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Comparative state community college return on investment: state funding, local funding, tuition and graduation rates for community colleges

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Comparative state community college return on investment: State funding, local funding, tuition and graduation rates for community colleges

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DEDICATION

I dedicate this master's thesis to the love of my life, Stacy. We met just prior to the beginning of my master's degree journey. She has supported me throughout three years of my working full-time, studying on the weekends, and taking courses at night. Her patience, along with the patience of our dog, Pixie, cannot be matched. I cannot thank them enough.

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NOMENCLATURE

Comparative Score Refers to percentile ranking expressed by total output ranking divided by total input ranking per state.

IPEDS Refers to Integrated Postsecondary Education Data System, National Center for Education Statistics at U.S. Department of Education.

Return on Investment Refers to simultaneous fiscal/tuition support of students, expressed in financial inputs, and performance, expressed in graduation rates or outputs.

VFA Refers to Voluntary Framework of Accountability.

Interstate Competition Refers to the inherent competition states have in terms of comparative scores. Ranking states based on graduation rates and investment per student, expressed through comparative scores, creates competition between states.

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ABSTRACT

America's community colleges have recently been thrust into the national spotlight as people look to retrain or find economic alternatives to higher education. This substantial increase in accountability is met with the constraints of financial resources and other limiting factors structured into community college systems. In this paper I examine community college return on investment by states, which govern the responsibility of educating America's workforce through their diverse community college systems. To improve America's postsecondary education competency is to optimize collective action of U.S. state community college systems. While colleges and universities contribute to national education goals, research shows that community colleges have and will do much of that work. Return on investment is one key metric that policymakers, by state, can use to deal with and advance community colleges' heightened call to action.

CHAPTER 1

INTRODUCTION

Research Problem and Relevancy

The proportion of adults with postsecondary credentials is not keeping pace with that of other industrialized nations, and the United States is facing an alarming education deficit that threatens our global competitiveness and economic future (College Board Advocacy & Policy Center, 2010). The United States must educate more of its citizens for an increasingly competitive and complex workplace. Significantly increasing the number of students who earn postsecondary degrees and credentials is not only the cornerstone of several recent national reports; it is also a central objective of the Obama administration (College Board Advocacy & Policy Center, 2010). This increased focus is reflected in, for example, the president's goal for the United States to be the world leader in the percentage of citizens who are college graduates by 2020 (CollegeBoard Advocacy & Policy Center, 2010).

U.S. President Barack Obama, in 2010, recognized America's lackluster lineup in global education competency. Based on 2008 data collected by the Organization for Economic Cooperation and Development, the U.S. ranked No. 12, of 36 countries surveyed, for country population that had obtained a college degree (OECD, 2010). President Obama's response was the American Graduation Initiative, a national charge to produce 5 million more college graduates from 2009 to 2019. The American Graduation Initiative was suggested to reform and strengthen community colleges like this one from coast to coast so they get the resources that students and schools need—and the results workers and businesses demand (Obama, 2009). By 2020, this nation will once again have the highest proportion of college graduates in the world (Obama, 2009). Although $12 billion was proposed for American Graduation Initiative, only $2

billion of the bill was appropriated through the U.S. Department of Labor. The rest was siphoned off to help get the contentious health care bill (Affordable Care Act) passed, which also was a priority item on President Obama's policy agenda (Marcus, 2011).

To support the president's call, the Commission on Access, Admissions and Success in Higher Education, in close conjunction with the non-profit advocacy policy organization College Board, put a call to action to America's governors: improve the percentage of America's college-educated citizenry from 40 percent to 55 percent by 2025 (About the Agenda, 2013). They've termed it the College Completion Agenda. University education is important. However, community colleges educate students in vitally important skills for jobs demanded now and in the near future. Given the growing importance of postsecondary education—both for individuals seeking family-wage jobs and for a national economy that increasingly requires a more highly skilled workforce—community colleges are being called on to expand their focus beyond enrolling large numbers of students in college courses to ensuring that more students complete college programs (About the Agenda, 2013). Increasing the college graduate proportion promotes an educated, skilled workforce. A skilled workforce boosts American enterprise and the globalization that has become part of it.

U.S. community college performance has increased in national prominence since 2008. The American Association of Community Colleges reports that community colleges serve close to half of all undergraduate students in the United States, and by their open-door mission, are designed to serve more low-income, first-generation, and nontraditional students (Students at Community Colleges). Literature, including the Voluntary Framework of Accountability (Voluntary Framework of Accountability; Dougherty, Hare, & Natow, 2009) and articles on increased attention on remedial education (Bottoms & Young, 2008; Boggs, 2011), summarizes

that community college institutions must work harder to accommodate and guide students through various stages of completion.

Several sources (Frederick, Schmidt, & Davis, 2012; White House, 2011; Dougherty, Hare & Natow, 2009; Titus, 2006; Massey, 2004) suggest that the college completion push falls on state community college systems to implement funding and policies that help carry this goal to fruition. The effects of federal education programs such as the American Graduation Initiative depend on the manner in which state governments and individual colleges respond to them (Frederick, Schmidt, & Davis, 2012). If states or colleges alter their behavior in an attempt to appropriate federal funds, then this may partly or fully offset the intended effects of these policies (Frederick, Schmidt & Davis, 2012).

In Spring 2011, Northern Virginia Community College President Robert G. Templin, Jr., said community colleges will do much of the heavy lifting to produce 8 million more college graduates. Templin outlined five ways community colleges can increase their number of graduates: (1) Confront the issues of student success and make data-driven decisions to improve graduation rates, (2) bring more college-ready students into the system through local school partnerships, (3) increase the number of students receiving financial aid, 4) redesign remedial education, and (5) partner with community-based nonprofits in job training and college completion programs (Templin, 2011). While these goals set the American pulpit up well in the global arena, an interstate competitive approach must occur. Social facilitation, a term from social psychology theory, suggests that working in a group increases drive, which increases likelihood that the dominant or most probable response will occur (Jackson & Williams, 1985, p. 937). This statement places a normative approach to answering our research questions.

Research Questions

States, as semi-autonomous subgroups of the American education system, are the primary actors in improving America's education competency. Community college systems are run by a component of respective state governments, often exclusively. So, how well do state community college systems invest in the completion and graduation of their students? While this question can be answered at any point in a community college system's history, how are states accomplishing return on investment in a national College Completion Agenda era? How can interstate competition for community college student success contribute to a national increase in college completion?

Summary of Literature Review

A comprehensive literature review examines scholarly contributions to answering the community college return on investment question—a question that is special to U.S. and its state-run community college systems. The review suggests that community college accountability began well before the 2008-2009 Great Recession thrust community college into the national policy agenda. Most literature dates from 2003 to 2014, with the earliest relevant literature published in 1981. Subtopics include defining community college return on investment, theories and practice in matching the community college budget with policy, organizational state best practices, and the Voluntary Framework for Accountability.

Summary of Methodologies

This study captures both quantitative and qualitative data. Bulk of the information is obtained from the Integrated Postsecondary Education Data System, also known as IPEDS. An aggregate of financial investment variables is ranked; then an aggregate of student success variables is ranked. Those two aggregates will be compared, by state, to calculate an input-output

ratio, which is explained further in the Methodologies chapter. Those ratios are then ranked on a rational numerical scale. Statistical analyses will determine relativity of these ratios across U.S. states. In addition, qualitative interviews from state and national community college experts weigh in on community college return on investment.

Thesis Statement and Hypotheses

Thesis Statement: Community college investment, particularly in terms of (1) state appropriations and other state aid, (2) local appropriations and other local aid, and (3) tuition, and measured on an average per-student investment basis, will increase community college graduation rates as states compete for comparatively better community college returns on investment.

Hypothesis: The level of state community college student investment, which is expressed through each state's return on investment weighted on graduation rates, correlates with the level of interstate competition, which is measured by comparative scores.

Null Hypothesis: Interstate competition does not correlate to states' level of community college student investment.

Purpose of Study and Limitations

As states propose and implement funding and policy models to induce community college completion, this study examines a state-by-state comparison of these activities measured by common variables. All fifty U.S. states are ranked on a community college return-on-investment. To summarize in one sentence, this return-on-investment compares financial and student investment with how well students succeed in the system, defined as graduation rates within this study. Methodologies will explain how these factors indicate community college return on investment in a cross-sectional focus. Given the depth and breadth of the community

college open-access mission, a study weighted on graduation rates provides a limited scope of community college return on investment. In later chapters, we discuss an emerging national database that promises to gauge accountability better for America's community colleges, which in turn, could more fittingly inform investment decisions.

CHAPTER 2

LITERATURE REVIEW

Introduction and rationale of four subtopics

The study of community college investment, particularly in the scope of institutional finance centered on students, was first presented in *Financing Community Colleges: An Economic Perspective*, authored by David Breneman and Susan Nelson in 1981. While the American postsecondary system anticipated declining enrollments and excess capacity (Breneman & Nelson, 1981)—a very different state of community colleges than what exists today—much of the same accountability questions were posed as they are today. For example, Breneman and Nelson (1981) observed that students, educators, legislators, public officials, trustees, and interested citizens have examined and considered changes in the way community colleges are financed. Community colleges are currently in the national spotlight, but the increased attention also means increased responsibility to our communities, our states, and our country as well as to our students (McPhail, 2010).

Carrying this to the present day, 2-year college enrollments have exploded in the United States in the last 40 years (Hendrick, Hightower, & Gregory, 2006). The severe economic downturn of the late 2000s, sometimes referred to as "the Great Recession," was one of the major factors contributing to the national spotlight on community colleges (Boggs, 2011). Policymakers concur on the need for most Americans to obtain a postsecondary education credential of some type, and community college enrollments have risen dramatically over the last few years (Mullin, 2011). As previously mentioned, the College Completion Agenda challenges community colleges to contribute much effort in helping to raise the national college graduate proportion. Researchers and policymakers agree that improving rates of success among

community college students is a top educational priority (Goldrick-Rab, 2010). Given the growing importance of postsecondary education—both for individuals seeking family-wage jobs and for a national economy that increasingly requires a more highly skilled workforce—community colleges are being called on to expand their focus beyond enrolling large numbers of students in college courses to ensuring that more students complete college programs (Jenkins, 2011). At the same time, community colleges are being asked to respond to the shortage of healthcare workers and teachers, to develop new programs for emerging technologies, and to prepare students to live in an increasingly global society and economy—all with declining financial resources (Boggs, 2011). Unless we move with urgency, today's young people will be the first generation in American history to be less educated than their predecessors (Complete, 2011).

To answer the question of what is being done to address increased community college accountability, we must first review what has been discussed in research. In the following literature review, subtopics are presented in a suggested logical order when one considers gauging America's community college return on investment. First, we will examine the many perspectives of defining community college return on investment. Next we will review interpretations of prioritizing state and federal budgets with pertinent community college policy, or policy that is aimed at ensuring favorable community college system return on investment. Third, we will benchmark organizational best practices of states, looking at both examples and general discussion on state governance of effective community college policies. The literature review will conclude with a look at emerging literature of the Voluntary Framework of Accountability, administered by the American Association of Community Colleges; this will preview some suggested future research.

Defining community college return on investment

We first must frame different interpretations of community college return on investment. A developed fundamental understanding of community college return on investment allows interpretation of budget prioritization with policy, organizational best practices, and what is emerging on the topic. Policymakers and families want assurances that the colleges will provide educational returns that justify their cost (Bailey, Jenkins, & Leinbach, 2005).

We start with a charge: Hold community colleges accountable for increasing the percentages of students who earn an associate's degree or certificate, pass an employer-improved exam, and/or successfully transfer to a four-year college or university (Bottoms & Young, 2008). A demand for community college accountability began well before the 2008-2009 Great Recession. In the 1990s, the emphasis on quality and getting a return on investment for public dollars led to the rise of performance accountability systems for higher education: gains in student learning, graduation rates, and placement in good jobs (Dougherty & Hong, 2005). The cost of expanding and enhancing the community college infrastructure is properly viewed as an investment (Mullin, 2011). Investments in higher education, particularly investments in community colleges, yield a wide array of economic and societal returns that far outweigh the initial costs to students and the public (Mullin, 2011).

Klor de Alva and Schneider (2013) limited their study to only the return on investment for graduates who have earned no higher than an associate's degree. They posit an economic model of community college return on investment in terms of costs (grants, contracts, and appropriations at the federal, state, local, and student levels) and benefits (taxes derived from the higher salaries and earnings of graduates) (Klor de Alva & Schneider, 2013). In their study, Klor de Alva and Schneider (2013) determined that in California alone, the state would gain an

additional $67,000 in additional tax revenues from a median community college graduate over a 40-year work life.

A research group from the Economic Modeling Specialists International (EMSI) calculated the estimated long-term effect of America's community colleges on national income growth and taxpayer return on investment. This study concluded a 17.8% internal rate of return, solely based on the present value of individual future income earned; "shutdown point" is termed as ignoring government investment (Economic Modeling Specialists, 2014). By 2057, the employment life of today's community college graduates will contribute $1.1 trillion to the U.S. economy as a result of their lives and careers, accounting for attrition, alternative education opportunities, and the shutdown point (Economic Modeling Specialists, 2014). In return for their public support, U.S. taxpayers are rewarded with an investment benefit-cost ratio of 6.8 [$304 billion in taxpayer benefits–across 43 years–for a $44 billion one-year investment] (Economic Modeling Specialists, 2014). Community college graduates also contribute immeasurable impacts to America's social system, as education is statistically associated with a variety of lifestyle changes that generate social savings, also known as external or incidental benefits (Economic Modeling Specialists, 2014). While this demonstrates individual contributions to the economy, government investment cannot be ignored to determine community college return on investment. Government financial investment in community colleges is explored in the following thesis study.

Other researchers consider the inconsistent comparisons of community college return on investment. Many of the democratizing opportunities provided by community colleges are diminished in the eyes of policymakers by inadequate rates of success (Goldrick-Rab, 2010). The relationship between monetary investments (spending) and student outcomes (graduation and

employment) is far from conclusive, and community colleges—like all public institutions in higher education—face significant budget constraints (Goldrick-Rab, 2010). Overall low average rates of spending on community college students may contribute to the weakness of observable relationships between spending and outcomes, because funding even at the highest level is inadequate (Goldrick-Rab, 2010). Current procedures do not account for students who stay in school just long enough to pass an employer exam or sharpen their work skills, nor for students who complete general education requirements and transfer to a four-year college or university without applying for the associate's degree, even though they meet the requirements (Bottoms & Young, 2008). Further, evidence from the forums suggests that community colleges, as a group, have not made a concerted effort to improve completion rates (Bottoms & Young, 2008). On the practical level, community college helps students succeed in pursuing degrees (Reed & McClenney, 2013). But, on the reporting level, a community college has wasted resources on a student who didn't earn a college certificate, Associate's degree, or transfer credits to a four-year institution (Reed & McClenney, 2013).

Goldrick-Rab's (2010) conceptual approach emphasizes the intertwining roles of three levels of influence: macro-level opportunity structure; institutional practices, and the social, economic, and academic attributes students bring to college. This approach has three implications: (1) It draws attention to the structural constraints governing individual decision-making; (2) it emphasizes the breadth of ways policymakers could address the same outcome, opening up possibilities for creative solutions; and (3) this frame builds on that of several other contemporary researchers, including those involved in the National Postsecondary Education Cooperative's initiative on college student success (Goldrick-Rab, 2010).

Another approach suggests that investment between institutions and surrounding communities will boost graduation rates. Robert G. Templin, Jr. (2011), president at Northern Virginia Community College, outlines five: (1) Confront the issues of student success and make data-driven decisions to improve graduation rates, (2) bring more college-ready students into the system through local school partnerships, (3) increase the number of students receiving financial aid, (4) redesign remedial education, and (5) partner with community-based nonprofits in job training and college completion programs. He also notes that the nation cannot achieve the goals of the president's College Completion Agenda without community colleges reaching into traditionally underserved populations and increasing both the number of college students enrolled and their graduation rates (Templin, 2011).

Relationships between investments and outputs emerge. Although it is difficult to establish a clear causal relationship between institutional expenditures and degree outcomes, some analyses indicate a positive relationship between the availability of resources per student and college degree attainment (Bound, Lovenheim, & Turner, 2009). One way to stimulate a shift in reform emphasis is to reorient the measurement of student success to account for structural and institutional constraints (Goldrick-Rab, 2010). These constraints, though, must be tested to improve completion rates. The ability of community colleges to serve their students and communities is due in large part to the investment of federal, state, and local governments and federal agencies; however, increasing productivity by 50%, as envisioned by the Obama administration's call for 5 million more community college graduates, will be possible only if resources are significantly increased (Mullin, 2010a).

