.: Johns Hopkins University Press.

Scott, M., Bailey, T., & Kienzl, G. (2006). Relative success? Determinants of college graduation rates in public and private colleges in the US. *Research in higher education*, 47(3), 249-279.

Shah, S. (June 17, 2012). Rankings Show UC and CSU Tuition Growing Fastest in the Nation. *The Daily Californian*. Retrieved from: [www.dailycal.org/2012/06/15/rankings-show-uc-and-csu-tuition-as-fastest-growing-in-the-nation/](http://www.dailycal.org/2012/06/15/rankings-show-uc-and-csu-tuition-as-fastest-growing-in-the-nation/)

State Higher Education Executive Officers, State Higher Education Finance FY 2009 (Boulder, CO: SHEEO, 2010) Retrieved from: [www.ncsl.org/documents/fiscal/HigherEdFundingFINAL.pdf](http://www.ncsl.org/documents/fiscal/HigherEdFundingFINAL.pdf)

Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: politics, policies and the entrepreneurial university*. Baltimore, MD: John Hopkins University Press.

Strauss, V. (2012, January 24). Obama on education in State of the Union address. The Washington Post. Retrieved from [http://www.washingtonpost.com/blogs/answer-sheet/post/obama-on-education-in-state-of-the-union-address/2012/01/24/gIQAVfAwOQ\\_blog.html](http://www.washingtonpost.com/blogs/answer-sheet/post/obama-on-education-in-state-of-the-union-address/2012/01/24/gIQAVfAwOQ_blog.html)

Studenmund, A. H., & Cassidy, H. J. (2001). *Using econometrics*. Addison-Wesley.

Taylor, P., Parker, K., Fry, R., Cohn, D., Wang, W., Velasco, G., & Dockterman, D. (2011). *Is college worth it?: college presidents, public assess value, quality and mission of higher education*. Pew Research Center.

Umbach, P.D. (2008). The Effects of Part-Time Faculty Appointments on Instructional Techniques and Commitment to Teaching. *Paper Presented at the 33<sup>rd</sup> Annual Conference of the Association for the Study of Higher Education*, Jacksonville, FL, November 5-8, 2008. Retrieved from: [paul\\_umbach@ncsu.edu](mailto:paul_umbach@ncsu.edu)

U.S. Department of Education, National Center for Education Statistics. (2012). *Digest of Education Statistics, 2011* (NCES 2012-001)

Yung, Katherine (February 28, 2004). Dealing in Diplomas, For the University of Phoenix, college is a big business - and getting bigger, *The Dallas Morning News*. Retrieved from: [www.kroplaw.com/uop/DallasMorningNews.040228.pdf](http://www.kroplaw.com/uop/DallasMorningNews.040228.pdf)

Webber, D. A., & Ehrenberg, R. G. (2010). Do expenditures other than instructional expenditures affect graduation and persistence rates in American higher education?. *Economics of Education Review*, 29(6), 947-958.