Prioritizing budget with policy

Like all public finance, community college finance goes hand-in-hand with budgetary decisions. Without budgeting and the people who invest, community college systems lose focus on continuous improvement. Increased lobbying, hiring professional lobbyists, and collaboration among lobbyists on proposed community college state legislation have led to significant effects on state allocations (Hendrick, Hightower, & Gregory, 2006). Community colleges are even finding their way into federal arenas when national decisions have direct effect on their funding (Hendrick, Hightower, & Gregory, 2006). For funders, the goal is to support a process that strengthens the capacity for change and brings it to scale, not just a favored intervention or model (Achieving the Dream, 2014).

The social jury deliberates, then proposes verdicts. The Young Invincibles, a social student advocacy group that responds to the "decades of state budget disinvestment from public higher education," launched the Student Impact Project (Seeberger, 2014). One study, called "Higher Education Support: Does Your State Make the Grade?" and backed by the Lumina Foundation, graded states on student fairness of tuition costs, state spending per student, burden on families, state aid to students, and the proportion of state budget funding allocated towards higher education funding (Seeberger, 2014). States received a range of letter grades, much like a report card. New Hampshire failed across the board, comprising a mere 17% overall grade. Wyoming performed the best with a top-notch 96% overall grade (Seeberger, 2014).

Richard Voorhees (2001), an early scholar in community college investment, presents a trending threat to community college finance within a political environment of increased accountability.

> At the turn of the new century, the nation's public two-year colleges stand at the financial crossroads. On the one hand, the need for the services and education they provide in a changing local, regional, national and international environment continues to accelerate. On the other hand, community colleges now draw less of their total operating revenues from taxpayers than at any other time in their histories. If these recent trends are harbingers, the finance of community colleges will become even more critical in the foreseeable future (Voorhees, 2001).

Without increased tax receipts and public sector savings provided by the educational activities of community colleges and their students, governments would have to raise taxes to make up for lost revenues and added costs (Economic Modeling Specialists, 2013).

Boswell (2000) summarized a study that looked at postsecondary education policy issues by state. The postsecondary policy issue that concerned respondents most was the financing of colleges and universities. In many states, funding systems are being redesigned to include performance-based funding initiatives, moving away from incremental funding increases or using enrollment-driven formulas for public colleges and universities that were not linked to results (Boswell, 2000). The top four most common performance indicators for U.S. community college systems, listed in order of rank are: (1) Job placement, (2) transfer rates, (3) graduation/degrees, and (4) retention (Boswell, 2000).

Busemeyer and Trampusch (2011) promote a data-driven approach to community college policy. Scholarship in the field of political, institutional and socio-economic determinants of education policy is more interested in assessing the impact of specific independent variables on education policy output, rather than the previously introduced work that identified all the causes that led to the emergence of different education systems (Busemeyer & Trampusch, 2011). Many

studies in this field are concerned with identifying the determinants of education spending, i.e. public investments in human capital formation (Busemeyer & Trampusch, 2011).

Through political persuasion and budget implemented by the South Carolina House Ways and Means Committee, the state government worked with federal resources to increase technical college funding in the state. In fact, the South Carolina State Board of Technical and Comprehensive Education received about 12% more funding in the FY2012-13 state budget than in the FY2008-09 state budget (South Carolina Spending Transparency, 2013).

The California Student Opportunity and Access Program (Cal-SOAP) was established by the Legislature in 1978 to provide college-planning and financial aid information to underserved areas that have low college participation rates (College Board Advocacy & Policy Center). Cal-SOAP seeks to raise the achievement of low-income and first-generation K-12 students and provide them with the opportunity to attend institutions of higher education. State funds must be matched by local funds from participating communities (College Board Advocacy & Policy Center). Improving performance, responding to external priorities, and improving or altering resource flows from traditional sources may allow community colleges to reinvent themselves with a new entrepreneurial spirit (Hendrick, Hightower, & Gregory, 2006).

For policymakers, the following recommendations arise from the literature: (1) State policymakers should build their own intentional frameworks for student success, (2) state policymakers should partner with conveners and state-level funders (philanthropist foundations, (3) state and federal policymakers should continue to support trial programs, and (4) the federal government should seek opportunities to support innovation that builds the workforce (Achieving the Dream, 2014). In 2008, states tended to rank higher education a top-3 priority given the following state budget decision key drivers (in ranked order): K-12 ed., Medicaid,

higher education, corrections, transportation, tax cuts, recession, and unemployment insurance (Katsinas, Tollefson, & Reamey, 2008). State funding for community colleges is stable, but concerns over recession and reductions in support exist. Strong competition for scarce state tax dollars continues (Katsinas, Tollefson, & Reamey, 2008). One of the promising areas of community college reform is substantial financial or political support from state and local governments as well as philanthropies (Goldrick-Rab, 2010). To break from the traditional internally centered role, community colleges must support networks with donors, legislators, the private sector and other community colleges (American Association of Community Colleges, 2012).

Organizational best practices of states

President Obama's response to the U.S.'s middle-of-the-road ranking in educated citizenry was the College Completion Agenda, a national charge to produce 8 million more college graduates by 2020. To support the president's call, the Commission on Access, Admissions and Success in Higher Education put out a call to action to America's governors to increase the proportion of 25- to 34-year-olds who hold an associate's degree or higher to 55% by 2025 (Hughes, 2013). The educational effectiveness of community colleges is under new scrutiny as a result of both a federal government focus on accountability of higher education institutions and greater competition for the state funds traditionally directed to the colleges (Bailey, Jenkins, & Leinbach, 2005). Accordingly, boosting the number of college graduates should be a central goal in every state's workforce and economic development plan (White House, 2011). Raising college completion rates should be a central part of the strategy for reaching that goal (White House, 2011). State-by-state policies will differ, but the most successful will share a common thread: support for a well-educated workforce and heightened

levels of college completion (White House, 2011). One of the key incentives that policy analysts have argued for and state governments have tried is a state performance accountability system: reporting performance outcomes, tying state funding to an institution's performance on retention, graduation, and job placement (Dougherty, Hare & Natow, 2009).

The governance and funding structures of community colleges are tightly linked. At the same time, the substantial heterogeneity in how community colleges are governed also means that numerous approaches are used for financing community colleges (Goldrick-Rab, 2010). A federal one-size-fits-all approach doesn't consider the strong political, fiscal, and economic state prerogatives that drive community college success (Pfeffer & Salancik, 1978; 2003). Friedel, Killacky, Katsinas and Miller (2014) reported histories, missions, funding structures, and emerging issues of every U.S. state's community college system. A cross-section of 28 states' community college finance structures demonstrated the varied proportions of state funding, local funding, and tuition and fees across states in 2012, with many states indicating state funds and tuition and fees as major funding sources (Friedel, 2014) [Please note that Chris Neary produced the cross-section study based on information provided in Friedel's book. Friedel did not initiate the study.]. Based on this cross-section, ratios of state funds-to-tuition and fees were calculated. California reported that for every $10 the state contributed to its community college system, only $1 in tuition and fees was collected (10-to-1 ratio). Thirteen states in the sample reported significantly smaller ratios (between 1-to-1 ratio and 3-to-1 ratio), while fourteen states showed that state contributions were less than tuition and fees (between 0.21-to-1 ratio and 0.8-to-1 ratio). Iowa demonstrated a 0.52-to-1 ratio in 2012, meaning the state contributed only 52 cents to its community colleges for every $1 in tuition and fees collected.

As a result of this rise in college tuition, states have called for increased institutional accountability in such areas as the number of degrees awarded and college completion rates (Titus, 2006). States are taking a more active role in providing financial incentives to higher education institutions to achieve statewide goals such as increasing college completion rates (Massey, 2004). However, state shares of budgets have dropped steadily for decades, with severe acceleration following the economic crash of 2008 (Reed & McClenney, 2013). The extent to which a state is able to positively influence college completion rates may be dependent on statewide fiscal conditions, the specific mix of finance-related higher education policies, the characteristics of higher education institutions, and the characteristics and experiences of students attending colleges in a state (Titus, 2006).

Given the fiscal realities facing states, it is critical to understand the relationship between spending and results as students move through the education system and into the workforce (White House, 2011). Complete College America (2011) reported skills gaps by state, defined by the differences between the proportions of jobs requiring a career certificate or college degree by 2020 and current proportions of adults with at least an associate's degree. On average, 62.5% of the jobs in the states will require a career certificate or college degree by 2020, but college-degree holders only amount to 36.5% of states' workforces, on average, in 2011 (Complete College America, 2011). By calculation, this results in a 26.1% average skills gap per state that must be bridged (Complete College America, 2011). The role of community colleges in helping people and the government respond to the economic crisis and meeting widely articulated goals for college completion has resulted in an unprecedented amount of attention on the colleges, accompanied by heightened expectations (Mullin, 2010a). Community colleges are in the difficult position of balancing two completion agendas: the person's need to return to work and

the nation's desire to be a world leader in terms of a narrowly defined set of outcomes (Mullin, 2010b).

In 2012, the Economic Modeling Specialists International (EMSI) group conducted a long-term taxpayer return on investment study for the Florida College System. Three key conclusions came from the study. (1) An estimated 93% of students from the Florida College System remain in Florida and contribute to economic growth; therefore, students who enter the workforce expand the tax base by generating higher earnings and reducing social costs; (2) The Florida state government will save approximately $13.8 million in avoided social costs each year, including savings associated with improved health, lower costs of law enforcement, and fewer welfare claimants; and (3) The Florida state government will receive a rate of return of 9.4% on its investment in the Florida College System over the career of today's community college graduates (Taxpayer Perspective, 2012).

The state of Texas launched the "Closing the Gaps by 2015" completion agenda in 2000 (McPhail, 2010), which aimed to close gaps in student participation, student success, excellence and research within Texas and between Texas and other leading states (Texas Higher Education Coordinating Board, 2010). The Texas State Board of Education last published a progress update in 2010, which noted that its undergraduate student success—certificate, undergraduate degrees, and other identifiable student successes from high quality programs—increased by 41.2% between 2000 and 2009 (Texas Higher Education Coordinating Board, 2010).

Orange County Community Colleges, which comprises nine institutions in southern California, conducted a similar economic return on investment study for the region. Orange County's community colleges play a significant role in fueling the state and local economy, leveraging taxpayer dollars, generating a return on investment, and increasing students' earning

potential (Legislative Task Force, 2012). Over their careers, students receive a 17.4% return on their investment of time and money, while their improved health and lifestyle habits save about $27 million through lower absenteeism from work, reduced smoking, and reduced alcohol abuse (Legislative Task Force, 2012). Community college completion also has a significant impact on crime rates and social programs. Lower crime among students saves approximately $30 million through fewer incarcerations, less negative impact on productivity due to incarcerations, and fewer costs incurred by victims of crime, while lower incidences of welfare and unemployment save $12 million (Legislative Task Force, 2012). Taxpayers receive a 14.7% return on their investment, which indicates that community colleges generate a significant surplus in the economy and those returns fund other state and local programs (Legislative Task Force, 2012).

California, with its massive community college system, introduces a model for improving student outcomes. With nearly one-fourth of the nation's community college students enrolled in California, success of the Obama Administration's college attainment agenda depends on California increasing completion rates and reducing performance gaps in its 112 community colleges (Moore & Shulock, 2010). California introduces a recursive model, called A Model for Improving Outcomes, that integrates an institutional practices component and state/system policies component (Moore & Shulock, 2010). Looking at the institutional level, a new funding model should be adopted that rewards colleges for helping student progress through milestones, including completing college English and math, and for helping under-prepared students meet key milestones (Moore & Shulock, 2010). State policymakers and institutional leaders work together change policy that increases completion and reduces racial/ethnic gaps in completion (Moore & Shulock, 2010). In this model, institutions answer questions about where students get stalled and identify successful completion patterns while implementing data-driven practices.

Through public relations, interest groups, policy researchers, and community advocates, these issues are communicated to state legislature. Legislators, with aforementioned stakeholders, compare current policies with this information to determine student support and barriers to student access. California benchmarks with other states' best practices to construct new policy agendas. Decision-makers, termed as the governor, legislators, and California's Community Colleges Board of Governors, contemplate and change community college policy. At the same time, community colleges analyze and implement new practices while sharing with other system colleges (Moore & Shulock, 2010).

Public policy theorists may recognize California's community college continuous improvement process as following the policy feedback theory. In the Policy Feedback Theory, four major streams of inquiry guide decision-making in changing a given policy: meaning of citizenship, power of groups, form of governance, and political agendas/policy problems (Mettler & Sorelle, 2014, p. 155). Within the California context, colleges and their students are the policy citizens. Powerful groups include community advocates, institutions' governmental liaisons/college presidents, and possibly labor unions that represent community college graduates working in certain industries. Governance takes the form of the Community Colleges Board of Governors, which governs the California Community Colleges System. Problems in improving student outcomes, which are reviewed in the aforementioned recursive model, are at the heart of California's community college policy agenda.

California State University-Sacramento researchers say that the California legislature should take steps to guard against erosion of the historic transfer function of community colleges by investigating recruiting practices and completion rates at for-profit colleges, enacting policies that encourage students to earn associate degrees prior to transfer, and ensuring sufficient

capacity at University of California and California State University for transfer students (Moore & Shulock, 2010). The California Community College System created transfer degrees where the associate degree is 60 hours and transfers to California State Universities at 60 hours (and the state can require no more than an additional 60 units for the baccalaureate); the California State Legislature formed a task force for student success to report on best practices (McPhail, 2010).

Iowa defines community college success in three ways: (1) Earned a two-year award, but did not transfer to a four-year college or university, (2) transferred to a four-year college or university before earning a two-year award, and (3) transferred to a four-year college or university after earning a two-year award (Bassis et. al., 2015). Success, however, transcends graduation and transfer rates. For example, improving one's job skills through adult basic education is another measure of success. By acquiring new skills and completing adult basic education, student can enter or return to the labor market as more economically productive citizens (Bassis et. al., 2015).

Arkansas developed a state-level system strategy for community college accountability. The Arkansas Association of Two-Year Colleges (AATYC) created the Center for Student Success to coordinate and help lead its student success work at a statewide level, termed the System-Level Strategy, and has secured numerous grants to help member colleges implement innovations in such areas as student advising, developmental education, career and technical education, and institutional research (Achieving the Dream, 2014). Intensive, creative, and methodologically rigorous, the System-Level Strategy is proving itself to be an effective model for continuous improvement across community colleges statewide (Achieving the Dream, 2014). In large part, the future wellbeing of Arkansas hinges on its ability to increase earning capacity among its workforce. Important contributors to the knowledge economy, community colleges are

the main providers of education and training to the middle-skill segment of the U.S. economy (Achieving the Dream, 2014). Arkansas developed and utilizes a five-step logic, recursive model in ensuring system-level community college continuous improvement. Modeled after the Achieving the Dream Student-Centered Model of Institutional Improvement, the Arkansas Association of Two-Year Colleges commits to change; uses data to prioritize actions; engages stakeholders; implements, evaluates, improves at the state system and institutional levels; and establishes a culture of continuous improvement at the institutional level (Achieving the Dream, 2014). The System-Level Strategy has helped institutions inculcate evidence-based practices that use data to drive important reform to improve student success (Achieving the Dream, 2014). Participation in the effort has established better relationships between Arkansas's community colleges, which have freely shared their knowledge, and an overarching infrastructure that will help them collaborative effectively (Achieving the Dream, 2014).

Utah presents a recursive approach, with rational and reward components, to community college system investment. The Utah Foundation presents five lessons learned that other states can consider: (1) Collaborate with all stakeholders to develop the performance funding model, (2) utilize overall outcomes (or results) as performance measures, not annual goals, (3) ensure that the outcome measures—and the funding model itself—are simple, but are specific to institutional missions, and (4) put enough funding at stake to truly incentivize outcomes (Utah Foundation, 2014). It is also reported that Utah's public two-year institutions have higher completion rates than the nation (Utah Foundation, 2014). Even so, Utah Governor Gary Herbert's "66% by 2020" initiative is intended to help ensure that there are enough certificate and degree holders—66% of the working age population ages 25-35—available to maintain the state's economic development (Utah Foundation, 2014).

Community College of Philadelphia embedded the concept of completion into the fabric of the institution. The board asked how it could be more effective. It looked at strategic direction and where it could bring value. About two years ago, it overhauled the institution's infrastructure. It is now restricted to two committees, Finance and Student Outcomes, which focus strategic direction on completion and student success. The college embedded performance indicators into the infrastructure; it created agreements with 10 senior institutions to guarantee junior status and scholarships (McPhail, 2010). Temple University receives the most students. Data indicate that if students transfer to Temple with an associate of arts (AA) degree, 84% get a bachelor's degree; if they transfer without an AA, 63% get a bachelor's degree (McPhail, 2010).

North Idaho College redesigned its technical education programs. The college established eight-week blocks of study leading to a certificate or work. The curriculum was realigned to include certificates that lead to an associate in applied science degree—with measurable outcomes (McPhail, 2010). College leaders also created building blocks: one semester, one year, applied associate, and applied baccalaureate. It is currently seeing an increase in completion rates. It defined student deficiencies. The impetus was employer-driven (McPhail, 2010).

The community college system in North Carolina launched a campaign where each college lists best practices for completion connected to performance measures (McPhail, 2010). There are two teams: one focuses on innovation and the other on performance indicators (McPhail, 2010). Davidson County Community College (NC) is being asked by the business community about completion rates, since communities are in competition with each other for employers (McPhail, 2010).

White Mountains Community College, New Hampshire, uses a cohort-building strategy with a University Connection, where community college faculty members teach university-level

courses (teacher education program). It has an early learning center and limits options for students who move toward a prescribed course of study.

The Maryland Association of Community Colleges launched a statewide initiative called "A Promise to Act." This statewide call focuses on the completion agenda (all of Maryland's 16 community colleges have agreed to use completion data) (McPhail, 2010). Howard Community College has aligned its mission and strategic plan and has connected data to completion. There is nothing in the strategic plan that cannot be measured. The college also engaged faculty and refined its general education core (McPhail, 2010). Baltimore City Community College developed a student-mentoring program and has freshmen tutorial services. There are plans to conduct a press conference to discuss completion rates on campus (McPhail, 2010).

North Dakota University System Roundtable established a dual-credit program—11 colleges are involved. The president and vice president are focusing on completion. Now, a collective voice goes to the legislature. The program is designed to keep the workforce in state. Articulation programs such as "2+2+2" (associate's + bachelor's + master's degree) were established; University Center on Campus is increasing completion; and degree audits that lead to contact with students near completion to encourage completion (joint use of facilities) are in place (McPhail, 2010).

South Georgia College offers a Degree Works software product (advising tool) that students can access. The college increased the student technology fee to pay for the product. Notes can be electronically collected about each student (e.g., whether a student works full time) (McPhail, 2010).

Gateway Community and Technical College, Kentucky, has mandatory advising for development students, peer mentoring, and tutoring. There is an 86% retention rate with these students; although the program costs a lot of money (McPhail, 2010).

Tennessee's Technology Centers use cohorts and accelerated learning. They are competing with community colleges, but they can't be compared. The state wants community colleges to be more like the technology centers, which may cause a shift in the colleges' foci (McPhail, 2010). The Tennessee Promise, which the Tennessee Student Assistance Corporation administers, is both a scholarship and mentoring program focused on increasing the number of graduating high school students—beginning with the Class of 2015—who attend college in the state of Tennessee (Tennessee Promise). Students may use the scholarship at any of the state's 13 community colleges, 27 colleges of applied technology, or other eligible institution offering an associate's degree program (Tennessee Promise). The scholarship is termed "last-dollar" because it covers costs of tuition and mandatory fees not met from Pell, HOPE, or state assistance awards (Tennessee Promise).

McHenry County College, Illinois, implemented a "laddering curriculum" and gives students credentials for what they have done, which they can then use to reenter higher education. High school readiness is important to this college. College representatives met with high school leaders in the area. They all took the COMPASS test to illustrate what students need to know to enter college. Some high schools appear to be teaching to No Child Left Behind standards rather than teaching the skills needed to be a successful college student (McPhail, 2010).

Baton Rouge Community College, Louisiana, offers a 15-week class session and two 7-week class sessions. The college engaged the financial aid staff in the success agenda at the

beginning of the process. Mandatory orientation is on the table. The college is willing to try new things; but traditional offerings don't always work (McPhail, 2010).

Shulock and Jenkins (2011) discussed Washington State's Student Achievement Initiative (SAI) as a national model for smarter performance-based community college funding. State community college performance-based funding policies have largely reflected priorities of legislators and business leaders—not the educators who ensure student success (Shulock & Davis, 2011). Policies previous to SAI have undervalued important work in developmental education, certificate completion, and adult education programs (Shulock & Davis, 2011). Metrics track student progress at the developmental level (if applicable), first year, certificate completion and associate's degree completion (Shulock & Davis, 2011). The purpose is to motivate an institution to push student success, one step at a time at the student's pace (Shulock & Davis, 2011). Intermediate attainments are important student achievements, even if those students have yet to earn degrees (Shulock & Davis, 2011). Washington's 34 community colleges received a collective $7 million through this initiative from 2007-2011, with an average allocation of $60,000 per community college per year (Shulock & Davis, 2011).

Policies that represent the most promising areas of community college reform: (1) Substantiate financial or political support from state and local governments as well as philanthropies; (2) change the opportunity structure (affecting federal and state funding mechanisms, financial aid processes, and institutional differentiation); (3) change institutional practices (changing pedagogical and organizational approaches); and (4) Incentivize changes in student behavior, particularly with regard to academic preparation and affordability (Goldrick-Rab, 2010).

Credit When It's Due is a national, multi-state initiative that supports partnerships of community colleges to scale approaches to awarding associate degrees to the many students who have earned a credential but who transfer to universities before receiving them (Achieving the Dream, 2014). The Bill & Melinda Gates Communities Learning in Partnership Program, the National League of Cities, and seven cities are teaming up to boost college graduation rates by better coordinating the services that colleges, schools, and communities provide to students (McPhail, 2010). It is important to review data to move the conversation to completion and alignment of high school and community college curriculum (McPhail, 2010).

Bottoms and Young (2008) propose comprehensive, state-level educational partnerships (K-20) to ensure college completion. It became abundantly clear, as a result of these discussions among nearly 500 educators and policymakers, that states need to develop and sustain a statewide, collaborative K-20 system that requires academic and technical studies be taught to college- and career-readiness standards (Bottoms & Young, 2008). When states achieve an effective system of student transitions from high school to college and careers, they will enjoy improved high school completion rates; improved college preparedness; higher postsecondary enrollments; reduced college remediation rates; and improved student persistence toward employer certifications, associate's degrees and bachelor's degrees (Bottoms & Young, 2008). For community college completion in particular, Bottoms and Young (2008) propose institutional level monitoring of student success: (1) Strengthen community colleges' capacity to assist academically at-risk students to acquire and apply the study skills they need to succeed, (2) train faculty to frequently monitor students' attendance and grades and follow up immediately with disengaged and struggling students, and (3) expect colleges to provide the extra support

students need to succeed. Broaden the definition of completion to include students who pass approved employer certification exams (Bottoms & Young, 2008).

State best practices can be tied to organizational theory. This is especially pertinent in the federal system of delegating most educational issues, particularly community college systems, to states. Yasinsky (2010) says that the key distinctive feature of functioning of a hierarchical educational data system is determined by the mechanism of information interaction between its elements, which can infer U.S. states. This allows one to choose some "collective" level of knowledge, which can infer a national model, as a basic characteristic in investigating the dynamics of educational systems (Yasinsky, 2010). The American higher education system can be defined as an organization whose coalition of groups and interests (states) each attempt to obtain something from the collectivity (American degree completion) by interacting with others, and each with its own preferences and objectives (Pfeffer & Salancik, 1978, 2003). The federal government recognizes the integral role states have in supporting national education competency. In terms of dual federalism, network legitimacy and survival depend on establishing relationships among administrative subunits, or states (Boschken, 1982). Community college system administration is in a constant mindset of improving all colleges within its jurisdiction. Much like natural system theory, analysts pay more attention to the complex interconnections between the normative and the behavioral—motivation to improve—structures of organizations (Scott & Davis, 2007). The community college's role as an economic stronghold becomes part of a new cultural socialization process. Studying what new members of the cultural groups—new college administrators, new policy researchers, and government representatives—are taught is a good way to discover some of the elements of the culture (Schein, 2004).

Emerging literature: Voluntary Framework of Accountability

For many years, the Integrated Postsecondary Education Data System (IPEDS) was the primary institutional database for America's education system. Developed by the National Center for Education Statistics, as part of the U.S. Department of Education, IPEDS was the only national standard to seek investment variables and indications of community college completion. While this thesis uses IPEDS data, an emerging national database—the Voluntary Framework of Accountability (VFA)—will track data more akin to the community college missions, progress, and completion goals. VFA is so new, in fact, that data have not yet been nationally published; therefore, closer calculations of community college system return on investment cannot yet be determined. That said, some literature has been produced on the topic of VFA.

Dougherty, Hare, and Natow (2009) discussed VFA during its infancy. VFA was born out of policymakers, higher education associations, blue-ribbon commissions, and researchers calling for a greater focus on institutional accountability (Dougherty, Hare & Natow, 2009). In 2007, the National Association of State Universities and Land-Grant Colleges and the American Association of State Colleges and Universities launched the Voluntary System of Accountability (VSA) (Dougherty, Hare & Natow, 2009). Meanwhile, the American Association of Community Colleges and Association of Community College Trustees, in partnership with the College Board, have developed VFA (Dougherty, Hare & Natow, 2009). Driving this effort was a concern that the aforementioned VSA is tailored to four-year colleges and may not be wholly applicable to community colleges (Dougherty, Hare & Natow, 2009).

Recognizing that community colleges need a process through which they communicate data that paint the most accurate portrait of the sector and its unique role in American higher education, AACC, the Association of Community College Trustees, and the College Board

launched the Voluntary Framework of Accountability (VFA) initiative in 2009 (Boggs, 2011). VFA is the first comprehensive national accountability system created by community colleges, for community colleges (Voluntary Framework of Accountability, 2014). VFA observes student progress and outcomes; workforce, economic and community development; and student learning outcomes (Voluntary Framework of Accountability, 2014). It evaluates the short-term progress and long-term outcomes of all students who begin their studies at a college in a given time period, disaggregated by age, gender, race/ethnicity, and financial aid status (Voluntary Framework of Accountability, 2014). As previously mentioned, states have been obligated to develop state system-level accountability measures to determine what works for their institutions. Besides state performance accountability systems, another major approach to performance accountability involves the development of voluntary systems of accountability by several higher education associations (Dougherty, Hare & Natow, 2009).

Literature review conclusion: A lead-in to a study

A national call to improve state-level community college return on investment drove the interest of this literature review. In this special time in community college history, the developments of state and national accountability systems merge. Practitioners must identify, analyze, and prioritize diverse accountability demands while respecting the institution's culture, history, and commitments to open access and the comprehensive mission (Harbour, 2003). We reviewed interpretations of community college return on investments, how policy and politics drive community college system budgets, examples of general and anecdotal advice for state-level practices, and an emerging discussion in fine-tuning community college accountability. The following chapter aims to compare U.S. states in their community college investments and

student success. No known research has systematically made an effort to understand the relationship between completion rates and a state's higher education policy context (Titus, 2006).

CHAPTER 3

METHODOLOGIES

Overview

This study compares the performance of public community college investment and community college graduation rates among U.S. states during the 2011-2012 academic year. The goal of the study is two-fold: (1) Determine which states perform well in investment and graduation rates overall and (2) illustrate the practical balance of performance and investment. Data capture governmental financial inputs, institutional financial outputs, and graduation outputs. Outcomes are expressed as investment-per-student ratios compared to graduation rates. A return-on-investment equation and a comparative score equation are presented based on outputs.

In addition to publicly available data, qualitative reasoning provides anecdotal perspectives of a perceived state community college return on investment. Certain individuals, which are identified later in this chapter, provide a combined 75-plus years of state and national community college research and policy expertise. These leaders have seen what works for states and what we can do differently to answer the investment problem. They comment on the ebb and flow of complex policy solutions that address state community college return on investment.

Quantitative data resources and context

All data were self-reported by U.S. public community colleges to the National Center for Education Statistics, U.S. Department of Education, via the Integrated Postsecondary Education Data System (IPEDS). The U.S. government mandates institutions to report specific kinds of institutional data: The completion of all IPEDS surveys, in a timely and accurate manner, is mandatory for all institutions that participate in or are applicants for participation in any Federal

financial assistance program authorized by Title IV of the Higher Education Act of 1965, as amended. The completion of the surveys is mandated by 20 USC 1094, Section 487(a)(17) and 34 CFR 668.14(b)(19) (Statutory Requirements for Reporting IPEDS Data, 2002).

The study population includes all U.S. public community colleges. Community colleges, particularly their nature as local, open-access higher education institutions provide a large portion of the population the best chance for completing college education. IPEDS included 934 U.S. public community colleges in its database. The sample represents about 89.2% (934 of 1,047) of all U.S. public community colleges, according to the 2001 count by U.S. Department of Education's Office of Vocational and Adult Education (Community College Facts at Glance, 2001). With this significant sample, data should reflect very close to the suggested return on investment at U.S. public community college state systems.

The cross-sectional study gathers information from U.S. degree-granting (associate's and certificates), 2-year, public institutions from the 2011-2012 academic year. Data within 2011-2012 is the most recent, complete data available for the following variables for each institution, effective on the data acquisition date of June 12, 2014: (1) Fall enrollment (part-time and full-time students, (2) tuition and fees after deducting discounts and allowances, (3) state operating grants and contracts, (4) state appropriations, (5) state nonoperating grants, (6) local nonoperating grants, (7) local appropriations, education district taxes, and similar support, (8) capital grants and gifts, (9) capital appropriations, (10) grants by state government, (11) local grants, (12) institutional grants from restricted resources, (13) institutional grants from unrestricted resources, and (14) graduation rate—degree/certificate within 200% of normal time. In the following pages, each variable is described based on IPEDS definitions. All potential financial resources within the state, local and individual domains for state community college

systems are considered to compare U.S. states. Additional variables within federal sources are not considered because only 15 states recorded institutions that received federal funding. This finding eliminates 35 states from comparison; therefore, any federal source variable was not included in this study. With 934 institutions and 14 variables, 13,076 data points are initially considered. It is important to note that not all institutions reported a value for every variable presented. This study compares overall financial investment per state; therefore, a comparison of the kinds of investment per state is not considered. This study concludes with one set of ranks of graduation rates, and another set of ranks of investment-per-student ratios.

Every institution in the study reports a graduation rate for 200% of normal time in 2011-2012. In this study, performance is ranked on graduation rate at 200% of normal time; although metrics were available for 150% of normal time and 100% of normal time. The "200% of normal time" metric is used to accommodate the highest threshold of success, as IPEDS reports; therefore, this study gives all institutions the benefit of the doubt in terms of community college credential completion. Further research can discuss rankings at shorter graduation-rate thresholds. Regardless, these output metrics coincide with President Obama's College Completion Agenda—to increase the proportion of American college graduates.

The sample indicates different structural characteristics among U.S. state community college systems. Thirty-six states comprised systems that reported strictly by individual community colleges or community college districts: Alaska, Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Iowa, Idaho, Kansas, Kentucky, Louisiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, Mississippi, North Carolina, North Dakota, Nebraska, New Hampshire, New Jersey, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Virginia, Washington, West Virginia, and Wyoming. Four states reported

only by satellite campuses named under one system: Delaware, Indiana, Nevada, and Vermont. Eight states reported both by individual community college and by satellite campuses: Arkansas, Illinois, New Mexico, New York, Ohio, Pennsylvania, South Carolina, and Wisconsin. While the study recognizes these different formalities, the purpose of the study is to simply compare every state's performance in funding and graduation rates. How each kind of reporting structure influences a state's community college return on investment is subject to future study.

Variables defined (Glossary)

1. *Tuition and fees after deducting discounts and allowances*—How much tuition and fee revenue a sample institution collected in 2011-2012 academic year. This final figure excludes "discounts and allowances," which come from student scholarships or fellowships used to pay tuition and fees.
2. *State operating grants and contracts*—Revenues from state Government agencies that are for training programs and similar activities for which amounts are received or expenditures are reimbursable under the terms of a state government or contract. Effective in 2004, this GASB term replaces the Old Form/FASB term "state government grants and contracts" (http://nces.ed.gov/ipeds/factsheets/fct_ipeds_finance_03072007_1.asp)
3. *State appropriations*—All amounts received by the sample institution through acts of a state legislative body. Funds reported in this category are for meeting current operating expenses, not for specific projects or programs. https://surveys.nces.ed.gov/ipeds/VisInstructions.aspx?survey=5&id=480&show=all

4. *State nonoperating grants*—All amounts reported as nonoperating revenues from state governmental agencies that are provided on a nonexchange basis. https://surveys.nces.ed.gov/ipeds/VisInstructions.aspx?survey=5&id=480&show=all
5. *Local nonoperating grants*—All amounts reported as nonoperating revenues from local government agencies and organizations that are provided on a nonexchange basis. https://surveys.nces.ed.gov/ipeds/VisInstructions.aspx?survey=5&id=480&show=all
6. *Local appropriations, education district taxes & similar support*—All amounts received from property or other taxes assessed directly by or for an institution below the state level. https://surveys.nces.ed.gov/ipeds/VisInstructions.aspx?survey=5&id=480&show=all
7. *Capital grants and gifts*—Revenues where a funding source external to the institution specifies that they be used primarily to acquire, construct, or improve capital assets.
8. *Capital appropriations*—Nonoperating revenues appropriated by a government with the requirement that the funds be used primarily to acquire, construct, or improve capital assets, including buildings, land, equipment, and similar capital assets.
9. *Grants by state government*—These are state monies awarded to the institution under student financial aid programs, including the state portion of State Student Incentive Grants.
10. *Local grants (revenues)*—(1) Local monies awarded to the institution under local government student aid programs. (2) A sum of money or property bestowed on a postsecondary institution by a local government. These amounts can be treated as an allowance, an agency transaction, or as a student aid expense in the institution's

General Purpose Financial Statements and are reported differently depending on their treatment.

11. *Institutional grants from restricted sources*—Institutional grants to students funded from restricted-expendable resources for student aid, such as scholarships and fellowships.
12. *Institutional grants from unrestricted sources*—Institutional grants to students that are funded from resources that are not restricted to any particular purpose.
13. *Fall enrollment* – full- and part-time students are counted for Fall 2011
14. *Graduation Rate – degree/certificate within 200% of normal time*—A percentage of students who enter the institution as full-time, first-time, degree/certificate-seeking undergraduate students, and then graduate within (1) 4 years (8 semesters or trimesters, or 12 quarters, excluding summer terms) if earning an associate's degree, OR (2) 2 years (4 semesters, or 6 quarters, excluding summer terms) if earning a certificate.

Other Terms defined (Glossary)

1. *FASB*—Financial Accounting Standards Board (FASB) is recognized by the American Institute of Certified Public Accountants as the body authorized to establish accounting standards. In practice it defers to the Governmental Accounting Standards Board (GASB) for the setting of accounting standards for local and state government entities.
2. *GASB*—Governmental Accounting Standards Board (GASB) establishes accounting standards for local and state entities including governmental colleges and universities. GASB Statements 34 and 35 require all governmental colleges and universities to

issue financial statements using the reporting model and standards of those statements. The required implementation date is based on annual revenues, with implementation dates from years beginning after June 15, 2001, to June 15, 2003.

Keeping with the purpose of calculating return on investment, we must determine independent variables in terms of input variables and output variables. Twelve input variables include any metric that describes any kind of revenue an institution receives and is reported to IPEDS. Three output variables include any metrics that measure student completion.

Investment: Input Variables (13), aggregated from institutions by state

1. *Tuition and fees after deducting discounts and allowances*
2. *State operating grants and contracts*
3. *State appropriations*
4. *State nonoperating grants*
5. *Local nonoperating grants*
6. *Local appropriations, education district taxes & similar support*
7. *Capital grants and gifts*
8. *Capital appropriations*
9. *Grants by state government*
10. *Local grants (revenues)*
11. *Institutional grants from restricted sources*
12. *Institutional grants from unrestricted sources*
13. *Fall enrollment*

Graduation Rates: Output Variable, aggregated from institutions by state

1. *Graduation Rate – degree/certificate within 200% of normal time*

Data aggregation

Once all data points are collected, data aggregation begins. First, values of each investment variable are summed by state jurisdiction. Next, all investment variables are summed for each state (see Table 1). Then, an investment-per-student ratio is calculated by dividing the aggregate investments value of each state by that state's total—part-time and full-time—fall 2011 enrollment. Third, each output variable is averaged among all institutions in each state. After values are appropriately summed, investment-per-student ratios are ranked by state. Each state's investment-per-student ratio by dividing the state, local and individual investments by the number of full-time and part-time students enrolled.

Table 1. U.S. Community College Summary Data, by state, 2011-2012 (*n*=50)

State	All State, Local and Tuition Investments	State Investment Proportion to All	Total enrollment _Fall 2011	Investment-per-student Ratio	Graduation rate - degree/certificate within 200% of normal time
AK	$27,638,809	0.123	1,581	$17,482	49
AL	$514,181,624	0.013	93,670	$5,489	29
AR	$322,960,291	0.008	62,341	$5,181	30
AZ	$1,026,093,771	0.027	227,246	$4,515	26
CA	$7,444,838,336	0.195	1,523,214	$4,888	30
CO	$390,793,285	0.010	99,857	$3,914	32
CT	$384,321,342	0.010	57,674	$6,664	18
DE	$142,602,890	0.004	15,086	$9,453	16
FL	$250,054,457	0.007	56,997	$4,387	40
GA	$674,708,447	0.018	148,768	$4,535	39
HI	$202,550,728	0.005	29,573	$6,849	22
IA	$526,810,959	0.014	105,902	$4,975	38
ID	$132,224,379	0.003	24,743	$5,344	40
IL	$2,323,641,851	0.061	373,373	$6,223	28
IN	$464,667,613	0.012	21,046	$22,079	24
KS	$513,947,333	0.013	85,582	$6,005	41
KY	$472,090,249	0.012	107,890	$4,376	32
LA	$279,186,838	0.007	80,594	$3,464	31
MA	$606,456,256	0.016	105,118	$5,769	22
MD	$1,128,433,120	0.030	148,600	$7,594	20
ME	$95,739,066	0.003	18,161	$5,272	34
MI	$1,235,505,824	0.032	245,984	$5,023	22
MN	$721,859,127	0.019	135,361	$5,333	31
MO	$376,575,307	0.010	98,498	$3,823	29
MS	$524,279,207	0.014	81,916	$6,400	31
MT	$63,967,823	0.002	9,569	$6,685	33
NC	$1,635,077,453	0.043	250,684	$6,522	29
ND	$60,704,740	0.002	7,207	$8,423	42
NE	$314,557,269	0.008	48,038	$6,548	37
NH	$102,157,689	0.003	14,335	$7,126	31
NJ	$949,827,075	0.025	176,752	$5,374	25
NM	$425,946,414	0.011	83,190	$5,120	19
NV	$47,601,000	0.001	11,131	$4,276	20
NY	$2,558,920,904	0.067	335,154	$7,635	27
OH	$993,585,878	0.026	202,872	$4,898	22
OK	$320,815,594	0.008	70,905	$4,525	24

Table 1 (cont'd). U.S. Community College Summary Data, by state, 2011-2012 (*n*=50)

State	All State, Local and Tuition Investments	State Investment Proportion to All	Total enrollment _Fall 2011	Investment-per-student Ratio	Graduation rate - degree/certificate within 200% of normal time
OR	$831,183,883	0.022	112,813	$7,368	21
PA	$871,818,097	0.023	146,630	$5,946	25
RI	$84,340,691	0.002	17,893	$4,714	15
SC	$588,802,644	0.015	102,727	$5,732	18
SD	$54,818,306	0.001	6,342	$8,644	46
TN	$511,931,151	0.013	96,152	$5,324	18
TX	$3,467,736,982	0.091	728,533	$4,760	20
UT	$137,823,237	0.004	33,420	$4,124	29
VA	$856,414,365	0.022	198,855	$4,307	28
VT	$24,217,106	0.001	6,578	$3,682	17
WA	$1,025,050,700	0.027	138,450	$7,404	34
WI	$1,035,191,960	0.027	114,155	$9,068	39
WV	$134,258,729	0.004	22,669	$5,923	25
WY	$224,760,343	0.006	23,443	$9,588	37

Table 2. U.S. Community College Statistical Data, 2011-2012

Aggregate Variable	Total	Median	Mean	Standard Deviation
Investment-per-Student, by States	-	$5,431.54	$6,374.98	3,184.46
Graduation Rates, by States	-	29	28	8.312
State, Local and Individual Financial Investments	$38,103,671,142	$468,378,931 (by state)	$762,073,423 (by state)	$1,176,583,456
Part-time and Full-time Enrollment – Fall 2011, by States	5,641,169	89,626	138,145	234,621

Return on investment equation

Values are then ready for the state community college return on investment model. For each state, its average graduation rate is divided by its investment-per-student ratio. The result is a financial return on investment, which the algebraic equation supports. It is important to note that the equation represents the community college return on investment for a given U.S. state, not in general.

$$Return\ on\ Investment\ Ratio = \frac{GraduationRate}{InvestmentPerStudent}$$

Comparative score equation: Ranking investment-per-student ratios and graduation rates

A comparison of investment and student success by state begins to take shape. First, the calculated investment-per-student ratios are ranked from lowest ratio to highest ratio. A percentile rank is assigned to every state in accordance to its ratio compared to other states i.e. the lowest ratio receives a "1," second lowest receives a "2," and so on. Graduation rates for each state are then ranked and similarly scored. While it may be contrary to equate a rank of "1" to lowest performance, rank is treated on a percentile scale. Much like the previous return on investment equation, the graduation rate percentile rank is divided by the same state's investment ratio percentile rank to result in a comparative score. What this answer means in this study is explained in the Results chapter. These relatable equations are made to describe both return on investment per state and how states compare on return on investment.

$$Comparative\ Score = \frac{PercentileRank\_GraduationRate}{PercentileRank\_InvestmentPerStudent}$$

Qualitative data and context

Expert interviews provide applicable knowledge of state community college system return on investment. Three perspectives were requested: (1) a state community college system

policy expert, (2) a national education policy researcher, and (3) a data analyst for a state community college system, and (4) a national community college expert. The Iowa State University Institutional Review Board approved the following study questions under exempt study.

Interviewees and Interview Questions

1. State community college system policy expert
    a. How does Iowa gauge return on investment for community college student success?
    b. To what extent are community college institutions/districts responsible for high community college completion?
    c. To what extent are students responsible for high community college completion?
    d. How do state community college system leaders across state lines communicate to ensure their state systems invest well in student community college completion?
    e. What is (are) the specific value(s) of demonstrating high community college completion in Iowa?
    f. How does Iowa's community college return on investment compare between 10 years ago and now? How do the impacts of each time compare?
    g. What resources does the state of Iowa provide that award high student completion?
2. Data analyst for state community college system
    a. Describe your management information systems role within a public community college state system.
    b. How do you determine what is needed data for Iowa's community colleges?

c. How does will the national Voluntary Framework of Accountability impact what is studied, and subsequently reported, in the Annual Condition of Iowa's Community Colleges?

d. How do you match the investment that goes into Iowa's community colleges with performance data?

3. National education policy expert

a. Describe what state community college return on investment means to you. What components comprise state community college return on investment?

b. How would a state-by-state community college return on investment comparison influence a state's community college policies?

c. How would better return on investment contribute to the College Completion Agenda?

d. What concerns arise from having a state-by-state return on investment comparison?

e. Describe the benefits and constraints that performance-based funding has on state community college return on investment.

CHAPTER 4

RESULTS

Overview

Determining community college return on investment begins with policy expert discussion. I frame the subsequent quantitative analysis with how community college systems determine return on investment models, suggestions on how to include quantitative and qualitative factors on appropriately determining community college return on investment, and how an emerging national database shows promise in data-driven community college return on investment.

My interpretation of a quantitative return on investment model harnesses the macro (state government and local government) and micro (tuition paid; which responds to the macro perspective as state governments set tuition rates) side of community college investment. As stated in the Methodology chapter, the performance of independent variables—both from financial investment and enrollment—combine to form an investment-per-student ratio per U.S. state. Next, I suggest a state-to-state comparison by ranking the states' investment-per-student ratios and their graduation rates. While these represent state community college investment and performance in only one given year, the snapshot provides important indicators for key actors'—state policymakers, institutional leaders, students, and local policymakers—annual consideration of community college investment.

Qualitative Results

Three policy experts were interviewed: state system community college analyst, state manager of community college information systems, and national higher education policy researcher. Each expert brings in a valuable perspective on public accountability of community

college systems. We discuss several qualitative trends in their responses (see Appendix for full interview transcripts): lack of consistent state-level determination of community college return on investment, the 2008-2009 Great Recession's impacts on community colleges, and some emerging state- and national-level initiatives in increasing community college student success. Responses can be categorized by (1) the national conversations in state-based community college return on investment and (2) the examination of Iowa's community college return on investment as a brief case study.

According to the national education policy expert, a multiplier effect first came to mind when discussing state community college return on investment. In this regard, the quantifiable return of what a community college budget allocates—classroom supplies, equipment, teacher salaries and more—is compared to the salaries of community college graduates. The national education policy expert said this is difficult to measure because money flow comparisons become too complex to match dollar for dollar; money is part of the answer, not the answer.

The national education policy expert recommended that qualitative approach to considering return on investment is much broader than simply determining a ratio of graduation rates and how much the state puts into the community college system. The qualitative perspective translates to how a community benefits from having an educated populous. Social benefits of having an educated population include improved community relations, improved voting, lower incarceration rates, lower dependence on welfare, the national policy expert said. Community college completion provides an appreciation for contributive citizens.

When asked about a return-on-investment model contributes to the College Completion Agenda, the national education policy expert stated that most states talk in terms of performance-based funding—not return on investment. The idea behind performance-based funding is that a

state rewards an institution for graduating students; however, some students go to upgrade their skills without the intent to get a degree, the national education policy expert said. Trying to match that intent without outcomes is a fundamental question in the College Completion Agenda. Also, performance-based funding is cyclical phenomenon that has more political intent in a given state's budget than actually matching community college success, the national education policy expert said.

The policy expert discussed some examples of states' best practices in tracking community college success. Washington state's Student Achievement Initiative did a very thorough analysis, the policy expert said, when students when students came into the system, whether it was for a short-term technical training program, for language training for refugees, or for a degree program. They did a baseline study of every single college in the state—30 some colleges—and they took a couple of years to help every college understand what their system looked like and then they assigned points based on how well those colleges did in moving students along a continuum past those 10 momentum points they identified. The nice thing was that they weren't comparing colleges to other colleges—they were comparing colleges against their own baseline. Then they attached new budget dollars to that progress or lack of progress.

At the time of the interview, the national education policy expert was a consultant on a study in Arkansas. A few years ago, Arkansas decided to reallocate welfare funding, known as Temporary Assistance for Needy Families (TANF), to incentivize welfare recipients to attend a state community college. Preliminary results indicate that former welfare recipients get decent wages upon completion of a community college education, which then improves their quality of life and the quality of life of loved ones. The policy expert also anticipates a study that looks how well the dependents of former Arkansas welfare recipients, who succeeded with the

community college incentive, followed in their caregiver's footsteps in getting educated, and so forth. The policy expert said the state is making back their $13 million reallocation in a very short turnaround, just in terms of pure tax receipts as a result of improved income outcomes for those students.

In discussing with the state-level community college system expert and the data analyst for the same system, we learned how the state of Iowa defines and tracks and community college return on investment. Their feedback echoed the quantitative study in determining a student-based return on investment on the system. Iowa looks at graduation rates, student award rates, and program outcomes—tracking a program's success over time based on its own metrics and type of program. In tracking program outcomes, Iowa's chief community college data analyst had been tracking a first-of-its-kind study on graduate employment and salaries based on the type of program he or she completed.

The Voluntary Framework of Accountability (VFA) also was an interesting discussion topic. The community college system expert and data analyst said they will apply VFA metrics—particularly graduation, student progress, and adult education programs—to rethink how effective a community college credential can be. In particular, they look forward to the legitimacy VFA will provide in determining student success at all levels, which benefits students individually. Both system experts say that VFA proves to be the instrument of choice for state-level community college administrators and policymakers.

The 2008-2009 Great Recession prompted Iowa to innovate its community college offerings, particular to meet the needs of second-career, non-traditional student populations that lost jobs. Iowa was one state that developed economic measures that indirectly impacted community college return on investment. These measures include the Iowa Skilled Workforce

and Job Creation Fund, which accounts for the GAP Tuition Assistance Program, Workforce Training & Economic Development Fund, and Work-Based Learning Intermediary Network grants. The GAP Tuition Assistance Program is meant for non-credit continuing education programs that train workers—who may be between jobs—for in-demand occupations, according to the state system expert. The Workforce Training & Economic Development Fund is tailored to institutions that offer new program innovation that promises to train workers for local and regional-based employers. Work-Based Learning Intermediary Network Grants connects employers with community colleges by offering job training courses. These programs demonstrate active partnerships with schools and businesses, which alleviates students' need to pay tuition or the institutions' need to rely on fiscal resources. And so, the return on investment is based on a qualitative notion that a state's workforce is better educated and better prepared for gainful employment. Through gainful employment, more individuals increase quality of life and can contribute to the state's economy, according to the state-system expert. All this and more is tracked on annual basis through The Annual Condition of Iowa's Community Colleges report.

Quantitative results

The data set's first numerical calculations are the investment-per student ratios (see Figure 1). Within the normal data set, the state with the lowest 2011-2012 investment-per-student ratio was Louisiana with $3,464 of state investment, local investment, and tuition paid per student. The state with the highest 2011-2012 investment-per-student ratio was Wyoming with $9,583 of state investment, local investment, and tuition paid per student. A scatterplot shows the distribution of these investment-per-student ratios in all 50 states (see Figure 1). When removing outliers, the average 2011-2012 investment per student is $5,816, with a $5,359 median investment per student. This demonstrates a slight positive skew, but not significant

enough to pull investment-per-student rates one way or the other from normal distribution. The standard deviation is $1,527, which also suggests small-to-moderate variability in investment per student across all states. Given that states vary substantially in terms of total enrollment and total state/local/tuition investment, it is significant to note relatively normal investment per student across states. This phenomenon can be explained by institutional theory. Central to institutional theory is its emphasis on the manner in which organizations adopt structures, procedures, or ideas based, not on "efficiency," but rather on external definitions of legitimacy (Meyer & Rowan, 1977). While the theory may be old, legitimacy describes the relative consistency of per-student community college investment across states despite different investment approaches that exist across states.

Two states were obvious outliers: Alaska ($17,824 per student) and Indiana ($22,079 per student). These states are excluded from further comparative because the community college governance of each state is run by a state university system that makes it difficult for community college funding to be exclusively tracked, according IPEDS-reported data. In Alaska, Prince William Sound Community College is one of four institutions in the University of Alaska System; the three others are University of Alaska Anchorage, the University of Alaska Fairbanks, and the University of Alaska Southeast (Tollefson, Garrett, Ingram & Associates, 1999, p. 41). All four are open-admission institutions that fulfill a community college mission, but all three universities also offer upper-division baccalaureate and graduate programs (Tollefson, Garrett, Ingram & Associates, 1999, p. 41). Public two-year institutions in Indiana include a 13-campus system of vocational and technical institutions, known as Ivy Tech and Vincennes University (Tollefson, Garrett, Ingram & Associates, 1999, p. 41). Vincennes University offers 200 majors that include baccalaureate degrees (Vincennes University, 2015).

Although it may help students to study in a system that combines community college and 4-year institution investment, it is difficult to compare Alaska and Indiana with other states given the 2-year institution parameters in this study.

Graduation rates of certificates and associate's degrees within 200% of normal time were given for every state (see Figure 2). Rhode Island expressed the lowest 2011-2012 graduation rate at 15%. South Dakota expressed the highest 2011-2012 graduation rate at 46%. The average graduation rate was 28%, with a median graduation rate of 29%. The standard deviation of graduation rates was 8 percentage points demonstrate moderate variability within the nearly normal distribution. A scatterplot was also constructed for graduation rates (see Figure 2) to show distribution of graduation rates.

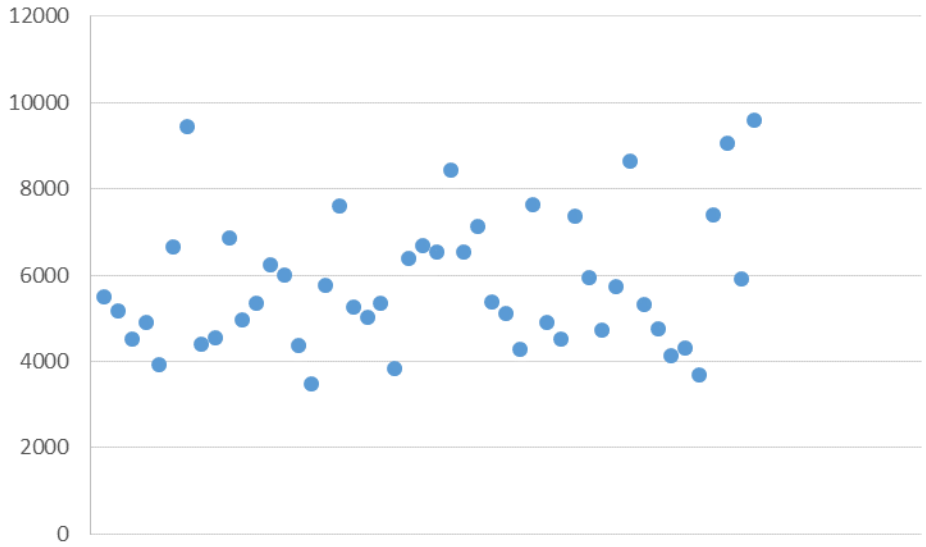

Figure 1. U.S. Community College Investment-per-Student Ratios, by state, 2011-2012, (*n*=48*)

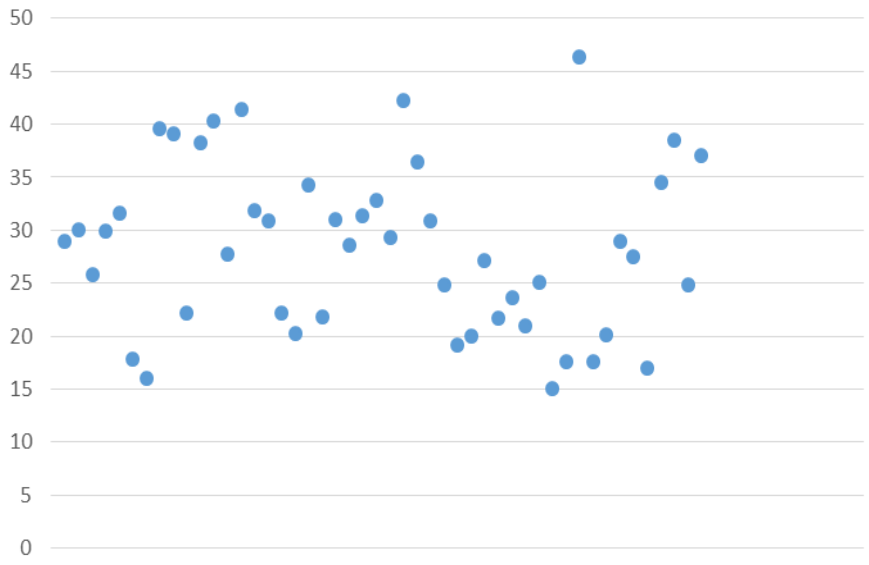

Figure 2. U.S. Community College Graduation Rates within 200% of normal time, by state, 2011-2012 (*n*=48*)
*Alaska and Indiana are excluded from both data sets for being investment-per-student outliers.

Graduation rates and investment-per-student ratios are used in the return-on-investment equation. In the return on investment equation, investment-per-student ratios are expressed in thousands of dollars (i.e. $5,489 per student is expressed as 5.49 in Alabama's return on investment equation) to be compatible with graduation rate percentages. Delaware demonstrates the lowest immediate return on investment: for every $1,000 invested per student, 1.69 of 16 graduation rate percentage points was achieved. Florida demonstrates the highest immediate return on investment: for every $1,000 invested per student, 9.02 of 40 graduation rate percentage points was achieved. The average immediate return on investment is expressed as 5.00 of 28 graduation rate percentage points achieved for every $1,000 invested per student. Return on investment across states shows a normal distribution with a standard deviation of 2.00 graduation rate percentage points.

A parallel equation, expressed as comparative score per state, assigns percentile rank values pertaining to both investment-per-student ratios per state and both graduation rates per state. The comparative score is the graduation rate percentile rank divided by the investment-per-student ratio percentile rank; so by design, the comparative score is dependent upon on a state's graduation rate compared to other states. An answer closer to 1.00 demonstrates a relative balance of investment and graduation rates, or an even return on investment, regardless of the level of either the investment or the graduation rate. One state—Mississippi—achieved a 1.00 comparative score with 66th percentile in both investment-per-student ratio and graduation rate. Delaware expressed a comparative score of 0.04, which means that Delaware demonstrates significant investment-per-student (94th percentile) but a low graduation rate (2nd percentile). Florida posted a 9.02 comparative score, which means that Florida demonstrates low student investment (9th percentile) with a moderate graduation rate (44th percentile). The average comparative score was 1.58, with a median score of 0.96. The mean-over-median difference demonstrates a moderate positive skew. Twenty-five states achieved a comparative score less than 1.00, meaning a negative return on investment. Twenty-one states achieved a comparative score greater than 1.00, meaning a positive return on investment. The standard deviation of the 47-state sample (excluding the three outlier states) is 1.85, which demonstrates that the twenty-one states that demonstrate positive return on investment carry more weight (positive skew) than the twenty-five states that demonstrate negative return on investment. Louisiana is the outlier in the comparative score data set (30.00), given the lowest investment-per-student ratio (2nd percentile) and a moderate graduation rate (60th percentile).

Table 3. U.S. Community College Investment Factors Resulting in Return on Investment, by state, 2011-2012 (*n*=49; Alaska (AK) is an outlier

State	$ per Student	$ per Student (in $1000's)	Graduation Rate	ROI
FL	4387.15	4.39	40	9.02
LA	3464.11	3.46	31	8.91
GA	4535.31	4.54	39	8.62
CO	3913.53	3.91	32	8.07
IA	4974.51	4.97	38	7.71
ID	5343.91	5.34	40	7.55
MO	3823.18	3.82	29	7.48
KY	4375.66	4.38	32	7.26
UT	4123.97	4.12	29	7.04
KS	6005.32	6.00	41	6.89
ME	5271.68	5.27	34	6.51
VA	4306.73	4.31	28	6.38
CA	4887.59	4.89	30	6.11
MN	5332.84	5.33	31	5.83
AR	5180.54	5.18	30	5.81
AZ	4515.34	4.52	26	5.71
NE	6548.09	6.55	37	5.57
SD	8643.69	8.64	46	5.37
AL	5489.29	5.49	29	5.28
OK	4524.58	4.52	24	5.24
ND	8423.02	8.42	42	5.01
MT	6684.90	6.68	33	4.91
MS	6400.21	6.40	31	4.91

State	$ per Student	$ per student (in $1000's)	Graduation Rate	ROI
NV	4276.44	4.28	20	4.67
WA	7403.76	7.40	34	4.66
VT	3681.53	3.68	17	4.62
NJ	5373.78	5.37	25	4.62
NC	6522.46	6.52	29	4.51
IL	6223.38	6.22	28	4.45
OH	4897.60	4.90	22	4.43
MI	5022.71	5.02	22	4.34
NH	7126.45	7.13	31	4.33
WI	9068.30	9.07	39	4.25
TX	4759.89	4.76	20	4.23
PA	5945.70	5.95	25	4.22
WV	5922.57	5.92	25	4.19
WY	9587.52	9.59	37	3.86
MA	5769.29	5.77	22	3.85
NM	5120.16	5.12	19	3.73
NY	7635.06	7.64	27	3.56
TN	5324.19	5.32	18	3.31
HI	6849.18	6.85	22	3.24
RI	4713.61	4.71	15	3.18
SC	5731.72	5.7	18	3.07
OR	7367.80	7.37	21	2.84

Table 4. U.S. Community College Investment-per-Student Ratios and Graduation Rates: Comparative Scores, by state, 2011-2012 (*n*=47; Alaska (AK), Indiana (IN), and Louisiana (LA) are outliers)

State	Score_Investment-per-Student Ratio	Score_Graduation Rate	Comparative Score
CO	4	34	8.50
MO	3	24	8.00
UT	5	26	5.20
FL	9	44	4.89
KY	8	35	4.38
GA	12	43	3.58
VA	7	22	3.14
IA	17	41	2.41
AZ	10	20	2.00
ID	24	45	1.88
CA	15	28	1.87
ME	21	37	1.76
VT	2	3	1.50
KS	31	46	1.48
OK	11	16	1.45
AR	20	29	1.45
MN	23	32	1.39
NV	6	8	1.33
NE	35	39	1.11
ND	44	47	1.07
SD	45	48	1.07
MS	33	33	1.00
MT	37	36	0.97
AL	26	25	0.96
WA	41	38	0.93
WI	46	42	0.91
WY	48	40	0.83
NH	39	31	0.79
NC	34	27	0.79
OH	16	12	0.75
MI	18	13	0.72
IL	32	23	0.72
NJ	25	17	0.68
TX	14	9	0.64
PA	30	19	0.63
WV	29	18	0.62
MA	28	15	0.54
NY	43	21	0.49
HI	38	14	0.37
NM	19	7	0.37
OR	40	11	0.28
MD	42	10	0.24
TN	22	5	0.23
CT	36	6	0.17
SC	27	4	0.15
RI	13	1	0.08
DE	47	2	0.04

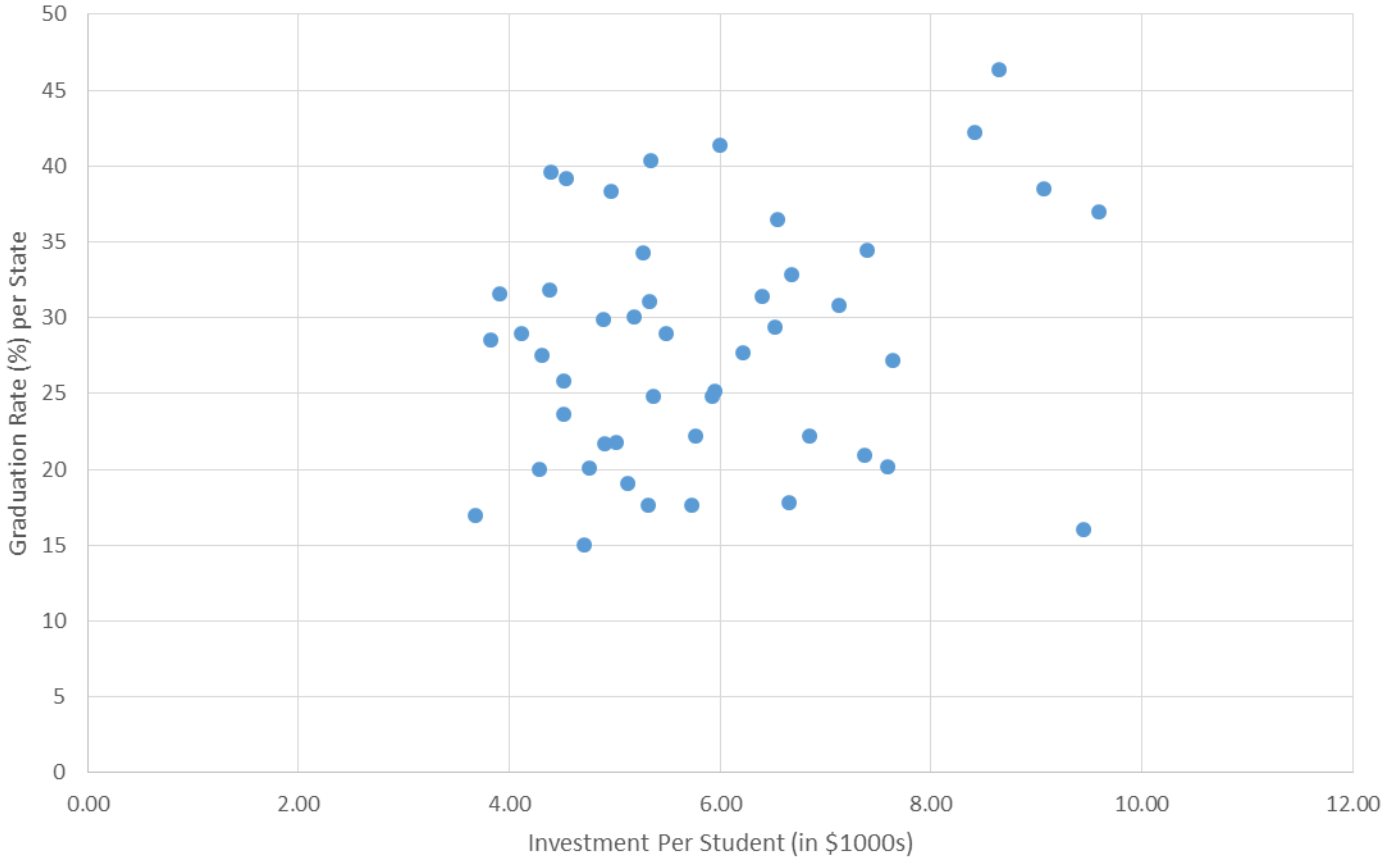

Figure 3. U.S. Community College Graduation Rates with Investment per Student, 2011-2012, by state (*n*=48*)
***Alaska and Indiana are outliers.**

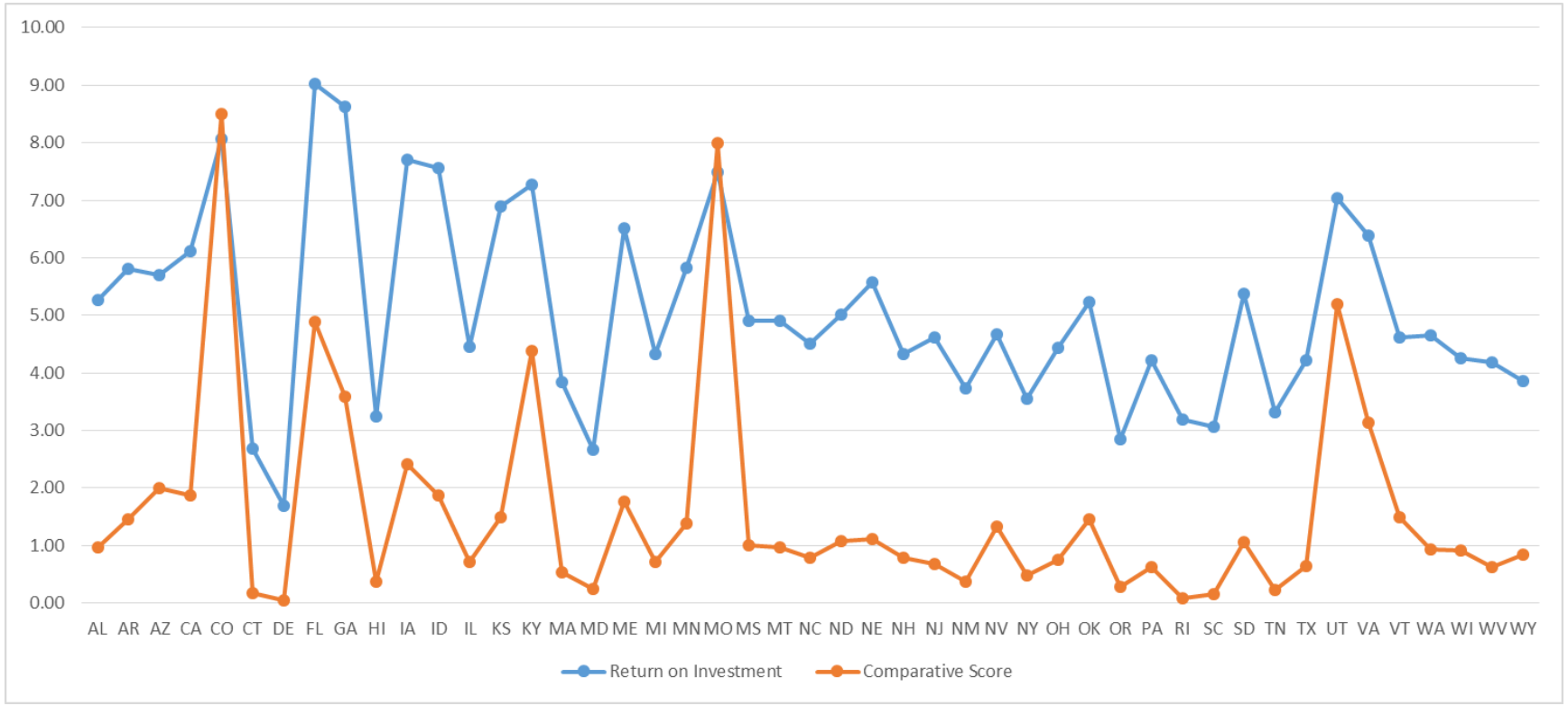

Figure 4. U.S. Community College Return-on-Investment Ratios and Comparative Scores, by states, 2011-2012 (*n*=47*)
***Alasks, Indiana, and Louisiana are outliers.**

Table 5. Regression Analysis: U.S. Community College State Investment-per-Student vs. Graduation Rates, 2011-2012

Regression Statistics	
Multiple R	0.222799245
R Square	0.049639504
Adjusted R Square	0.028520382
Standard Error	7.877931268
Observations	47

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	145.8733457	145.8733	2.350453	0.132247711
Residual	45	2792.781048	62.0618		
Total	46	2938.654394			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	21.41147176	4.627100236	4.627406	3.15E-05	12.09201349	30.73093
X Variable 1	1.171488947	0.764121485	1.533119	0.132248	-0.367530725	2.710509

Table 6. Regression Analysis: U.S. Community College State Return on Investment Ratios vs. State Comparative Scores, 2011-2012

Regression Statistics	
Multiple R	0.592088
R Square	0.350569
Adjusted R Square	0.33645
Standard Error	3.659886
Observations	48

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	332.6078	332.6078	24.83118	9.3034E-06
Residual	46	616.159	13.39476		
Total	47	948.7668			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-5.61541	1.650078	-3.40312	0.001389	-8.936841308	-2.29397
X Variable 1	1.517712	0.304572	4.98309	9.3E-06	0.904639129	2.130784

Although investment-per-student ratios are comparable across states, investment does not line up well with sporadic graduation rates. A weak value of R^2=.05 (see Table 4) and observable visual differences between scatterplots (Figure 1 and Figure 2) suggest this conclusion. If we consider a null hypothesis that U.S. states exhibit greater graduation rates with greater investment per student, a *p*-value of 0.00003 (≤0.05 at 95% confidence level) indicates strong evidence against the null hypothesis, and so we must reject this null hypothesis.

However, the purpose of this paper is compare student return on investment across states in a given academic year. In this regard, we conduct a regression analysis between return-on-investment ratios and comparative scores of states (see Table 5). Based on preliminary research, an appropriate null hypothesis is that interstate competition does not correlate to states' level of investment in their community college student success. A notable value of R^2=0.34 suggests a moderate tendency for interstate competition to follow the level of states' community college student return on investment. A *p*-value of 0.001 (≤0.05 at 95% confidence level) indicates strong evidence of this tendency; therefore, we reject the null hypothesis.

CHAPTER 5

CONCLUSION AND FUTURE RESEARCH

This comparative community college return-on-investment study gives important insights into annual, incremental investment decisions of state policymakers, local policymakers, and students. This study's results extend the four subtopics presented in the literature review: (1) Defining community college return on investment, (2) prioritizing budget with community college policy, (3) organizational best practices of states, and (4) the Voluntary Framework of Accountability as an emerging national database for community colleges.

This study concludes a state's community college return on investment can be closely tied to how its performance scores with other U.S. states. As policymakers and employers seeks results-driven community college funding, states and sub-jurisdictions must consider investment for part-time and fulltime community college students to fulfill their college education. Community colleges will rightfully argue that graduation is not a good measure of their success because the prime goal of credit-seeking students at the community college is often not a degree from that school (Romano, 2012, p. 173). Nevertheless, as long as it is supplemented with other measures, graduation is a reasonable goal for many students and should be included as a measure of student success (Romano, 2012, p. 173). Regionalized economic return on investment is something that community colleges and their states can strive to achieve.

As this thesis and study suggest, states must work within their budgetary environments to executive a federal call to increase the proportion of U.S. college education citizenry. U.S. state policymakers are pivotal decision-makers in balancing a federal call to

advance higher education competency and local constraints to accommodate macro-level demands. U.S. states can inform their community college policy decisions through this study and literature discussion. The goal is for a state to consider how it conducts community college accountability among its political peers—other states—and what it can do as it contemplates its next budget.

Several states have demonstrated innovative practices to advance community college student success. California, with its massive community college student enrollment and matching state investment, has the greatest potential to influence national consideration of community college investment. Arkansas shows promise in transforming a public dependency—welfare—to a public economic contribution—improved education. Although the Tennessee Promise is new, a few years of implementation will determine of Tennessee's two-year college tuition-free will be impactful to its state economy.

Despite a 50-year-plus history of the U.S. community college, the 2-year public institution has just begun to gain national importance as it becomes increasingly accountable for America's education future. The Voluntary Framework of Accountability will bring a deeper understanding of community college success. Capturing the progresses and achievements of community college students is an appropriate direction for financially backed accountability.

Suggested future research includes repeating the data process for the next several years to determine trends in community college-return on investment. One could compare state performances or compare the state's performance against itself, as one national policy researcher reports.

Another suggested study could be to de-aggregate data to the institutional level, and determine comparative return on investment among community colleges within one state over time.

REFERENCES

2014 Fact Sheet. (2014). American Association of Community Colleges. Accessed on January 13, 2015. http://www.aacc.nche.edu/AboutCC/Pages/fastfactsfactsheet.aspx

The 21st Century Commission on the Future of Community Colleges, American Association of Community Colleges. *Reclaiming the American Dream: Community Colleges and the Nation's Future*. 2012.

About the agenda. *The College Completion Agenda*. College Board Advocacy & Policy Center. Accessed on April 22, 2013. http://completionagenda.collegeboard.org/about agenda.

Achieving the Dream, Inc. (2014). *Continuous improvement for completion: Arkansas builds a system-level strategy for community college student success*. Arkansas Association of Two-Year Colleges, Achieving the Dream, Winthrop Rockefeller Foundation.

Bailey, T., Jenkins, D. & Leinbach, T. (2005). Graduation rates, student goals, and measuring community college effectiveness. *CCRC Brief*, No. 28, September 2005. Community College Research Center.

Bassis, V., Burroughs, M., Burrows, B., St. Clair, E., Farver, K., Harris, A., Nissen, P., & Jones, J. (2014). *The Annual Condition of Iowa's Community Colleges*. Division of Community Colleges, Iowa Department of Education. Published online on January 21, 2015.

Boggs, George R. (2011). Community colleges in the spotlight and under the microscope. *New Directions for Community Colleges*, No. 156, Winter 2011, pp. 3-22.

Boschken, H. L. (1982). Organization theory and federalism: Interorganizational networks and the political economy of The Federalist. *Organization Studies*, October 1982, pp. 355-373.

Boswell, K. (2000). *State Funding for Community Colleges: A 50-State Survey*. Denver, Colorado: Center for Community College Policy, Education Commission of the States.

Bottoms, G., & Young, M. (2008). *Lost in transition: Building a better path from school to college to careers*. Southern Regional Education Board.

Bound, J., Lovenheim, M., & Turner, S. E. (2009). *Why have college completion rates declined?* NBER (National Bureau of Economic Research) working paper 15566.

Breneman, D., & Nelson, S. C. (1981). *Financing community colleges: An economic perspective*, The Brookings Institution.

Busemeyer, M. R., & Trampusch, C. (2011). Comparative Political Science and the Study of Education. *British Journal of Political Science*, Vol. 41, Issue 2, April 2011, pp. 413-443.

California Education Code. Legislative Counsel, State of California. Accessed on April 14, 2014. http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=edc

College Board Advocacy & Policy Center, 2010. *The College Completion Agenda State Policy Guide*. National Conference of State Legislatures.

Community College Facts at a Glance. (2001). Office of Career, Technical, and Adult Education, U.S. Department of Education. Accessed on April 20, 2014. http://www2.ed.gov/about/offices/list/ovae/pi/cclo/ccfacts.html

Complete College America. *Time is the Enemy, Part 3: State Profiles*. (2011). National Governors Association.

Dougherty, K. J., Hare, R., & Natow, R. S. (2009). *Performance accountability systems for community colleges: Lessons for the Voluntary Framework of Accountability for community colleges*, Report to the College Board. Community College Research Center, Teachers College, Columbia University. November 2, 2009.

Dougherty, K., & Hong, E. (2005). *State systems of performance accountability for community colleges: Impacts and lessons for policymakers*. Policy brief: Achieving the Dream, Lumina Foundation for Education. Published July 2005, Community College Research Center, Teachers College, Columbia University.

Economic Modeling Specialists. (2014). *Where value meets values: The economic impact of community colleges: Analysis of the economic impact and return on investment of education*. International, February 2014.

Evelyn, J. (2001). Two-year colleges step up lobbying. *The Chronicle of Higher Education*, p. A23, August 3, 2001.

Taxpayer Perspective, 2011-2012. The Florida College System, Florida Department of Education. Accessed on April 10, 2014. http://www.fldoe.org/fcs/pdf/FactSheet_TaxpayerPerspective.pdf

Frederick, A. B., Schmidt, S. J., & Davis, L. S. (2012). Federal policies, state responses, and community college outcomes: Testing an Augmented Bennett hypothesis. *Economics of Education Review*, Vol. 31, pp. 908-917.

Friedel, J., Killacky, J., Katsinas, S, & Miller, E. (2014). *Fifty state systems of community colleges: Mission, governance, funding, and accountability*, 4th Edition. Overmountain Press, Johnson City, TN.

Glossary. Integrated Postsecondary Education Data System (IPEDS). National Center for Education Statistics. Institute of Education Sciences, U.S. Department of Education. Accessed on October 14, 2014. http://nces.ed.gov/ipeds/glossary

Goldrick-Rab, Sara. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, September 2010, Vol. 80, No. 3, pp. 437-469.

Harbour, C. P. (2003). An institutional accountability model for community colleges. *Community College Journal of Research and Practice*, Vol. 27, pp. 299-316.

Hendrick, R. Z., Hightower, W. H., & Gregory, D. E. (2006). State funding limitations and community college open door policy: Conflicting priorities? *Community College Journal of Research and Practice*, Vol. 30, Issue 8, pp. 627-640.

Hughes, K. (2013). *The College Completion Agenda: 2012 Progress Report*. College Readiness Initiatives, College Board Advocacy & Policy Center.

Jackson, J. M., & Williams, K. D. (1985). Social loafing in difficult tasks: Working collectively can improve performance. *Journal of Personality and Social Psychology*, Vol. 49, No. 4, pp. 937-942.

Jenkins, P. D. (2011). *Redesigning community colleges for completion: Lessons from research on high-performing organizations*. Community College Research Center, Teachers College, Columbia University. January 2011. http://academiccommons.columbia.edu/catalog/ac:146659

Katsinas, S. G., Tollefson, T. A., & Reamey, B. A. (2008). *Funding Issues in U.S. Community Colleges: Findings from a 2007 Survey of the National State Directors of Community Colleges.* [Report]. Washington, DC: American Association of Community Colleges. Available from the AACC website, which was accessed on October 10, 2014: http://www.aacc.nche.edu/fundingissues.

Klor de Alva, J., & Schneider, M. (2013). *What's the value of an associate's degree?: The return on investment for graduates and taxpayers*. American Institutes of Research, Nexus Research and Policy Center. October 2013.

Legislative Task Force. (2012). *Orange County's Community Colleges propel local economic growth, provide key benefits to taxpayers and are essential to student prosperity.* Orange County Community Colleges.

Marcus, J. (2011). Two years after Obama's college initiative, major obstacles remain. The Hechinger Report. Published on July 7, 2011. Accessed on May 14, 2015. http://www.mcclatchydc.com/2011/07/07/117198/two-years-after-obamas-college.html

Massey, W. F. (2004). Markets in higher education: Do they promote internal efficiency? In P. Teixeira, B. Jongbloed, D. Dill, and A. Amaral (Eds.), *Markets in higher education* (pp. 13–34). Amsterdam, The Netherlands: Kluwer Academic Publishers.

McPhail, C. J. (2010) *The Completion Agenda: A Call to Action.* American Association of Community Colleges. November 10-11, 2010. http://www.aacc.nche.edu/Publications/Reports/Documents/CompletionAgenda_report.pdf.

Mettler, S., & Sorelle, M.; Sabatier, P., & Weible, C. (eds.) (2014). Policy feedback theory. *Theories of the Policy Process: Third Edition*. Westview Press, pp. 151-181.

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, Vol. 83, pp. 340-363.

Moore, C., & Schulock, N. (2010). *Divided we fail: Improving completion and closing racial gaps in California Community Colleges*. Institute for Higher Education Leadership & Policy, California State University-Sacramento. October 2010.

Mullin, C. M. (2010a). *Doing more with less: The inequitable funding of community colleges* (Policy Brief 2010-03PBL). Washington, DC: American Association of Community Colleges.

Mullin, C. M. (2010b, June). *Rebalancing the mission: The community college completion challenge* (Policy Brief 2010-02PBL). Washington, DC: American Association of Community Colleges.

Mullin, C. M. (2011, March) *A sound investment: The community college dividend* (Policy Brief 2011-01PBL). Washington, DC: American Association of Community Colleges.

Obama, B. (2009). "Remarks by the President on the American Graduation Initiative." Office of the Press Secretary, The White House. July 14, 2009. Accessed on March 25, 2013. http://www.whitehouse.gov/the-press-office/remarks-president-american-graduation-initiative-warren-mi.

OECD. (2010). *Education at a glance 2010: OECD indicators*, OECD (The Organization for Economic Co-operation and Development) Publishing.

Pfeffer, J., & Salancik, G. R. (1978; 2003). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row (1978); Stanford, CA: Stanford University Press (2003).

Reed, M., & McClenney, K. (foreword) (2013). *Confessions of a community college administrator*. Jossey-Bass, A Wiley Imprint, 2013.

Report Number 725: *Steps forward in higher ed, success measures, game changers, and performance-based funding in Utah*. (2014) Utah Foundation. December 2014. Accessed on January 13, 2015. http://www.luminafoundation.org/files/resources/steps-forward.pdf.

Romano, R. M. (2012). Looking behind community college budgets for future policy considerations. *Community College Review*, April 2012, Vol. 40, No. 2, pp. 165-189.

Schein. E. H. (2004). Organizational Culture and Leadership, 3rd ed. (San Francisco: Jossey-Bass), pp. 3-23. Reprint – Edgar H. Schein. The concept of organizational culture: Why bother? *Classics of Organization Theory*, 7th ed. Jay Shafritz, J. Steven Ott and Yong Suk Jang. Copyright 2011 Wadsworth Publishing, Cengage Learning. (349-360).

Schneider, M., & Yin, L. (2011). *The hidden costs of community colleges*. Washington, DC: American Institutes for Research.

Scott, W. R., Davis, G. F. (2007). Organizations as natural systems. *Organizing Organizations: Rational, Natural, and Open System Perspectives*. Pearson Education, Inc., pp. 59-86.

Seeberger, C. (2014). New report cards grade states on investment in higher education. Young Invincibles. Published March 13, 2014. Accessed on March 9, 2015. http://younginvincibles.org/new-report-cards-grade-states-on-investment-in-higher-education.

Shulock, N., & Jenkins, D. (2011). *Performance incentives to improve community college completion: Learning from Washington state's Student Achievement Initiative: A state policy brief*. Institute for Higher Education Leadership and Policy.

South Carolina Spending Transparency. Annual Summary Spending (South Carolina State Board for Technical and Comprehensive Education). Office of the Comptroller General, State of South Carolina. http://ssl.sc.gov/SpendingTransparency/CategorySearchResult.aspx

Statutory Requirements for Reporting IPEDS Data. (2002). Integrated Postsecondary Education Data System (IPEDS). National Center for Education Statistics. Institute of Education Sciences, U.S. Department of Education. Accessed on October 14, 2014. http://nces.ed.gov/ipeds/submit_data/statutory_requirements.asp.

Students at Community Colleges. American Association of Community Colleges. Accessed on April 25, 2014. http://www.aacc.nche.edu/AboutCC/Trends/Pages/studentsatcommunitycolleges.aspx

Templin, Jr., R. G. (2011). *America's community colleges: The key to the college completion challenge?* Spring Supplement 2011. American Council on Education. Accessed on June 9, 2014. http://www.acenet.edu/the-presidency/columns-and-features/Pages/America%E2%80%99s-Community-Colleges-The-Key-to-the-College-Completion-Challenge.aspx

Tennessee Promise. Tennessee Student Assistance Corporation. Accessed on May 14, 2015. http://tennesseepromise.gov/about.shtml

Texas Higher Education Coordinating Board. (2010). *Accelerated plan for closing the gaps by 2015*. April 29, 2010.

Titus, M. A. (2006). No college student left behind: The influence of financial aspects of a state's higher education policy on college completion. *The Review of Higher Education*, Vol. 29, No. 3, Spring 2006, pp. 293-317.

Tollefson, T. A., Garrett, R. L., Ingram, W. G. and Associates. (1999). *Fifty state systems of community colleges: Mission, governance, funding and accountability*.

U.S. Department of Education, *College Completion Tool Kit*, Washington, D.C., 2011. http://www.whitehouse.gov/sites/default/files/college_completion_tool_kit.pdf.

Vincennes University. Majors & Academics. Accessed on June 5, 2015. http://www.vinu.edu/majors-academics

Voluntary Framework of Accountability: Community College Measures of Effectiveness. American Association of Community Colleges.

Voorhees, R. (2001). Financing community colleges for a new century. *The Finance of Higher Education: Theory, Research, Policy & Practice*. Agathon Press. pp. 480-500.

Young Invincibles. *Student impact project: A college affordability campaign.* http://www.luminafoundation.org/files/resources/student-impact-project-report-card-rankings-sheet1-sheet1.pdf.

Yasinsky, V. V. (2010). Investigation of self-organization processes in educational systems by synergetic modeling. *Cybernetics and Systems Analysis*, Vol. 46, No. 2, pp. 314-325.

APPENDIX A: RESEARCH PARTICIPANT AGREEMENT FORM

Research Participant Agreement Form
Iowa State University

Hello. My name is Chris Neary, a master's student in the political science graduate program at Iowa State University. As part of my thesis research, I request your participation in a study of a state community college return on investment model. The purpose of the study is to determine what quantitative factors and what qualitative factors determine a state-level community college return on investment model among U.S. states.

Your participation is considered a qualitative input, based on your involvement in community college policy. Upon agreement of your participation, your comments will be recorded solely for research purposes. The only personably identifiable information, as presented only to the Program of Study Committee, will be your first name, last name, occupation, and employer. No other personably identifiable information will be noted in a research publication.

Any part of your comments that you wish to not be considered for a research publication, please verbally say so during the interview. I, the researcher, will omit said comments from research consideration. You are welcome to end discussion at any time.

Please note that comments considered for research publication will be used with the utmost respect for you and your affiliation with the research topic.

Thank you.

_____ _____
Name of research participant (please sign) Date

_____ _____
Name of researcher (please sign) Date
Christopher Neary
Student, Master of Arts in Political Science
Iowa State University

APPENDIX B: POLICY EXPERT INTERVIEWS

State community college system expert

How does Iowa gauge return on investment for community college student success?

So, we don't calculate any type of return currently. There was information that a previous employee – I'm trying to think; we might have some documentation where we might have teamed up with Iowa Workforce Development to calculate on some wage information. We can follow up on that. Tom Shink was the name of the employee; he was an economist and worked here and conducted research. I believe there is a study that is done about every 10 years by the Iowa Association of Community College Trustees that looks on return on investment. If you follow up with me on some requests, we can see about tracking that information down. I don't know that I have those electronically, but I can find that. We don't calculate – we have specific metrics that we report. When you're talking about performance, we're calculating enrollment, we're calculating credit hours, we're calculating non-credit enrollment, contact hours. But as far as measuring something as good or bad, we leave that information up to the policymakers, the decision-makers from the Legislature. Our condition of community colleges report really breaks down in details from the colleges on a yearly basis. And, some of our specific programs might have measurements that are associated with them. When you take the adult literacy programs, the community colleges, there's federal metrics set each year, and then they're measured against that; the different ones, I want to say 11 or 12 on the adult literacy side. The Perkins, the career and technical education federal funding that comes in on K-12, postsecondary side; they will have specific measures that they're looking at. Community college as a whole, we provide pretty transparent information on their financial reporting, their enrollment data, program data, that kind of information; but there isn't any scorecard, so to speak that is put together on that. It's more of "here's the information, the policymakers can use that to determine how they feel." The current process going through Voluntary Framework for Accountability, VFA, for the community colleges, will provide more information and feedback to each of the individual community colleges about different measures and how they compare statewide to other community colleges nationwide. But that obviously hasn't really started yet. This summer will be the first time we have a significant number of the community colleges submit and get that information in the system. And we hope to have VFA staff to come out and provide some training to the colleges about how they can use the national website and how they can utilize that information for benchmarking, comparability, performance metrics internally, a lot of different things they can do. That is for the community colleges to utilize and really set their benchmarks. The state level and legislature don't have anything that is, per say, a performance. It's more of here's the information and statistics on who's using it and how it's being spent.

To what extent are community college institutions/districts responsible for high community college completion?

So, each of the community colleges has strategic plans. Generally they're three- to five-year plans. They set that up through their own stakeholders, their boards, their administration. A lot of times they're tying specific measurements into those strategic plans at the local level.

So they all have their own pieces that they're focusing on, as far as whether it's completion, retention, maybe it's enrollment, different types of things. So that is going to feed really their strategies and activities at the local level because they all have different needs. They all might be in different scenarios; different regions of the states are going to have different situations. In the rural areas, getting that enrollment, retaining that portion of the population going into a community college, how do they get them there, how do they keep them there. Urban areas may not have that problem, you know, they might be getting plenty of people in the door, it's that how do you keep them here, how do you get them all the way through. It's really driven by the local process, as far as the strategic plans, the boards, the administration, the interaction with the stakeholders and the business and industry in that area about what is needed.

How do state community college system leaders across state lines communicate to ensure their state systems invest well in student community college completion?

So, in my role I don't really have a national association. Our administrator Jeremy Varner, there is a national association of state administrators for community colleges. So he would have more of those discussions that take place, discussions about comparability, about maybe what the state initiatives are in regards to that. Obviously the thing that has been going on in states in the last three or four years is performance-based funding and how that performance is being measured, how it's being used to distribute or allocate the funding. There's a lot of discussions, I don't have pieces of that; Jeremy attends those meetings. You know I think it's all across the board. It's one of those things where he comes back from it, and there really isn't any consensus. There isn't one best way to do this. Everyone's trying to identify – is it being successful? I think the feedback I've received thus far from the specific looks at performance funding – it can really start to drive, that performance drives the behavior of the colleges and it may not be behavior you're trying to incentivize with the actual formula. A complete example here is the Regents funding here in the state, and how they went to performance-based funding. But the performance is driven by the number of in-state attendees, and so is that what we're trying to drive with our performance? How would you capture it? How would you accurately capture it? Community colleges have played a number of roles in a student's life. It may be to take a couple classes so they can transfer to another school, or maybe they're trying to capture some classes they didn't receive before, like in the summer or something like that. There are certain students not there to graduate, not there to complete any type of program. They're merely there to take a class, take two classes. I have specific example: when I completed my accounting degree at a private college here in Iowa, when to set for the CPA exam, and found out I was one accounting class short of the requirements for the CPA exam. And so I needed a class quick, needed to be in and out and get the information sent to the group that administers the CPA exam. So I went to a local community college, got into a class, took it that first semester, and was able to complete and set for the CPA exam. Everything was fine. So from a community college perspective, a lot of performance measurements would say I wasn't a completer. I went to one class and was seen from or heard from again at that community college. So does that mean it was successful outcome, for what I wanted? No, it met my needs. But a performance metric is going to come in and say "that's not good. He was only there once." Should the college be punished for that?

What is (are) the specific value(s) of demonstrating high community college completion in Iowa?

There's a lot of different pieces to that. One is maintaining the infrastructure that allows the college the capacity to bring in more students. Obviously the recession in 2008 and 2009 caused a massive influx of students. Now, because there's such a strong correlation to the economy and community college enrollment, you're seeing as the unemployment rate goes down, the numbers of community college enrollment go down as well. Not only is it total enrollment kind of going back down to the normal progression, normal trend line, it also changes the distribution of it. Whereas during the Recession you had a huge shift of people going fulltime because they weren't employed; maybe they lost their job and trying to do everything that they can to get that training so they can get back to work. Now you have people working, going to school part-time. And so you have a lot more part-time individuals than you have full-time. And so that back and forth causes variation at the community college as far as the funding for the colleges as a whole. So making sure you're maintaining some kind of a core services. Really that comes from the state funding. Tuition and fees is a variable; it's going to ebb and flow depending on how many students they have there. But the state funding is one stability piece the community colleges have. If they don't have that, then it's difficult to maintain that stability in staff, facilities, whatever it might be. The open access, as far as attracting the students, look at the Regents' funding mechanism, that in and of itself creates a feeding frenzy in the state because you have limited pool of eligible students, not counting the nontraditional going back to school. If you're just looking at the traditional age, high-school graduates coming into community colleges, now all of sudden that competition got a lot tougher. They're going to be targeted by the Regents' institutions – what impact is that going to have on the community colleges? I think it can be argued it's going to have an impact; we don't know. This will be the first year. If you look at enrollment, even in certain community college districts during the summer, certain Regents had special promotions going on with their tuition, so our community colleges had 10-15-20 percent reductions in summer enrollment just based on the promotions going on at the Regents' institutions for Iowa students. So now you start projecting across a full year as they ramp that up. So that takes away the base going to the community colleges. How do we account for that? There's a certain amount of investment that the state has to provide to the community colleges in order to ensure they have the facilities and instructors and everything to be able to bring in students, in order to be successful in completing, whether it's credit or noncredit. And the community college's role has always been to reach out to those who are underemployed, unemployed – the nontraditional students. Getting them in the door, getting them through the programs. I think the state has made a great investment through some of these skilled worker and job creation funds. I don't know if you've heard anything about the GAP tuition program, the PACE program, but they are specifically meant to serve individuals that are underemployed or unemployed, not the traditional age students but the students that come in – maybe they have a lot of barriers coming in to able to complete. Child care, transportation, and the PACE program offers navigators which are essential counselors that work with these individuals to help, to identify what resources are available

to help them with transportation, child care, you know whatever it might be that is causing them to have problems to complete. The GAP tuition, it's a very focused program on short-term noncredit programs that lead to employment – like welding, CNA, the noncredit side. So it's talking about turning these people that are unemployed or underemployed, providing them training, the "gap" is that programs traditionally weren't allowable for federal financial aid. And so the people didn't have resources to pay for it. So gap tuition opens that door. The other gap was traditionally there was a population that made too much money to be eligible under WIA, the Workforce Investment Act, for retraining. This cover those individuals so that it comes above and beyond what the WIA requirements are. So the state has made a pretty big investment in giving the community colleges programs and resources to address the nontraditional students – the unemployed and the underemployed. I think now the question – there's only a set amount of high school students coming up through the pipeline. And now you have a lot more intense competition. So how is that going to impact the community colleges. And if you're talking about numbers, when you're competing against University of Iowa or Iowa State, they have a lot more resources.

How does Iowa's community college return on investment compare between 10 years ago and now? How do the impacts of each time compare?

So are you talking about state funding? There was a natural progression – if you look in the Condition of Community Colleges report, there is a financial section. In it kind of details, there's a chart, and it might not be in the most recent one. But if you go back to the archive, like 2012, there's some charts in there about traditional funding for community colleges. And it gives you the history about how community colleges used to be funded to where they're at now. You see at about 2001 is when the tuition and fees and state general aid funding streams crossed paths, whereas state general aid used to be the primary revenue for the state community colleges. 2001 is when it flipped, and it's continued to get wider and wider from that point on. There was a kind of a traditional path, where the community colleges first established it was meant to be a three-pronged funding stream broken down relatively evenly between the state, local and tuition and fees. Obviously the caps on local property taxes haven't changed since the colleges were established, so the local revenue is about 5 to 6 percent. Tuition and fees has continued to go up. After the recession there was some fairly large budget cuts, which lowered the state general aid considerably. The legislature in the last three years has made considerable investments in the community colleges to try and bring back to the pre-Recession level. But in real dollar terms, you're just getting back to where they were at funding wise to 2007 and 2008. The path had already started. The sustainability of the state funding – 50 percent of the community colleges revenue as state general aid is probably not realistic. And the amount of money that would take. The problem is that gap kept widening. In the last couple of years you're finding that it's holding that gap fairly consistent. The history there is that's one of the issues is that there was a fundamental change that took place before the Recession – tuition is what really drives the community colleges as far as revenue. How do you work in the model? Obviously you're going to have variability. If your primary funding source is tuition, you're dependent on credit hours enrolled. If that's starts to fluctuate then you're going to fluctuations in your budget every year. And the importance and accuracy of what your projections are for your plans are going to determine

what actions you take. If you're under credit hours, then you're going to have to start scrambling to find out how you're going to reallocate your resources.

What resources does the state of Iowa provide that award high student completion?

The way that model is set up here in Iowa is that the community colleges are very conscious of the local business and industry needs. They need to be, and they have to continue to be. With all the different measures coming out, and that have been out, if you're pumping out completers or graduates of your programs, they need to have the ability to find a job, to complete. There are certain limiting factors that you're going to run into that a local person completes the program, if they're in Fort Dodge at Iowa Central they complete the dental hygienist program, the dental hygienist market is probably fairly saturated because of very specialized program pumping out a lot students. If you want to move to Des Moines, you can get job; but if the person chooses not to move, because they don't want to relocate, then it's pretty hard to force them to get a completer. It's because the program doesn't provide credentials that allow to you get a job if you want to. But you have to understand the job market and where the jobs are at. And there have to be employers who are willing to pay for those graduates. It takes a lot of communication. I think when colleges start programs or continue programs, it's continuing to examine what is the need out there and what kinds of outcomes are available for the students. It is a struggle. Wind energy was a huge thing when I started here about seven years ago. A couple of the community colleges in Iowa were national leaders about the training and programs that address that, maintenance workers and those types of things. It may or may not be slowing down in some aspects, but it's not something all 15 community colleges are going to do. There are needs in certain part of the state, where they set up these programs and they start them. It isn't necessary in all of them. You have to address what is our local need, what do the employers in this area want, and what programs will be good fits. But you also want to make sure there is longevity to it, that it's not just a flash in the pan. The Recession threw everything on its head there for a little a while. It's a tough thing.

Part of it is the education. We talked about the Iowa Skilled Worker and Job Creation Fund. Those specific program reports are on our website. There is a certain section there if you want to read about them. Part of this is the education. The Work-Based Intermediary Network grants that we administer and that have been set up in all the community college areas across the state. Really what that involves is working with the K-12's to get students into workplace, internships, job shadowing, because you hear about this middle skills jobs gap. It's a fact that not everyone needs a 4-year degree to get a very good job. And so the problem is educating – there's a component on educating instructors, the teachers at the K-12 level, counselors understanding what's available, and obviously the kids, getting them out there to see what's available. The fact that "I don't need a bachelor's degree to be able to get into this field." There are programs that will provide the training that will qualify you to be employed. And so part of that is the education component, and exposing people to the fact that there's a lot of things you can do with a two-year degree from a community college, especially when you're talking about career and technical education programs. They're very specific in certain skills. The common ones are in health care, CNAs, the nursing programs. But when you're talking about advanced manufacturing, you're getting into some kind of specific technological skills – those are things you can do a lot with a two-year degree. How

do you educate? As people become more aware of that, maybe the choice becomes: "I don't necessarily need to or go on to a four-year school, so what can I do, and that this is an option." It's a constant battle because you're coming from a paradigm that's "go to college, go to college, go to college." Everybody just thinks about that, whether it's the community college to four-year college route, whatever that might be, they're still thinking about that four-year degree.

Data analyst for state community college system

Describe your management information system role within a public community college state system.

We have somewhat of a unique system here in the state of Iowa. When based on earlier legislation, sometimes in 1998 approximately, the legislation was mandating colleges to send data to a centralized location under the auspices of the Iowa Department of Education, and not just aggregated data but student-level and course-level data for a variety of a reports and the main report we produce is the Condition of Iowa Community Colleges Report. So managing that data system to make sure that we receive needed data elements, that the data is clean and the quality of data is acceptable, and that we do run the reports expected by the general public, legislative bodies and committees, and for colleges themselves is basically my duty. Making sure we collect correct, clean, and appropriate data year to year from community colleges. That is a very short (description) of what I do here.

How do you determine what is needed data for Iowa's community colleges?

Good question. What is indeed needed, and why? The philosophy to begin with, and it permeates our MIS reporting manual in the report, is to not collect something that is not needed because, and thus, not to increase reporting burden on community colleges. Every year the state of Iowa, obviously that's how it's tied to finances, provides financial support of community colleges through state general aid, and other related bits and pieces, grants and so on and so forth. In order to finance appropriate areas, and expect certain results, the state needs a variety of data elements reported as predictors of successful utilization of such funds. At the very least the state needs to know the trends and fluctuations in community college enrollment, both in credit and non-credit enrollment, the content and quality of the faculty and other employees in community colleges, and at least some basic measurement of what we deem as student success, which is the most interesting part. The student is considered to be successful on many definition levels nationwide if the student completes what he or she came to the college for. And that again is a variety of definitions. The most popular one is that a student basically graduates with a certain award. But there's some other bits and pieces into it, including what degree can students be successful even without receiving award, and that would include successful transfer to another institution without an award or successful gainful employment with or without an award. All those are deemed successful fulfillment of the Iowa community college mission – to prepare students for the workforce or further education. Again, in the very short. And we do explore these three major areas: student graduation rates, student award rates, which is somewhat different, and lately, and very

actively, program outcomes – that is literally how this adept program of study completion contributed to student success in workforce and in general life.

How will the national Voluntary Framework of Accountability impact what is studied, and subsequently reported, in the Annual Condition of Iowa's Community Colleges?

Eventually when we're strong in reporting to VFA, and enough colleges nationwide partake in VFA, we will probably switch or change our approach to at least this section in the Condition – student success, because of you look at the metrics in the VFA, it does have a very detailed outcomes dedicated to awards, graduation rates. It measures community colleges based on only community college data, which is very different because of the length of time compared to bachelor's degrees at institutions and others. So, yes, if VFA proves to be the instrument of choice as prevalent in the nation, we will probably consider changing our approach to student success as well. Because ours is not perfect either. We measure only a portion of the population, as an example, for success rate or transfer rate – only those with two-year degrees. In the meantime we have an army of students who are quite successful without a two-year degree and with a smaller type of technical award. But simply because there is no one with a universal approach of how to measure success of such students, and just turn blind eye to a discrepancy on the number of credentials they receive compare to two-year degrees, is not a good approach either. VFA may resolve that, because they seem to be fair to different types of awards and many other conditions around students' enrollment and graduation.

Also, there's more and more attention toward less academics – vocational success of a student. And because we're still limited – and we're lucky compared to some other states – still limited into what we can measure in the student outcomes, at this point it's indeed does those receive awards in different awards got directly into employment. And the only measure is, again, what they basically earn from year to year. It's very limited but it's really better than nothing. And we now descend on the – for the first time in our measurements and among other states for the first time – we descend on the program level. So we try to pinpoint success, or the absence thereof, to indeed certain professional program qualities. And that we will develop more and more to the degree that we can. We had cohort upon cohort. Now this year is going to be measuring four years, and we think of probably stopping at five years because general opinion is at that point, results of community college education sort of wears out. And the wage is actually very experimental - if pulled beyond five years it shows plateauing and flat. We don't think that contributing success will happen – is there after five years, probably other factors other than community college polls. But we do that, and we'll continue doing that on a comprehensive basis. Again, you were asking about the impact on the Condition Report? This year, 2014, we introduced the program outcomes section for the first time as supplement. A supplement is usually something new and experimental. But we think of perhaps integrating that into a regular section in the Condition (Report) starting next year because this program is not going away. We will continue because it deserves a special section. And that's also part of student success, although it will probably be published separately from the traditional student success section.

Why do we think VFA is potentially a better system to measure? Because it looks also in terms of graduation, effective graduation and receiving awards, in a variety of situations. To be able to answer a question, do we really need a two-year degree in a program that would probably gain that same amount of wages if built as a diploma, with less number of general education courses? And it's a tough question because very often in technical specialties, the answer would be yes. You don't need a two-year degree to make as much as a person who took two core subjects in a particular specialty. But then the argument is, of course, all other benefits the society basically misses because this person is not classic, or well-rounded, citizen in society. Those are much harder to measure – not only financial, but there are many other aspects that are harder to measure. VFA looks at students who graduated, graduated with a two-year degree, graduated with a different type of award, or accumulated sufficient number of credit hours and have not graduated, and still track those students. Because it's still another important question to know to what degree the official graduation helps students actually achieve in society. We talk so much about the importance of completing the program, while VFA is going to measure also that is a legitimate process to student success.

How do you match the investment that goes into Iowa's community colleges with performance data?

Yes, success in career is measured directly in monetary gains basically to students with certain skills received in community college. When Kent mentioned your research goes beyond the state of Iowa, he is right about the difficulties you will face because you will either have a very generic description of such achievements statewide, if you're lucky, and not all states have that or you will have a slightly different measure you could still use but with a lot of caution. As an example, all of postsecondary institutions in the nation submit a number of awards to nationwide collection center, The National Center for Education Statistics, known as IPEDS data submission, which you can get for any given year the number and content, at least two-year degrees and certificates, of awards in all nationwide community colleges and can draw some state-to-state conclusions regarding those things. IPEDS also its own methodology to measure graduation rate, which is somewhat different from what we use. So direct comparison is not very good for the data you might receive from us. But direct comparison of colleges based only on that data, supplied by community colleges nationwide, is possible as well.

National education policy expert

Describe what state community college return on investment means to you. What components comprise state community college return on investment?

There are lots of ways to look at return on investment. There is the actual multiplier effect – I'm just giving you some round figures; say you have a college of $10 million budget. Those expenses that are actually spent – those $10 million – have an actual return on investment to the community in terms of salaries. Then there's a multiplier effect for all the supplies, you know, all of that is quantifiable in terms of actual return, not counting the much-harder-to-calculate return to the graduates. So, that's one approach to return on investment that states can look at. There's a group called EMSI – they have done very good work on measuring the return on investment of community colleges to different states; individual colleges as well as

state systems. They're based out of Idaho, and I would encourage you to look at some of their methodologies because they could really inform what you're doing. So there's that level of return on investment in terms of just pure multiplier effect of the budgets and how many jobs that supports and so forth.

But then there's the more intangible return on investment in terms of graduation; how many graduates do you get for this investment of money? What is harder to measure, but is equally valuable, is return on investment to the community for having an educated populous. We know all of the data shows that more education is an indicator of all kinds of social benefits in terms of improved voting, improved community relations, lower incarceration rates, much lower participation in welfare and so forth. So I think as you place within a context – I'm not quibbling what you're doing; I think that's one way to do it – but I think you should acknowledge that return on investment is much broader than simply determining ratio of a graduation rate and how much the state puts into it.

How would a state-by-state community college return on investment comparison influence a state's community college policies?

There is interesting work in this field going on. I'm working on a project in Arkansas right now. Arkansas took federal welfare dollars - $13 million a year of welfare dollars – and instead of giving welfare checks to people who qualified for TANF, which is Temporary Assistance for Needy Families, they actually put them into community colleges in the state of Arkansas and provided wrap-around support services to try to get them some kind of certificate or degree in a high-wage, high-demand field. They've been doing that since 2005. And they've put about 32-33,000 welfare recipients through the community colleges. Some just got a career-readiness certificate. Others have gone on to get bachelor's degrees. It's the full (spectrum). The amazing thing is how successful those students are. We're actually doing an ROI study there. We're looking at what was their income before they came into the program, and what it is now. We're tracking them through UI wage data. The state is making back their $13 million in a very short turnaround, just in terms of pure tax receipts as a result of improved income outcomes for those students. But we're finding multiplier effects. For instance, right now we're trying to delve into the data and look at – because they were all welfare recipients and got childcare assistance part of TANF program. We have Social Security numbers of all their children, and so we're digging into "what's education impact on the children, when Mom gets off of welfare and some kind of good job or an education herself." We don't have those results yet, but the interesting thing is that the graduation and completion rates for these students is higher – welfare recipients have more risk factors than just about anybody; they come in with all kinds of strikes against them – we're hypothesizing because of the case management supports they received in the Career Pathways Program, they have higher graduation rates than traditional community college students who don't have as many barriers as they do. There is some very concrete returns from value of education in terms of increased jobs, decreased incarceration, and, we think increased educational outcomes for their children. This kind of work is going on all across country to put what you're doing in some kind of context. So much of traditional welfare teaches people "work first." Rather than just provide welfare recipients a cash outlay, we're showing that the more education and training they get, with these wrap-around support services, the better

they come out with jobs in a true career pathway where they earn family, self-sustaining wages.

Virginia and the state of Washington are the ones that come to mind. They don't call it an ROI study. The state of Washington, for instance, came up with momentum points through the Student Achievement Initiative. They did a very thorough analysis when students came into the system, whether it was for a short-term technical training program, for language training for refugees, or for a degree program. They did a baseline study of every single college in the state – 30 some colleges – and they took a couple of years to help every college understand what their system looked like and then they assigned points based on how well those colleges did in moving students along a continuum past those 10 momentum points they identified. The nice thing was that they weren't comparing colleges to other colleges – they were comparing colleges against their own baseline. An urban college wasn't expected to compare to a suburban college, high-tech in the "Microsoft backyard;" it was expected to be compared to itself. Then they attached new budget dollars to that progress or lack of progress.

Virginia Community College System has been really looking at performance funding and career pathways monies in interesting ways. That would be another interesting state to look at. Those are ones that come to mind, but that doesn't mean those are the only ones.

Another example in New Mexico is one of those I really liked. The state of New Mexico – unfortunately they don't do it anymore – decided to track their students (they had abysmal graduation rates) into four cohorts based on their course-taking behavior. Students who took more than 9 hours of what is traditionally considered a transfer curriculum were put into the "transfer" cohort. Student who took 9 hours or less of general education, or liberal arts, were considered to be the "lifelong learners" cohort. Students who took more than 9 hours in a technical field were considered "career technical" cohort that were career technical students going toward a career certificate or some sort of certification. Student who took 9 hours or less of a technical program were considered the "skill-builders" cohort. So they were going to learn how to do "X," but they never really intended get a degree or certificate. By breaking up the students into those four cohorts and tracking them based on their course-taking behavior – all of sudden those who, by their behavior, wanted to transfer, their graduation rates and transfer rates were very high. Others were lifelong learners – they wanted to take a Spanish class – they had no intent of transferring. It was a way of actually getting at students' behavior, not just what they aspire to, which may or may not have been realistic. Unfortunately the association stopped doing that, it fell apart, the executive director left, so they don't do it any longer. But I always thought it was one of the most creative and effective ways of really measuring student intent, rather than just asking students to check off a box on a registration form.

How would better return on investment contribute to the College Completion Agenda?

Most people aren't talking about it in terms of ROI; they're talking about it in terms of performance funding. So if you take that broader notion, almost inevitably, college completion is one of those factors that's considered in any performance funding model. Nobody goes to college to drop out. There is a basic assumption that a student goes to an

institution to get something; so the question is, "did they get what they went for?" The trick is measuring that, and that's what (makes it difficult to answer). Because some students go to upgrade their skills, while other go with an intent to get a degree that they may or may not be successful in earning. So trying to match that intent with outcomes is one of those fundamental questions in the College Completion Agenda.

What concerns arise from having a state-by-state return on investment comparison?

Part of the challenge in what you're doing is that we know is money is part of the answer. If you look at per-pupil funding in K-12, Washington D.C. has one of the highest per-pupil funding in the country, yet some of the poorest educational outcomes. In Utah, the state has the second-to-lowest per-pupil funding in the country, but is among the top 8 or 9 in education outcomes. So you can't make a clear correlation between the amount spent and educational outcomes. There are so many complex factors that go into it.
Alaska does not have true community colleges. The community colleges there are branches of universities. I would be hesitant to use Alaska in comparison to other states because it is not apples to apples.

Describe the benefits and constraints that performance-based funding has on state community college return on investment.

To be honest, I think there's no relationship. Performance funding systems are typically put in place for increased accountability. Accountability is on a pendulum and it depends on how much money the state has; it's really tied to real outcomes. It's more of political intent, what happening in the state budget. There's a lot of rhetoric around it, but it's all cyclical. I've been doing this long enough, I've seen performance-based funding become a really big deal, then go away, and then come back, and then go away, and then come back again. I think it helps we're slowly getting better data systems where we can actually begin to base it on something more than just perception. We're not really there yet, and so I don't think you can make a clear correlation between performance-based funding and a state's community college return on investment. It's all part of policymakers showing taxpayers that they're holding folks accountable.